ORANGE COUNTY SANITATION DISTRICT

ORANGE COUNTY SANITATION DISTRICT
SPECIAL NOTICE REGARDING CORONAVIRUS (COVID-19) AND ATTENDANCE AT PUBLIC MEETINGS

On March 4, 2020, Governor Newsom proclaimed a State of Emergency in California as a result of the threat of COVID-19. On March 12, 2020 and March 18, 2020, Governor Newsom issued Executive Order N-25-20 and Executive Order N-29-20, which temporarily suspends portions of the Brown Act which addresses the conduct of public meetings. On June 11, 2021, Governor Newsom issued Executive Order N-08-21, which continues the suspension of portions of the Brown Act which addresses the conduct of public meetings through September 30, 2021.

The General Manager and the Chairman of the Board of Directors have determined that due to the size of the Orange County Sanitation District's Board of Directors (25), and the health and safety of the members, the Board of Directors will be participating in meetings of the Board telephonically and via Internet accessibility.

PUBLIC PARTICIPATION

Your participation is always welcome. The Board of Directors meeting will be available to the public online at:

https://ocsd.legistar.com/Calendar.aspx

You may submit your comments and questions in writing for the Board's consideration in advance of the meeting by using the eComment feature available via the webpage above or sending them to OCSanClerk@ocsan.gov with the subject line "PUBLIC COMMENT ITEM # (insert the item number relevant to your comment)" or "PUBLIC COMMENT NON-AGENDA ITEM". Submit your written comments *by 6:00 p.m. on Tuesday, August 24, 2021*.

You may also submit comments and questions for the Board's consideration during the meeting by using the eComment feature that will be available via the webpage above for the duration of the meeting.

All public comments will be provided to the Board and may be read into the record or compiled as part of the record.

Thank you.

ORANGE COUNTY SANITATION DISTRICT
10844 Ellis Avenue
Fountain Valley, CA 92708
714.962.2411
www.ocsan.gov

August 19, 2021

NOTICE OF REGULAR MEETING

BOARD OF DIRECTORS
ORANGE COUNTY SANITATION DISTRICT

Wednesday, August 25, 2021 – 6:00 P.M.

ACCESSIBILITY FOR THE GENERAL PUBLIC

Due to the spread of COVID-19, the Orange County Sanitation District will be holding all upcoming Board and Committee meetings by teleconferencing and Internet accessibility. This meeting will be available to the public online at:

https://ocsd.legistar.com/Calendar.aspx

The Regular Meeting of the Board of Directors of the Orange County Sanitation District will be held in the manner indicated above on Wednesday, August 25, 2021 at 6:00 p.m.

Clerk of the Board

Upcoming Meetings:

Steering Committee -	**Wednesday, September 22, 2021 at 5:00 p.m.**
Board Meeting -	**Wednesday, September 22, 2021 at 6:00 p.m.**

Serving:

Anaheim
Brea
Buena Park
Cypress
Fountain Valley
Fullerton
Garden Grove
Huntington Beach
Irvine
La Habra
La Palma
Los Alamitos
Newport Beach
Orange
Placentia
Santa Ana
Seal Beach
Stanton
Tustin
Villa Park
County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District
Yorba Linda Water District

BOARD MEETING DATES

August 25, 2021

September 22, 2021

October 27, 2021

November 17, 2021 *

December 15, 2021 *

January 26, 2022

February 23, 2022

March 23, 2022

April 27, 2022

May 25, 2022

June 22, 2022

July 27, 2022

**** Meeting will be held on the third Wednesday of the month***

ORANGE COUNTY SANITATION DISTRICT
BOARD OF DIRECTORS
Complete Roster

Effective 7/13/2021

AGENCY/CITIES	ACTIVE DIRECTOR	ALTERNATE DIRECTOR
Anaheim	Stephen Faessel	Jose Diaz
Brea	Glenn Parker	Steven Vargas
Buena Park	Art Brown	Connor Traut
Cypress	Paulo Morales	Anne Hertz
Fountain Valley	Patrick Harper	Glenn Grandis
Fullerton	Jesus J. Silva	Nick Dunlap
Garden Grove	Steve Jones	John O'Neill
Huntington Beach	Kim Carr	Dan Kalmick
Irvine	Anthony Kuo	Farrah N. Khan
La Habra	Rose Espinoza	Jose Medrano
La Palma	Marshall Goodman	Nitesh Patel
Los Alamitos	Mark A. Chirco	Ron Bates
Newport Beach	Brad Avery	Joy Brenner
Orange	Kim Nichols	Chip Monaco
Placentia	Chad Wanke	Ward Smith
Santa Ana	Johnathan Ryan Hernandez	Nelida Mendoza
Seal Beach	Sandra Massa-Lavitt	Schelly Sustarsic
Stanton	David Shawver	Carol Warren
Tustin	Ryan Gallagher	Austin Lumbard
Villa Park	Chad Zimmerman	Robert Collacott
Sanitary/Water Districts		
Costa Mesa Sanitary District	Bob Ooten	Art Perry
Midway City Sanitary District	Andrew Nguyen	Sergio Contreras
Irvine Ranch Water District	John Withers	Douglas Reinhart
Yorba Linda Water District	Brooke Jones	Phil Hawkins
County Areas		
Board of Supervisors	Doug Chaffee	Donald P. Wagner

ORANGE COUNTY SANITATION DISTRICT

BOARD OF DIRECTORS

Regular Meeting Agenda

Wednesday, August 25, 2021 - 6:00 PM

Board Room
Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

AGENDA POSTING: In accordance with the requirements of California Government Code Section 54954.2, this agenda has been posted outside the main gate of the Sanitation District's Administration Building located at 10844 Ellis Avenue, Fountain Valley, California, and on the Sanitation District's website at www.ocsd.com not less than 72 hours prior to the meeting date and time above. All public records relating to each agenda item, including any public records distributed less than 72 hours prior to the meeting to all, or a majority of the Board of Directors, are available for public inspection in the office of the Clerk of the Board.

AGENDA DESCRIPTION: The agenda provides a brief general description of each item of business to be considered or discussed. The recommended action does not indicate what action will be taken. The Board of Directors may take any action which is deemed appropriate.

MEETING AUDIO: An audio recording of this meeting is available within 24 hours after adjournment of the meeting. Please contact the Clerk of the Board's office at (714) 593-7433 to request the audio file.

NOTICE TO DIRECTORS: To place items on the agenda for a Committee or Board Meeting, the item must be submitted in writing to the Clerk of the Board: Kelly A. Lore, MMC, (714) 593-7433 / klore@ocsan.gov at least 14 days before the meeting.

FOR ANY QUESTIONS ON THE AGENDA, BOARD MEMBERS MAY CONTACT STAFF AT:

General Manager: Jim Herberg, jherberg@ocsan.gov / (714) 593-7300
Asst. General Manager: Lorenzo Tyner, ltyner@ocsan.gov / (714) 593-7550
Asst. General Manager: Rob Thompson, rthompson@ocsan.gov / (714) 593-7310
Director of Human Resources: Celia Chandler, cchandler@ocsan.gov / (714) 593-7202
Director of Engineering: Kathy Millea, kmillea@ocsan.gov / (714) 593-7365
Director of Environmental Services: Lan Wiborg, lwiborg@ocsan.gov / (714) 593-7450

CALL TO ORDER

Board Chairman John Withers

INVOCATION AND PLEDGE OF ALLEGIANCE

Jesus Silva (City of Fullerton)

ROLL CALL AND DECLARATION OF QUORUM

Clerk of the Board

PUBLIC COMMENTS:

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You may also submit comments and questions for the Board of Directors consideration during the meeting by using the eComment feature that will be available via the webpage above for the duration of the meeting. All public comments will be provided to the Board of Directors and may be read into the record or compiled as part of the record.

SPECIAL PRESENTATIONS:

1. EMPLOYEE SERVICE AWARDS 2021-1789

Recognize the following:

25-year Service Award
Brian Bingman - Engineering Supervisor, Division 770

Originator: Kelly Lore

REPORTS:

The Board Chairperson and the General Manager may present verbal reports on miscellaneous matters of general interest to the Directors. These reports are for information only and require no action by the Directors.

CONSENT CALENDAR:

Consent Calendar Items are considered to be routine and will be enacted, by the Board of Directors, after one motion, without discussion. Any items withdrawn from the Consent Calendar for separate discussion will be considered in the regular order of business.

2. APPROVAL OF MINUTES 2021-1788

RECOMMENDATION:

Approve Minutes of the Regular Meeting of the Board of Directors held July 28, 2021.

Originator: Kelly Lore

Attachments: Agenda Report
07-28-2021 Board Meeting Minutes

3. CORRECTIONS TO THE 2021-2022 BUDGET - ERRATA INFORMATION 2021-1811

RECOMMENDATION:

Approve the incorporation of adjustments and corrections into the 2021-22 Fiscal Year Budget.

Attachments: Agenda Report
Errata Sheet for FY 2021-22 Budget Update

RECEIVE AND FILE:

4. COMMITTEE MEETING MINUTES 2021-1547

RECOMMENDATION: Receive and file the following:

A. Minutes of the GWRS Steering Committee Meeting held April 12, 2021.
B. Minutes of the Steering Committee Meeting held June 23, 2021.

Originator: Kelly Lore

Attachments: Agenda Report
04-12-2021 GWRS Steering Committee Minutes
06-23-2021 Steering Committee Minutes

5. REPORT OF THE INVESTMENT TRANSACTIONS FOR THE MONTH OF JULY 2021 2021-1697

RECOMMENDATION: Receive and file the following:

Report of the Investment Transactions for the month of July 2021.

Originator: Lorenzo Tyner

Attachments: Agenda Report
Investment Transactions for the Month of July 2021

6. 2021 ORANGE COUNTY SANITATION DISTRICT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT (NPDES PERMIT NO. CA0110604, ORDER R8-2021-0010) **2021-1795**

RECOMMENDATION:

Receive and file the U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Permit No. CA0110604 and Santa Ana Regional Water Quality Control Board Waste Discharge Requirements Order No. R8-2021-0010.

Originator: Lan Wiborg

Attachments: Agenda Report
NPDES Permit No. CA0110604
Waste Discharge Requirements Order No. R8-2021-0010

PUBLIC HEARING

7. COLLECTION OF SEWER SERVICE CHARGES VIA THE TAX ROLL **2021-1708**

RECOMMENDATION:

A. Conduct a public hearing to receive input on a report filed with the Clerk of the Board entitled: "Sewer Service Charges for Collection on Tax Rolls for Fiscal Year 2021-22":

1. Open the Public Hearing
2. Receive staff report and recommendations
3. Report of written communications by Clerk of the Board
4. Public Comment
5. Close Public Hearing
6. Discussion by Board of Directors;

B. Unless there is a majority protest, adopt the report, which has the assessor's parcel numbers and amount of charges for collection on the tax rolls;

C. Adopt Resolution No. OC SAN 21-13 entitled "A Resolution of the Board of Directors of the Orange County Sanitation District adopting the Report proposing to collect Sewer Service Fees on the Tax Roll for Fiscal Year 2021/2022";

D. Authorize execution of the "Certification of Assessment";

E. Direct staff to file a certified copy of the adopted Resolution, Report, and the Certification of Assessment with the County Auditor-Controller; and

F. Direct staff to coordinate collection of sanitary sewer service charges on the general Orange County tax rolls with the County Auditor-Controller, Assessor, and Tax Collector.

Originator: Lorenzo Tyner

Attachments: Agenda Report
Resolution No. OC SAN 21-13 Tax Roll
Prop 218 Certification of Assessment

OPERATIONS COMMITTEE:

None.

ADMINISTRATION COMMITTEE:

None.

LEGISLATIVE AND PUBLIC AFFAIRS COMMITTEE:

None.

STEERING COMMITTEE:

8. GENERAL MANAGER'S FISCAL YEAR 2021-22 WORK PLAN 2021-1816

RECOMMENDATION:

Approve the General Manager's Fiscal Year 2021-22 Work Plan.

Originator: Jim Herberg

Attachments: Agenda Report
FY 2020-21 GM Work Plan
2019 Strategic Plan

9. BAY BRIDGE PUMP STATION FORCE MAIN ISOLATION VALVE REPLACEMENT, PROJECT NO. FRC-0013 2021-1819

RECOMMENDATION:

A. Ratify Approval of an Emergency Repair Service Contract to Charles King Company for Bay Bridge Pump Station Force Main Isolation Valve Replacement, Project No. FRC-0013, for an amount not to exceed $289,585; and

B. Approve a contingency of $144,793 (50%).

Originator: Kathy Millea

Attachments: Agenda Report
FRC-0013 Service Contract Exhibit A
Presentation - Bay Bridge Valve Replacement

10. BAY BRIDGE PUMP STATION VALVE REPLACEMENT, PROJECT NO. FRC-0002 **2021-1820**

RECOMMENDATION:

Approve a contingency increase of $269,100 (45%) to the service contract with Innovative Construction Solutions for Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, Specification No. S-2020-1192BD, for a total contingency of $328,900 (55%).

Originator: Kathy Millea

Attachments: Agenda Report
Presentation - Bay Bridge Valve Replacement

NON-CONSENT:

11. TREASURER'S REPORT FOR THE FOURTH QUARTER ENDED JUNE 30, 2021 **2021-1703**

RECOMMENDATION:

Receive and file the Orange County Sanitation District Fourth Quarter Treasurer's Report for the period ended June 30, 2021.

Originator: Lorenzo Tyner

Attachments: Agenda Report
Fourth Quarter Treasurer's Report for the Period Ended June 30, 2021

12. GENERAL MANAGER'S COMPENSATION AND BENEFITS **2021-1815**

RECOMMENDATION:

Approve a performance-based non-base building lump sum merit payment of 2.5% for the General Manager based on Fiscal Year 2020/2021 job performance, as authorized in Resolution No. OCSD 19-12.

Originator: Celia Chandler

Attachments: Agenda Report
Resolution No. OCSD 19-12
General Manager Salary Schedules (FY 2019-20 to FY 2021-22)
At-Will Employment Agreement, James D. Herberg (eff. 7/1/19)

INFORMATION ITEMS:

13. 2020-21 FISCAL YEAR BUDGET - FINANCIAL CLOSING UPDATE **2021-1813**

RECOMMENDATION:

Information Item.

Originator: Lorenzo Tyner

Attachments: Agenda Report

14. ORANGE COUNTY SANITATION DISTRICT LEVELS OF SERVICE **2021-1799**

RECOMMENDATION:

Information Only.

Originator: Jim Herberg

Attachments: Agenda Report
Presentation - Levels of Service

AB 1234 DISCLOSURE REPORTS:

This item allows Board members to provide a brief oral report regarding the disclosure of outside committees, conferences, training, seminars, etc. attended at the Agency's expense, per Government Code §53232.3(d).

CLOSED SESSION:

During the course of conducting the business set forth on this agenda as a regular meeting of the Board, the Chairperson may convene the Board in closed session to consider matters of pending real estate negotiations, pending or potential litigation, or personnel matters, pursuant to Government Code Sections 54956.8, 54956.9, 54957 or 54957.6, as noted.

Reports relating to (a) purchase and sale of real property; (b) matters of pending or potential litigation; (c) employment actions or negotiations with employee representatives; or which are exempt from public disclosure under the California Public Records Act, may be reviewed by the Board during a permitted closed session and are not available for public inspection. At such time the Board takes final action on any of these subjects, the minutes will reflect all required disclosures of information.

CONVENE IN CLOSED SESSION.

CS-1 CONFERENCE WITH LEGAL COUNSEL RE ANTICIPATED LITIGATION - GOVERNMENT CODE SECTION 54956.9(d)(4) **2021-1817**

RECOMMENDATION: Convene in Closed Session:

Number of Cases: 1

Potential initiation of eminent domain litigation regarding property owned by Bayside Village Marina, LLC.

Attachments: Agenda Report
CS-1 Board Memo re Eminent Domain Litigation

CS-2 CONFERENCE WITH LEGAL COUNSEL RE EXISTING LITIGATION - GOVERNMENT CODE SECTION 54956.9(d)(1) **2021-1818**

RECOMMENDATION: Convene in Closed Session:

Number of Cases: 1

Bayside Village Marina, LLC v. Orange County Sanitation District; Orange County Sanitation District Board of Directors; and Does 1-25, Inclusive, Superior Court of the State of California for the County of Orange - Central Justice Center Case No. 30-2021-01194238-CU-WM-CXC.

Attachments: Agenda Report
CS-2 Board Memo re Bayside Village Marina Litigation

CS-3 CONFERENCE WITH REAL PROPERTY NEGOTIATORS - GOVERNMENT CODE SECTION 54956.8 **2021-1823**

RECOMMENDATION: Convene in Closed Session:

Number of Cases: 1

Property: Portions of 300 East Coast Highway, Newport Beach, CA; APN No. 440-132-60.

Agency negotiators: General Manager Jim Herberg, Assistant General Manager Lorenzo Tyner, Assistant General Manager Rob Thompson, Director of Engineering Kathy Millea, and Controller Wally Richie.

Negotiating parties: Bayside Village Marina, LLC

Under negotiation: Price and terms of payment

Attachments: Agenda Report
CS-3 Board Memo re Real Property

RECONVENE IN REGULAR SESSION.

CONSIDERATION OF ACTION, IF ANY, ON MATTERS CONSIDERED IN CLOSED SESSION:

OTHER BUSINESS AND COMMUNICATIONS OR SUPPLEMENTAL AGENDA ITEMS, IF ANY:

BOARD OF DIRECTORS INITIATED ITEMS FOR A FUTURE MEETING:

At this time Directors may request staff to place an item on a future agenda.

ADJOURNMENT:

Adjourn the meeting until the Special Meeting of the Board of Directors on September 29, 2021 at 6:00 p.m.

OC SAN
ORANGE COUNTY SANITATION DISTRICT

BOARD OF DIRECTORS

Agenda Report

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1788 **Agenda Date:** 8/25/2021 **Agenda Item No:** 2.

FROM: James D. Herberg, General Manager
Originator: Kelly A. Lore, Clerk of the Board

SUBJECT:

APPROVAL OF MINUTES

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

Approve Minutes of the Regular Meeting of the Board of Directors held July 28, 2021.

BACKGROUND

In accordance with the Board of Directors Rules of Procedure, an accurate record of each meeting will be provided to the Directors for subsequent approval at the following meeting.

RELEVANT STANDARDS

- Resolution No. OC SAN 21-04

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Minutes of the Board of Directors meeting held July 28, 2021

ORANGE COUNTY SANITATION DISTRICT

MINUTES

BOARD OF DIRECTORS

JULY 28, 2021

Board Room
Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

CALL TO ORDER

A regular meeting of the Board of Directors of the Orange County Sanitation District was called to order by Board Chairman John Withers on July 28, 2021 at 6:01 p.m. in the Administration Building. Director Patrick Harper delivered the invocation and led the Pledge of Allegiance. Chair Withers announced that the meeting was being held telephonically and via audio/video teleconferencing in accordance with the Governor's Executive Order No. N-29-20, due to the Coronavirus Pandemic (COVID-19). Chair Withers announced the meeting guidelines.

A-1 APPOINTMENTS TO THE ORANGE COUNTY SANITATION DISTRICT BOARD OF DIRECTORS 2021-1779

Originator: Kelly Lore

WITHOUT OBJECTION ACTION TAKEN TO:

Receive and file minute excerpts of member agencies relating to appointments to the Orange County Sanitation District Board of Directors:

Agency	Director	Alternate Director
City of Cypress	Paulo Morales	Anne Hertz

ROLL CALL AND DECLARATION OF QUORUM

The Clerk of the Board declared a quorum present as follows:

PRESENT: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Steve Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Kim Nichols, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers, Chad Zimmerman and Nitesh Patel (Alternate)

ABSENT: None

STAFF MEMBERS PRESENT: General Manager Jim Herberg, Clerk of the Board Kelly Lore, and Mortimer Caparas were present in the Board Room. Assistant General Manager Lorenzo Tyner, Assistant General Manager Rob Thompson, Director of Engineering Kathy Millea, Director of Environmental Services Lan Wiborg, Director of Human Resources Celia Chandler, Jennifer Cabral, Belen Carrillo, Tanya Chong, Jason Daniel, Mike Dorman, Jessica Frazier, Mark Kawamoto, Tina Knapp, Rebecca Long, Laura Maravilla, Robert Michaels, Jeff Mohr, Wally Ritchie, and Thomas Vu participated telephonically.

OTHERS PRESENT: Brad Hogin, General Counsel was present in the Board Room. Anna Lalibert, Alliant; Brent Graham, Alliant; Former Board Member Stacy Berry; Allison Chang; Aminah Rangwala; Cassandra Meskel; Kathleen Nguyen; and Sienna Hoch participated telephonically.

PUBLIC COMMENTS:

None.

SPECIAL PRESENTATIONS:

SP-1 COMMENDATIONS TO OUTGOING BOARD MEMBERS 2021-1750

Originator: Kelly Lore

CITY/AGENCY	DIRECTOR
Cypress	Stacy Berry

Chair Withers recognized former Board Member Stacy Berry for her service to the OC San Board of Directors. Ms. Berry thanked and acknowledged the efforts of the Board and staff.

SP-2 RECOGNITION OF PUBLIC SERVICE ANNOUNCEMENT VIDEO CONTEST WINNERS 2021-1521

Originator: Kelly Lore

The videos of each contest winner were shown.

Chair Withers recognized the following:

Video Winners - Judges Pick - $500
Allison Chang - Irvine, CA
Aminah Rangwala - Irvine, CA
Cassandra Meskel - Tustin, CA

Social Media Winners - $250
Kathleen Nguyen - Santa Ana, CA (FACEBOOK)
Sienna Hoch - Yorba Linda, CA (INSTAGRAM)

SP-3 EMPLOYEE SERVICE AWARDS 2021-1778

Originator: Kelly Lore

Chair Withers recognized the following Service Awards who could not be in attendance:

20-year Service Award
Dindo Carillo - Regulatory Specialist, Division 610

30-year Service Award
Todd May - Maintenance Specialist, Division 870

Director Kim Nichols departed the meeting at approximately 6:20 p.m.

REPORTS:

Chair Withers wished Director Faessel happy birthday.

Chair Withers announced his recent Committee appointments:
Brooke Jones - Operations Committee Chair & Steering Committee
Ryan Gallagher - Operations Committee Vice-Chair & Steering Committee member
Glenn Parker - Administration Committee Chair
Anthony Kuo - Administration Committee Vice-Chair

Chair Withers explained the nature of the District Transparency Certificate of Excellence which OC San has maintained since 2014. He stated that staff is currently in the process of applying for Certificate renewal and asked the Board Members for their assistance by completing their mandatory Ethics Training and/or providing their current Ethics Training Certificate to the Clerk.

Chair Withers reminded Board Members that are assigned to outside committees and attend meetings on behalf of OC San to provide a brief report during the AB 1234 portion of the Board agenda.

Chair Withers stated that the Board Members would be receiving talking points regarding OC San activities for use while reporting out to their councils, boards, and community groups. He also stated that a link to a video highlighting the final expansion of the GWRS would be included in those talking points.

Chair Withers announced that Committees are dark in August. The Steering Committee and Board of Directors will meet as regularly scheduled on August 25, 2021.

General Manager Herberg reported on his recent meeting with the Orange County Business Council where he highlighted OC San's CIP Program and the economic contributions that are made to Orange County and to find ways that we can partner and target the business community to highlight business opportunities related to the CIP projects.

Mr. Herberg provided a brief explanation of the contents of his GM Workplan for FY 2021-22 which was introduced to the Steering Committee this evening.

Mr. Herberg requested that tonight's meeting be adjourned in memory of former Board Member Margie L. Rice and provided information regarding her contributions to the Board of Directors, the City of Westminster, and Midway City Sanitary District. He stated the Clerk will send a Remembrance Certificate memorializing the adjournment to her family.

CONSENT CALENDAR:

1. APPROVAL OF MINUTES 2021-1729

Originator: Kelly Lore

MOVED, SECONDED, AND DULY CARRIED TO:

Approve Minutes of the Regular Meeting of the Board of Directors held June 23, 2021.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

RECEIVE AND FILE:

2. COMMITTEE MEETING MINUTES 2021-1546

Originator: Kelly Lore

WITHOUT OBJECTION ACTION TAKEN TO RECEIVE AND FILE THE FOLLOWING:

A. Minutes of the Legislative and Public Affairs Committee Meeting held May 10, 2021
B. Minutes of the Steering Committee Meeting held May 26, 2021
C. Minutes of the Operations Committee Meeting held June 2, 2021
D. Minutes of the Administration Committee Meeting held June 9, 2021

3. REPORT OF THE INVESTMENT TRANSACTIONS FOR THE MONTH OF JUNE 2021 2021-1696

Originator: Lorenzo Tyner

WITHOUT OBJECTION ACTION TAKEN TO RECEIVE AND FILE THE FOLLOWING:

Report of the Investment Transactions for the month of June 2021.

OPERATIONS COMMITTEE:

4. REPLACEMENT PURCHASE OF A COMBINATION SEWER CLEANING VEHICLE 2021-1753

Originator: Rob Thompson

MOVED, SECONDED, AND DULY CARRIED TO:

A. Approve a Purchase Order to Haaker Equipment Company to purchase one new/unused Combination Sewer Cleaning Truck using Sourcewell Cooperative Contract No. 122017-FSC-2 for a total amount not to exceed $775,410, including freight and taxes; and

B. Approve a contingency of $23,262 (3%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

5. AREA 02 CRAIG REGIONAL PARK MANHOLE IMPROVEMENTS, PROJECT NO. FE10-21 **2021-1754**

Originator: Kathy Millea

MOVED, SECONDED, AND DULY CARRIED TO:

A. Receive and file Bid Tabulation and Recommendation for Area 02 Craig Regional Park Manhole Improvements, Project No. FE10-21;

B. Award a Construction Contract to Deark E&C, Inc. for Area 02 Craig Regional Park Manhole Improvements, Project No. FE10-21, for a total amount not to exceed $427,400; and

C. Approve a contingency of $42,740 (10%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

6. OUTFALL LOW FLOW PUMP STATION, CONTRACT NO. J-117B **2021-1755**

Originator: Kathy Millea

MOVED, SECONDED, AND DULY CARRIED TO:

Approve a Purchase Order to ePlus Technology Inc. for Specification No. E-2021-1253BD for IT Server Hardware for Outfall Low Flow Pump Station, Contract No. J-117B, for a total amount of $793,882.96, plus applicable sales tax and freight.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

7. COLLECTION SYSTEM FLOW LEVEL MONITORING STUDY, PROJECT NO. PS20-02 **2021-1756**

Originator: Kathy Millea

MOVED, SECONDED, AND DULY CARRIED TO:

A. Approve a Professional Services Agreement with Woodard and Curran, Inc. to provide engineering services for the Collection System Flow Level Monitoring Study, Project No. PS20-02, for an amount not to exceed $616,562; and

B. Approve a contingency of $61,656 (10%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

8. SUNFLOWER AND RED HILL INTERCEPTOR REPAIRS, PROJECT NO. 7-66 **2021-1757**

Originator: Kathy Millea

MOVED, SECONDED, AND DULY CARRIED TO:

A. Receive and file Bid Tabulation and Recommendation for Sunflower and Red Hill Interceptor Repairs, Project No. 7-66;

B. Award a Construction Contract to Charles King Company for Sunflower and Red Hill Interceptor Repairs, Project No. 7-66, for an amount not to exceed $4,777,000; and

C. Approve a contingency of $477,700 (10%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

9. SUNFLOWER AND RED HILL INTERCEPTOR REPAIRS, PROJECT NO. 7-66 2021-1758

Originator: Kathy Millea

MOVED, SECONDED, AND DULY CARRIED TO:

A. Approve a Professional Construction Services Agreement with GHD, Inc. to provide construction support services for Sunflower and Red Hill Interceptor Repairs, Project No. 7-66, for an amount not to exceed $166,000; and

B. Approve a contingency of $16,600 (10%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

10. SOUTH PERIMETER SECURITY AND UTILITY IMPROVEMENTS AT PLANT NO. 1, PROJECT NO. P1-134 2021-1759

Originator: Kathy Millea

MOVED, SECONDED, AND DULY CARRIED TO:

A. Receive and file Bid Tabulation and Recommendation for South Perimeter Security and Utility Improvements at Plant No. 1, Project No. P1-134;

B. Reject the bid from apparent low bidder, RT Contractor Corp., as non-responsive;

C. Receive and file Orange County Sanitation District's Notice of Intent to Award dated June 3, 2021;

D. Receive and file Award Protest from Act 1 Construction, Inc. dated June 4, 2021, concerning the award to Tovey/Shultz Construction, Inc.;

E. Receive and file response letter from Tovey/Shultz Construction, Inc. dated June 8, 2021, regarding the bid protest of Act 1 Construction, Inc.;

F. Receive and file Orange County Sanitation District's determination letter dated June 10, 2021, to Act 1 Construction, Inc. responding to award protest;

G. Award a Construction Contract to Tovey/Shultz Construction, Inc. for South Perimeter Security and Utility Improvements at Plant No. 1, Project No. P1-134, for an amount not to exceed $4,396,779; and

H. Approve a contingency of $439,678 (10%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman

NOES: None

ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)

ABSTENTIONS: None

11. SOUTH PERIMETER SECURITY AND UTILITY IMPROVEMENTS AT PLANT NO. 1, PROJECT NO. P1-134 **2021-1760**

Originator: Kathy Millea

MOVED, SECONDED, AND DULY CARRIED TO:

A. Approve a Professional Construction Services Agreement with HDR Engineering, Inc. to provide construction support services for South Perimeter Security and Utility Improvements at Plant No. 1, Project No. P1-134, for an amount not to exceed $235,000; and

B. Approve a contingency of $23,500 (10%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

12. RIALTO BIOENERGY FACILITY DRYING AND THERMAL CONVERSION CONTRACT - BIOSOLIDS MANAGEMENT **2021-1763**

Originator: Lan Wiborg

MOVED, SECONDED, AND DULY CARRIED TO:

A. Approve a Sole Source Service Contract to Rialto Bioenergy Facility (RBF) to pilot a biosolids drying and thermal conversion service for approximately 100 wet tons per day at a base fee of $94 per wet ton, plus monthly fuel surcharge, annual CPI (consumer price index) adjustment, and special sampling events at a rate of $3,950 per event (6 events) for targeted Per- and Polyfluoroalkyl Substances (PFAS) compounds. The term of this Contract is for three (3) years with two (2) optional one-year renewals for a total annual amount not to exceed $3,463,095; and

B. Approve an annual contingency of $346,310 (10%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

ADMINISTRATION COMMITTEE:

13. ENVIRONMENTAL REGULATORY REPORTS 2021-1771

Originator: Lan Wiborg

MOVED, SECONDED, AND DULY CARRIED TO:

Receive and file environmental regulatory reports: Biosolids Management Compliance Report 2020, Annual Pretreatment Program Report Fiscal Year 2019-2020, Semi-Annual Pretreatment Program Report Fiscal Year 2020-2021 (July-December), Annual Greenhouse Gas Emissions Report 2020, Annual Emission Report 2020, Marine Monitoring Annual Report 2019/2020, and Biennial Wastewater Discharge Requirements Sewer System Management Plan Audit Report 2021.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

14. JANITORIAL & FLOOR MAINTENANCE SERVICE CONTRACT FOR PLANT NOS. 1 AND 2 2021-1772

Originator: Rob Thompson

MOVED, SECONDED, AND DULY CARRIED TO:

Award a Sole Source Service Contract to Gamboa Services, Inc. DBA Corporate Image Maintenance to provide Janitorial & Floor Maintenance Service at Plant Nos. 1 and 2 Specification No. SSJ 2463BD for the period August 1, 2021 through January 31, 2022, for an amount not to exceed $397,900.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

15. 2022 BENEFITS INSURANCE RENEWAL 2021-1773

Originator: Celia Chandler

MOVED, SECONDED, AND DULY CARRIED TO:

Approve the Orange County Sanitation District 2022 Benefits Insurance Renewal for the amount of $12,322,235 for active employees and $518,340 for retiree-paid health premiums, for an overall not-to-exceed amount of $12,840,575, as specified below:

A. WORKTERRA (medical, dental, and vision plans; and Employee Assistance Program [EAP]) - Not to Exceed $11,745,607;

B. The Standard (basic life, short- and long-term disability) - Not to Exceed $514,178;

C. The Standard (EMT & Manager disability) - Not to Exceed $30,000;

D. BenefitWallet (Health Savings Accounts [HSA]) - Not to Exceed $32,450;

E. WORKTERRA (additional retiree costs, recouped from retirees through premium payments) - Not to Exceed $518,340; and

F. Approve a contingency of $642,029 (5%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman

NOES: None

ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)

ABSTENTIONS: None

16. INTERNAL AUDIT UPDATE: CYBER SECURITY 2021-1774

Originator: Lorenzo Tyner

MOVED, SECONDED, AND DULY CARRIED TO:

Receive and file the Internal Audit Report from Eide Bailly LLP.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

LEGISLATIVE AND PUBLIC AFFAIRS COMMITTEE:

17. PUBLIC AFFAIRS STRATEGIC PLAN YEAR END REPORT 2021-1765

Originator: Jim Herberg

MOVED, SECONDED, AND DULY CARRIED TO:

Receive and file the Public Affairs Strategic Plan for Fiscal Years 2020-21 and 2021-22 Year End Update.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

18. CONSTRUCTION OUTREACH COMMUNICATIONS AUDIT REPORT 2021-1766

Originator: Jim Herberg

MOVED, SECONDED, AND DULY CARRIED TO:

Receive and file the Construction Outreach Communications Review and Audit 2021.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)

ABSTENTIONS: None

19. PUBLIC AFFAIRS UPDATE FOR THE MONTHS OF MAY AND JUNE 2021 **2021-1767**

Originator: Jim Herberg

MOVED, SECONDED, AND DULY CARRIED TO:

Receive and file the Public Affairs Update for the months of May and June 2021.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

20. LEGISLATIVE AFFAIRS UPDATE FOR THE MONTHS OF JUNE/JULY 2021 **2021-1768**

Originator: Jim Herberg

MOVED, SECONDED, AND DULY CARRIED TO:

Receive and file the Legislative Affairs Update for the months of June/July 2021.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers and Chad Zimmerman
NOES: None
ABSENT: Steve Jones, Kim Nichols and Nitesh Patel (Alternate)
ABSTENTIONS: None

Alternate Director Nitesh Patel joined the meeting at approximately 6:35 p.m.

STEERING COMMITTEE:

None.

NON-CONSENT:

21. PROCESS CONTROL SYSTEMS UPGRADES STUDY, PROJECT NO. SP-196 2021-1761

Originator: Kathy Millea

Director of Engineering Kathy Millea provided a brief description of the additional recommendation regarding the need for approval of the Escrow Agent agreement.

MOVED, SECONDED, AND DULY CARRIED TO:

A. Approve a Master Services Agreement with ABB Inc. for the design, installation, implementation, and maintenance of a process control system;

B. Authorize staff to specify ABB Inc. as the sole source provider for equipment, materials, software, and services for control systems on current and future projects;

C. Ratify the addition of ABB Inc. to the list of pre-approved Original Equipment Manufacturers for procurements under $100,000 for equipment, materials, software, and services for control systems.; and

D. Authorize the General Manager to approve and execute the 3-way Escrow Intellectual Property Agreement (Exhibit "E" to the Master Services Agreement with ABB Inc.) with Escrow Agent NCC Group Software Resilience (NA) LLC, at a cost not to exceed $100,000, in a form approved by General Counsel, for escrow setup and validation.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers, Chad Zimmerman and Nitesh Patel (Alternate)
NOES: None
ABSENT: Steve Jones and Kim Nichols
ABSTENTIONS: None

22. PROCESS CONTROL SYSTEMS UPGRADES, PROJECT NO. J-120 2021-1762

Originator: Kathy Millea

Ms. Millea explained that this item was moved to non-consent as it was dependent on the approval of the previous item and that no changes had been made to the item after the Operations Committee recommendation for Board approval.

MOVED, SECONDED, AND DULY CARRIED TO:

A. Approve Task Order No. 1 under the Master Services Agreement with ABB Inc. to provide services, software, and equipment for Process Control Systems Upgrades, Project No. J-120, for an amount not to exceed $11,818,480; and

B. Approve a contingency of $1,181,848 (10%).

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers, Chad Zimmerman and Nitesh Patel (Alternate)
NOES: None
ABSENT: Steve Jones and Kim Nichols
ABSTENTIONS: None

Director Steve Jones joined the meeting at approximately 6:41 p.m.

23. PROPOSED ORDINANCE NO. OC SAN-57 UPDATING THE CAPITAL FACILITIES CAPACITY CHARGES ORDINANCE 2021-1741

Originator: Lorenzo Tyner

Assistant General Manager Lorenzo Tyner stated that this is the second reading of the Ordinance and provided a brief explanation.

MOVED, SECONDED, AND DULY CARRIED TO:

A. Adopt Ordinance No. OC SAN-57, entitled “An Ordinance of the Board of Directors of the Orange County Sanitation District Amending Requirements for Accessory Dwelling Unit Capital Facilities Capacity Charges, Restating Previously Adopted Charges, and Repealing Ordinance No. OCSD-50 and Ordinance No. OCSD-54”;

B. Motion to read Ordinance No. OC SAN-57 by title only and waive reading of said entire Ordinance;

C. Receive and file the Carollo Engineers letter dated June 2, 2021; and

D. Direct the Clerk of the Board to publish summaries of the Ordinance as required by law.

AYES: Art Brown, Kim Carr, Doug Chaffee, Mark Chirco, Rose Espinoza, Stephen Faessel, Ryan Gallagher, Patrick Harper, Johnathan Ryan Hernandez, Brooke Jones, Steve Jones, Anthony Kuo, Sandra Massa-Lavitt, Paulo Morales, Andrew Nguyen, Robert Ooten, Glenn Parker, David Shawver, Jesus Silva, Chad Wanke, John Withers, Chad Zimmerman and Nitesh Patel (Alternate)

NOES: None
ABSENT: Kim Nichols
ABSTENTIONS: None

INFORMATION ITEMS:

None.

AB 1234 DISCLOSURE REPORTS:

Director Shawver provided a report on his recent attendance at the OCCOG meeting and Director Faessel provided information regarding the upcoming ISDOC virtual luncheon meeting.

CLOSED SESSION:

CONVENED IN CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54956.8.

The Board convened in closed session at 6:46 p.m. to hear one item. Confidential minutes of the Closed Sessions have been prepared in accordance with the above Government Code Sections and are maintained by the Clerk of the Board in the Official Book of Confidential Minutes of Board and Committee Closed Session meetings.

CS-1 CONFERENCE WITH REAL PROPERTY NEGOTIATORS - GOVERNMENT CODE SECTION 54956.8 2021-1780

CONVENED IN CLOSED SESSION:

Property: 1516 W. Balboa Blvd., Newport Beach, CA; APN No. 047-222-10

Agency negotiators: General Manager Jim Herberg, Assistant General Manager Lorenzo Tyner, Assistant General Manager Rob Thompson, Director of Engineering Kathy Millea, Controller Wally Richie, and Principal Staff Analyst Jessica Frazier.

Negotiating parties: City of Newport Beach.

Under negotiation: Price and terms of payment

RECONVENE IN REGULAR SESSION.

The Board reconvened in regular session at 6:53 p.m.

CONSIDERATION OF ACTION, IF ANY, ON MATTERS CONSIDERED IN CLOSED SESSION:

General Counsel Brad Hogin did not provide a report.

OTHER BUSINESS AND COMMUNICATIONS OR SUPPLEMENTAL AGENDA ITEMS, IF ANY:

Assistant General Manager Rob Thompson provided information regarding an emergency repair including a valve replacement at the Bay Bridge Pump Station in Newport Beach.

BOARD OF DIRECTORS INITIATED ITEMS FOR A FUTURE MEETING:

Chair Withers thanked the Board Members who had taken on new leadership roles and welcomed new Board Member Paulo Morales.

ADJOURNMENT:

At 6:56 p.m., Chair Withers adjourned the meeting until the Regular Meeting of the Board of Directors to be held on August 25, 2021 at 6:00 p.m. in memory of former Board Member Margie L. Rice.

Submitted by:

_____
Kelly A. Lore, MMC
Clerk of the Board

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1811 **Agenda Date:** 8/25/2021 **Agenda Item No:** 3.

FROM: James D. Herberg, General Manager
Originator: Lorenzo Tyner, Assistant General Manager

SUBJECT:

CORRECTIONS TO THE 2021-2022 BUDGET - ERRATA INFORMATION

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

Approve the incorporation of adjustments and corrections into the 2021-22 Fiscal Year Budget.

BACKGROUND

Subsequent to the printing of the 2021-22 Fiscal Year Budget, staff has identified minor adjustments and corrections required to the Budget, primarily typographical and printing errors. These corrections are found on the attached Errata Sheet. While there are changes to the levels of some of the positions, these corrections do not require a change to the approved budget amounts or total number of approved full time equivalent (FTE) staff positions.

RELEVANT STANDARDS

- Ensure the public's money is wisely spent
- Produce appropriate financial reporting - annual financial report & audit letter and Ops & CIP budgets every two years, with annual update
- Stable rates, no large unforeseen rate increases

PROBLEM

The Fiscal Year 2021-22 Budget Book that was approved by the Board of Directors in June 2021 contains typographical and printing errors pertaining to the approved FTEs in various divisions.

PROPOSED SOLUTION

Approve the attached Errata Sheet correcting the number of FTEs in specific positions. There is no change to the approved total staffing budget or the total number of FTEs.

TIMING CONCERNS

Fiscal Year 2021-22 began July 1, 2021.

RAMIFICATIONS OF NOT TAKING ACTION

Some of the errors involve vacant positions that are not properly reflected in the approved budget. If the budget is not corrected, needed positions will remain vacant.

PRIOR COMMITTEE/BOARD ACTIONS

June 2021 - Board approved the 2021-22 Fiscal Year Budget.

ADDITIONAL INFORMATION

N/A

FINANCIAL CONSIDERATIONS

Corrections contained in the attached Errata Sheet do not increase the overall budget totals that were approved by the Board in June 2021.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Errata Sheet - FY 2021-22 Budget Update

Errata Sheet for
Orange County Sanitation District
FY 2021-22 Budget Update

A list of changes made to the Fiscal Year 2021-22 Budget Update following the printing of the book.

Page	Reads	Should Read
A-21	Operations and Maintenance Administration = 3.00	Operations and Maintenance Administration = 4.00
A-21	Collection Facilities Operations & Maintenance = 29.00	Collection Facilities Operations & Maintenance = 28.00
A-26	Engineer = 6.00	Engineer = 7.00
A-26	Construction Inspector = 9.00	Construction Inspector = 10.00
A-26	Engineering Assistant II = 4.00	Engineering Assistant II = 3.00
A-26	Administrative Assistant = 2.00	Administrative Assistant = 1.00
A-26	Director of Operations & Maintenance = 0.00	Director of Operations & Maintenance = 1.00
A-26	Total Operations and Maintenance Administration = 3.00	Total Operations and Maintenance Administration = 4.00
A-26	Engineering Manager = 1.00	Engineering Manager = 0.00
A-26	Mechanic = 8.00	Mechanic = 7.00
A-26	<Blank>	Associate Engineer = 1.00
A-26	Total Collection Facilities Operation & Maintenance = 29.00	Total Collection Facilities Operation & Maintenance = 28.00
A-26	Office Assistant	Program Assistant
A-27	Control Center Operator = 2.00	Control Center Operator = 0.00
A-27	Plant Operator = 15.00	Plant Operator = 17.00

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1547 **Agenda Date:** 8/25/2021 **Agenda Item No:** 4.

FROM: James D. Herberg, General Manager
Originator: Kelly A. Lore, Clerk of the Board

SUBJECT:

COMMITTEE MEETING MINUTES

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION: Receive and file the following:

A. Minutes of the GWRS Steering Committee Meeting held April 12, 2021.
B. Minutes of the Steering Committee Meeting held June 23, 2021.

BACKGROUND

In accordance with the Board of Directors Rules of Procedure, an accurate record of each meeting will be provided to the Directors for subsequent approval at the following meeting.

RELEVANT STANDARDS

- Resolution No. OC SAN 21-04

ADDITIONAL INFORMATION

The minutes of the Committee meetings are approved at their respective Committees and brought forth to the Board of Directors for receive and file only.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Minutes of the Monthly Committee Meetings

MINUTES OF THE MEETING
GROUNDWATER REPLENISHMENT SYSTEM STEERING COMMITTEE
Monday, April 12, 2021

OC San Director Shawver called the Groundwater Replenishment System Steering Committee meeting to order via Zoom webinar. Following the Pledge of Allegiance to the flag, the Secretary called the roll and reported a quorum.

Committee Members

David Shawver
Roger Yoh
Cathy Green
Bob Ooten
Tri Ta
Ryan Gallagher

Alternates

Kelly Rowe
Jesus Silva
Dina Nguyen (absent)
Brooke Jones
Steve Sheldon (absent)
John Withers (absent)

OCWD Directors Bilodeau, Whitaker and Mendoza were in attendance.

OCWD Staff	OC SAN Staff
Mike Markus, Mehul Patel, Sandy Scott-Roberts, Gina Ayala, Christina Fuller	Jim Herberg, Jennifer Cabral

CONSENT CALENDAR

The Consent Calendar was approved upon motion by Director Green, seconded by Director Ta and carried [6-0] as follows.
Yes –Shawver, Yoh, Green, Ooten, Ta, Gallagher

1. Minutes of Previous Meeting

The minutes of the GWRS Steering Committee meeting held January 11, 2021 are approved as presented.

INFORMATIONAL ITEMS

2. GWRS Operating Budget Summary

Executive Director of Operations Mehul Patel provided an overview of OCWD's annual operating budget for the Groundwater Replenishment System (GWRS). He reported that the General Fund budget provides funds to cover the day to day operation and maintenance of GWRS and Green Acres treatment facilities. He advised that the Joint Operations Committee meets monthly to discuss issues affecting OCWD and OC San treatment processes and stated that both agencies have worked together to minimize impacts of each other's operations on production to achieve a high online factor. Mr. Patel stated that the total recommended 2021-2022 Budget is 31.5M, which includes $900,000 demand response credit and excludes both Alamitos barrier and Green Acres Project (GAP) costs.

3. GWRS Operations Update

Mr. Patel reported that the average daily production for the quarter, January through March 2021, was 89 mgd. He reported that as of March 31, 2021, the GWRS Fiscal Year 2020-2021 production

total was 74,240 af which is 3,053 af below the target fiscal year production of 77,323 af. He advised that this shortfall was mainly due to limited production caused by a planned outage for the GWRS Final Expansion construction project. He reported that the GWRS was offline January 12 and 13, 2021 to commission three new UV trains installed as part of the GWRS Final Expansion construction project. Mr. Patel further advised that from January 22 to March 13, 2021, OCWD replaced a total of 3,420 MF membranes in five of thirty-six MF cells. He stated that this project is now complete and should improve GWRS efficiency.

4. Update on GWRS Final Expansion

GWRS Program Manager Sandy Scott-Roberts provided an update on construction activities and schedules, completion status of project elements and the project budget.

5. GWRS First Quarter Outreach Report (Jan-March 2021)

Director of Public Affairs Gina Ayala reported that OCWD continues to facilitate GWRS outreach with its virtual tour program. She stated that that there were 11 virtual tours with approximately 445 guests during the first quarter of 2021.

ADJOURNMENT

There being no further business to come before the Committee, the meeting was adjourned at 6:30 p.m.

DocuSigned by:
David Shawver
C0638759162646F...
OC San Director David Shawver, Chair

Orange County Sanitation District
Minutes for the
STEERING COMMITTEE

Wednesday, June 23, 2021
5:00 PM
Board Room
Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

CALL TO ORDER

A regular meeting of the Steering Committee of the Orange County Sanitation District was called to order by Board Chairman David Shawver on Wednesday, June 23, 2021 at 5:01 p.m. in the Administration Building of the Orange County Sanitation District. Chair Shawver stated that the meeting was being held telephonically and via audio/video teleconferencing in accordance with the Governor's Executive Order No. N-29-20, due to the Coronavirus Pandemic (COVID-19).

ROLL CALL AND DECLARATION OF QUORUM:

A quorum was declared present, as follows:

PRESENT: David Shawver, John Withers, Stacy Berry, Sandra Massa-Lavitt, Glenn Parker, Jesus Silva and Chad Wanke
ABSENT: None

STAFF MEMBERS PRESENT: Clerk of the Board Kelly Lore and Brian Engeln were present in the Board Room. General Manager Jim Herberg, Assistant General Manager Lorenzo Tyner, Assistant General Manager Rob Thompson, Director of Engineering Kathy Millea, Director of Environmental Services Lan Wiborg, Director of Human Resources Celia Chandler, Jennifer Cabral, Mortimer Caparas, Jackie Castro, Jacob Dalgoff, Dean Fisher, John Frattali, Laurie Klinger, Tina Knapp, Laura Maravilla, and Jeffrey Mohr participated telephonically.

OTHERS PRESENT: Brad Hogin, General Counsel, was present in the Board Room.

PUBLIC COMMENTS:

None.

Clerk of the Board Kelly Lore stated that she received late communication that Closed Session Item No. CS-1 would not be heard this evening.

REPORTS:

Chair Shawver and General Manager Jim Herberg did not provide a report.

CONSENT CALENDAR:

1. APPROVAL OF MINUTES 2021-1654

Originator: Kelly Lore

MOVED, SECONDED AND DULY CARRIED TO:

Approve Minutes of the Regular Meeting of Steering Committee held May 26, 2021.

AYES: David Shawver, John Withers, Stacy Berry, Sandra Massa-Lavitt, Glenn Parker, Jesus Silva and Chad Wanke
NOES: None
ABSENT: None
ABSTENTIONS: None

NON-CONSENT:

2. GENERAL MANAGER'S FY 2020-2021 WORK PLAN YEAR-END REPORT 2021-1706

Originator: Jim Herberg

General Manager Jim Herberg provided a brief overview of the General Manager's FY 2020-21 Work Plan Year-End Report.

MOVED, SECONDED, AND DULY CARRIED TO: Recommend to the Board of Directors to:

Receive and file the General Manager's FY 2020-2021 Work Plan Year-End Report.

AYES: David Shawver, John Withers, Stacy Berry, Sandra Massa-Lavitt, Glenn Parker, Jesus Silva and Chad Wanke
NOES: None
ABSENT: None
ABSTENTIONS: None

3. INTERIM FOOD WASTE RECEIVING FACILITY, PROJECT NO. P2-124 2021-1434

Originator: Kathy Millea

Assistant General Manager Rob Thompson provided a brief overview of this item.

MOVED, SECONDED AND DULY CARRIED TO: Recommend to the Board of Directors to:

A. Receive and file Bid Tabulation and Recommendation for Interim Food Waste Receiving Facility, Project No P2-124; and

B. Reject all bids and direct staff to continue efforts to negotiate agreements with food waste pre-processors.

AYES: David Shawver, John Withers, Stacy Berry, Sandra Massa-Lavitt, Glenn Parker, Jesus Silva and Chad Wanke
NOES: None
ABSENT: None
ABSTENTIONS: None

INFORMATION ITEMS:

None.

CLOSED SESSION:

CONVENED IN CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTIONS 54956.8, 54957(a) & 54956.9(d)(1).

The Committee convened in closed session at 5:35 p.m. to discuss one item. Item CS-1 was not heard. Confidential minutes of the Closed Sessions have been prepared in accordance with the above Government Code Sections and are maintained by the Clerk of the Board in the Official Book of Confidential Minutes of Board and Committee Closed Session meetings.

CS-1 CONFERENCE WITH LEGAL COUNSEL RE EXISTING LITIGATION - GOVERNMENT CODE SECTION 54956.9(d)(1) 2021-1694

Originator: Jim Herberg

ITEM NOT HEARD.

Number of Cases: 1

Bayside Village Marina, LLC v. Orange County Sanitation District; Orange County Sanitation District Board of Directors; and Does 1-25, Inclusive, Superior Court of the State of California for the County of Orange - Central Justice Center Case No. 30-2021-01194238-CU-WM-CXC.

CS-2 PUBLIC EMPLOYEE PERFORMANCE EVALUATION 54957(b)(1) **2021-1685**

Originator: Celia Chandler

CONVENED IN CLOSED SESSION:

Public Employee Performance Evaluation
Number of Employees: 1

- General Manager

RECONVENE IN REGULAR SESSION.

The Committee reconvened in regular session at 6:01 p.m.

CONSIDERATION OF ACTION, IF ANY, ON MATTERS CONSIDERED IN CLOSED SESSION:

General Counsel Brad Hogin did not provide a report.

OTHER BUSINESS AND COMMUNICATIONS OR SUPPLEMENTAL AGENDA ITEMS, IF ANY:

None.

BOARD OF DIRECTORS INITIATED ITEMS FOR A FUTURE MEETING:

None.

ADJOURNMENT:

Chair Shawver declared the meeting adjourned at 6:02 p.m. to the next Steering Committee meeting to be held on July 28, 2021 at 5:00 p.m.

Submitted by:

Kelly A. Lore
_____
Kelly A. Lore, MMC
Clerk of the Board

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1697 **Agenda Date:** 8/25/2021 **Agenda Item No:** 5.

FROM: James D. Herberg, General Manager
Originator: Lorenzo Tyner, Assistant General Manager

SUBJECT:

REPORT OF THE INVESTMENT TRANSACTIONS FOR THE MONTH OF JULY 2021

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION: Receive and file the following:

Report of the Investment Transactions for the month of July 2021.

BACKGROUND

The CA Government Code requires that a monthly report of investment transactions be provided to the legislative body. Attached is the monthly report of investment transactions for the month ended July 31, 2021.

RELEVANT STANDARDS

- CA Government Code Section 53607

PRIOR COMMITTEE/BOARD ACTIONS

N/A

FINANCIAL CONSIDERATIONS

N/A

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Report of the Investment Transactions for the Month of July 2021

U.S. Bank
Transaction History
July 2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
ACQUISITIONS							
07/01/2021	912828ZM5	PURCHASED PAR VALUE OF U S TREASURY NT 0.125% 4/30/22 /J.P. MORGAN SECURITIES LLC/10,000,000 PAR VALUE AT 100.0390625 %	10,000,000.0000	1.000391	-10,003,906.25	10,003,906.25	0.00
07/02/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	126.2800	1.000000	-126.28	126.28	0.00
07/02/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	6,555,760.2700	1.000000	-6,555,760.27	6,555,760.27	0.00
07/06/2021	05531FBG7	PURCHASED PAR VALUE OF BB T CORPORATION MTN 3.050% 6/20/22 /GOLDMAN SACHS & CO. LLC/2,000,000 PAR VALUE AT 102.471 %	2,000,000.0000	1.024710	-2,049,420.00	2,049,420.00	0.00
07/06/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	30,000.0000	1.000000	-30,000.00	30,000.00	0.00
07/07/2021	3137BFE98	PURCHASED PAR VALUE OF F H L B GTD REMIC 3.171% 10/25/24 /MORGAN STANLEY & CO. LLC/5,000,000 PAR VALUE AT 107.570312 %	5,000,000.0000	1.075703	-5,378,515.62	5,378,515.62	0.00
07/08/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	19,665.6200	1.000000	-19,665.62	19,665.62	0.00
07/08/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	3,045,000.0000	1.000000	-3,045,000.00	3,045,000.00	0.00
07/12/2021	79466LAG9	PURCHASED PAR VALUE OF SALESFORCE COM INC 0.625% 7/15/24 /CITIGROUP GLOBAL MARKETS INC./1,350,000 PAR VALUE AT 99.949 %	1,350,000.0000	0.999490	-1,349,311.50	1,349,311.50	0.00
07/14/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	14,576.2500	1.000000	-14,576.25	14,576.25	0.00
07/15/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	3,586,232.3600	1.000000	-3,586,232.36	3,586,232.36	0.00
07/15/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	23,118.2600	1.000000	-23,118.26	23,118.26	0.00
07/16/2021	037833AZ3	PURCHASED PAR VALUE OF APPLE INC 2.500% 2/09/25 /JEFFERIES LLC/3,922,000 PAR VALUE AT 105.928 %	3,922,000.0000	1.059280	-4,154,496.16	4,154,496.16	0.00
07/16/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	82,875.0000	1.000000	-82,875.00	82,875.00	0.00
07/19/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	254,417.4700	1.000000	-254,417.47	254,417.47	0.00
07/20/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	15,479.2200	1.000000	-15,479.22	15,479.22	0.00
07/20/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	2,500,012.5000	1.000000	-2,500,012.50	2,500,012.50	0.00
07/21/2021	47789QAC4	PURCHASED PAR VALUE OF JOHN DEERE OWN 0.00001% 3/16/26 /MITSUBISHI UFJ SECURITIES USA/2,820,000 PAR VALUE AT 99.99108014 %	2,820,000.0000	0.999911	-2,819,748.46	2,819,748.46	0.00
07/21/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	162,976.9300	1.000000	-162,976.93	162,976.93	0.00
07/22/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	5,000,000.0000	1.000000	-5,000,000.00	5,000,000.00	0.00
07/23/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	75,962.5000	1.000000	-75,962.50	75,962.50	0.00
07/26/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	12,267,997.5700	1.000000	-12,267,997.57	12,267,997.57	0.00
07/28/2021	44934KAC8	PURCHASED PAR VALUE OF HTUNDAI AUTO REC TR 0.590% 1/15/26 /CITIGROUP GLOBAL MARKETS INC./6,040,000 PAR VALUE AT 99.97792997 %	6,040,000.0000	0.999779	-6,038,666.97	6,038,666.97	0.00
07/29/2021	912796F61	PURCHASED PAR VALUE OF U S TREASURY BILL 9/30/21 /MORGAN STANLEY & CO. LLC/14,000,000 PAR VALUE AT 99.993 %	14,000,000.0000	0.999930	-13,999,020.00	13,999,020.00	0.00
07/29/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	7,000,000.0000	1.000000	-7,000,000.00	7,000,000.00	0.00
07/29/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	36,875.0000	1.000000	-36,875.00	36,875.00	0.00
TOTAL ACQUISITIONS			**85,803,075.2300**		**-86,464,160.19**	**86,464,160.19**	**0.00**
DISPOSITIONS							
07/01/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-10,006,012.2300	1.000000	10,006,012.23	-10,006,012.23	0.00
07/02/2021	912828U65	SOLD PAR VALUE OF U S TREASURY NT 1.750% 11/30/21 /CITIGROUP GLOBAL	-6,500,000.0000	1.007031	6,545,703.13	-6,407,599.90	138,103.23

U.S. Bank
Transaction History
July 2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
07/06/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,052,131.1100	1.000000	2,052,131.11	-2,052,131.11	0.00
07/07/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-5,299,908.1200	1.000000	5,299,908.12	-5,299,908.12	0.00
07/08/2021	594918BP8	FULL CALL PAR VALUE OF MICROSOFT CORP 1.550% 8/08/21 /CALLS/	-3,045,000.0000	1.000000	3,045,000.00	-3,041,385.15	3,614.85
07/12/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-1,340,842.7500	1.000000	1,340,842.75	-1,340,842.75	0.00
07/15/2021	31348SWZ3	PAID DOWN PAR VALUE OF F H L M C #786064 2.262% 1/01/28 JUNE FHLMC DUE 7/15/21	-14.2300	0.000000	14.23	-13.88	0.35
07/15/2021	3133TCE95	PAID DOWN PAR VALUE OF F H L M C MLTCL MTG 3.855% 8/15/32	-75.2500	0.000000	75.25	-75.33	-0.08
07/15/2021	47788EAC2	PAID DOWN PAR VALUE OF JOHN DEERE OWNER 3.080% 11/15/22	-100,924.9300	0.000000	100,924.93	-100,917.28	7.65
07/15/2021	58770FAC6	PAID DOWN PAR VALUE OF MERCEDES BENZ AUTO 1.840% 12/15/22	-130,414.3000	0.000000	130,414.30	-130,397.11	17.19
07/15/2021	65479JAD5	PAID DOWN PAR VALUE OF NISSAN AUTO 1.930% 7/15/24	-118,178.5800	0.000000	118,178.58	-118,172.34	6.24
07/15/2021	65479GAD1	PAID DOWN PAR VALUE OF NISSAN AUTO 3.060% 3/15/23	-162,270.8900	0.000000	162,270.89	-162,265.63	5.26
07/15/2021	912828V72	SOLD PAR VALUE OF U S TREASURY NT 1.875% 1/31/22 /CITIGROUP GLOBAL MARKETS INC./3,000,000 PAR VALUE AT 100.99218767 %	-3,000,000.0000	1.009922	3,029,765.63	-3,004,814.74	24,950.89
07/16/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-4,197,256.8500	1.000000	4,197,256.85	-4,197,256.85	0.00
07/19/2021	43814UAG4	PAID DOWN PAR VALUE OF HONDA AUTO 3.010% 5/18/22	-74,425.9400	0.000000	74,425.94	-74,424.32	1.62
07/20/2021	45950KCJ7	MATURED PAR VALUE OF INTL FINANCE CORP 1.125% 7/20/21 2,500,000 PAR VALUE AT 100 %	-2,500,000.0000	1.000000	2,500,000.00	-2,441,600.00	58,400.00
07/20/2021	36225CAZ9	PAID DOWN PAR VALUE OF G N M A I I #080023 2.125% 12/20/26 JUNE GNMA DUE 7/20/21	-251.5500	0.000000	251.55	-255.71	-4.16
07/20/2021	36225CC20	PAID DOWN PAR VALUE OF G N M A I I #080088 2.875% 6/20/27 JUNE GNMA DUE 7/20/21	-107.7300	0.000000	107.73	-110.09	-2.36
07/20/2021	36225CNM4	PAID DOWN PAR VALUE OF G N M A I I #080395 2.875% 4/20/30 JUNE GNMA DUE 7/20/21	-137.4800	0.000000	137.48	-136.23	1.25
07/20/2021	36225CN28	PAID DOWN PAR VALUE OF G N M A I I #080408 2.875% 5/20/30 JUNE GNMA DUE 7/20/21	-565.5600	0.000000	565.56	-559.82	5.74
07/20/2021	36225DCB8	PAID DOWN PAR VALUE OF G N M A I I #080965 2.250% 7/20/34 JUNE GNMA DUE 7/20/21	-176.4800	0.000000	176.48	-176.37	0.11
07/21/2021	43815HAC1	PAID DOWN PAR VALUE OF HONDA AUTO 2.950% 8/22/22	-160,995.3700	3.150809	160,995.37	-160,973.28	22.09
07/21/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,735,799.7100	1.000000	2,735,799.71	-2,735,799.71	0.00
07/22/2021	912796C49	MATURED PAR VALUE OF U S TREASURY BILL 7/22/21 5,000,000 PAR VALUE AT 100 %	-5,000,000.0000	1.000000	4,997,661.81	-4,997,661.81	0.00
07/26/2021	62479LUS2	MATURED PAR VALUE OF MUFG BK LTD N Y BRH C P 7/26/21 12,000,000 PAR VALUE AT 100 %	-12,000,000.0000	1.000000	11,997,000.00	-11,997,000.00	0.00
07/26/2021	31394JY35	PAID DOWN PAR VALUE OF F H L M C MLTCL MTG 6.500% 9/25/43	-13,184.9900	0.000000	13,184.99	-14,932.00	-1,747.01
07/26/2021	31371NUC7	PAID DOWN PAR VALUE OF F N M A #257179 4.500% 4/01/28 JUNE FNMA DUE 7/25/21	-114.0000	0.000000	114.00	-120.57	-6.57
07/26/2021	31376KT22	PAID DOWN PAR VALUE OF F N M A #357969 5.000% 9/01/35 JUNE FNMA DUE 7/25/21	-2,353.5900	0.000000	2,353.59	-2,530.11	-176.52
07/26/2021	31403DJZ3	PAID DOWN PAR VALUE OF F N M A #745580 5.000% 6/01/36 JUNE FNMA DUE 7/25/21	-1,549.4000	0.000000	1,549.40	-1,665.60	-116.20

U.S. Bank
Transaction History
July 2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
07/26/2021	31403GXF4	PAID DOWN PAR VALUE OF F N M A #748678 5.000% 10/01/33 JUNE FNMA DUE 7/25/21	-3.9800	0.000000	3.98	-4.28	-0.30
07/26/2021	31406PQY8	PAID DOWN PAR VALUE OF F N M A #815971 5.000% 3/01/35 JUNE FNMA DUE 7/25/21	-2,202.4600	0.000000	2,202.46	-2,367.64	-165.18
07/26/2021	31406XWT5	PAID DOWN PAR VALUE OF F N M A #823358 2.035% 2/01/35 JUNE FNMA DUE 7/25/21	-561.9600	0.000000	561.96	-557.57	4.39
07/26/2021	31407BXH7	PAID DOWN PAR VALUE OF F N M A #826080 5.000% 7/01/35 JUNE FNMA DUE 7/25/21	-402.8900	0.000000	402.89	-433.11	-30.22
07/26/2021	31410F4V4	PAID DOWN PAR VALUE OF F N M A #888336 5.000% 7/01/36 JUNE FNMA DUE 7/25/21	-3,710.1300	0.000000	3,710.13	-3,988.39	-278.26
07/26/2021	3138EG6F6	PAID DOWN PAR VALUE OF F N M A #AL0869 4.500% 6/01/29 JUNE FNMA DUE 7/25/21	-151.2100	0.000000	151.21	-159.92	-8.71
07/26/2021	31417YAY3	PAID DOWN PAR VALUE OF F N M A #MA0022 4.500% 4/01/29 JUNE FNMA DUE 7/25/21	-250.3900	0.000000	250.39	-264.81	-14.42
07/26/2021	31397QRE0	PAID DOWN PAR VALUE OF F N M A GTD REMIC 2.472% 2/25/41	-2,789.9900	0.000000	2,789.99	-2,789.12	0.87
07/26/2021	78445JAA5	PAID DOWN PAR VALUE OF S L M A 1.69437% 4/25/23	-311.7300	0.000000	311.73	-310.47	1.26
07/28/2021	61747WAL3	MATURED PAR VALUE OF MORGAN STANLEY 5.500% 7/28/21 2,800,000 PAR VALUE AT 100 %	-2,800,000.0000	1.000000	2,800,000.00	-3,200,848.00	-400,848.00
07/28/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-3,161,666.9700	1.000000	3,161,666.97	-3,161,666.97	0.00
07/29/2021	912796C56	MATURED PAR VALUE OF U S TREASURY BILL 7/29/21 7,000,000 PAR VALUE AT 100 %	-7,000,000.0000	1.000000	6,997,275.06	-6,997,275.06	0.00
07/29/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-13,999,020.0000	1.000000	13,999,020.00	-13,999,020.00	0.00
TOTAL DISPOSITIONS			**-85,413,762.7500**		**85,481,168.38**	**-85,659,423.38**	**-178,255.00**
OTHER TRANSACTIONS							
07/01/2021	31846V567	INTEREST EARNED ON FIRST AM GOVT OB FD CL Z UNIT ON 0.0000 SHARES DUE 6/30/2021 INTEREST FROM 6/1/21 TO 6/30/21	0.0000	0.000000	126.28	0.00	0.00
07/01/2021	31846V567	INTEREST EARNED ON FIRST AM GOVT OB FD CL Z UNIT ON 0.0000 SHARES DUE 6/30/2021 INTEREST FROM 6/1/21 TO 6/30/21	0.0000	0.000000	111.78	0.00	0.00
07/01/2021	912828ZM5	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 0.125% 4/30/22	0.0000	0.000000	-2,105.98	0.00	0.00
07/02/2021	912828U65	RECEIVED ACCRUED INTEREST ON SALE OF U S TREASURY NT 1.750% 11/30/21	0.0000	0.000000	9,945.36	0.00	0.00
07/06/2021	3135G0S38	INTEREST EARNED ON F N M A 2.000% 1/05/22 $1 PV ON 3000000.0000 SHARES DUE 7/5/2021	0.0000	0.000000	30,000.00	0.00	0.00
07/06/2021	05531FBG7	PAID ACCRUED INTEREST ON PURCHASE OF BB T CORPORATION MTN 3.050% 6/20/22	0.0000	0.000000	-2,711.11	0.00	0.00
07/07/2021	3135G0X24	INTEREST EARNED ON F N M A 1.625% 1/07/25 $1 PV ON 10000000.0000 SHARES DUE 7/7/2021	0.0000	0.000000	81,250.00	0.00	0.00
07/07/2021	3137BFE98	PAID ACCRUED INTEREST ON PURCHASE OF F H L B GTD REMIC 3.171% 10/25/24	0.0000	0.000000	-2,642.50	0.00	0.00
07/08/2021	594918BP8	INTEREST EARNED ON MICROSOFT CORP 1.550% 8/08/21 $1 PV ON 3045000.0000 SHARES DUE 7/8/2021 ACCRUED INTEREST ON 7/8/2021 FULL CALL	0.0000	0.000000	19,665.62	0.00	0.00

U.S. Bank
Transaction History
July 2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
07/12/2021	3135G05G4	INTEREST EARNED ON F N M A 0.250% 7/10/23 $1 PV ON 6775000.0000 SHARES DUE 7/10/2021	0.0000	0.000000	8,468.75	0.00	0.00
07/13/2021	912828WU0	BOOK VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 45552.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
07/13/2021	912828WU0	FED BASIS OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 45552.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	45,552.00	0.00
07/13/2021	912828WU0	PAR VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 45552.0000 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	45,552.0000	0.000000	0.00	0.00	0.00
07/13/2021	912828WU0	STATE COST OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 45552.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
07/14/2021	02665WCJ8	INTEREST EARNED ON AMERICAN HONDA MTN 3.450% 7/14/23 $1 PV ON 845000.0000 SHARES DUE 7/14/2021	0.0000	0.000000	14,576.25	0.00	0.00
07/15/2021	31348SWZ3	INTEREST EARNED ON F H L M C #786064 2.262% 1/01/28 $1 PV ON 2.7300 SHARES DUE 7/15/2021 MAY FHLMC DUE 7/15/21	0.0000	0.000000	2.73	0.00	0.00
07/15/2021	3133TCE95	INTEREST EARNED ON F H L M C MLTCL MTG 3.855% 8/15/32 $1 PV ON 12.7900 SHARES DUE 7/15/2021 $0.00321/PV ON 3,982.90 PV DUE 7/15/21	0.0000	0.000000	12.79	0.00	0.00
07/15/2021	44891VAC5	INTEREST EARNED ON HYUNDAI AUTO LEASE 0.330% 6/17/24 $1 PV ON 1104.5400 SHARES DUE 7/15/2021 $0.00027/PV ON 4,155,000.00 PV DUE 7/15/21	0.0000	0.000000	1,104.54	0.00	0.00
07/15/2021	44933LAC7	INTEREST EARNED ON HYUNDAI AUTO REC 0.380% 9/15/25 $1 PV ON 665.0000 SHARES DUE 7/15/2021 $0.00032/PV ON 2,100,000.00 PV DUE 7/15/21	0.0000	0.000000	665.00	0.00	0.00
07/15/2021	4581X0DN5	INTEREST EARNED ON INTER AMER BK M T N 0.625% 7/15/25 $1 PV ON 5050000.0000 SHARES DUE 7/15/2021	0.0000	0.000000	15,781.25	0.00	0.00
07/15/2021	47788UAC6	INTEREST EARNED ON JOHN DEERE OWNER 0.360% 9/15/25 $1 PV ON 690.0000 SHARES DUE 7/15/2021 $0.00030/PV ON 2,300,000.00 PV DUE 7/15/21	0.0000	0.000000	690.00	0.00	0.00
07/15/2021	47787NAC3	INTEREST EARNED ON JOHN DEERE OWNER 0.510% 11/15/24 $1 PV ON 629.0000 SHARES DUE 7/15/2021 $0.00042/PV ON 1,480,000.00 PV DUE 7/15/21	0.0000	0.000000	629.00	0.00	0.00
07/15/2021	47788EAC2	INTEREST EARNED ON JOHN DEERE OWNER 3.080% 11/15/22 $1 PV ON 1377.1300 SHARES DUE 7/15/2021 $0.00257/PV ON 536,545.01 PV DUE 7/15/21	0.0000	0.000000	1,377.13	0.00	0.00
07/15/2021	58769KAD6	INTEREST EARNED ON MERCEDES BENZ AUTO 0.400% 11/15/24 $1 PV ON 589.3300 SHARES DUE 7/15/2021 $0.00018/PV ON 3,315,000.00 PV DUE 7/15/21	0.0000	0.000000	589.33	0.00	0.00
07/15/2021	58770FAC6	INTEREST EARNED ON MERCEDES BENZ AUTO 1.840% 12/15/22 $1 PV ON 3143.3300 SHARES DUE 7/15/2021 $0.00153/PV ON 2,050,000.00 PV DUE 7/15/21	0.0000	0.000000	3,143.33	0.00	0.00
07/15/2021	65479JAD5	INTEREST EARNED ON NISSAN AUTO 1.930% 7/15/24 $1 PV ON 6730.8700 SHARES DUE 7/15/2021 $0.00161/PV ON 4,185,000.00 PV DUE 7/15/21	0.0000	0.000000	6,730.87	0.00	0.00
07/15/2021	65479GAD1	INTEREST EARNED ON NISSAN AUTO 3.060% 3/15/23 $1 PV ON 2919.6900 SHARES DUE 7/15/2021 $0.00255/PV ON 1,144,976.47 PV DUE 7/15/21	0.0000	0.000000	2,919.69	0.00	0.00
07/15/2021	89237VAB5	INTEREST EARNED ON TOYOTA AUTO RECV 0.440% 10/15/24 $1 PV ON 1085.3300 SHARES DUE 7/15/2021 $0.00037/PV ON 2,960,000.00 PV DUE 7/15/21	0.0000	0.000000	1,085.33	0.00	0.00
07/15/2021	912828WU0	INTEREST EARNED ON U S TREASURY I P S 0.125% 7/15/24 $1 PV ON 11739208.0000 SHARES DUE 7/15/2021	0.0000	0.000000	7,337.01	0.00	0.00
07/15/2021	912828V72	RECEIVED ACCRUED INTEREST ON SALE OF U S TREASURY NT 1.875% 1/31/22	0.0000	0.000000	25,638.81	0.00	0.00

U.S. Bank
Transaction History
July 2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
07/16/2021	78013XZU5	INTEREST EARNED ON ROYAL BANK OF MTN 2.550% 7/16/24 $1 PV ON 6500000.0000 SHARES DUE 7/16/2021	0.0000	0.000000	82,875.00	0.00	0.00
07/16/2021	037833AZ3	PAID ACCRUED INTEREST ON PURCHASE OF APPLE INC 2.500% 2/09/25	0.0000	0.000000	-42,760.69	0.00	0.00
07/19/2021	3135G0T94	INTEREST EARNED ON F N M A DEB 2.375% 1/19/23 $1 PV ON 5000000.0000 SHARES DUE 7/19/2021	0.0000	0.000000	59,375.00	0.00	0.00
07/19/2021	43813KAC6	INTEREST EARNED ON HONDA AUTO 0.370% 10/18/24 $1 PV ON 997.4600 SHARES DUE 7/18/2021 $0.00031/PV ON 3,235,000.00 PV DUE 7/18/21	0.0000	0.000000	997.46	0.00	0.00
07/19/2021	43814UAG4	INTEREST EARNED ON HONDA AUTO 3.010% 5/18/22 $1 PV ON 244.0700 SHARES DUE 7/18/2021 $0.00251/PV ON 97,302.18 PV DUE 7/18/21	0.0000	0.000000	244.07	0.00	0.00
07/19/2021	4581X0CW6	INTEREST EARNED ON INTER AMER DEV BK 2.125% 1/18/22 $1 PV ON 3000000.0000 SHARES DUE 7/18/2021	0.0000	0.000000	31,875.00	0.00	0.00
07/19/2021	89114QC48	INTEREST EARNED ON TORONTO MTN 3.500% 7/19/23 $1 PV ON 5000000.0000 SHARES DUE 7/19/2021	0.0000	0.000000	87,500.00	0.00	0.00
07/20/2021	36225CAZ9	INTEREST EARNED ON G N M A I I #080023 2.125% 12/20/26 $1 PV ON 17.8800 SHARES DUE 7/20/2021 JUNE GNMA DUE 7/20/21	0.0000	0.000000	17.88	0.00	0.00
07/20/2021	36225CC20	INTEREST EARNED ON G N M A I I #080088 2.875% 6/20/27 $1 PV ON 18.7700 SHARES DUE 7/20/2021 JUNE GNMA DUE 7/20/21	0.0000	0.000000	18.77	0.00	0.00
07/20/2021	36225CNM4	INTEREST EARNED ON G N M A I I #080395 2.875% 4/20/30 $1 PV ON 10.0400 SHARES DUE 7/20/2021 JUNE GNMA DUE 7/20/21	0.0000	0.000000	10.04	0.00	0.00
07/20/2021	36225CN28	INTEREST EARNED ON G N M A I I #080408 2.875% 5/20/30 $1 PV ON 79.6000 SHARES DUE 7/20/2021 JUNE GNMA DUE 7/20/21	0.0000	0.000000	79.60	0.00	0.00
07/20/2021	36225DCB8	INTEREST EARNED ON G N M A I I #080965 2.250% 7/20/34 $1 PV ON 51.6300 SHARES DUE 7/20/2021 JUNE GNMA DUE 7/20/21	0.0000	0.000000	51.63	0.00	0.00
07/20/2021	45950KCJ7	INTEREST EARNED ON INTL FINANCE CORP 1.125% 7/20/21 $1 PV ON 2500000.0000 SHARES DUE 7/20/2021	0.0000	0.000000	14,075.00	0.00	0.00
07/21/2021	3137EAEU9	INTEREST EARNED ON F H L M C M T N 0.375% 7/21/25 $1 PV ON 5030000.0000 SHARES DUE 7/21/2021	0.0000	0.000000	9,431.25	0.00	0.00
07/21/2021	43813GAC5	INTEREST EARNED ON HONDA AUTO 0.270% 4/21/25 $1 PV ON 361.1300 SHARES DUE 7/21/2021 $0.00023/PV ON 1,605,000.00 PV DUE 7/21/21	0.0000	0.000000	361.13	0.00	0.00
07/21/2021	43815HAC1	INTEREST EARNED ON HONDA AUTO 2.950% 8/22/22 $1 PV ON 1620.4300 SHARES DUE 7/21/2021 $0.00246/PV ON 659,157.51 PV DUE 7/21/21	0.0000	0.000000	1,620.43	0.00	0.00
07/21/2021	90331HPL1	INTEREST EARNED ON US BANK NA MTN 2.050% 1/21/25 $1 PV ON 7270000.0000 SHARES DUE 7/21/2021	0.0000	0.000000	74,517.50	0.00	0.00
07/22/2021	912796C49	INTEREST EARNED ON U S TREASURY BILL 7/22/21 $1 PV ON 5000000.0000 SHARES DUE 7/22/2021 5,000,000 PAR VALUE AT 100 %	0.0000	0.000000	2,338.19	0.00	0.00
07/23/2021	46647PAU0	INTEREST EARNED ON JPMORGAN CHASE CO 3.797% 7/23/24 $1 PV ON 2500000.0000 SHARES DUE 7/23/2021	0.0000	0.000000	47,462.50	0.00	0.00
07/23/2021	90331HNL3	INTEREST EARNED ON US BANK NA MTN 2.850% 1/23/23 $1 PV ON 2000000.0000 SHARES DUE 7/23/2021	0.0000	0.000000	28,500.00	0.00	0.00
07/26/2021	03215PFN4	INTEREST EARNED ON AMRESCO 1.38193% 6/25/29 $1 PV ON 137.0700 SHARES DUE 7/25/2021 $0.00115/PV ON 119,021.64 PV DUE 7/25/21	0.0000	0.000000	137.07	0.00	0.00

U.S. Bank
Transaction History
July 2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
07/26/2021	808513AT2	INTEREST EARNED ON CHARLES SCHWAB CORP 2.650% 1/25/23 $1 PV ON 6750000.0000 SHARES DUE 7/25/2021	0.0000	0.000000	89,437.50	0.00	0.00
07/26/2021	3133EKWV4	INTEREST EARNED ON F F C B DEB 1.850% 7/26/24 $1 PV ON 5000000.0000 SHARES DUE 7/26/2021	0.0000	0.000000	46,250.00	0.00	0.00
07/26/2021	31394JY35	INTEREST EARNED ON F H L M C MLTCL MTG 6.500% 9/25/43 $1 PV ON 2822.2100 SHARES DUE 7/25/2021 $0.00542/PV ON 521,023.30 PV DUE 7/25/21	0.0000	0.000000	2,822.21	0.00	0.00
07/26/2021	31371NUC7	INTEREST EARNED ON F N M A #257179 4.500% 4/01/28 $1 PV ON 33.2100 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	33.21	0.00	0.00
07/26/2021	31376KT22	INTEREST EARNED ON F N M A #357969 5.000% 9/01/35 $1 PV ON 286.6600 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	286.66	0.00	0.00
07/26/2021	31403DJZ3	INTEREST EARNED ON F N M A #745580 5.000% 6/01/36 $1 PV ON 256.5300 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	256.53	0.00	0.00
07/26/2021	31403GXF4	INTEREST EARNED ON F N M A #748678 5.000% 10/01/33 $1 PV ON 3.3800 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	3.38	0.00	0.00
07/26/2021	31406PQY8	INTEREST EARNED ON F N M A #815971 5.000% 3/01/35 $1 PV ON 382.9900 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	382.99	0.00	0.00
07/26/2021	31406XWT5	INTEREST EARNED ON F N M A #823358 2.035% 2/01/35 $1 PV ON 118.7200 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	118.72	0.00	0.00
07/26/2021	31407BXH7	INTEREST EARNED ON F N M A #826080 5.000% 7/01/35 $1 PV ON 51.3400 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	51.34	0.00	0.00
07/26/2021	31410F4V4	INTEREST EARNED ON F N M A #888336 5.000% 7/01/36 $1 PV ON 457.6100 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	457.61	0.00	0.00
07/26/2021	3138EG6F6	INTEREST EARNED ON F N M A #AL0869 4.500% 6/01/29 $1 PV ON 21.7900 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	21.79	0.00	0.00
07/26/2021	31417YAY3	INTEREST EARNED ON F N M A #MA0022 4.500% 4/01/29 $1 PV ON 37.1800 SHARES DUE 7/25/2021 JUNE FNMA DUE 7/25/21	0.0000	0.000000	37.18	0.00	0.00
07/26/2021	31397QRE0	INTEREST EARNED ON F N M A GTD REMIC 2.472% 2/25/41 $1 PV ON 71.8000 SHARES DUE 7/25/2021 $0.00064/PV ON 111,677.65 PV DUE 7/25/21	0.0000	0.000000	71.80	0.00	0.00
07/26/2021	459058FY4	INTEREST EARNED ON INTL BK 2.000% 1/26/22 $1 PV ON 10000000.0000 SHARES DUE 7/26/2021	0.0000	0.000000	100,000.00	0.00	0.00
07/26/2021	62479LUS2	INTEREST EARNED ON MUFG BK LTD N Y BRH C P 7/26/21 $1 PV ON 12000000.0000 SHARES DUE 7/26/2021 12,000,000 PAR VALUE AT 100 %	0.0000	0.000000	3,000.00	0.00	0.00
07/26/2021	78445JAA5	INTEREST EARNED ON S L M A 1.69437% 4/25/23 $1 PV ON 42.8600 SHARES DUE 7/25/2021 $0.00424/PV ON 10,118.65 PV DUE 7/25/21	0.0000	0.000000	42.86	0.00	0.00
07/28/2021	912828WU0	BOOK VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 48360.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
07/28/2021	912828WU0	FED BASIS OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 48360.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	48,360.00	0.00
07/28/2021	61747WAL3	INTEREST EARNED ON MORGAN STANLEY 5.500% 7/28/21 $1 PV ON 2800000.0000 SHARES DUE 7/28/2021	0.0000	0.000000	77,000.00	0.00	0.00

U.S. Bank
Transaction History
July 2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
07/28/2021	912828WU0	PAR VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 48360.0000 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	48,360.0000	0.000000	0.00	0.00	0.00
07/28/2021	912828WU0	STATE COST OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 48360.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
07/29/2021	06406RAE7	INTEREST EARNED ON BANK OF NY MTN 2.950% 1/29/23 $1 PV ON 2500000.0000 SHARES DUE 7/29/2021	0.0000	0.000000	36,875.00	0.00	0.00
07/29/2021	912796C56	INTEREST EARNED ON U S TREASURY BILL 7/29/21 $1 PV ON 7000000.0000 SHARES DUE 7/29/2021 7,000,000 PAR VALUE AT 100 %	0.0000	0.000000	2,724.94	0.00	0.00
TOTAL OTHER TRANSACTIONS			**93,912.0000**		**982,991.81**	**93,912.00**	**0.00**

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1795 **Agenda Date:** 8/25/2021 **Agenda Item No:** 6.

FROM: James D. Herberg, General Manager
Originator: Lan C. Wiborg, Director of Environmental Services

SUBJECT:

2021 ORANGE COUNTY SANITATION DISTRICT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT (NPDES PERMIT NO. CA0110604, ORDER R8-2021-0010)

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

Receive and file the U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Permit No. CA0110604 and Santa Ana Regional Water Quality Control Board Waste Discharge Requirements Order No. R8-2021-0010.

BACKGROUND

The Orange County Sanitation District (OC San) is subject to environmental regulatory oversight by the U.S. Environmental Protection Agency (EPA) and Regional Water Quality Control Board (Santa Ana Region) to operate OC San's Reclamation Plant No.1, Treatment Plant No. 2, Collection System and Outfalls, and to discharge treated wastewater into the ocean waters. The permit is both a federal permit and a state permit by operation of law.

These permits are the following:

1. National Pollutant Discharge Elimination System (NPDES) No. CA0110604
2. Waste Discharge Requirements Order No. R8-2021-0010.

RELEVANT STANDARDS

- Comply with environmental permit requirements
- Safe, beneficial reuse of Biosolids
- Comply with transparency and communication requirements, including the Brown Act

ADDITIONAL INFORMATION

On June 18, 2021, the Santa Ana Regional Water Quality Control Board and U.S. EPA adopted NPDES Permit No. CA0110604 and Waste Discharge Requirements Order No. R8-2021-0010 (Joint Permit) for Orange County Sanitation District Publicly Owned Treatment Works (Reclamation Plant

No.1 and Treatment Plant No. 2, Collection System and Outfalls). The effective date of this Joint Permit is August 1, 2021 and expires on July 31, 2026.

CEQA

N/A

FINANCIAL CONSIDERATIONS

N/A

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- National Pollutant Discharge Elimination System (NPDES) No. CA0110604
- Waste Discharge Requirements Order No. R8-2021-0010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

James D. Herberg
General Manager
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708-7018

Re: Final NPDES Permit for the Orange County Sanitation District (OC San)
NPDES Permit No. CA0110604

Dear General Manager Herberg,

Enclosed please find the final National Pollutant Discharge Elimination System (NPDES) permit for the subject facility. EPA posted a public notice of proposed action on EPA's website, accepting public comment from February 2, 2021 to March 4, 2021. After considering comments from all interested Parties, EPA hereby issues the attached final NPDES permit.

The effective date of the permit is August 1, 2021 unless a petition for permit review is filed with the Environmental Appeals Board (EAB).[1] Review of the permit can be requested within 30 days of this notice by any person who filed comments on the proposed permit conditions. Review is requested by filing a petition with the Clerk of the EAB. The petition must identify the contested permit condition or other specific challenge to the permit decision and clearly set forth, the petitioner's contentions for why the permit decision should be reviewed.

If you have any questions regarding the final permit or permitting process, please contact Julie Song of the NPDES permits section at 415-972-3035 or song.julie@epa.gov.

Sincerely,

TOMAS TORRES

Digitally signed by TOMAS TORRES
Date: 2021.06.23 15:50:19 -07'00'

Tomás Torres
Director, Water Division

Enclosures: Final Permit/Fact Sheet and Response to Comments

cc: Hope Smythe, Executive Officer, Santa Ana Regional Water Quality Control Board
Lan Wiborg, Director of Environmental Services, OC San

[1] See 40 C.F.R. § 124.19(a) for more information regarding requirements for petitions to the EAB.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

3737 Main Street, Suite 500, Riverside, CA 92501-3348
Phone 951-782-4130 • Fax 951-781-6288
https://www.waterboards.ca.gov/santaana/

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 9

75 Hawthorne Street, San Francisco, CA 94105-3901
Phone 415-947-8707 • Fax 415-947-3545
https://www.epa.gov/aboutepa/epa-region-9-pacific-southwest/

ORDER NO. R8-2021-0010
NPDES NO. CA0110604

WASTE DISCHARGE REQUIREMENTS AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR ORANGE COUNTY SANITATION DISTRICT PUBLICLY OWNED TREATMENT WORKS (RECLAMATION PLANT NO. 1, TREATMENT PLANT NO. 2, COLLECTION SYSTEM, AND OUTFALLS)

As set forth in this State Order/federal Permit, the following Discharger (Table 1) is authorized to discharge from the locations listed in Table 2 in accordance with both the State waste discharge requirements (WDRs) and the federal National Pollutant Discharge Elimination System (NPDES) permit requirements. The Order/Permit are consolidated under 40 CFR § 124.4(c)(2).

Table 1. Discharger Information

Discharger	Orange County Sanitation District
Name of Facilities (and POTW)	Reclamation Plant No. 1 (Fountain Valley), collection system and outfalls
	Treatment Plant No. 2 (Huntington Beach), collection system and outfalls
Facility Addresses	10844 Ellis Avenue, Fountain Valley, CA 92708-7018
	22212 Brookhurst Street, Huntington Beach, CA 92646-8406
	Orange County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001 (120” Outfall)	Secondary treated effluent and reverse osmosis concentrate	33° 34' 36" N	118° 00' 36" W	Pacific Ocean (4.5 miles offshore)
002 (78” Outfall)	Secondary treated effluent and reverse osmosis concentrate	33° 36' 56" N	117° 58' 13" W	Pacific Ocean (1.5 miles offshore)
003 (Santa Ana River Overflow Weirs)	Secondary treated effluent and reverse osmosis concentrate	33° 38' 06" N	117° 57' 20" W	Santa Ana River

Table 3. Administrative Information for State WDRs

This Order was adopted on:	**June 18, 2021**
This Order shall become effective on:	**August 1, 2021**
This Order shall expire on:	**July 31, 2026**
The Discharger shall file a ROWD as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a NPDES permit no later than:	**February 1, 2026**
The USEPA and California Regional Water Quality Control Board, Santa Ana Region have classified this discharge as follows:	**Major**

I, Hope A. Smythe, Executive Officer, do hereby certify that this State Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on the date indicated above.

Hope Smythe
Digitally signed by Hope Smythe
Date: 2021.06.21 11:36:38 -07'00'
Water Boards

Hope A. Smythe, Executive Officer

Table 4. Administrative Information for Federal NPDES Permit

This Permit was issued on:	**Date of signature below**
This Permit shall become effective on:	**August 1, 2021**
This Permit shall expire on:	**July 31, 2026**
The Discharger shall file an application for reissuance of a NPDES permit in accordance with 40 CFR § 122.21(d) no later than:	**February 1, 2026**
The USEPA has classified this discharge as follows:	**Major**

This federal NPDES Permit is signed and issued on the date indicated above, for the Regional Administrator.

TOMAS TORRES

Digitally signed by TOMAS TORRES
Date: 2021.06.23 15:55:32 -07'00'

Tomás Torres, Water Division Director

CONTENTS

I. Facility Information 7
II. Findings 7
III. Discharge Prohibitions 8
IV. Effluent Limitations and Discharge Specifications 10
A. Discharge Specifications – Discharge Points 001 and 002 10
B. Effluent Limitations – Discharge Points 001 and 002 10
1. Final Effluent Limitations – Discharge Point 001 (120” outfall) 11
2. Final Effluent Limitations – Discharge Point 002 (78” outfall) 13
3. Interim Effluent Limitations – Not Applicable 16
C. Land Discharge Specifications – Not Applicable 16
D. Recycling Specifications – Not Applicable 16
V. Performance Goals and Mass Emission Benchmarks 16
A. Performance Goals – Discharge point 001 16
B. Mass Emission Benchmarks – Discharge point 001 17
VI. Receiving Water Limitations 21
A. Surface Water Limitations 21
B. Groundwater Limitations – Not Applicable 24
VII. Provisions 24
A. Standard Provisions 24
B. Monitoring and Reporting Program (MRP) Requirements 26
C. Special Provisions 26
1. Reopener Provisions 26
2. Southern California Bight Monitoring Exchange 27
3. Special Studies, Technical Reports and Additional Monitoring Requirements 28
4. Best Management Practices and Pollution Prevention 31
5. Construction, Operation and Maintenance Specifications 32
6. Special Provisions for Publicly-Owned Treatment Works (POTWs) 33
7. Other Special Provisions 35
8. Compliance Schedules – Not Applicable 36
VIII. Compliance Determination 36

TABLES

Table 1. Discharger Information 1
Table 2. Discharge Location 2
Table 3. Administrative Information for State WDRs 3
Table 4. Administrative Information for Federal NPDES Permit 4
Table 5. Effluent Limitations – Discharge Point 001 (120” outfall) 11
Table 6. Effluent Limitations – Discharge Point 002 (78” outfall) 13
Table 7. Performance Goals and Mass Emission Benchmarks – Discharge point 001 17

ATTACHMENTS

Attachment A – Definitions A-1
Attachment B – Map B-1
Attachment C – Flow Schematic C-1
Attachment D – Standard Provisions D-1
Attachment E – Monitoring and Reporting Program E-1
Attachment F – Fact Sheet F-1
Attachment G – Biosolids G-1
Attachment H – Pretreatment H-1

I. FACILITY INFORMATION

Information describing the Orange County Sanitation District (hereinafter "OC San", "Permittee" or "Discharger") is summarized in Tables 1 and 2, and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter "Santa Ana Water Board") and the United States Environmental Protection Agency, Region 9 (hereinafter "USEPA") find:

A. Legal Authorities. This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (CWC; commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) (Public Law 92-500, as amended, 33 U.S.C. 1251 et seq.) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the CWC (commencing with section 13370). It shall serve as the State's National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge locations described in Table 2, subject to the WDRs in this Order (hereinafter "Order"). The Order/Permit are consolidated under 40 CFR § 124.4(c)(2).

Although Discharge Point 001 is beyond the limit of State-regulated ocean waters, effluent plume migration into State waters warrants joint regulation of the discharge by USEPA and the Santa Ana Water Board. Therefore, pursuant to 40 CFR § 124.4, this Order shall serve as a joint consolidated State and federal NPDES Permit authorizing the Discharger to discharge into waters of the United States at the discharge locations described in Table 2, subject to the limitations, conditions and all other requirements set forth herein (hereinafter "Order/Permit"). The Permit is both a federal permit and a state permit by operation of law.

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

C. Permit Renewal Contingency. The Discharger's federal NPDES Permit renewal is contingent upon:

1. Determination by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) that the discharge is consistent with the federal Endangered Species Act (ESA) of 1973, as amended (16 U.S. Code (U.S.C.) section 1531 et seq.);

2. Determination by the NOAA NMFS that the proposed discharge is consistent with the Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976, as amended (16 U.S.C. section 1801 et seq.);
3. Determination by the California Coastal Commission (CCC) that the proposed discharge is consistent with the Coastal Zone Management Act (CZMA) of 1972, as amended (16 U.S.C. section 1451 et seq.); and
4. The Santa Ana Water Board's certification/concurrence that the discharge will comply with applicable State water quality standards.

D. Notification of Interested Parties. The Santa Ana Water Board and USEPA have notified the Discharger and interested agencies and persons of their intent to jointly issue consolidated WDRs and NPDES Permit requirements; and has provided an opportunity to submit written comments and recommendations. Details of the notification are provided in the Fact Sheet and the joint public notice for this Order/Permit.

E. Consideration of Public Comment. The USEPA considered all written comments pertaining to the discharge. The Santa Ana Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Santa Ana Water Board's Public Hearing are provided in the Fact Sheet (Attachment F).

THEREFORE, IT IS HEREBY ORDERED, that this Order/Permit supersedes Order No. R8-2012-0035 except for enforcement purposes, and, 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/Permit. This action in no way prevents the Santa Ana Water Board and/or USEPA from taking enforcement action for violations of the previous Order/Permit.

III. DISCHARGE PROHIBITIONS

A. The discharge of waste/pollutants in a manner or at locations that have not been specifically authorized by this Order/Permit is prohibited.

B. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste into the ocean is prohibited.

C. Waste shall not be discharged to designated Areas of Special Biological Significance, except as provided in Chapter III.E of the Ocean Plan (i.e., Implementation Provisions for Marine Managed Areas).

D. Pipeline discharge of sludge to the ocean is prohibited by federal law; the discharge of municipal and industrial waste sludge directly to the ocean, or into a waste stream that discharges to the ocean, is prohibited by the California Ocean Plan. The discharge of sludge digester supernatant directly to the ocean, or to a waste stream that discharges to the ocean without further treatment, is prohibited.

E. The bypassing of untreated wastes containing concentrations of pollutants in excess of those in Table 4 or Table 3 of the California Ocean Plan to the ocean is prohibited.

F. The discharge of trash to surface waters of the State or the deposition of trash where it may be discharged into surface waters of the State is prohibited.

G. Discharge at Discharge Point 001 (120" outfall) is prohibited when the discharge does not receive a minimum initial dilution of at least 181:1 (D_m = 180), as modeled assuming no currents. Compliance shall be achieved by proper operation and maintenance of the discharge outfall to ensure that it (or its replacement, in whole or part) is in good working order and is consistent with, or can achieve better mixing than, 181:1. The Discharger shall notify the Santa Ana Water Board and USEPA if outfall ports will be retrofitted, as the 181:1 dilution assumes all outfall ports are operational.

H. Unless regulated by appropriate waste discharge requirements, the discharge to surface or groundwaters of waste which contains the following substances is prohibited: toxic substances or materials; pesticides; PCBs (polychlorinated biphenyls); mercury or mercury compounds; radioactive substances or material in excess of levels allowed by the California Code of Regulations. This list is not necessarily all-inclusive.

I. The discharge of untreated sewage to any surface water stream, natural or man-made, or to any drainage system intended to convey storm water runoff to surface water streams is prohibited.

J. The discharge of treated sewage to streams, lakes or reservoirs, or to tributaries thereto, which are designated MUN and which are used as a domestic water supply is prohibited unless approved by the California Department of Public Health. The discharge of treated sewage to waterbodies which are excepted from MUN (Basin Plan Table 3-1) but which are tributary to waters designated MUN and are used as a domestic water supply is prohibited unless the discharge of treated sewage to the drinking water supply is precluded or approved by the California Department of Public Health.

K. The discharge of wastewater to a water of the United States from any locations other than Discharge Point 001 (120" outfall) is prohibited, except during the following situations:

   1. Emergency discharge of disinfected secondary effluent and/or reverse osmosis (RO) concentrate to Discharge Point 002 (78" outfall) when the flow rate exceeds the hydraulic capacity of Discharge Point 001, provided that discharges through Discharge Point 001 (120" outfall) and discharges to Orange County Water District (OCWD)'s water recycling facilities are maximized to a functional capacity that is necessary to prevent infrastructure or equipment damage before wastewater is discharged through Discharge Point 002;

   2. Emergency discharge of disinfected secondary effluent and/or RO concentrate to Discharge Point 003 (Santa Ana River overflow weirs) in the event of an extreme emergency (e.g., tsunami, earthquake, flood, and acts of war or terrorism) that precludes discharging all wastewater to Discharge Points 001 and 002, provided that discharges through Discharge Points 001 (120" outfall) and 002 (78" outfall) are maximized before wastewater is discharged through Discharge Point 003; or

3. Discharge of disinfected secondary effluent and/or RO concentrate to Discharge Point 002 (78" outfall) during planned essential maintenance or capital improvement projects to assure efficient operation of Discharge Point 001 (120" outfall) when there is no other feasible alternative.

The Santa Ana Water Board Executive Officer and USEPA Water Division Director are notified of the pending discharge as soon as possible. During a planned diversion such as essential maintenance or capital improvement projects, this notification shall be submitted a minimum of 10 days prior to diverting flow to Discharge Point 002 (78" outfall), and include the rationale for the discharge, the expected time, date, and the duration of the discharge. Projects warranting such a diversion must be approved by the Santa Ana Water Board Executive Officer and USEPA Water Division Director prior to diverting flow to Discharge Point 002. The Discharger shall take all steps required by the Santa Ana Water Board Executive Officer or USEPA Water Division Director to minimize any harm resulting from the discharge.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Discharge Specifications – Discharge Points 001 and 002

1. Waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
2. Waste discharged to the ocean must be essentially free of: Material that is floatable or will become floatable upon discharge; settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life; substances which will accumulate to toxic levels in marine waters, sediments or biota; substances that significantly decrease the natural light to benthic communities and other marine life; and materials that result in aesthetically undesirable discoloration of the ocean surface.
3. Waste effluents shall be discharged in a manner which provides sufficient initial dilution (D_m = 180 for Discharge Point 001 and D_m = 36 for Discharge Point 002), with exception of radioactivity, to minimize the concentrations of substances not removed in the treatment.
4. Waste that contains pathogenic organisms or viruses should be discharged a sufficient distance from naturally occurring shellfishing and water contact sports are to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. Disinfection procedures at Discharge Point 002 (78" outfall) that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

B. Effluent Limitations – Discharge Points 001 and 002

1. Final Effluent Limitations – Discharge Point 001 (120" outfall)

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

Table 5. Effluent Limitations – Discharge Point 001 (120" outfall)

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Carbonaceous Biochemical Oxygen Demand, 5-day @ 20°C ($CBOD_5$)[5]	mg/L	25	40	–	–	–	–
	lbs/day	42,951	68,722	–	–	–	–
	% removal[6]	≥ 85	–	–	–	–	–
Total Suspended Solids (TSS)	mg/L	30	45	–	–	–	–
	lbs/day	51,541	77,312	–	–	–	–
	% removal[6]	≥ 85	–	–	–	–	–
pH	standard units	–	–	–	6.0	9.0	–
Oil and Grease	mg/L	25	40	–	–	75	–
	lbs/day	42,951	68,722	–	–	128,853	–
Settleable Solids	ml/L	1.0	1.5	–	–	3.0	–
Turbidity	NTU	75	100	–	–	225	–
Total chlorine residual	mg/L	–	–	1.45	–	10.86	0.36
	lbs/day	–	–	2,491	–	18,658	618
Acute toxicity[7]	Pass or Fail	–	–	Pass	–	–	–
Chronic toxicity[7]	Pass or Fail	–	–	Pass	–	–	–
Radioactivity	pCi/L	[8]					
Benzidine	µg/L	0.0125	–	–	–	–	–
	lbs/day	0.0215	–	–	–	–	–

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Hexachloro-benzene	µg/L	0.0380	–	–	–	–	–
	lbs/day	0.0653	–	–	–	–	–
Toxaphene	µg/L	0.0380	–	–	–	–	–
	lbs/day	0.0653	–	–	–	–	–
PCBs[3]	µg/L	0.0034	–	–	–	–	–
	lbs/day	0.0058	–	–	–	–	–
TCDD Equivalents[3]	pg/L	0.7059	–	–	–	–	–
	lbs/day	0.0000012	–	–	–	–	–

Notes:

[1] Mass emission effluent limitations (in lbs/day) are based on the average daily influent flow of 206 MGD projected for 2025, taken from the Discharger's 2017 Master Plan.

[2] The minimum probable initial dilution used to calculate WQBELs for Ocean Plan Table 3 pollutants is 181:1 (D_m=180).

[3] See Attachment A – Definitions.

[4] The maximum daily effluent limitations shall apply to flow weighted 24-hour composite samples. The instantaneous maximum/minimum effluent limitations shall apply to grab samples.

[5] In lieu of the parameter BOD_5 and the BOD_5 levels specified for effluent quality in 40 CFR § 133.102(a)(1), (2), and (3), the parameter $CBOD_5$ and the $CBOD_5$ levels specified for effluent quality in 40 CFR § 133.102(a)(4) are substituted and reported by the Discharger.

[6] In each calendar month, the arithmetic mean of $CBOD_5$ and TSS, by mass, of effluent samples collected at Monitoring Location EFF-001 as described in the MRP, shall not exceed 15 percent of the arithmetic mean of $CBOD_5$ and TSS, by mass, of influent samples collected at Monitoring Locations INF-001 and INF-002 as described in the MRP, at approximately the same times during the same periods.

[7] The maximum daily effluent limitation shall be reported as "Pass" or "Fail", and "% Effect". See section IV.B.1.b-c below and section V of Attachment E.

[8] Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

b. **Acute Toxicity:** The acute toxicity WQBEL for Discharge Point 001 (120" outfall) is expressed as a null hypothesis (H_0) and regulatory management decision (*b* value) of 0.80 for the acute toxicity methods in Attachment E of this Order/Permit. The null hypothesis for this discharge is:

H_0: Mean response (5.56% effluent) ≤ 0.80 mean response (Control).

Results obtained from an acute toxicity test shall be analyzed using the Test of Significant Toxicity (TST) statistical approach (EPA 833-R-10-003, 2010; Appendix A). Compliance with this acute toxicity WQBEL is demonstrated by rejecting the null hypothesis and reporting "0" = "Pass".

Percent Effect" (or Effect, in %) = [(Control mean response – IWC mean response) ÷ Control mean response)] ×100

c. **Chronic Toxicity:** The chronic toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_0) and regulatory management decision (*b* value) of 0.75 for the chronic toxicity methods in Attachment E of this Order/Permit. The null hypothesis for this discharge is:

H_0: Mean response (0.556% effluent) ≤ 0.75 mean response (Control).

Results obtained from a chronic toxicity test shall be analyzed using the TST statistical approach (EPA 833-R-10-003, 2010; Appendix A). Compliance with this acute toxicity WQBEL is demonstrated by rejecting the null hypothesis and reporting "0" = "Pass".

Percent Effect" (or Effect, in %) = [(Control mean response – IWC mean response) ÷ Control mean response)] ×100

2. Final Effluent Limitations – Discharge Point 002 (78" outfall)

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 002 (78" outfall), with compliance measured at Monitoring Location EFF-002 or EMG-001 as described in the Monitoring and Reporting Program, Attachment E:

Table 6. Effluent Limitations – Discharge Point 002 (78" outfall)

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Carbonaceous Biochemical Oxygen Demand 5-day @ 20°C ($CBOD_5$)[5]	mg/L	25	40	–	–	–	–
	lbs/day	47,955	76,728	–	–	–	–
	% removal[6]	≥ 85	–	–	–	–	–

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Total Suspended Solids (TSS)	mg/L	30	45	–	–	–	–
	lbs/day	57,546	86,319	–	–	–	–
	% removal[6]	≥ 85	–	–	–	–	–
pH	standard units	–	–	–	6.0	9.0	–
Oil and Grease	mg/L	25	40	–	–	75	–
	lbs/day	47,955	76,728	–	–	143,865	–
Settleable Solids	ml/L	1.0	1.5	–	–	3.0	–
Turbidity	NTU	75	100	–	–	225	–
Total chlorine residual	mg/L	–	–	0.296	–	2.22	0.074
	lbs/day	–	–	568	–	4,258	142
Ammonia as N	mg/L	–	–	88.8	–	222	22.2
	lbs/day	–	–	170,336	–	425,840	42,584
Fecal coliform density	MPN /100 mL[7]	[8]					
Enterococcus density	CFU /100 mL[7]	[8]					
Chronic toxicity[9]	Pass or Fail	–	–	Pass	–	–	–
Radioactivity	pCi/L	[10]					
TCDD Equivalents[3]	pg/L	0.1443	–	–	–	–	–
	lbs/day	0.00000028	–	–	–	–	–

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Notes:	[1] Mass emission effluent limitations (in lbs/day) are based on the Discharger's conservative estimate for hydraulic flow capacity of the outfall of 230 MGD. [2] The minimum probable initial dilution used to calculate WQBELs for Ocean Plan Table 3 pollutants and bacteria is 37:1 (D_m=36). [3] See Attachment A – Definitions. [4] The maximum daily effluent limitations shall apply to flow weighted 24-hour composite samples. The instantaneous maximum/minimum effluent limitations shall apply to grab samples. [5] In lieu of the parameter BOD_5 and the BOD_5 levels specified for effluent quality in 40 CFR § 133.102(a)(1), (2), and (3), the parameter $CBOD_5$ and the $CBOD_5$ levels specified for effluent quality in 40 CFR § 133.102(a)(4) are substituted and reported by the Discharger. [6] In each calendar month, the arithmetic mean of $CBOD_5$ and TSS, by mass, of effluent samples collected at Monitoring Location EFF-002 or EMG-001 as described in the MRP, shall not exceed 15 percent of the arithmetic mean of $CBOD_5$ and TSS, by mass, of influent samples collected at Monitoring Locations INF-001 and INF-002 as described in the MRP, at approximately the same times during the same periods. [7] Results may be reported as either Most Probable Number (MPN)/100 mL if the laboratory method used provides results in MPN/100 mL or Colony Forming Units (CFU)/100 mL if the laboratory method used provides results in CFU/100 mL. [8] See section IV.B.2.b below for the effluent limitations for fecal coliform density and e*nterococcus* density. [9] The maximum daily effluent limitation shall be reported as "Pass" or "Fail", and "% Effect". See section IV.B.2.c below and section V of Attachment E. [10] Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.						

b. **Bacteria Water Quality Based Effluent Limitations (WQBELs):** The discharge at Discharge Point 002 (78" outfall) shall meet the following effluent limitations for fecal coliform density and *enterococcus* density, with compliance measured at Monitoring Location EFF-002 or EMG-001, as described in the MRP:

Fecal Coliform

1. The 30-day geometric mean of fecal coliform density shall not exceed 7,400 MPN/100 mL, calculated based on the five most recent samples; and
2. The single sample maximum shall not exceed 14,800 MPN/100 mL.

Enterococcus

1. The six-week rolling geometric mean of enterococcus bacteria, calculated weekly, shall not exceed 1,110 CFU/100 mL or MPN/100 mL; and
2. No more than 10 percent of all enterococcus bacteria samples collected in a calendar month shall exceed a statistical threshold value of 4,070 CFU/100 mL or MPN/100 mL.

Compliance with these enterococcus limits shall be evaluated as follows:

- Six-week rolling geometric mean. Compliance with this limit shall be determined weekly by calculating the geometric mean of all enterococcus sample results from the past six weeks.
- 10 percent of sample. Compliance with this limit shall be determined based on measured sample results. The Discharger shall not report interpolated results. If the Discharger has 9 or fewer sample results in a calendar month, compliance shall be based on the highest result. If the Discharger has 10 to 19 sample results, compliance shall be based on the second highest result, and so on.

c. **Chronic Toxicity:** The chronic toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_0) and regulatory management decision (*b* value) of 0.75 for the chronic toxicity methods in Attachment E – Monitoring and Reporting Program. The null hypothesis for this discharge is:

H_0: Mean response (2.78% effluent) ≤ 0.75 mean response (Control).

Results obtained from a chronic toxicity test shall be analyzed using the TST statistical approach (EPA 833-R-10-003, 2010; Appendix A). Compliance with this chronic toxicity WQBEL is demonstrated by rejecting the null hypothesis and reporting “0” = “Pass”.

Percent Effect” (or Effect, in %) = [(Control mean response – IWC mean response) ÷ Control mean response)] ×100

3. Interim Effluent Limitations – Not Applicable

C. Land Discharge Specifications – Not Applicable

D. Recycling Specifications – Not Applicable

V. PERFORMANCE GOALS AND MASS EMISSION BENCHMARKS

A. Performance goals – Discharge point 001

The performance goals for Discharge Point 001 (120” outfall) are prescribed below in Table 7 in this Order/Permit. Performance goals are based upon last 5-year actual

performance data for the OC San's secondary treatment plants and are specified only as an indication of the treatment efficiency of the plants. The performance goals are not considered enforceable effluent limitations or standards for the regulation of discharge from the treatment facility.

The Discharger shall maintain existing treatment levels and the effluent quality at or below the performance goal concentrations. Any two consecutive exceedances of the performance goals shall trigger an investigation into the cause of the exceedance. If the exceedance persists in three successive monitoring periods, the Discharger shall submit a written report to the Santa Ana Water Board and USEPA on the nature of the exceedance, the results of the investigation including the cause of the exceedance.

The Santa Ana Water Board and USEPA may reopen the Order/Permit to modify any of the performance goals if the Discharger submits a request and demonstrates that the change is warranted, including results of completion of GWRS final expansion.

B. Mass Emission Benchmarks – Discharge point 001

The following 12-month average mass emission benchmarks for Discharge Point 001 (120" outfall) are prescribed below in Table 7. For each parameter with a mass emission benchmark, the Discharger shall report the annual mass emission and the effluent concentrations and flows used to calculate the annual mass emission in the annual pretreatment report and annual receiving water monitoring report (effluent chapter).

These mass emission benchmarks are not enforceable water quality-based effluent limitations. They may be re-evaluated and revised during the five-year permit term. For this Order/Permit, the mass emissions benchmarks (in metric tons per year; MT/yr) were determined based on 2015 through 2019 effluent mass emission and the Discharger's annual average influent flow of 206 MGD projected for 2025 (see section V of the fact sheet in Attachment F).

Table 7. Performance Goals and Mass Emission Benchmarks – Discharge point 001

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
Marine Aquatic Life Toxicants		
Arsenic, total recoverable	6.62	1.88
Cadmium, total recoverable	0.24	0.07
Chromium (VI)[1]	1.55	0.44
Copper, total recoverable	18.31	5.21
Lead, total recoverable	0.62	0.18
Mercury, total recoverable	0.0071	0.002
Nickel, total recoverable	23.50	6.69
Selenium, total recoverable	21.90	6.23

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
Silver, total recoverable	0.16	0.05
Zinc, total recoverable	46.01	13.09
Cyanide, total recoverable[2]	5.88	1.67
Ammonia as Nitrogen	36,743	10,457
Total Chlorine Residual[3]	--	38.09
Non-chlorinated Phenols[4]	1.56	0.44
Chlorinated Phenols[4]	0.54	0.15
Endosulfan[4]	0.011	0.003
Endrin	0.021	0.006
Hexachlorocyclohexane (HCH)[4]	0.011	0.003
Radioactivity[3]	--	--
Human Health Toxicants – Non-Carcinogens		
Acrolein	10.65	3.03
Antimony	2.54	0.72
Bis(2-chloroethoxy) methane	10.65	3.03
Bis(2-chloroiso-propyl)ether	4.26	1.21
Chlorobenzene	4.26	1.21
Chromium (III)[1]	1.55	0.44
Di-n-butyl-phthalate	1.80	0.51
Dichlorobenzenes[4]	2.13	0.61
Diethyl phthalate	0.76	0.22
Dimethyl phthalate	4.26	1.21
4,6-dinitro-2-methylphenol	10.65	3.03
2,4-dinitrophenol	10.65	3.03
Ethylbenzene	4.26	1.21
Fluoranthene	2.13	0.61
Hexachlorocyclopentadiene	10.65	3.03
Nitrobenzene	0.38	0.11
Thallium	0.20	0.06
Toluene	0.19	0.05

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
Tributyltin	0.25	0.07
1,1,1-Trichloroethane	4.26	1.21
Human Health Toxicants – Carcinogens		
Acrylonitrile	4.26	1.21
Aldrin	0.004	0.001
Benzene	4.26	1.21
Benzidine[3]	--	0.004
Beryllium	1.07	0.30
Bis(2-chloroethyl) ether	2.13	0.61
Bis(2-ethylhexyl) phthalate	3.90	1.11
Carbon tetrachloride	4.26	1.21
Chlordane[4,5]	0.004	0.001
Chlorodibromomethane	4.25	1.21
Chloroform	16.60	4.72
DDT[4]	0.011	0.003
1,4-dichloro-benzene	0.43	0.12
3,3'-dichloro-benzidine	1.47	0.42
1,2-dichloroethane	4.26	1.21
1,1-dichloro-ethylene	4.26	1.21
Dichlorobromomethane	8.98	2.56
Dichloro-methane	4.26	1.21
1,3-dichloropropene	4.26	1.21
Dieldrin	0.007	0.002
2,4-dinitrotoluene	10.65	3.03
1,2-diphenyl-hydrazine	2.13	0.61
Halomethanes	0.43	0.12
Heptachlor	0.009	0.003
Heptachlor epoxide	0.004	0.001
Hexachlorobenzene[3]	--	0.01
Hexachlorobutadiene	2.13	0.61
Hexachloroethane	2.13	0.61

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
Isophorone	2.13	0.61
N-Nitroso-dimethylamine	10.65	3.03
N-Nitrosodi-N-propylamine	10.65	3.03
N-Nitroso-diphenylamine	2.13	0.61
Polycyclic Aromatic Hydrocarbons (PAHs)[4]	1.59	0.45
Total Polychlorinated Biphenyls (PCBs)[3,4]	--	0.001
TCDD Equivalents[3,4]	--	2.01×10^{-7}
1,1,2,2-Tetrachloroethane	4.26	1.21
Tetrachloroethylene	1.58	0.45
Toxaphene[3]	--	0.01
Trichloroethylene	4.26	1.21
1,1,2-Trichloroethane	4.26	1.21
2,4,6-Trichlorophenol	0.54	0.15
Vinyl chloride	4.26	1.21
Notes:	[1] The Discharger may at its option meet both the chromium III and the chromium VI performance goals or mass emission benchmarks by analyzing for total recoverable chromium. [2] Cyanide: If the Discharger can demonstrate to the satisfaction of the Santa Ana Water Board (subject to USEPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met (or performance goals may be evaluated) by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometalic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR § 136.	

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
	[3] Enforceable effluent limitations for these parameters have been determined due to RP. [4] See Attachment A for definition of terms. [5] Chlordane: The Discharger may temporarily suspend the monitoring requirements for alpha- and gamma-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.	

VI. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge of waste by the Discharger shall not cause a violation of the California Ocean Plan water quality objectives and USEPA water quality criteria specified below. Compliance shall be determined from samples collected at stations representative of the area within the waste field where initial dilution is completed.

1. **Bacterial Characteristics**

   a. State Water Board Water-Contact Objectives

      i. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Santa Ana Water Board or USEPA (i.e., waters designated as REC-1), but including all kelp beds, the following bacterial water quality objectives shall be maintained throughout the water column:

         Fecal Coliform

         A 30-day geometric mean of fecal coliform density shall not exceed 200/100 mL, calculated based on the geometric mean of the five most recent samples from each site, and a single sample maximum shall not exceed 400/100 mL.

         Enterococci

         A 6-week rolling geometric mean of enterococci, calculated weekly, shall not exceed 30 CFU or MPN per 100 mL. The geometric mean value shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples distributed over a 6-week period.

A statistical threshold value of 110 CFU or MPN per 100 mL shall not be exceeded by more than 10 percent of all enterococci samples collected in a calendar month, calculated in a static manner.

ii. The Initial Dilution Zone of wastewater outfalls shall be excluded from designation as kelp beds for purposes of bacterial standards. Adventitious assemblages of kelp on waste discharge structures (e.g., outfall pipes and multiport diffusers) do not constitute kelp beds for purposes of bacterial standards.

b. State Water Board Beach Notification Levels

Minimum protective bacteriological standards for coastal waters adjacent to public beaches and for public water-contact sports areas in ocean waters are established in the California Code of Regulations, Title 17 (beginning at div. 1, ch. 5, section 7958 et seq.), which are not water quality objectives. When a public beach or public water-contact sports area fails to meet these standards, the California Department of Public Health or the local public health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met. The regulations impose more frequent monitoring and more stringent posting and closure requirements on certain high-use public beaches that are located adjacent to a storm drain that flows in the summer.

c. State Water Board Shellfish Harvesting Standards

At all areas where shellfish may be harvested for human consumption, as determined by the Santa Ana Water Board and USEPA, the following bacterial objectives shall be maintained throughout the water column: The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

d. USEPA Recreational Water Quality Criteria (RWQC)

Ocean waters beyond the outer limit of the territorial sea shall not exceed the following RWQC for *Enterococcus* density beyond the zone of initial dilution in areas where primary contact recreation occurs. The 2012 RWQC describes the criteria are designed to protect “primary contact recreation”, including swimming, bathing, surfing, water skiing, tubing, water play by children, and similar water contact activities where a high degree of bodily contact with the water, immersion and ingestion are likely (Recreational Water Quality Criteria, EPA-820-F-12-058, 2012, p. 6.).

Estimated illness rate of 32 per 1,000 primary contact recreators:

A 30-day geometric mean shall not exceed 30 CFU or MPN per 100 mL, which is calculated based on a statistically sufficient number of samples (generally not less than five samples equally spaced over any 30-day period).

A statistical threshold value corresponding to the 90th percentile of the same water quality distribution shall not exceed 110 CFU or MPN per 100 mL in the same 30-day interval.

2. **Physical Characteristics**

   a. Floating particulates and grease and oil shall not be visible.

   b. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.

   c. Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste.

   d. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

   e. Trash from the discharge shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.

3. **Chemical Characteristics**

   a. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.

   b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

   c. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.

   d. The concentration of substances, set forth in Chapter II, Table 3 of the California Ocean Plan, in marine sediments shall not be increased to levels which would degrade indigenous biota.

   e. The concentration of organic materials in marine sediments shall not be increased to levels which would degrade marine life.

   f. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.

   g. Numerical water quality objectives established in Table 3 of the California Ocean Plan shall not be exceeded as a result of discharges from the facility through Discharge Points 001 and 002 (as computed using an applicable dilution factor).

4. **Biological Characteristics**

   a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.

   b. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.

c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

5. **Radioactivity**

a. Discharge of radioactive waste, which meets the definition of "pollutant" at 40 CFR § 122.2, shall not degrade marine life.

B. Groundwater Limitations – Not Applicable

VII. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.
2. The Facility shall be protected to reduce infrastructure vulnerability to extreme wet weather events, flooding, storm surges, and projected sea level rise resulting from current and future impacts associated with climate change.
3. This Order/Permit expires on July 31, 2026, after which, the terms and conditions of this Order/Permit are automatically continued pending issuance of a new Order, provided that all requirements of USEPA's NPDES regulations at 40 CFR 122.6 and the State's regulations at CCR title 23, section 2235.4 regarding the continuation of expired permits and waste discharge requirements are met.
4. The Discharger shall comply with the following Santa Ana Water Board standard provisions and USEPA Region 9 standard provisions. In the event that there is any conflict, duplication, or overlap between provisions or requirements specified by this Order/Permit, the more stringent provision or requirement shall apply:

a. Consistent with the requirements in Attachment D. Standard Provisions – Reporting, section V.E. Twenty-Four Hour Reporting of this Order/Permit, in the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this Order/ Permit, the Discharger shall notify the Santa Ana Water Board by telephone (951) 782-4130 and USEPA by telephone (415) 947-4179 and by email R9NPDES@epa.gov within 24 hours of having knowledge of such noncompliance and shall confirm this notification in writing within five (5) working days, unless the Santa Ana Water Board and USEPA waives written confirmation. Other noncompliance requires written notification as above, at the time of the next self-monitoring report (SMR)/discharge monitoring report (DMR).

b. Neither the treatment nor the discharge of wastes shall cause, or threaten to cause, a pollution, contamination, or nuisance or as defined in California Water Code section 13050.

c. The Discharger shall take all reasonable steps to minimize and correct any adverse impact to receiving waters resulting from noncompliance with this Order/ Permit, including accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.

d. The Discharger shall file with the Santa Ana Water Board and USEPA a Report of Waste Discharge/application for permit modification at least 180 days before making any material change in the character, location, or volume of the discharge. A material change includes, but is not limited to, the following: Adding a major industrial waste discharge to a discharge of essentially domestic sewage, or adding a new process or product by an industrial facility resulting in a change in the character of the waste; significantly changing the disposal method or location, such as changing the disposal to another drainage area or waterbody; significantly changing the method of treatment; increasing the treatment plant design capacity beyond that specified in this Order/Permit.

e. The Discharger shall maintain a full and complete copy of this Order/Permit at the site so that it is available to site operating personnel, the Santa Ana Water Board, the California State Water Resources Control Board (hereinafter “State Water Board”), and USEPA at all times. Key operating personnel shall be familiar with its content.

f. Collected screenings, sludge, and other solids removed from liquid wastes shall be managed in accordance with federal, state, and local regulations (see Attachment G - Biosolids).

g. Permit Transfer. In the event of any change in control or ownership of land or waste discharge facility presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of this Order/Permit by letter, a copy of which shall be sent to the Santa Ana Water Board and USEPA. As an alternative to transfers under 40 CFR § 122.61(a), this Permit/Order may be automatically transferred to a new permittee if: The minimum 30 day notice to the USEPA Water Division Director includes a written agreement between the Discharger and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and the Director does not notify the Discharger and the proposed new permittee of his/her intent to modify or revoke and reissue the Permit. (A modification under this paragraph may also be a minor modification under 40 CFR § 122.63.) If this notice is not received, the transfer is effective on the date specified in the written agreement between the Discharger and the new permittee. (40 CFR § 122.61(b).)

h. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

i. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the Discharger from its liabilities under federal, state, or local laws, nor guarantee the Discharger a capacity right in the receiving waters.

j. Termination of Permits. The causes for terminating a permit during its term, or for denying a permit renewal application, are found at 40 CFR § 122.64 and are incorporated into this Order/Permit by reference.

k. Availability of Reports. Except for data determined to be confidential under 40 CFR § 2, all reports prepared in accordance with the terms of this Order/Permit shall be available for public inspection at the offices of the Santa Ana Water Board and USEPA. As required by the CWA, permit applications, permits, and effluent data shall not be considered confidential. (Pursuant to CWA section 308.)

l. Severability. The provisions of this Order/Permit are severable, and if any provision of this Order/Permit, or the application of any provision of this Order/Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order/Permit shall not be affected thereby. (Pursuant to CWA section 512.)

m. Civil and Criminal Liability. Except as provided in standard conditions (Attachment D) on Bypass and Upset, nothing in this Order/Permit shall be construed to relieve the Discharger from civil or criminal penalties for noncompliance. (Pursuant to CWA section 309.)

n. Oil and Hazardous Substances Liability. Nothing in this Order/Permit shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject under CWA section 311.

o. State, Tribe, or Territory Law. Nothing in this Order/Permit shall be construed to preclude the institution of any legal action or relieve the operator from any responsibilities, liabilities, or penalties established pursuant to any applicable State, Tribe, or Territory law or regulation under authority preserved by CWA section 510.

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

This Order/Permit may be reopened for modification prior to its expiration date in accordance with the requirements set forth at 40 CFR § 122 and 124 to:

a. Include an effluent limitation if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a California Ocean Plan Table 3 water quality objective.

b. Revise or modify the Order/Permit if present or future investigations demonstrate that the discharges governed by this Order/Permit have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.

c. Include effluent limitations for pollutants determined to be present in the discharge.

d. Address any changes in State or federal plans, policies, or regulations that would affect the quality requirements of the discharge.

e. Include conditions or effluent or receiving water limitations based on newly available information (e.g., effluent toxicity, dilution, significant change in waste flow, strategic process study results, etc.).

f. Include revised effluent limitations or conditions to address acute or chronic toxicity in the effluent or receiving water, as a result of the discharge; or to implement new, revised, or newly interpreted water quality standards applicable to acute or chronic toxicity.

g. Revise performance goals or mass emission benchmarks contained in this Order/Permit (see Section V).

h. Incorporate a promulgated CWA section 405(d) standard for sewage sludge use or disposal more stringent than any requirements for sludge use or disposal in this Order/Permit, or control a pollutant or practice not limited in this Order/Permit. (40 CFR § 122.44(c).)

i. Incorporate any effluent standard or discharge prohibition (including any schedule of compliance specified in such effluent standard or prohibition) established under CWA section 307(a) for a pollutant which is present in the discharge, and such standard or prohibition is more stringent than any requirement for that pollutant in this Order/Permit.

j. This Order/Permit may be modified, or revoked and reissued, based on the results of Magnuson-Stevens Fishery Conservation and Management Act and/or Endangered Species Act section 7 consultation(s) with the National Marine Fisheries Service and/or U.S. Fish and Wildlife Service.

k. This Order/Permit may be reopened and modified if new or revised water quality objectives or total maximum daily loads (TMDLs) come into effect for contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order/Permit may be modified as necessary to reflect the updated water quality objectives and wasteload allocations in the TMDLs. Adoption of effluent limitations contained in this Order/Permit is not intended to restrict in any way future modifications based on legally adopted water quality objectives, TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

l. Or as otherwise authorized by law.

2. Southern California Bight Monitoring Exchange

The MRP (Attachment E) may be modified by the Santa Ana Water Board and USEPA to enable the Discharger to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of this permit. The intent of regional monitoring activities is to maximize the efforts of all monitoring partners using a cost-effective monitoring design and to best utilize the pooled scientific resources of the region. During these coordinated monitoring efforts, the

Discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of wastewater discharges to the Southern California Bight; however, certain core elements (i.e., monthly water quality monitoring, quarterly REC-1 water quality monitoring, quarterly benthic monitoring, semi-annual trawl fish monitoring, and weekly Orange County Regional Shoreline REC-1 cooperative monitoring) shall remain unchanged. Anticipated modifications to the monitoring program will be coordinated so as to provide a comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollutant sources. If predictable relationships among the biological, water quality and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the Discharger's monitoring effort. Conversely, the monitoring program may be intensified if it appears that the objectives cannot be achieved through the Discharger's existing monitoring program. These changes will improve the overall effectiveness of monitoring in the Southern California Bight. Minor changes may be made without further public notice.

3. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Toxicity Reduction Requirements

If the discharge exceeds an effluent limitation for toxicity specified in Table 5 and 6, the Discharger shall conduct a Toxicity Reduction Evaluation (TRE) defined in Attachment A, in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is not an effluent limitation for toxicity.

i. TRE Work Plan

Within 90 days of the Order/Permit effective date, the Discharger shall prepare and submit a copy of their Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan to the Santa Ana Water Board and USEPA for review and approval by the Santa Ana Water Board Executive Officer and USEPA Water Division Director. The TRE Work Plan must be developed in accordance with USEPA guidance, EPA manual *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA/ 833/B-99/002, 1999), and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision. This plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity and shall describe the steps the Discharger intends to follow if toxicity is measured above an acute or chronic WET permit limit. The TRE Work Plan should include, at minimum:

(a) A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of the exceedance, effluent variability, and/or efficiency of the treatment system in removing toxic substances. This shall include a description of an accelerated chronic toxicity testing program;

(b) A description of the methods to be used for investigating and maximizing

in-house treatment system efficiency and good housekeeping practices, and a list of all chemicals used in operations at the facility;

(c) A description of the evaluation process to be used to determine if implementation of a more detailed Toxicity Reduction Evaluation and Toxicity Identification Evaluation (TRE/TIE) is necessary;

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

ii. Accelerated Toxicity Monitoring Specifications and TRE/TIE Initiation

When a WET permit limit is exceeded during regular toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required below. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the WET permit limit during accelerated monitoring.

(a) If an acute or chronic WET permit limit is exceeded and the source(s) of toxicity is easily identified (e.g., a temporary plant upset), then the Discharger shall make necessary corrections to the facility and shall conduct one (1) additional toxicity test using the same species and test method. This test shall begin within 14 days of notification by the laboratory of the exceedance of the WET permit limit. If the additional toxicity test does not exceed the WET permit limit, then the Discharger may return to their regular testing frequency.

(b) If an acute or chronic WET permit limit is exceeded and the source of toxicity is not known, then the Discharger shall conduct four (4) additional toxicity tests using the same species and test method, approximately every two weeks, over an eight (8) week period. This testing shall begin within 14 days of notification by the laboratory of the exceedance of the WET permit limit. The following protocol shall be used for accelerated monitoring and TRE initiation:

(1) If none of the additional four (4) consecutive toxicity tests exceed the WET permit limit, then the Discharger may cease accelerated monitoring and resume their regular toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Santa Ana Water Board Executive Officer and/or USEPA Water Division Director may require that the Discharger initiate a TRE.

(2) If one of the additional toxicity tests (in paragraphs ii(a) or ii(b) above) exceeds the WET permit limit, then, within 14 days of receipt of this test result, the Discharger shall cease accelerated monitoring and initiate a TRE using as guidance, based on the type of treatment facility, USEPA manual *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA/ 833/B-99/002, 1999). In conjunction, within 30 days of notification by the laboratory of any

test result exceeding the WET permit limits during accelerated monitoring, the Discharger shall develop and submit a TRE Action Plan to the Santa Ana Water Board and USEPA, which shall include specific actions undertaken by the Discharger to investigate, identify, and correct the cause(s) of toxicity, including a TRE WET monitoring schedule; specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and a schedule for these actions.

(c) 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 test method manuals: *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents*, Phase I (EPA/600/6-91/005F, 1992); 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 *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996).

b. Dilution Model Update

No later than 4 years after the effective date of this Order/Permit, the Discharger shall submit a work plan for an updated dilution modeling that is reflective of current operations, including the increase in RO concentrate that may be discharged upon completion of the groundwater replenishment system (GWRS) final expansion project. The purpose of the study is to determine initial dilution under a reasonable worst-case scenario (e.g., strongest density stratification and zero current). The discharger shall include explanation of the conditions and data used, assessment of compliance with applicable water quality objectives, and determination of an appropriate dilution ratio for each outfall. Specifically, the work plan shall include:

- Model inputs and assumptions,
- Describe trapping levels and any boundary effects in the observed range of the ambient density stratification,
- Assume zero current, consistent with the California Ocean Plan,
- Account for a decrease in flow and an increase in pollutant concentrations,
- Include WET assessment using synthetic effluent to approximate future final conditions, and
- Include a sensitivity analysis for how different inputs affect the initial dilution, including effluent temperature and density.

c. Ocean Outfall Condition Assessment and Scoping Study

Within 180 days after completion of outfall condition assessment project for Discharge Point 001 (120” outfall) or Discharge Point 002 (78” outfall) if performed during this permit term, the Discharger shall submit a report of each

comprehensive ocean outfall condition assessment to the Santa Ana Water Board and USEPA, which shall include, but not limited to:

- Field work findings (e.g., Barnacle Collar removal and manhole cover removal/ replacement),
- Any environmental impacts caused during the field works,
- Videographic/photographic records of the interior of the outfall pipe and ballast and manhole cover conditions,
- 3-D mapping,
- Analysis of the impacts of low flows on diffuser hydraulics and plugging, and
- The potential rehabilitation projects recommendation.

4. Best Management Practices and Pollution Prevention

a. Pollutant Minimization Program

The Discharger shall develop and conduct a Pollutant Minimization Program (PMP) as 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/Permit, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a pollutant is present in the effluent above an effluent limitation and either:

i. The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported minimum level (ML), using definitions described in Attachment A and reporting protocols described in MRP section XII.B.4.

ii. The concentration of the pollutant is reported as not detected (ND) and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP section XII.B.4.

By March 1 of each year, the Discharger shall submit its annual PMP Report to the Santa Ana Water Board and USEPA, for the previous calendar year. The PMP report shall include, but not be limited to, the following actions and submittals acceptable to the Santa Ana Water Board and USEPA:

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

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

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

iv. Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and

v. An annual status report that shall be sent to the Santa Ana Water Board and USEPA including: All PMP monitoring results for the previous year; a list of potential sources of the reportable pollutant(s); a summary of all actions undertaken pursuant to the control strategy; and a description of actions to be taken the following year.

b. Storm Water Management Plan

Onsite storm water at this POTW shall be captured, treated, and discharged with the treated municipal wastewater regulated under this Order/Permit. The Discharger shall file with the Santa Ana Water Board and USEPA, within 180 days of the effective date of this Order/Permit, an updated Storm Water Management Plan for discharges of storm water associated with industrial activities excluding construction activities at its treatment/reclamation plants to prevent trash being present in the discharge. The Storm Water Management Plan must include the trash management to incorporate the 2015 trash amendments of the Ocean Plan.

5. Construction, Operation and Maintenance Specifications

a. The Discharger's wastewater treatment plants 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. The Discharger shall report annually to the Santa Ana Water Board and USEPA a roster of such personnel, including job titles, duties, and level of State certification for each individual.

b. The Discharger shall develop an Operation and Maintenance Manual (O&M Manual). If an O&M Manual has been developed, then the Discharger shall update it as necessary to conform to the most recent plant changes and requirements. The O&M Manual shall be readily available to operating personnel onsite. The O&M Manual shall include:

i. A detailed description of safe and effective operation and maintenance of treatment processes, process control instrumentation, and equipment.

ii. A description of the treatment plant organization showing the number of employees, duties and qualifications, plant attendance schedules (daily, weekends and holidays, part-time, etc.), and emergency contact information. The description should include documentation that the personnel are knowledgeable and qualified to operate the treatment facility so as to achieve the required level of treatment at all times.

iii. A description of laboratory and quality assurance procedures.

iv. Process and equipment inspection and maintenance schedules.

v. A description of safeguards (e.g., standby or emergency power and/or storage capacity or other means) to assure that, should there be reduction, loss, or failure of electric power, the Discharger will be able to comply with the requirements of this Order/Permit.

vi. A description of and reference to the most current spill preventive and contingency plan for controlling accidental discharges, and for minimizing the effect of such events (see the paragraph c below).

c. **Spill Preventive and Contingency Plan (SPCP).** The Discharger shall file with the Santa Ana Water Board and USEPA, within 180 days after the effective date of this Order/Permit, the Discharger's spill preventive (fail-safe) and contingency plan (response and cleanup) in an up-to-date condition. The Discharger shall amend this plan 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 plan as appropriate after each spill from the POTW. At a minimum, this plan shall:

i. Identify the possible sources of accidental discharges, untreated or partially treated waste bypass, overflows, and contaminated drainage that reach water bodies including dry channels and beach sands. Loading and storage areas, power outage, waste treatment outage, and failure of process equipment, tanks, and collection system sewer pipes and pump stations should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and when they become operational. Describe present facilities and procedures needed for effective preventive and contingency plans.

iii. Describe any new facilities and procedures needed. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

iv. Describe the activities and protocols to address clean-up of spills and containment measures, public notifications, monitoring, and the procedures to be carried out if floatable material is visible on the water surface near the discharge point or has been washed ashore.

v. Describe proposed and completed training programs and schedules to train and familiarize plant operating personnel with the Discharger's SPCP for controlling accidental discharges and for minimizing the effects of such events. (California Water Code sections 13267(b) and 13268.)

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

a. Biosolids. The Discharger shall manage its sludge and biosolids in accordance with federal regulations (40 CFR § 257, 258 and 503) and the requirements specified in Attachment G of this Order/Permit.

b. Pretreatment. The Discharger shall implement and enforce its approved pretreatment program in accordance with federal pretreatment regulations (40 CFR § 403); pretreatment standards promulgated under CWA sections 307(b), 307(c), 307(d), and 402(b); pretreatment requirements specified under 40 CFR § 122.44(j); and the requirements specified in Attachment H of this Order/Permit.

c. Collection System. The Discharger is subject to the requirements of and must comply with State Water Resources Control Board (State Water Board) Order 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, including monitoring and reporting requirements as amended by State Water Board Order WQ 2013-0058-EXEC and any subsequent order. Regardless of the coverage obtained under the General Order, as amended, the Discharger's collection system is part of the POTW that is subject to this Order/Permit. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system (40 CFR § 122.41(e)), report any non-compliance (40 CFR § 122.41(l)(6) and (7)), and mitigate any discharge from the collection system in violation of this Order/Permit (40 CFR § 122.41(d)).

d. Resource Recovery from Anaerobically Digestible Material. If the Discharger will receive hauled-in anaerobically digestible material for injection into an anaerobic digester, the Discharger shall notify the Santa Ana Water Board and USEPA and develop and implement Standard Operating Procedures for this activity. The Standard Operation Procedures shall be developed prior to receiving hauled-in anaerobically digestible material. The Standard Operating Procedures shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; and spill response. In addition, the Standard Operating Procedures shall address avoidance of the introduction of materials that could cause interference, pass-through, or upset of the treatment processes; avoidance of prohibited material; vector control; odor control; operation and maintenance; and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall train its staff on the Standard Operating Procedures and shall maintain records for a minimum of five years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of five years for the disposition, location, and quantity of cumulative pre-digestion-segregated solid waste hauled offsite.

e. Ensuring Adequate Treatment Capacity. The Discharger shall submit a written report to the Santa Ana Water Board Executive Officer and USEPA Water Division Director within 90 days after the monthly average daily dry-weather influent flow rate equals or exceeds 75 percent of the daily dry-weather design flow of the treatment plants (i.e., 0.75 x 332 MGD = 249 MGD). The Discharger's senior administrative officer shall sign a letter in accordance with the Standard Provisions (Attachment D) which transmits the report and certifies that the policy-making body is adequately informed of the influent flow rate relative to the POTW design capacity. The report shall include the following: Daily average influent flow

for the calendar month, the date on which the maximum daily flow occurred, and the rate of that maximum flow; the Discharger's best estimate of when the daily average influent flow for a calendar month will equal or exceed the design capacity of the treatment plants (i.e., 332 MGD); and the Discharger's intended schedule for studies, design, and other steps needed to provide additional treatment for the wastewater from the collection system before the waste flow exceeds the capacity of the POTW.

f. Asset Management. The Discharger shall develop an asset management program to cover the POTW. The Discharger shall:

i. Develop and utilize an asset management program within two years of the effective date of this Order/Permit. This program shall include a detailed inventory of critical assets; condition rating and/or likelihood of failure of said assets; rehabilitation and replacement planning, capacity assurance planning, and maintenance strategy to ensure the Discharger's system meets a desired level of service and plan for future needs and requirements; and funding source to support the planned asset maintenance, rehabilitation, and replacement activities. Critical assets may include, but are not limited to sewer lines, manholes, outfalls, pump stations, force mains, and wastewater treatment facility assets.

ii. Create and submit to the Santa Ana Water Board and USEPA an Asset Management Plan (AMP) within one year of the effective date of this Order/Permit. The AMP shall be updated and re-evaluated every five years. The AMP shall include the following components: A Rehabilitation and Replacement Plan identifying and prioritizing upcoming rehabilitation and replacement projects for critical assets and outlining a proposed schedule for completion of each project; a Maintenance Plan identifying major maintenance activities, frequency performed for critical assets, and estimates of ongoing and projected costs of maintenance activities; and a Sewer Collection System Map incorporating assets from the asset management inventory. Finally, the AMP shall include estimated costs for the Rehabilitation and Replacement Plan and the Maintenance Plan. Expenses may include operational, administrative, interest, or capital expenses. The cost estimate shall include a determination of whether the planned expenditures are capital or operational and the source of funds: user or connection fees, grants, bonds, or reserves.

7. Other Special Provisions

a. **Monitoring Data Accessibility.** The Discharger shall make monitoring data accessible to the public via the Internet. Within 180 days of the effective date of this Order/Permit, the Discharger shall submit a report to the Santa Ana Water Board and USEPA that updates the Discharger's plans and activities making monitoring data accessible to the public via the Internet, including implementation schedules. The Santa Ana Water Board and USEPA shall be informed of any change, in writing, within 30 days of the change.

8. Compliance Schedules – Not Applicable

VIII. COMPLIANCE DETERMINATION

A. Effluent Limitations

Compliance with the effluent limitations contained in section IV of this Order/Permit shall be determined as specified below.

1. Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation. If the analytical result of any single sample (daily discharge) monitored monthly, or less frequently, exceeds the AMEL (or 6-month median effluent limitation), then the Discharger shall increase the monitoring frequency to weekly until compliance with the effluent limitation is demonstrated.
2. Compliance with Effluent Limitations expressed as Single Constituents

   Dischargers are out of compliance with the effluent limitation if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level (i.e., ML or RL).
3. Compliance with Effluent Limitations expressed as Sum of Several Constituents

   Dischargers are out of compliance with an effluent limitation which 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. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.
4. 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 of the 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.
5. Average Monthly Effluent Limitation (AMEL)

   If the average (or when applicable, the median determined by subsection 4 above for multiple sample data reduction) of daily discharges over a calendar month exceeds (is higher than) 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 non-compliance in a 31-day month). However, an alleged violation of the AMEL will be considered one violation for the purpose of assessing State mandatory minimum penalties. If only a single sample is collected during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger may be considered out of compliance for that calendar month. For those average monthly effluent limitations that are based on the 6-month median water quality objectives in the 2019 Ocean Plan, the daily value used to calculate these average monthly values for intermittent discharges, shall be considered to equal zero for days on which no discharge occurred. The Discharger will only be considered out of compliance for days when the discharge occurs. If no sample (daily discharge) is taken over any one calendar month, no compliance determination can be made for that month with respect to effluent violation determination, but compliance determination can be made for that month with respect to reporting violation determination.

A month will begin on the first day of the calendar month and end on the last day of the calendar month, in order to calculate and report a consecutive (uninterrupted) average value for the AMEL for a calendar month.

6. Average Weekly Effluent Limitation (AWEL)

   If the average (or when applicable, the median determined by subsection 4 above for multiple sample data reduction) of daily discharges over a calendar week exceeds (is higher than) 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 (e.g., resulting in seven days of non-compliance). However, an alleged violation of the AWEL will be considered one violation for the purpose of assessing State mandatory minimum penalties. The average of daily discharges over a 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 collected 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. If no sample (daily discharge) is taken over a calendar week, no compliance determination can be made for that week with respect to effluent violation determination, but compliance determination can be made for that week with respect to reporting violation determination.

   A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value for the AWEL on Saturday.

7. Maximum Daily Effluent Limitation (MDEL)

   If a daily discharge on a calendar day exceeds (is higher than) the MDEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that day for that parameter. If no sample (daily discharge) is taken over a calendar day, no compliance determination can be made for that day

with respect to effluent violation determination, but compliance determination can be made for that day with respect to reporting violation determination.

8. Instantaneous Minimum Effluent Limitation

   If the analytical result of a single grab sample exceeds (is lower than) the instantaneous minimum effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that single sample for that parameter. Non-compliance for each single grab sample will be considered separately (e.g., the analytical results of two grab samples taken over a calendar day that are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

9. Instantaneous Maximum Effluent Limitation

   If the analytical result of a single grab sample exceeds (is higher than) the instantaneous maximum effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that single sample for that parameter. Non-compliance for each single grab sample will be considered separately (e.g., the analytical results of two grab samples taken over a calendar day that both are higher than the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

10. Six-month Median Effluent Limitation (i.e., 180-day Median Effluent Limitation)

    If the median of daily discharges over any 180-day period exceeds (is higher than) the 6-month median effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that 180-day period (e.g., resulting in 180 days of non-compliance in any 180-day period). The next assessment of compliance will occur when the next sample is taken. If only a single sample is collected during a given 180-day period and the analytical result for that sample exceeds the six-month median, the Discharger will be considered out of compliance for the 180-day period. If no sample (daily discharge) is taken over a 180-day period, no compliance determination can be made for that period with respect to effluent violation determination, but compliance determination can be made for that period with respect to reporting violation determination.

11. 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 mass emission rate determined from that sample concentration shall also be reported as ND or DNQ.

12. Mass Emission Rate

The daily discharge mass emission rate for any calendar day is calculated using the following equations:

$$\text{Daily Discharge mass emission rate (lb/day)} = \frac{8.34}{N}\sum_{i=1}^{N} Q_i C_i$$

in which "N" is the number of samples taken over any calendar day. If grab samples are taken, "Ci" is the constituent concentration (mg/L) and "Qi" is the flow rate (MGD) associated with each "N" grab sample. If composite samples are taken, "Ci" is the constituent concentration (mg/L) in each composite sample and "Qi" is the average flow rate (MGD) during the period over which sample compositing occurs.

The daily discharge concentration of a constituent shall be determined from the flow-weighted average of the same constituent in the combined waste stream using the following equation:

$$\text{Daily discharge concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

in which "N" is the number of component waste streams. "Ci" is the constituent concentration (mg/L) and "Qi" is the flow rate (MGD) associated with each "N" component waste stream. "Qt" is the total flow rate of the combined waste stream.

13. Bacterial Standards and Analysis

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

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

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

    b. For bacterial analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 mL for total and fecal coliform, at a minimum, and 1 to 1000 per 100 mL for *Enterococcus*). The detection methods used for each analysis shall be reported with the results of the analyses.

    c. Detection methods used for coliforms (total and fecal) and enterococcus shall be those presented in Table IA of 40 CFR § 136, unless alternate methods have been approved by USEPA pursuant to 40 CFR § 136, or improved methods have been determined by the Santa Ana Water Board and/or USEPA.

14. Sample Reporting Protocols

    The Discharger must report with each sample result the reported Minimum Level, selected and used in accordance with Ocean Plan Chapters III.C.5 and 6, the laboratory's current Method Detection Limit. In accordance with Ocean Plan Chapter III.C.7, the Discharger must also 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 Minimum Level must be reported “as measured” by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the reported Minimum Level, but greater than or equal to the laboratory’s Method Detection Limit, must be reported as “Detected, but Not Quantified”, or “DNQ”. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words “Estimated Concentration” (may be shortened to “Est. Conc.”).

c. Sample results less than the laboratory’s Method Detection Limit must be reported as “Not Detected”, or “ND”.

ATTACHMENT A – DEFINITIONS

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.

Areas of Special Biological Significance (ASBS)
Those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that maintenance of natural water quality is assured. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS (SWQPA). ASBS are also referred to as State Water Quality Protection Areas – Areas of Special Biological Significance (SWQPA-ASBS).

Average Monthly Effluent Limitation (AMEL)
Means 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. (40 CFR § 122.2)

Average Weekly Effluent Limitation (AWEL)
Means 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. (40 CFR § 122.2)

Best Management Practices (BMPs)
Means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States". BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillages or leaks, sludge or waste disposal, or drainage from raw material storage. (40 CFR § 122.2)

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

Chlorinated Phenols
The sum of 2-chlorophenol, 2,4-dichlorophenol, 4-chloro-3-methylphenol, 2,4,6-trichlorophenol, and pentachlorophenol.

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.

Composite Sample
Means a time-proportioned mixture of not less than eight discrete aliquots obtained at equal time intervals (e.g., 24-hour composite means a minimum of eight samples collected every three hours). The volume of each aliquot shall be directly proportional to the discharge flow

rate at the time of sampling, but not less than 100 ml. The compositing period shall equal the specified sampling period, or 24 hours, if no period is specified.

For a composite sample, if the duration of the discharge is less than 24 hours but greater than 8 hours, at least eight flow-weighted individual sample portions shall be taken during the duration of the discharge and composited. For a discharge duration of 8 hours or less, eight individual “grab samples” may be substituted and composited.

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 one day.

For composite sampling, if one 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, 2,4’DDD, and 4,4’DDMU.

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 (ML), but greater than or equal to the laboratory’s Maximum Detection Limit (MDL). Sample results reported as DNQ are estimated concentrations.

Dichlorobenzenes
Shall mean the sum of 1,2- and 1,3-dichlorobenzene.

Dilution Credit
Dilution Credit is 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.

Downstream Ocean Waters
Shall mean waters downstream with respect to ocean currents.

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

Eelgrass Beds
Are aggregations of the aquatic plant species of the genus *Zostera*.

Enclosed Bays
Are indentations along the coast which 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. Enclosed bays do not include inland surface waters or ocean waters.

Endosulfan
Shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

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, Russian, Klamath, San Diego, and Otay Rivers. Estuaries do not include inland surface waters or ocean waters.

Facility or Activity
Means any NPDES “point source” or any other facility or activity (including land or appurtenances thereto) this is subject to regulation under the NPDES program. (40 CFR § 122.2)

Geometric Mean (GM)
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 nth root of the product of n numbers. The formula is expressed as: $GM = (C_1 \times C_2 \times \ldots \times C_n)^{1/n}$, where *C* is the sample value and n is the number of samples taken.

Grab Sample
Is a single sample collected during a period of time, not to exceed 15 minutes, which represents the composition of the discharge only at a particular time and place. Grab samples

shall be collected during normal peak loading conditions for the parameter of interest, which may or may not occur during hydraulic peaks.

Halomethanes
Shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

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

Indicator Bacteria
Includes total coliform bacteria, fecal coliform bacteria (or *E. coli*) and/or Enterococcus bacteria.

Initial Dilution
Is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Santa Ana Water Board and/or USEPA, whichever results in the lower estimate for initial dilution.

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 effluent 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 effluent limitation).

Kelp Beds
Are aggregations of marine algae of the order *Laminariales*, including species in the genera *Macrocystis*, *Nereocystis*, and *Pelagophycus*. Kelp beds include the total foliage canopy throughout the water column.

Mariculture
The culture of algae, plants, and animals in marine waters independent of any pollution source.

Marine Managed Areas
Are named, discrete geographic marine or estuarine areas along the California coast designated by law or administrative action, and intended to protect, conserve, or otherwise

manage a variety of resources and their uses. According to the California Public Resources Code (§§ 36600 et seq.) there are six classifications of marine managed areas, including State Marine Reserves, State Marine Parks and State Marine Conservation Areas, State Marine Cultural Preservation Areas, State Marine Recreational Management Areas, and State Water Qualtiy Protection Areas.

Material
(a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of the Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period) (40 CFR § 122.2). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day. Also, Maximum Daily Discharge Limitation (MDDL).

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

Method Detection Limit (MDL)
Is the minimum measured 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 § 136, Appendix B.

Minimum Level (ML)
Is 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.

Multiport Diffusers
Are linear structures consisting of spaced ports or nozzles that are installed on submerged marine outfalls.

Municipal Separate Storm Sewer System (MS4)
Has the same meaning as set forth in 40 CFR § 122.26(b)(8).

Natural Light
Reduction of natural light may be determined by the Santa Ana Water Board and USEPA by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Santa Ana Water Board and USEPA.

No Discharge Zone (NDZ)
Is an area in which both treated and untreated sewage discharges from vessels are prohibited. Within NDZ boundaries, vessel operators are required to retain their sewage discharges onboard for disposal at sea (beyond 3 nautical miles from shore) or onshore at a pump-out facility.

Non-Chlorinated Phenols
The sum of 2,4-dimethylphenol, 2-nitrophenol, 4-nitrophenol, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, and phenol.

Non-Storm Water Discharge
Is any runoff that is not the result of a precipitation event. This is often referred to as “dry weather flow”.

Not Detected (ND)
Sample results which are less than the laboratory’s MDL.

Ocean Waters
Are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

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

PCBs (polychlorinated biphenyls) as Aroclors
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.

PCBs as congeners
The sum of the following 41 individually quantified PCB congeners or mixtures of isomers of a single congener in a co-elution: PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

Permitting Authority
Means the State Water Board or Regional Waterboard, whichever issues the permit, and USEPA which issues the permit.

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 the 2019 Ocean Plan Table 3 pollutants 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 Santa Ana Water Board and USEPA 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.

Pollution Prevention
Any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in CWC section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board), Santa Ana Water Board, or USEPA.

Publicly-Owned Treatment Works (POTWs)
A treatment works as defined by section 212 of the CWA, which is owned by a State or municipality (as defined by section 502(4) of the Act). 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. The term also means the municipality which has jurisdiction over the Indirect Discharges to and the discharges from such treatment works. (40 CFR § 403.3(q).)

Reported Minimum Level (RML)
Is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in their permit, which is also known as the Reporting Level (RL). The MLs included in this permit correspond to approved analytical methods for reporting a sample result that are selected by the Santa Ana Water Board in accordance with Ocean Plan Chapter III.C.5. The ML is based on the proper application of method-specific analytical procedures 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 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 reported ML. (See Chapter III.C.6 of the 2019 Ocean Plan.).

Salinity
Is a measure of the dissolved salts in a volume of water. For the purposes of the Ocean Plan, salinity shall be measured using a standard method approved by the Santa Ana Water Board

and USEPA (e.g., Standard Method 2520 B, EPA Method 120.1, EPA Method 160.1) and reported in parts per thousand (ppt). For historical salinity data not recorded in parts per thousand, the Santa Ana Water Boards and USEPA may accept converted data at their discretion.

Seawater
Is salt water that is in or from the ocean.

Sensitive Habitats
For the purposes of the Ocean Plan, are kelp beds, rocky substrate, surfgrass beds, eelgrass beds, oyster beds, spawning grounds for State or federally managed species, market squid nurseries, or other habitats in need of special protection as determined by the Water Boards.

Shellfish
Are organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams and oysters).

Significant Difference
Is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level, unless otherwise specified by the permitting authority.

Single Sample Maximum (SSM)
A maximum value not to be exceeded in any single sample.

Six-Month Median Effluent Limitation (i.e., 180-Day Median Effluent Limitation)
The highest allowable moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.

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.

State Water Quality Protection Areas (SWQPAs)
Non-terrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) that were previously designated by the State Water Board in Resolutions 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by the Ocean Plan.

State Water Quality Protection Areas – General Protection (SWQPA-GP)
Designed by the State Water Board to protect marine species and biological communities from undesirable alteration in natural water quality within State Marine Parks and State Marine Conservation Areas.

Statistical Threshold Value (STV)
Is defined for the bacteria water quality objectives as a set value that approximates the 90th percentile of the water quality distribution of a bacterial population. The STV for the enterococcus water quality objective is 110 CFU/100mL.

Storm Water
Has the same meaning as set forth in 40 CFR § 122.26(b)(13).

Surfgrass Beds
Are aggregations of marine flowering plants of the genus *Phyllospadix*.

TCDD Equivalents (TEQ)
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 equivalency factor (TEF), as shown in the table below.

Congener	TEF	Minimum Level (pg/L)
chlorinated dibenzo-p-dioxins		
2,3,7,8-tetraCDD	1.0	5
1,2,3,7,8-pentaCDD	0.5	25
1,2,3,4,7,8-hexaCDD	0.1	25
1,2,3,6,7,8-hexaCDD	0.1	25
1,2,3,7,8,9-hexaCDD	0.1	25
1,2,3,4,6,7,8-heptaCDD	0.01	25
OctaCDD	0.001	50
chlorinated dibenzofurans		
2,3,7,8-tetraCDF	0.1	5
1,2,3,7,8-pentaCDF	0.05	25
2,3,4,7,8-pentaCDF	0.5	25
1,2,3,4,7,8-hexaCDF	0.1	25
1,2,3,6,7,8-hexaCDF	0.1	25
1,2,3,7,8,9-hexaCDF	0.1	25
2,3,4,6,7,8-hexaCDF	0.1	25
1,2,3,4,6,7,8-heptaCDF	0.01	25
1,2,3,4,7,8,9-heptaCDF	0.01	25
OctaCDF	0.001	50

Test of Significant Toxicity (TST)
A statistical approach used to analyze toxicity test data. The TST incorporates a restated null hypothesis, Welch's t-test, and the biological effect thresholds for chronic and acute toxicity.

Toxicity Identification Evaluation (TIE)
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.

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 TIE may be required as part of the TRE, if appropriate.

Trash
Means all improperly discarded solid material from any production, manufacturing, or processing operations including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.

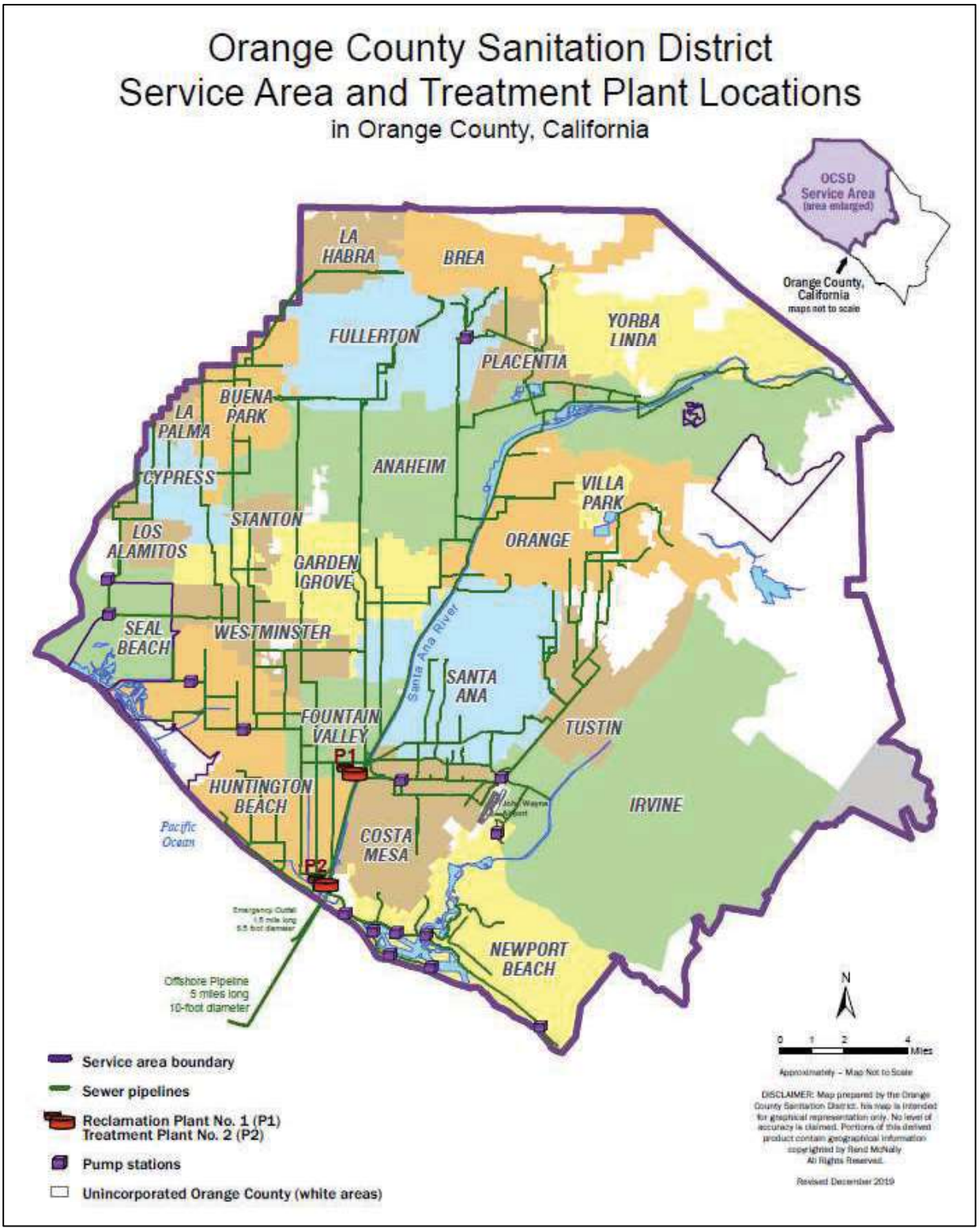
Trash Provisions
Are the water quality objective for Trash, as well as the prohibition of discharge set forth in Chapter III.I and implementation requirements set forth in Chapter III.L of the Ocean Plan.

Waste
As used in the Ocean Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

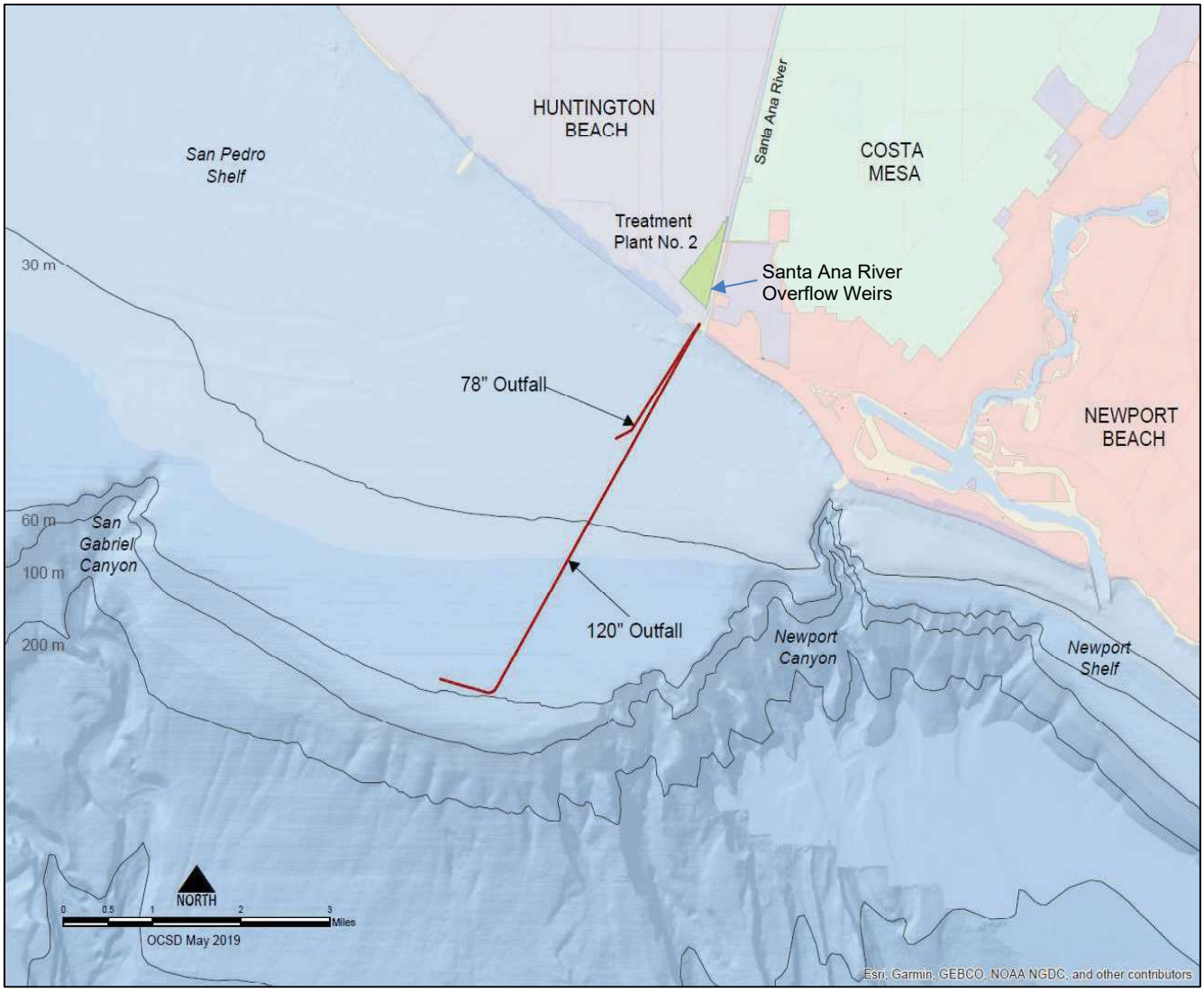
Water Reclamation
The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

ATTACHMENT B – MAPS

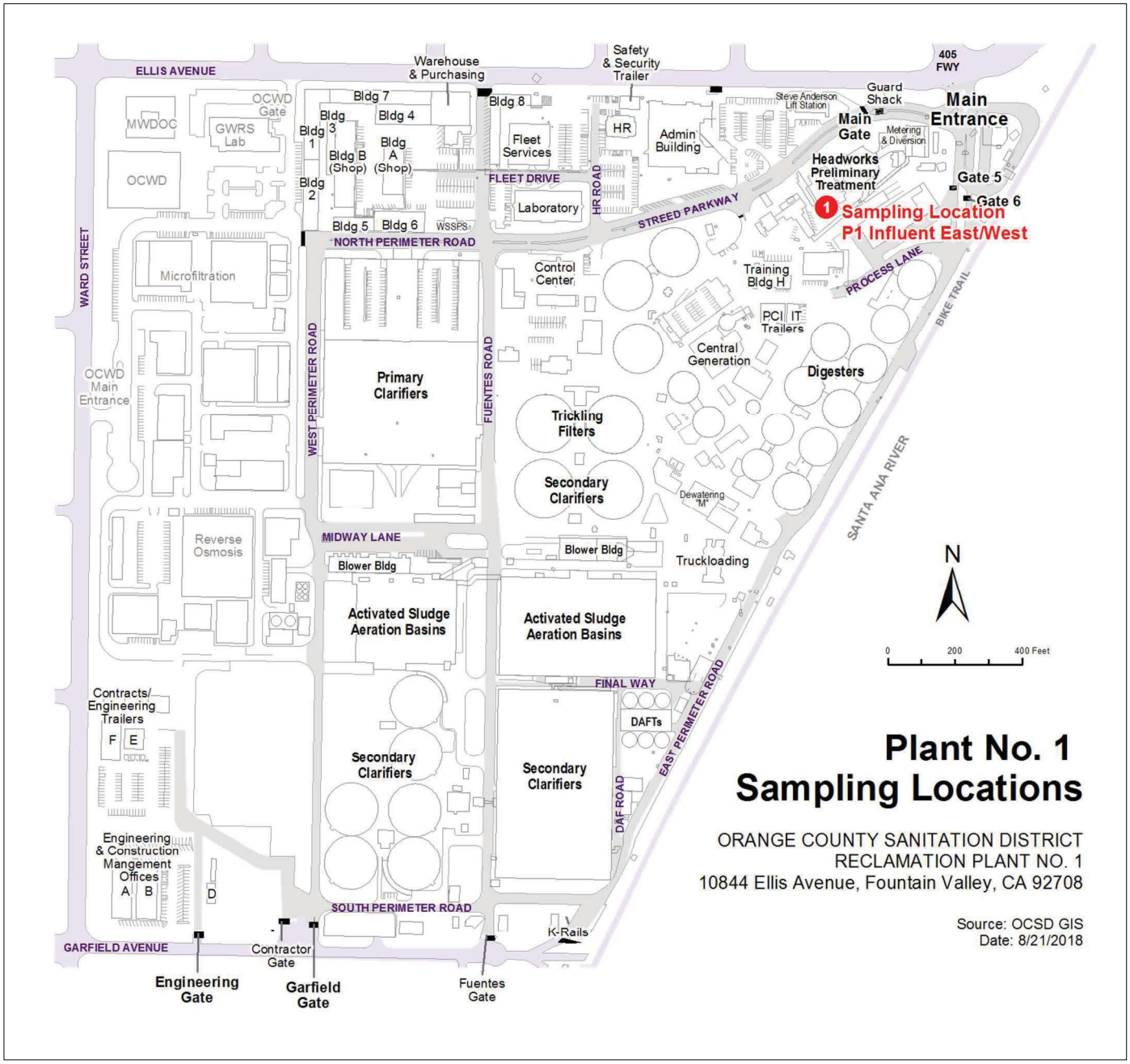
Attachment B1 – Map of Service Area and Treatment Plant Locations



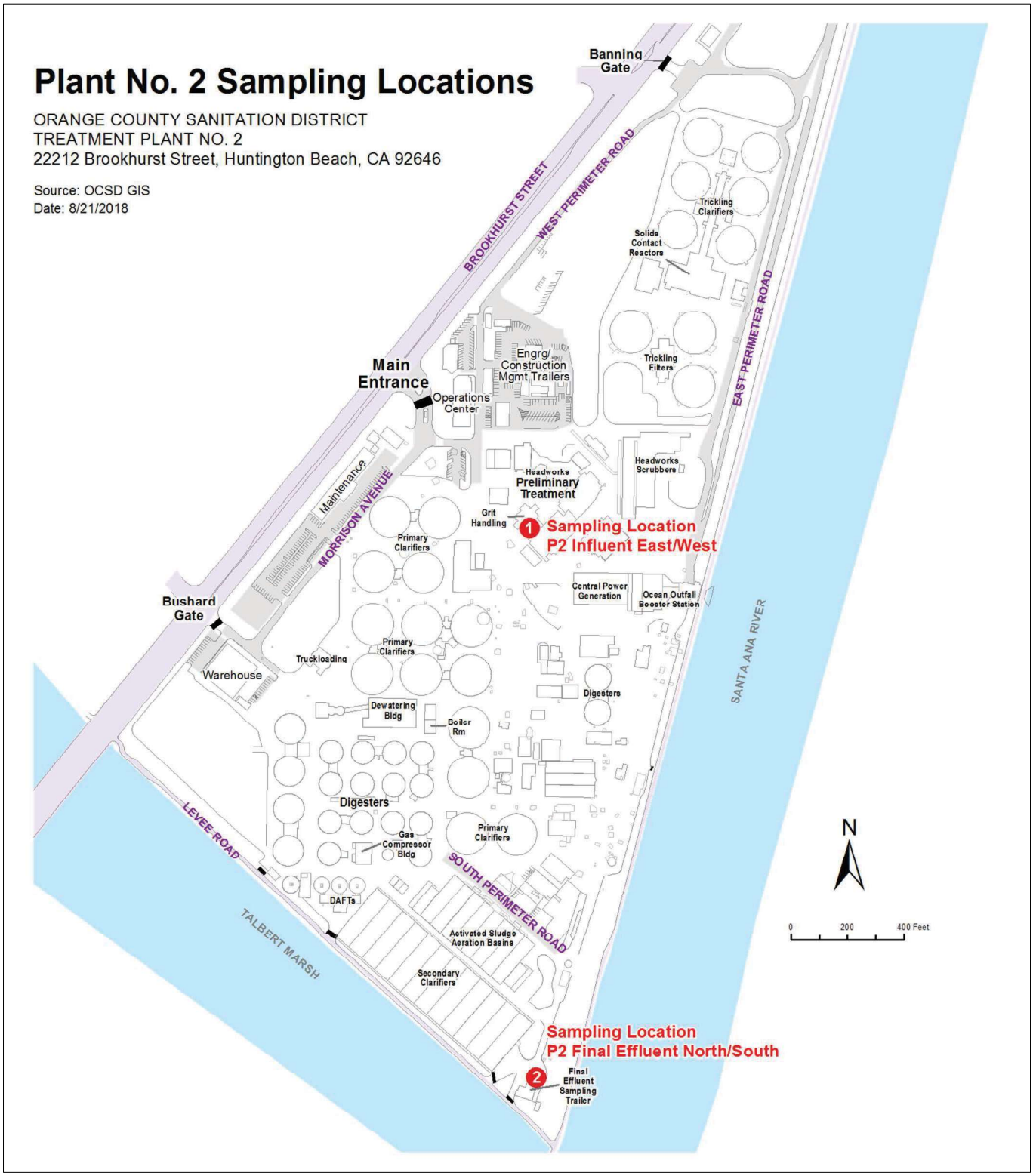
Attachment B2 – Map of Outfall Location



Attachment B3 – Site Layout of Plant No. 1 and Sampling Locations

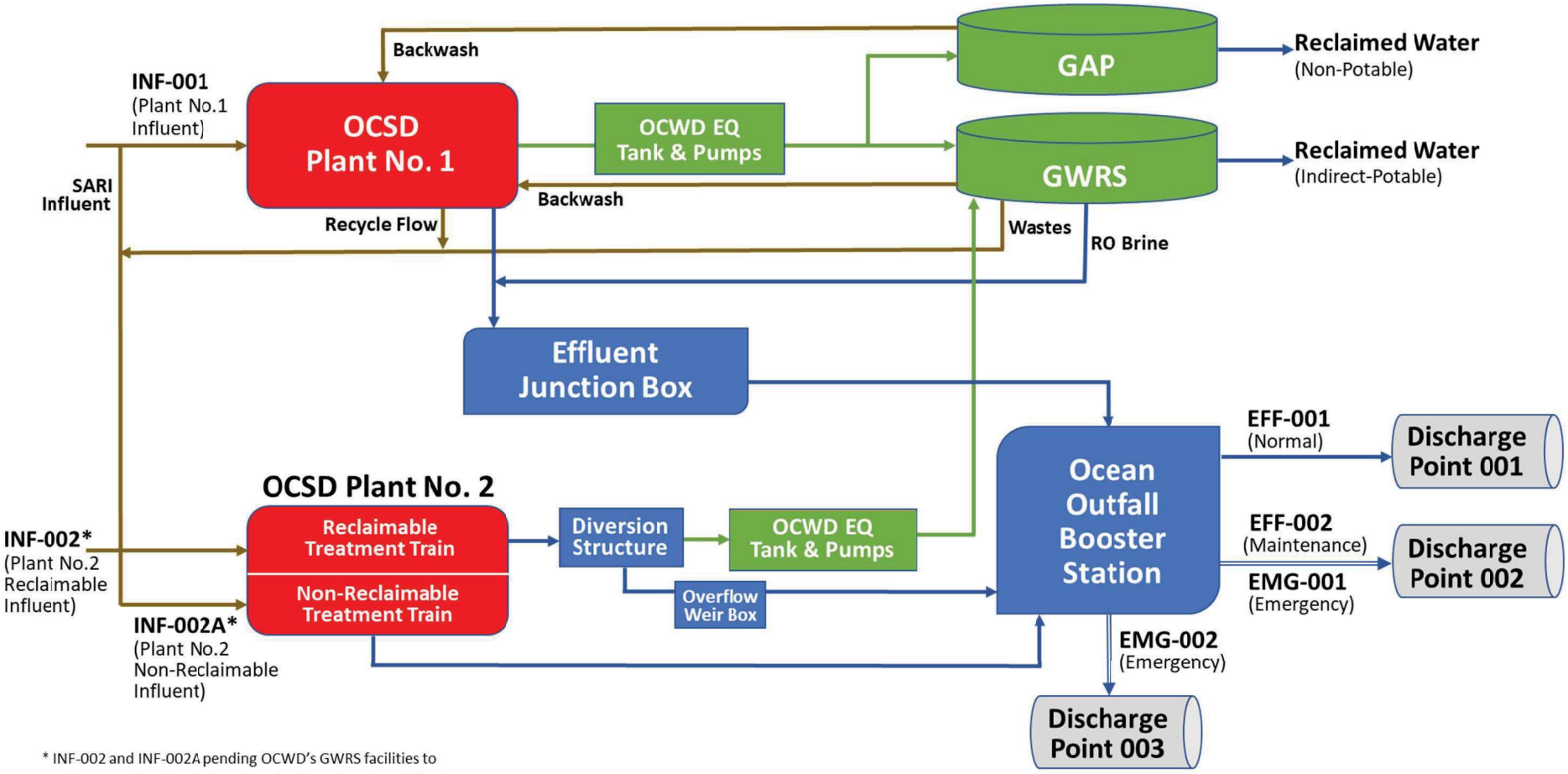


Attachment B4 – Site Layout of Plant No. 2 and Sampling Locations



ATTACHMENT C – FLOW SCHEMATICS

Figure C-1. Simplified Flow Schematic and Monitoring Locations after GWRS Final Expansion in 2023



* INF-002 and INF-002A pending OCWD's GWRS facilities to receive secondary treated wastewater from Treatment Plant No. 2 (i.e., completion of the GWRS Final Expansion Project)

Figure C-2. Process Schematic for OC San Reclamation Plant No. 1

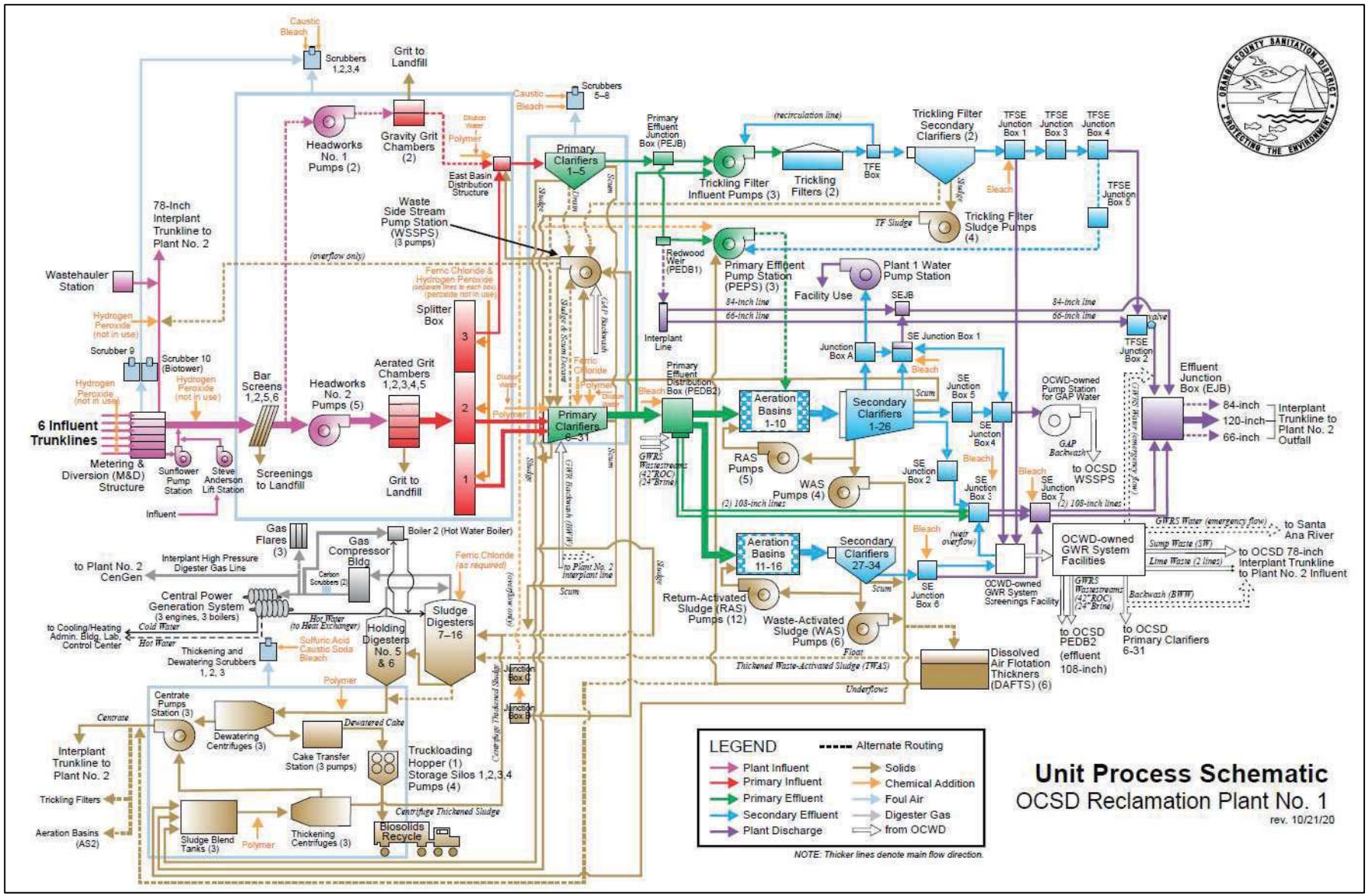


Figure C-3. Process Schematic for OC San Treatment Plant No. 2

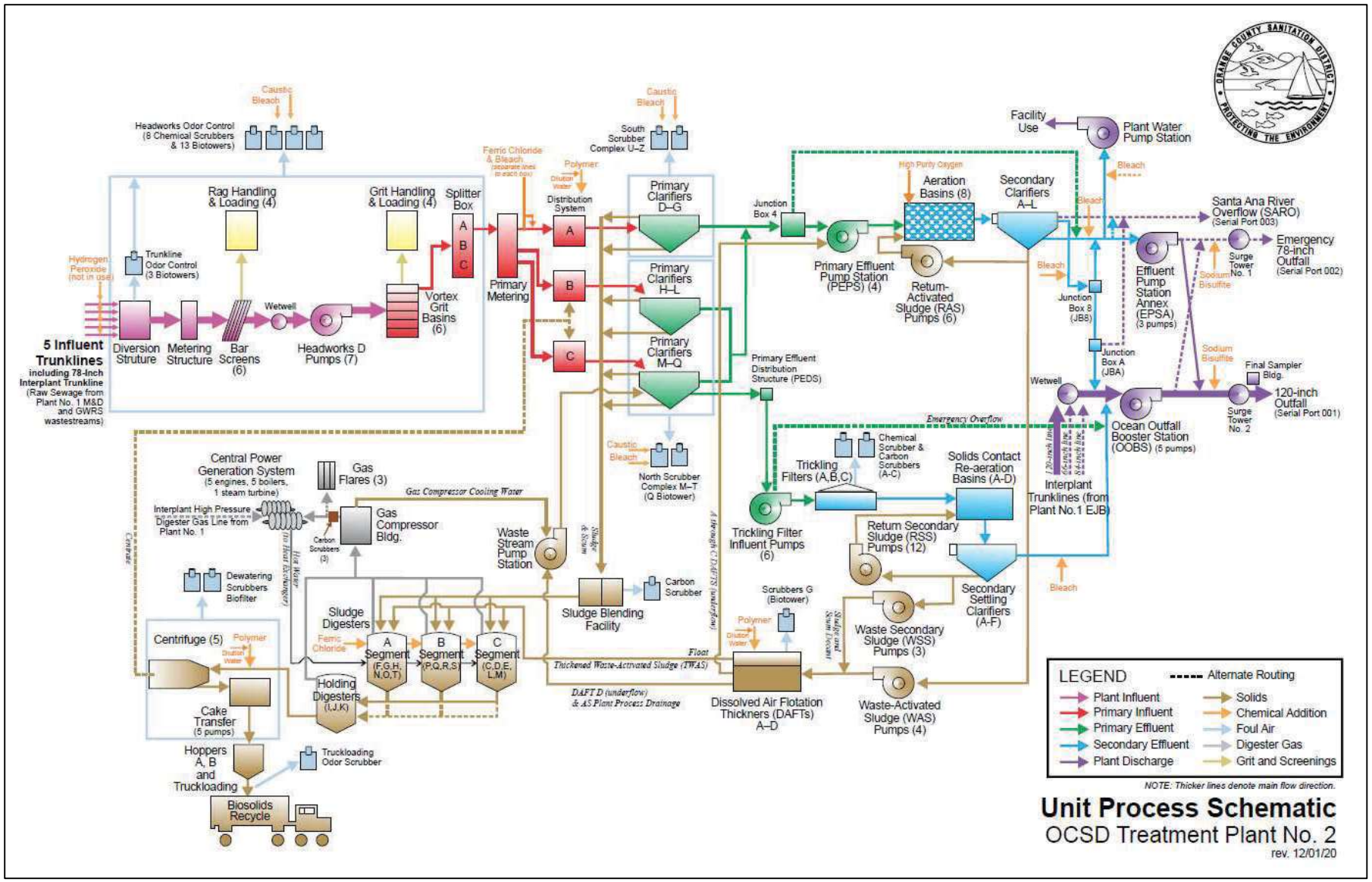


Figure C-4. Future Process Schematic for OC San Treatment Plant No. 2 after GWRS Final Expansion in 2023

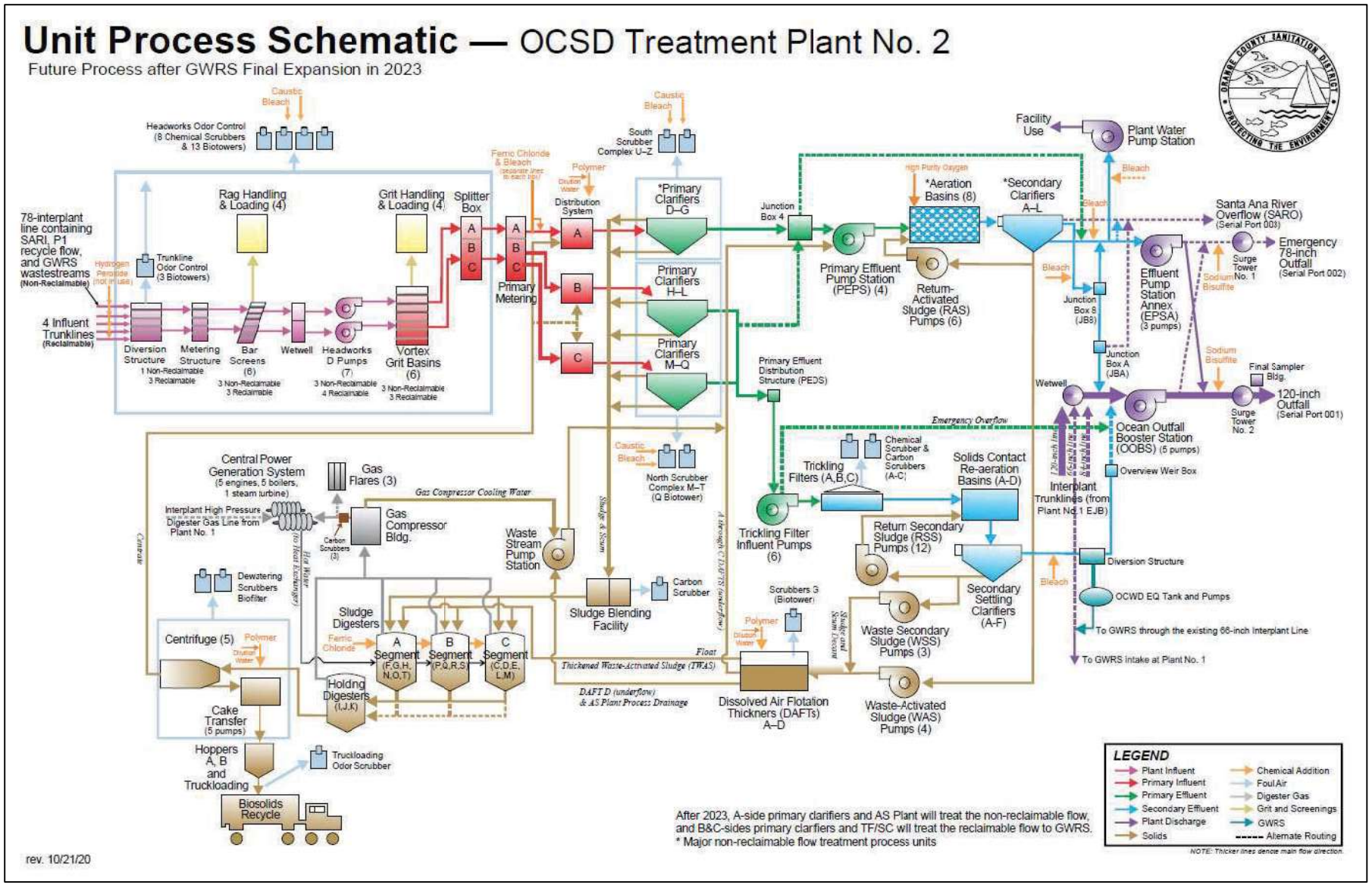
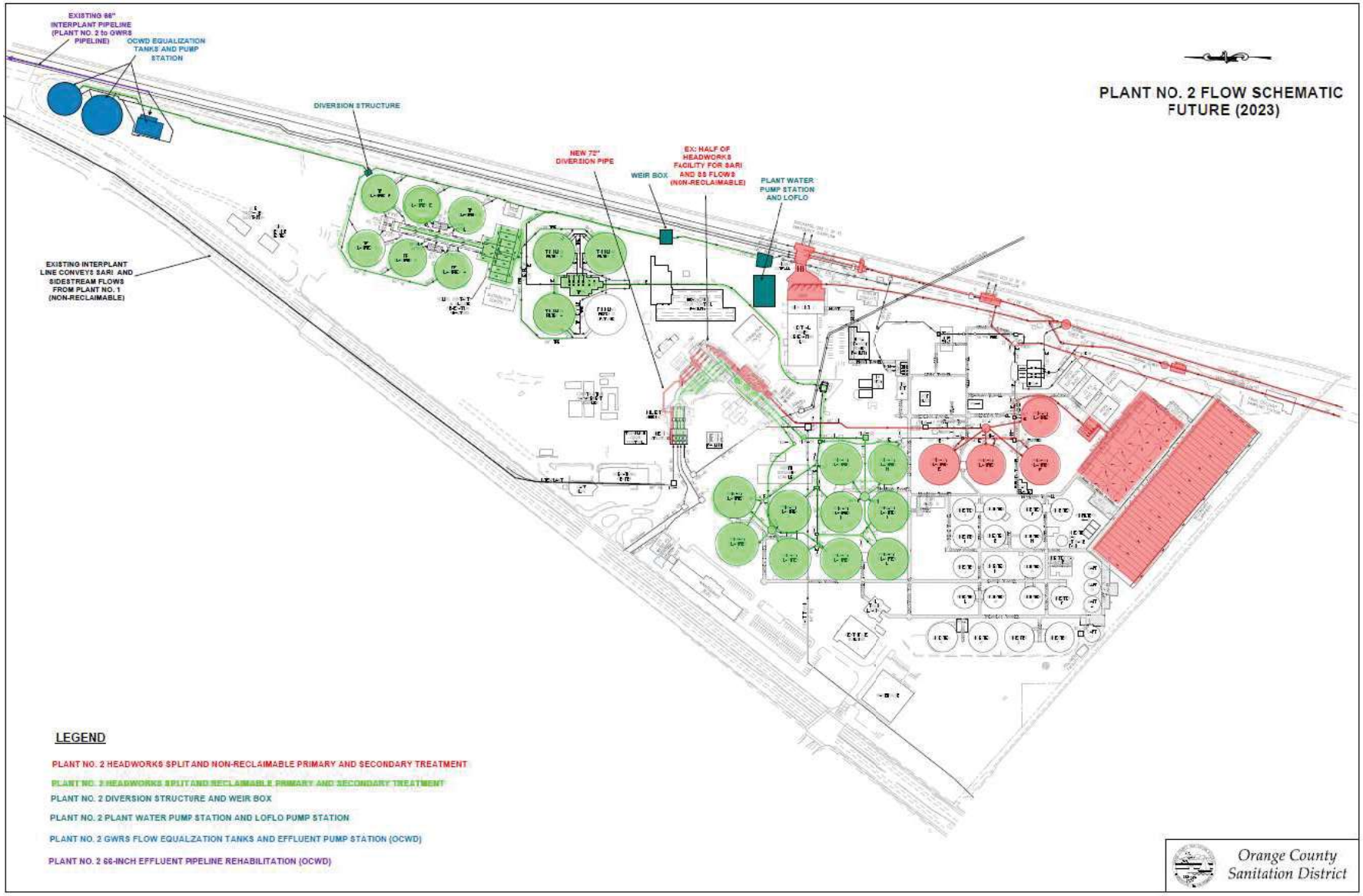


Figure C-5. Future Site Layout of OC San Treatment Plant No. 2



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all conditions, terms, and requirements of this Order/Permit. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and California Water Code (CWC) and is grounds for enforcement action; for Order/Permit termination, revocation and reissuance, or modification; or denial of an Order/Permit renewal application. (40 CFR § 122.41(a); CWC 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)
2. The Discharger shall comply with effluent standards or prohibitions established under CWA section 307(a) for toxic pollutants and with standards for sewage sludge use and disposal established under CWA section 405(d) within the time provided in the regulations that establish these standards or prohibitions or standards of sewages sludge use or disposal, even if the Order/Permit has not yet been modified to incorporate the requirement. (40 CFR § 122.41(a)(1).)
3. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation, as adjusted annually for inflation pursuant to the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, and as currently set forth in 40 CFR § 19.4. The Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or

subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions. (40 CFR § 122.41(a)(2).)

4. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000. The civil and administrative penalty amounts are adjusted annually for inflation pursuant to the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, and the current penalty amounts are set forth in 40 CFR § 19.4.

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/Permit. (40 CFR § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order/Permit which 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/Permit. Proper operation and maintenance also include 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 the Order/Permit. (40 CFR § 122.41(e).)

E. Property Rights

1. This Order/Permit does not convey any property rights of any sort or any exclusive privilege. (40 CFR § 122.41(g).)
2. The issuance of this Order/Permit 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 Santa Ana Water Board, State Water Board, USEPA, and/or an authorized representative (including an authorized contractor acting as their representative), upon presentation of credentials and other documents as may be required by law, to (33 USC 1318(a)(4)(b); 40 CFR § 122.41(i); CWC 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/Permit (33 USC 1318(a)(4)(b)(i); 40 CFR § 122.41(i)(1); CWC 13267, 13383);
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order/Permit (33 USC 1318(a)(4)(b)(ii); 40 CFR § 122.41(i)(2); CWC 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/Permit (33 USC 1318(a)(4)(b)(ii); 40 CFR § 122.41(i)(3); CWC 13267, 13383); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order/Permit compliance or as otherwise authorized by the CWA or the California Water Code, any substances or parameters at any location. (33 USC 1318(a)(4)(b); 40 CFR § 122.41(i)(4); CWC 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 effluent limitations to be exceeded, but only if it is also 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. (40 CFR § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Santa Ana Water Board/USEPA 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 notices as required under Standard Provisions – Permit Compliance I.G.5. (40 CFR § 122.41(m)(4)(i)(C).)

4. The Santa Ana Water Board/USEPA may approve an anticipated bypass, after considering its adverse effects, if the Santa Ana Water Board/USEPA determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3. (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 ten days before the date of the bypass. The notice shall be sent to the Santa Ana Water Board and USEPA. As of December 21, 2025 all notices submitted in compliance with this section must be submitted electronically by the Discharger to the Santa Ana Water Board and USEPA or initial recipient, as defined in 40 CFR § 127.2(b), in compliance with this section and 40 CFR § 3 (including, in all cases, subpart D to part 3), 122.22 and part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the Discharger may be required to report electronically if specified by a particular Order/Permit or if required to do so by State law. (40 CFR § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Attachment D. Standard Provisions – Reporting V.E (24-hour notice). As of December 21, 2025 all notices submitted in compliance with this section must be submitted electronically by the Discharger to the Santa Ana Water Board and USEPA or initial recipient, as defined in 40 CFR § 127.2(b), in compliance with this section and 40 CFR § 3 (including, in all cases, subpart D to part 3), 122.22 and part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the Discharger may be required to report electronically if specified by a particular Order/Permit or if required to do so by State law. (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 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)); and
    c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b (24-hour notice) (40 CFR § 122.41(n)(3)(iii)).
    d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C. (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/Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for Order/Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order/Permit condition. (40 CFR § 122.41(f).)

B. Duty to Reapply

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

C. Transfers

This Order/Permit is not transferable to any person except after notice to the Santa Ana Water Board/USEPA. The Santa Ana Water Board/USEPA may require modification or revocation and reissuance of the Order/Permit to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and CWC. (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 § 136 for the analyses of pollutants unless another method is required under 40 CFR § 1, subchapter N or O. (40 CFR § 122.41(j)(4).)

C. Monitoring for quantitative data shall be conducted in accordance with sufficiently sensitive analytical methods approved under 40 CFR § 136 or required under 40 CFR § 1, subchapter N or O. For the purposes of this requirement, a method approved under 40 CFR § 136 or required under 40 CFR § 1, subchapter N or O 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 Order/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 § 136 or required under 40 CFR § 1, subchapter N or O 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 § 136 or otherwise required under 40 CFR § 1, subchapter N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. §§ 122.21(e)(3),122.41(j)(4), 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order/Permit related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR § 503), 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/Permit, and records of all data used to complete the application for this Order/Permit, 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 Santa Ana Water Board/USEPA 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 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger. (40 C.F.R. § 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 Santa Ana Water Board, State Water Board, and/or USEPA within a reasonable time, any information which the Reginal Water Board, State Water Board, and/or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order/Permit or to determine compliance with this Order/Permit. Upon request, the Discharger shall also furnish to the Santa Ana Water Board, State Water Board, and/or USEPA copies of records required to be kept by this Order/Permit. (40 CFR § 122.41(h); CWC 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Santa Ana 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)(1).)
2. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order/Permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. (40 CFR § 122.41(k)(2).)
3. For a municipality, State, federal, or other public agency. 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).)

4. All reports required by this Order/Permit and other information requested by the Santa Ana Water Board, State Water Board, and/or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.3, 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.3 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 Santa Ana Water Board, State Water Board, and USEPA (40 CFR § 122.22(b)(3).)
5. Changes to authorization. If an authorization under Standard Provisions – Reporting V.B.4 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.4 must be submitted to the Santa Ana Water Board, State Water Board, and USEPA prior to or together with any reports, information, or applications to be signed by an authorized representative. (40 CFR § 122.22(c).)
6. Certification. Any person signing a document under Standard Provisions – Reporting V.B.3 or V.B.4 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).)
7. Electronic reporting. If documents described in Standard Provisions – Reporting V.B.1, V.B.3, or V.B.4 are submitted electronically by or on behalf of the NPDES-regulated facility, any person providing the electronic signature for such documents shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure shall ensure that all of the relevant requirements of 40 CFR § 3 (including, in all cases, subpart D to part 3) (Cross-Media Electronic Reporting) and 40 CFR § 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 CFR § 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified elsewhere in this Order/Permit. (40 CFR § 122.41 (l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Santa Ana Water Board, State Water Board, and/or USEPA for reporting results of monitoring of sludge use or disposal practices. As of December 21, 2016 all reports and forms submitted in compliance with this section must be submitted electronically by the Discharger to the initial recipient defined in Standard Provisions – Reporting V.J and comply with this section and 40 CFR § 3, 40 CFR § 122.22, and 40 CFR § 127. (40 CFR § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order/Permit using test procedures approved under 40 CFR § 136, or another method required for an industry-specific waste stream under 40 CFR § 1, subchapter N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Santa Ana Water Board, State Water Board, and/or USEPA. (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/Permit. (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/Permit 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 (combined sewer overflows, sanitary sewer overflows or bypass events), type of overflow structure (e.g., manhole, combined sewer overflows), discharge volumes untreated by the treatment works treating domestic sewage, types of human

health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather.

As of December 21, 2025, all reports related to combined sewer overflows, sanitary sewer overflows or bypass events must be submitted to the Santa Ana Water Board/USEPA and must be submitted electronically by the Discharger to the initial recipient defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 CFR § 3, 40 CFR § 122.22, and 40 CFR § 127. The Santa Ana Water Board/USEPA 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 which must be reported within 24 hours:

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

   b. Any upset which exceeds any effluent limitation in the Order/Permit. (40 CFR § 122.41(l)(6)(ii)(B).)

   c. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Santa Ana Water Board/USEPA in the Order/Permit to be reporting within 24 hours. (See 122.44(g).) (40 CFR § 122.41(l)(6)(ii)(C).)

3. The Santa Ana Water Board/USEPA 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)(iii).)

F. Planned Changes

The Discharger shall give notice to the Santa Ana Water Board/USEPA as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required 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 40 CFR § 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 which are subject neither to effluent limitations in the Order/Permit, nor to notification requirements under 40 CFR § 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A). (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 Order/Permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the Order/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 Santa Ana Water Board/USEPA of any planned changes in the permitted facility or activity that may result in noncompliance with Order/Permit 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, at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E. 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 § 127. As of December 21, 2025, all reports related to combined sewer overflows, sanitary sewer overflows or bypass events submitted in compliance with this section must be submitted electronically by the Discharger to the Santa Ana Water Board/USEPA or initial recipient, as defined in 40 CFR § 127.2(b), in compliance with this section and 40 CFR § 3 (including, in all cases, subpart D to 3), 122.22, and 40 CFR § 127. (40 CFR § 122.41(l)(7).)

I. Other Information

Where the Discharger becomes aware that it failed to submit any relevant facts in an order/permit application, or submitted incorrect information in an order/permit application or in any report to the Santa Ana Water Board, State Water Board, or USEPA, it shall promptly submit such facts or information. (40 CFR § 122.41(l)(8).)

J. Identification of the Initial Recipient for NPDES Electronic Reporting Data

The owner, operator, or the duly authorized representative of an NPDES-regulated entity is required to electronically submit the required NPDES information (as specified in appendix A to 40 CFR § 127) to the appropriate initial recipient defined in 40 CFR § 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 § 127.2(c)). USEPA will update and maintain this listing. (40 CFR § 122.41(l)(9).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Reginal Water Board and/or USEPA is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13268, 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Santa Ana Water Board/USEPA of the following (40 CFR § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA sections 301 or 306 if it were directly discharging those pollutants (40 CFR § 122.42(b)(1)); and
2. 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 issuance of the Order/Permit. (40 CFR § 122.42(b)(2).)
3. For the purposes of this paragraph, adequate notice shall include information on the quality and quantity of effluent introduced into the POTW, and 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

I. General Monitoring Provisions 3
II. Monitoring Locations 7
III. Influent Monitoring Requirements 29
A. Monitoring Location – Influent Monitoring Stations (n=2) 29
IV. Effluent Monitoring Requirements 34
A. Effluent Monitoring Stations (n=2) 34
B. Emergency Discharge Monitoring Stations (n=2) 40
C. Mass Emission Benchmarks 40
V. Whole Effluent Toxicity Testing Requirements 40
VI. Land Discharge Monitoring Requirements – Not Applicable 44
VII. Recycling Monitoring Requirements – Not Applicable 44
VIII. Receiving Water Core Monitoring Requirements 44
A. Water Quality Monitoring 44
B. REC-1 Water Quality Monitoring (Offshore Zone) 46
C. Sediment Monitoring 47
D. Demersal Fish and Epibenthic Macroinvertebrate Monitoring 52
IX. Receiving Water Regional Monitoring Requirements 57
A. Southern California Bight Regional Monitoring Program 57
B. Southern California Bight Regional Water Quality Program 58
C. Central Regional Kelp Survey 59
D. Orange County Regional Shoreline REC-1 Cooperative Monitoring Program 60
E. Ocean Acidification and Hypoxia (OAH) Mooring 61
X. Strategic Process Studies 61
XI. Other Monitoring Requirements 62
A. Contaminants of Emerging Concern (CEC) Monitoring Study 62
B. Outfall and Diffuser System Inspection 65
XII. Reporting Requirements 66
A. General Monitoring and Reporting Requirements 66
B. Self-Monitoring Reports (SMRs) 68
C. Discharge Monitoring Reports (DMRs) 71
D. Other Reports 71

TABLES

Table E-1. Monitoring Station Locations 7
Table E-2. Receiving Water Core and Regional Monitoring Station Locations 9
Table E-3. Influent Monitoring 29
Table E-4. Effluent Monitoring 34
Table E-5. Water Quality Monitoring 45
Table E-6. REC-1 Water Quality Monitoring (Offshore Zone) 46

Table E-7. Sediment Chemistry Monitoring 48
Table E-8. Benthic Infauna Community Monitoring 51
Table E-9. Whole Sediment Toxicity Monitoring 52
Table E-10. Demersal Fish and Epibenthic Macroinvertebrate Community Monitoring 52
Table E-11. Demersal Fish Liver Tissue Chemistry Monitoring 53
Table E-12. Sport Fish Muscle Chemistry Monitoring 56
Table E-13. Southern California Bight Receiving Water Quality Monitoring 59
Table E-14. Orange County Regional Shoreline REC-1 Cooperative Monitoring 60
Table E-15. CEC Discharge Monitoring 62
Table E-16. Monitoring Periods and Reporting Schedule 69

FIGURES

Figure E-1. Monthly Water Quality Monitoring Stations (n=28) 22
Figure E-2. Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) (n=8) 23
Figure E-3. Benthic Monitoring Stations: Quarterly (n=11), Annual (n=11), and 1/5-year (n=35) 24
Figure E-4. Semi-annual Trawl Fish Monitoring Stations (n=6) and Annual Trawl Fish Monitoring Stations (n=8) 25
Figure E-5. Annual Rig Fish Monitoring Zones (n=2) 26
Figure E-6. Quarterly Central Bight Water Quality Monitoring Stations (n=60) 27
Figure E-7. Orange County Shoreline REC-1 Cooperative Monitoring Stations (Nearshore Zone) (n=36) 28

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Section 308 of the federal Clean Water Act (CWA) and 40 CFR § 122.41(h), (j)-(l), 122.44(i) and 122.48 require that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Santa Ana Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This MRP establishes monitoring, reporting, and recordkeeping requirements that implement federal and California laws and/or regulations. The Discharger shall comply with this MRP of this Order/Permit.

I. GENERAL MONITORING PROVISIONS

A. The Santa Ana Water Board and USEPA, working with other groups, have developed a comprehensive basis for effluent and receiving water monitoring appropriate to large publicly-owned treatment works (POTWs) discharging to waters of the Southern California Bight. This effort has culminated in the publication by the Southern California Coastal Water Research Project (SCCWRP) of the Model Monitoring Program guidance document (Schiff, K.C., J.S. Brown and S.B. Weisberg. 2001. *Model Monitoring Program for Large Ocean Dischargers in Southern California*. SCCWRP Tech. Rep. #357. Southern California Coastal Water Research Project, Westminster, CA. 101 pp.). This guidance provides the principles, framework and recommended design for effluent and receiving water monitoring elements that have guided development of the monitoring program described below.

B. This conceptual framework along with the California Ocean Plan has three components that comprise a range of spatial and temporal scales: (1) core monitoring; (2) regional monitoring; and (3) strategic process studies.

1. **Core Monitoring.** Core monitoring is local in nature and focuses on monitoring trends in quality and effects of the point source discharge. This includes discharge monitoring, as well as some aspects of receiving water monitoring. Core monitoring results for the effluent shall be submitted on monthly Discharge Monitoring Reports/State Monitoring Reports (DMR/SMR) and summarized in the annual receiving water monitoring report if needed. Core monitoring results for receiving water, including annotated QA/QC findings, shall be described and summarized in the annual receiving water monitoring report, due by March 15th of each year, for the previous fiscal year (July 1 through June 30). The annual receiving water monitoring report shall include the specified parameters for each station along with more detailed statistical comparisons, including analyses to elucidate spatial and temporal trends in the data, and in relation to the wastewater plume. Statistical methods shall include, but are not limited to, various multivariate techniques such as cluster analysis, ordination, and regression. The applicability and choice of statistical methods shall be explained in the report.

2. **Regional Monitoring.** Regional monitoring is focused on questions best answered by a region-wide approach that incorporates coordinated survey design and sampling techniques. Key components of regional monitoring include elements to address pollutant mass emission estimates, public health concerns, monitoring trends in natural resources, assessment of regional impacts from all contaminant

sources, and beneficial use protection. The final designs of regional monitoring programs are developed by means of steering and technical committees comprised of participating agencies. For each component of regional monitoring, this Order/Permit specifies the required degree and nature of participation by Orange County Sanitation District (OC San), based upon its past participation in regional monitoring programs. The degree and nature of OC San's participation in regional monitoring programs shall be briefly described and summarized in the annual receiving water monitoring report. Each year, as part of the annual receiving monitoring report, the Discharger shall provide an informational report summarizing to date its contributing activities towards coordinated implementation of regional monitoring programs.

Although participation in regional monitoring programs is required under this Order/Permit, revisions to Attachment E, at the direction of the Santa Ana Water Board and USEPA, may be necessary to accomplish the goals of regional monitoring.

3. **Strategic Process Studies.** Strategic process studies are focused on refined questions regarding specific effects or development of monitoring techniques and are anticipated to be of short duration and/or small scale, although multi-year studies may be needed. Questions regarding discharge or receiving water quality, discharge impacts, ocean processes in the area of the discharge, or development of techniques for monitoring the same, arising out of the results of core, regional monitoring, or other relevant studies shall be pursued through these studies. These studies are by nature ad hoc and, typically, cannot be anticipated in advance of the five-year permit cycle. Monitoring efforts, status of in-progress studies, and summary results for completed strategic process studies shall be briefly described and summarized in the annual receiving water monitoring report.

   In the spring, beginning in 2022 and continuing every-other year during the term of this Order/Permit, the Discharger, Santa Ana Water Board, and USEPA shall consult to determine the need for strategic process studies. By October 1st, the Discharger shall submit proposals to the Santa Ana Water Board and USEPA for the following fiscal year's (July 1 through June 30) monitoring effort, or a letter explaining why no special studies are proposed. Final scopes of work, including reporting schedules, shall be presented by the Discharger at a spring meeting with Santa Ana Water Board and USEPA to obtain Santa Ana Water Board and USEPA approval. Upon approval, the Discharger shall implement its strategic process studies.

C. Every five years SCCWRP coordinates receiving water regional monitoring within the Southern California Bight and compiles monitoring data collected by the dischargers and other participating entities. The sixth regional monitoring program (Bight '18) occurred primarily during the summer of 2018. The next (seventh) regional monitoring program (Bight '23) is expected to take place during 2023. While participation in regional monitoring programs is required under this Order/Permit, revisions to the Discharger's monitoring program at the direction of the Santa Ana Water Board and

USEPA may be necessary to accomplish the goals of regional monitoring or to allow the performance of special studies to investigate regional or site-specific water issues of concern. These revisions may include a reduction or increase in the number of parameters to be monitored, the frequency of monitoring, or the number and size of samples to be collected, which are applicable to receiving water monitoring program only. Such changes shall be authorized by the Santa Ana Water Board Executive Officer and USEPA Director upon written notification to the Discharger.

Permittee participation in regional monitoring programs is required as a condition of this Order/Permit. The Discharger shall complete collection and analysis of samples in accordance with the schedule established by the Steering Committee directing the Bight-wide regional monitoring surveys. The level of participation shall be similar to that provided by the Discharger in previous regional surveys conducted in 1994, 1998, 2003, 2008, 2013, and 2018.

D. All plant samples shall be representative of the waste discharge under conditions of peak load. Results of quarterly, semiannual, and annual analyses shall be reported by the due date specified in Table E-16 of the MRP. Should there be instances when monitoring could not be performed during these specified months, the Discharger must notify the Santa Ana Water Board and USEPA, state the reason why monitoring could not be conducted, and obtain approval from the Santa Ana Water Board and USEPA for an alternate schedule.

E. Pollutants shall be analyzed using the analytical methods described in 40 CFR § 136; or where no methods are specified for a given pollutant, by methods approved by the Santa Ana Water Board, the State Water Board, and/or USEPA. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level. USEPA published regulations for the Sufficiently Sensitive Methods Rule (SSM Rule) which became effective September 18, 2015. For the purposes of monitoring and reporting under the NPDES program, when more than one test procedure is approved under 40 CFR § 136 for the analysis of a pollutant or pollutant parameter, the test procedure must be sufficiently sensitive as defined at 40 CFR § 122.21(e)(3) and 122.44(i)(1)(iv). A USEPA-approved analytical method is sufficiently sensitive where:

1. The ML is at or below both the level of the applicable water quality criterion/objective and the permit limitation or performance goal for the measured pollutant or pollutant parameter; or
2. In permit applications, the ML is above the applicable water quality criterion/objective, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or
3. The method has the lowest ML of the USEPA-approved analytical methods where none of the USEPA-approved analytical methods for a pollutant can achieve the MLs necessary to assess the need for effluent limitations or to monitor compliance with a permit limitation.

The MLs in Ocean Plan Appendix II remain applicable. However, there may be situations when analytical methods are published with MLs that are more sensitive than the MLs for analytical methods listed in the Ocean Plan. For instance, USEPA Method 1631E for mercury is not currently listed in Ocean Plan Table II, but it is published with an ML of 0.5 ng/L that makes it a sufficiently sensitive analytical method.

F. In conformance with federal regulations 40 CFR § 122.45(c), analyses to determine compliance with the effluent limitations for metals shall be conducted using the total recoverable method. For chromium (III) and (VI), the Discharger may, at its option, meet both the chromium (III) and the chromium (VI) limitations by analyzing for total recoverable chromium.

G. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR § 136.3. All quality assurance/quality control (QA/QC) analyses must be run in the same preparation and analytical batches in which samples are actually analyzed. The Discharger shall retain the QA/QC documentation in its files and make available for inspection and/or submit this documentation when requested by the Santa Ana Water Board and/or USEPA. Proper chain of custody procedures must be followed, and a copy of this documentation shall be submitted with the monthly report.

H. If the Discharger samples and performs analyses (other than for process/operational control, startup, research, or equipment testing) on any influent, effluent, or receiving water constituent more frequently than required by this Order/Permit using approved analytical methods, the results of those analyses shall be included in the monitoring report. These results shall be reflected in the calculation of the average (or median) used in demonstrating compliance with limitations set forth in this Order/Permit.

I. 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. In the event that continuous monitoring equipment is out of service for greater than a 24-hour period, the Discharger shall obtain a representative grab sample each day the equipment is out of service. The Discharger shall correct the cause(s) of failure of the continuous monitoring equipment as soon as practicable. In its monitoring report, the Discharger shall specify the period(s) during which the equipment was out of service and, if the problem has not been corrected, shall identify the steps which the Discharger is taking or proposes to take to bring the equipment back into service and the schedule for these actions.

J. For every item of monitoring data where the requirements are not met, the monitoring report shall include a statement discussing the reasons for noncompliance, the actions undertaken or proposed that will bring the discharge into full compliance with requirements at the earliest time and an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Santa Ana Water Board and USEPA by letter when compliance with the time schedule has been achieved.

K. Laboratory Certification. Laboratories analyzing monitoring samples shall be certified by the State Water Board, Environmental Laboratory Accreditation Program (ELAP), in accordance with CWC section 13176, and must include QA/QC data in their reports.

L. The Discharger shall have and implement an acceptable written QA plan for laboratory analyses. The Discharger shall ensure that the results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Board the following address:

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

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description	Latitude	Longitude
Influent Monitoring Stations (n=2)				
Reclamation Plant No. 1 Influent	INF-001	Reclamation Plant No. 1 sampling stations shall be located at each point of inflow to the treatment plant and upstream of any in-plant return flows, where representative samples of the influent can be obtained.	33° 41.588' N	117° 56.294' W
Treatment Plant No. 2 Influent (Before OCWD receives reclaimed water from Plant No.2)	INF-002	Treatment Plant No. 2 sampling stations shall be located at each point of inflow to the treatment plant and upstream of any in-plant return flows, where representative samples of the influent can be obtained.	33° 38.342' N	117° 57.462' W
Treatment Plant No. 2 Influent (Pending until OCWD receives reclaimed water from Plant No.2)	INF-002	INF-002 sampling stations shall be located at each point of reclaimable inflow to the Treatment Plant No.2, where representative samples of the reclaimable influent can be obtained.	33° 38.342' N	117° 57.462' W

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description	Latitude	Longitude
	INF-002A	INF-002A sampling station shall be located at a point of non-reclaimable influent from the 78-inch interplant trunkline containing SARI influent, Reclamation Plant No.1 recycle flow, and GWRS wastestream.	33° 38.317' N	117° 57.453' W
Effluent Monitoring Stations (n=2)				
Effluent discharged to Discharge Point 001 (during normal operation)	EFF-001	Sampling station shall be located downstream of any in-plant return flows, but before entering 120-inch outfall, where representative effluent samples can be obtained.	33° 38.012' N	117° 57.452' W
Effluent discharged to Discharge Point 002 (during essential maintenance or capital improvement projects)	EFF-002	Sampling station can be same as EFF-001, but before entering 78-inch outfall, where representative samples of the disinfected effluent discharge can be obtained.	33° 38.012' N	117° 57.452' W
Emergency Discharge Monitoring Stations (n=2)				
Emergency discharges to Discharge Point 002 (during an emergency)	EMG-001	Sampling station shall be located downstream of any in-plant return flows, but before entering the emergency 78-inch outfall, where representative samples of the disinfected effluent discharge can be obtained.	33° 38.012' N	117° 57.452' W
Santa Ana River Overflow to Discharge Point 003 (during an extreme emergency)	EMG-002	Sampling station shall be located before entering the Santa Ana River overflow weirs, where representative samples of the disinfected effluent discharge can be obtained.	33° 38.297' N	117° 57.356' W

Table E-2. Receiving Water Core and Regional Monitoring Station Locations

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
Receiving Water Core Monitoring Stations						
Monthly Water Quality Monitoring Stations (n=28) * = Station sampled for ammonia (NH_3-N) and nitrate nitrogen.						
*	2103	33° 35.089' N	117° 56.678' W	110	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2104	33° 34.199' N	117° 57.414' W	143	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2105	33° 33.309' N	117° 58.150' W	280	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2106	33° 32.420' N	117° 58.885' W	309	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2183	33° 35.701' N	117° 57.744' W	36	1 - 2 m above bottom	1, 10, 20, 30, 34
*	2184	33° 34.811' N	117° 58.480' W	51	1 - 2 m above bottom	1, 10, 20, 30, 40, 49
*	2185	33° 33.922' N	117° 59.215' W	114	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2186	33° 33.032' N	117° 59.951' W	247	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2203	33° 36.313' N	117° 58.810' W	25	1 - 2 m above bottom	1, 10, 20, 23
*	2204	33° 35.423' N	117° 59.546' W	39	1 - 2 m above bottom	1, 10, 20, 30, 37
ZID boundary; *	2205	33° 34.534' N	118° 00.282' W	57	1 - 2 m above bottom	1, 10, 20, 30, 40, 50, 55
*	2206	33° 33.644' N	118° 01.018' W	185	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2223	33° 36.924' N	117° 59.871' W	22	1 - 2 m above bottom	1, 10, 20
*	2224	33° 36.035' N	118° 00.608' W	31	1 - 2 m above bottom	1, 10, 20, 29

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
*	2225	33° 35.146' N	118° 01.346' W	47	1 - 2 m above bottom	1, 10, 20, 30, 40, 45
*	2226	33° 34.257' N	118° 02.083' W	135	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2303	33° 37.537' N	118° 00.936' W	21	1 - 2 m above bottom	1, 10, 19
*	2304	33° 36.649' N	118° 01.674' W	29	1 - 2 m above bottom	1, 10, 20, 27
*	2305	33° 35.760' N	118° 02.412' W	38	1 - 2 m above bottom	1, 10, 20, 30, 36
*	2306	33° 34.871' N	118° 03.149' W	114	1 - 75 m	1, 10, 20, 30, 40, 50, 60
--	2351	33° 38.151' N	118° 02.001' W	21	1 - 2 m above bottom	None
--	2352	33° 37.262' N	118° 02.739' W	29	1 - 2 m above bottom	None
--	2353	33° 36.373' N	118° 03.477' W	37	1 - 2 m above bottom	None
--	2354	33° 35.484' N	118° 04.214' W	123	1 - 75 m	None
--	2403	33° 38.765' N	118° 03.072' W	21	1 - 2 m above bottom	None
--	2404	33° 37.875' N	118° 03.808' W	30	1 - 2 m above bottom	None
--	2405	33° 36.986' N	118° 04.544' W	37	1 - 2 m above bottom	None
--	2406	33° 36.096' N	118° 05.280' W	60	1 - 2 m above bottom	None
Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) (n=8) Quarterly REC-1 stations are monitored 5 days over a 30-day period in spring, summer, fall, and winter for geometric mean calculation (“spring” means April, May, or June; “summer” means July, August, or September; “fall” means October, November, or December; and “winter” means January, February, or March).						
--	2103	33° 35.089' N	117° 56.678' W	110	1 - 75 m	1, 10, 20, 30, 40, 50, 60

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
--	2104	33° 34.199' N	117° 57.414' W	143	1 - 75 m	1, 10, 20, 30, 40, 50, 60
--	2183	33° 35.701' N	117° 57.744' W	36	1 - 2 m above bottom	1, 10, 20, 30, 34
--	2203	33° 36.313' N	117° 58.810' W	25	1 - 2 m above bottom	1, 10, 20, 23
--	2223	33° 36.924' N	117° 59.871' W	22	1 - 2 m above bottom	1, 10, 20
--	2303	33° 37.537' N	118° 00.936' W	21	1 - 2 m above bottom	1, 10, 19
--	2351	33° 38.151' N	118° 02.001' W	21	1 - 2 m above bottom	1, 10, 19
--	2403	33° 38.765' N	118° 03.072' W	21	1 - 2 m above bottom	1, 10, 19
Quarterly Benthic Monitoring Stations (n=11) Quarterly benthic stations are monitored for infauna and sediment geochemistry (except pesticides) every quarter in spring, summer, fall, and winter ("spring" means April, May, or June; "summer" means July, August, or September; "fall" means October, November, or December; and "winter" means January, February, or March) as well as sampled annually in summer for pesticides and annually for whole sediment toxicity.						
ZID Boundary	0	33° 34.573' N	118° 00.598' W	56	--	--
--	1	33° 34.657' N	118° 00.968' W	56	--	--
ZID Boundary	4	33° 34.498' N	117° 59.761' W	56	--	--
--	9	33° 34.363' N	117° 59.510' W	59	--	--
--	73	33° 34.596' N	118° 00.709' W	55	--	--
ZID Boundary	76	33° 34.459' N	118° 00.297' W	58	--	--
--	77	33° 34.373' N	117° 59.730' W	60	--	--
--	84	33° 34.648' N	118° 00.543' W	54	--	--
--	85	33° 34.532' N	118° 00.679' W	57	--	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
Farfield Reference	CON	33° 36.037' N	118° 05.387' W	59	--	--
ZID Boundary	ZB	33° 34.545' N	118° 00.274' W	56	--	--
Annual Benthic Monitoring Stations (n=11) Annual benthic stations are monitored only in the "summer" (July, August, or September) for infauna and sediment geochemistry.						
--	3	33° 34.434' N	118° 00.660' W	60	--	--
--	5	33° 34.749' N	118° 01.612' W	59	--	--
--	10	33° 34.902' N	118° 02.081' W	62	--	--
--	12	33° 34.385' N	117° 59.054' W	58	--	--
--	13	33° 35.307' N	118° 02.944' W	59	--	--
--	37	33° 34.832' N	117° 57.369' W	56	--	--
--	74	33° 34.616' N	118° 00.230' W	57	--	--
--	75	33° 34.559' N	117° 59.974' W	60	--	--
--	78	33° 34.329' N	118° 00.035' W	63	--	--
--	86	33° 34.400' N	118° 00.380' W	57	--	--
--	87	33° 34.780' N	118° 00.842' W	60	--	--
1/5-year Benthic Monitoring Stations (n=35) 1/5-year benthic stations are monitored once every five years in the "summer" (July, August, or September) for infauna and sediment geochemistry.						
--	7	33° 35.325' N	118° 00.367' W	41	--	--
--	8	33° 35.164' N	117° 59.555' W	44	--	--
--	17	33° 33.961' N	118° 00.187' W	91	--	--
--	18	33° 34.064' N	118° 00.750' W	91	--	--
--	20	33° 34.599' N	118° 02.229' W	100	--	--
--	21	33° 35.313' N	118° 01.891' W	44	--	--
--	22	33° 35.204' N	117° 59.028' W	45	--	--
--	23	33° 33.968' N	117° 59.147' W	100	--	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
--	24	33° 33.563' N	118° 01.140' W	200	--	--
--	25	33° 33.924' N	118° 02.176' W	200	--	--
--	27	33° 33.326' N	117° 59.708' W	200	--	--
--	29	33° 35.033' N	118° 03.113' W	100	--	--
--	30	33° 35.493' N	118° 02.899' W	46	--	--
--	33	33° 34.349' N	117° 57.866' W	100	--	--
--	36	33° 35.308' N	117° 57.495' W	45	--	--
--	38	33° 34.634' N	117° 57.317' W	100	--	--
--	39	33° 33.283' N	117° 58.531' W	200	--	--
--	40	33° 32.496' N	117° 59.775' W	303	--	--
--	41	33° 32.690' N	118° 01.149' W	303	--	--
--	42	33° 33.098' N	118° 02.598' W	303	--	--
--	44	33° 34.586' N	118° 05.422' W	241	--	--
--	55	33° 36.739' N	118° 05.413' W	40	--	--
--	56	33° 35.665' N	118° 05.417' W	100	--	--
--	57	33° 34.970' N	118° 05.418' W	200	--	--
--	58	33° 33.365' N	118° 05.347' W	300	--	--
--	59	33° 36.070' N	118° 03.701' W	40	--	--
--	60	33° 35.532' N	118° 04.017' W	100	--	--
--	61	33° 35.011' N	118° 04.326' W	200	--	--
--	62	33° 34.069' N	118° 04.568' W	300	--	--
--	63	33° 34.173' N	118° 03.407' W	200	--	--
--	64	33° 33.484' N	118° 03.663' W	300	--	--
--	65	33° 33.859' N	117° 57.230' W	200	--	--
--	83	33° 34.239' N	118° 01.414' W	100	--	--
--	C4	33° 35.056' N	117° 55.833' W	187	--	--
--	C5	33° 33.920' N	117° 55.620' W	296	--	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=6) Semi-annual trawl stations are monitored in summer (July, August, or September) and winter (January, February, or March). * = Station is also sampled annually in one of the four quarters for demersal fish liver tissue chemistry and demersal fish liver histopathology.						
Outfall; *	T1	33° 34.641' N	118° 00.567' W	55	--	--
Farfield reference; *	T11	33° 36.055' N	118° 05.199' W	60	--	--
--	T12	33° 34.868' N	118° 01.670' W	57	--	--
--	T17	33° 35.309' N	118° 02.987' W	60	--	--
--	T22	33° 34.326' N	117° 59.856' W	60	--	--
--	T23	33° 34.336' N	117° 59.051' W	58	--	--
Annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=8) Annual trawl stations are monitored in summer (July, August, or September).						
--	T2	33° 35.688' N	117° 59.561' W	35	--	--
--	T6	33° 35.946' N	118° 02.785' W	36	--	--
--	T10	33° 33.771' N	118° 00.250' W	137	--	--
--	T14	33° 34.672' N	118° 03.200' W	137	--	--
--	T18	33° 36.960' N	118° 05.273' W	36	--	--
--	T19	33° 35.394' N	118° 05.424' W	137	--	--
--	T24	33° 35.648' N	118° 01.274' W	36	--	--
--	T25	33° 34.245' N	118° 01.967' W	137	--	--
Annual Rig Fish Monitoring Zones (n=2) Annual rig fishing stations are monitored in summer (July, August, or September). ***** All station positions and depths shall be determined prior to the first sampling.						

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
Zone 1 (outfall)	RF1	Inshore of the 60 m depth contour bounded by coordinates: 33° 36.272' N / 117° 57.264' W, 33° 37.522' N / 117° 59.374' W along the 15 m contour; 33° 34.698' N / 118° 01.713' W along the 80 m contour; and 33° 33.475' N / 117° 59.583' W along the 180 m contour.		*	--	--
Zone 3 (farfield reference)	RF3	Offshore of Huntington Beach along 60 m depth contour bounded by the coordinates: 33° 35.885' N / 118° 08.013' W; 33° 35.407' N / 118° 07.408' W; 33° 34.213' N / 118° 08.628' W; 33° 34.830' N / 118° 09.065' W.		*	--	--
Receiving Water Regional Monitoring Stations						
Quarterly Southern California Bight Regional Water Quality Monitoring Stations (n=60) * = Core water quality monitoring station sampled during Southern California Bight Regional Water Quality surveys (n=16).						
--	1701	33° 29.878' N	117° 44.721' W	10	1 - 2 m above bottom	--
--	1702	33° 29.180' N	117° 45.120' W	40	1 - 2 m above bottom	--
--	1703	33° 28.472' N	117° 45.524' W	60	1 - 2 m above bottom	--
--	1704	33° 28.071' N	117° 45.752' W	100	1 - 100 m	--
--	1705	33° 27.434' N	117° 46.115' W	400	1 - 100 m	--
--	1706	33° 26.455' N	117° 46.679' W	600	1 - 100 m	--
--	1801	33° 32.027' N	117° 46.910' W	10	1 - 2 m above bottom	--
--	1802	33° 31.591' N	117° 47.158' W	40	1 - 2 m above bottom	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
--	1803	33° 31.154' N	117° 47.406' W	60	1 - 2 m above bottom	--
--	1804	33° 30.612' N	117° 47.710' W	100	1 - 100 m	--
--	1805	33° 29.782' N	117° 48.277' W	500	1 - 100 m	--
--	1806	33° 28.618' N	117° 48.847' W	600	1 - 100 m	--
--	1901	33° 33.682' N	117° 49.654' W	10	1 - 2 m above bottom	--
--	1902	33° 33.165' N	117° 49.944' W	60	1 - 2 m above bottom	--
--	1903	33° 32.762' N	117° 50.182' W	100	1 - 75 m	--
--	1904	33° 31.787' N	117° 50.734' W	405	1 - 75 m	--
--	1905	33° 30.810' N	117° 51.285' W	510	1 - 75 m	--
--	1906	33° 29.829' N	117° 51.842' W	550	1 - 75 m	--
--	2001	33° 35.335' N	117° 52.692' W	10	1 - 2 m above bottom	--
--	2002	33° 34.755' N	117° 53.028' W	60	1 - 2 m above bottom	--
--	2003	33° 34.565' N	117° 53.144' W	100	1 - 75 m	--
--	2004	33° 33.589' N	117° 53.708' W	345	1 - 75 m	--
--	2005	33° 32.613' N	117° 54.063' W	410	1 - 75 m	--
--	2006	33° 31.647' N	117° 54.824' W	470	1 - 75 m	--
--	2041	33° 35.969' N	117° 54.567' W	10	1 - 2 m above bottom	--
--	2042	33° 35.413' N	117° 54.930' W	53	1 - 2 m above bottom	--
--	2043	33° 34.908' N	117° 55.265' W	165	1 - 75 m	--
--	2044	33° 33.951' N	117° 55.887' W	300	1 - 75 m	--
--	2045	33° 33.013' N	117° 56.500' W	390	1 - 75 m	--
--	2046	33° 32.080' N	117° 57.110' W	432	1 - 75 m	--
--	2101	33° 36.183' N	117° 55.749' W	10	1 - 2 m above bottom	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
--	2102	33° 35.631' N	117° 56.206' W	26	1 - 2 m above bottom	--
*	2103	33° 35.089' N	117° 56.678' W	110	1 - 75 m	--
*	2104	33° 34.199' N	117° 57.414' W	143	1 - 75 m	--
*	2105	33° 33.309' N	117° 58.150' W	280	1 - 75 m	--
*	2106	33° 32.420' N	117° 58.885' W	309	1 - 75 m	--
--	2201	33° 37.493' N	117° 57.831' W	10	1 - 2 m above bottom	--
--	2202	33° 36.901' N	117° 58.314' W	16	1 - 2 m above bottom	--
*	2203	33° 36.313' N	117° 58.810' W	25	1 - 2 m above bottom	--
*	2204	33° 35.423' N	117° 59.546' W	39	1 - 2 m above bottom	--
*	2205	33° 34.534' N	118° 00.282' W	57	1 - 2 m above bottom	--
*	2206	33° 33.644' N	118° 01.018' W	185	1 - 75 m	--
--	2301	33° 38.572' N	118° 00.064' W	10	1 - 2 m above bottom	--
--	2302	33° 38.053' N	118° 00.495' W	15	1 - 2 m above bottom	--
*	2303	33° 37.537' N	118° 00.936' W	21	1 - 2 m above bottom	--
*	2304	33° 36.649' N	118° 01.674' W	29	1 - 2 m above bottom	--
*	2305	33° 35.760' N	118° 02.412' W	38	1 - 2 m above bottom	--
*	2306	33° 34.871' N	118° 03.149' W	114	1 - 75 m	--
--	2401	33° 39.920' N	118° 02.103' W	10	1 - 2 m above bottom	--
--	2402	33° 39.342' N	118° 02.593' W	16	1 - 2 m above bottom	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
*	2403	33° 38.765' N	118° 03.072' W	21	1 - 2 m above bottom	--
*	2404	33° 37.875' N	118° 03.808' W	29	1 - 2 m above bottom	--
*	2405	33° 36.986' N	118° 04.544' W	37	1 - 2 m above bottom	--
*	2406	33° 36.096' N	118° 05.280' W	60	1 - 2 m above bottom	--
--	2451	33° 41.475' N	118° 03.944' W	10	1 - 2 m above bottom	--
--	2452	33° 40.739' N	118° 04.584' W	17	1 - 2 m above bottom	--
--	2453	33° 39.987' N	118° 05.204' W	22	1 - 2 m above bottom	--
--	2454	33° 39.098' N	118° 05.946' W	30	1 - 2 m above bottom	--
--	2455	33° 38.210' N	118° 06.675' W	36	1 - 2 m above bottom	--
--	2456	33° 37.318' N	118° 07.411' W	42	1 - 2 m above bottom	--

Responsible Agency	Station Location Name	Latitude	Longitude	Depth	Station Location	Station Description
Orange County Regional Shoreline REC-1 Cooperative Monitoring Program Stations (Nearshore Zone) (n=36) r = Regional OCHCA station. c = OC San station. Orange County Regional Shoreline REC-1 stations are monitored at least once per week. * = These stations are monitored at least twice per week.						
OCSD-r	OSB03	33° 44.355' N	118° 06.449' W	surf	Seal Beach/ Sunset Beach	Projection of 8th St.
OCSD-r	OSB05	33° 44.296' N	118° 06.378' W	surf	Seal Beach/ Sunset Beach	100 yards south of Pier
OCSD-r	OSB04	33° 44.209' N	118° 06.121' W	surf	Seal Beach/ Sunset Beach	Projection of 14th St.

Responsible Agency	Station Location Name	Latitude	Longitude	Depth	Station Location	Station Description
OCSD-r	OSB01	33° 43.603' N	118° 05.041' W	surf	Seal Beach/ Sunset Beach	Projection of Seaway
OCSD-r	OSUB1	33° 42.986' N	118° 04.341' W	surf	Seal Beach/ Sunset Beach	Projection of Broadway
OCSD-c	39N	33° 42.114' N	118° 03.321' W	surf	Bolsa Chica/ Huntington Beach	Bolsa Chica Beach
OCSD-c	33N	33° 41.281' N	118° 02.495' W	surf	Bolsa Chica/ Huntington Beach	Projection of Bolsa Chica Reserve
OCSD-r	BCO-1	33° 40.994' N	118° 02.138' W	surf	Bolsa Chica/ Huntington Beach	Bolsa Chica Wetlands Channel
OCSD-c	27N	33° 40.587' N	118° 01.712' W	surf	Bolsa Chica/Huntington Beach	Bluffs at Sea Pointe (Dog Beach)
OCSD-r	HB1	33° 40.065' N	118° 01.937' W	surf	Bolsa Chica/ Huntington Beach	PCH & Goldenwest
OCSD-r	HB2	33° 40.022' N	118° 01.937' W	surf	Bolsa Chica/ Huntington Beach	PCH & 22nd St.
OCSD-r	HB3	33° 39.952' N	118° 00.933' W	surf	Bolsa Chica/ Huntington Beach	PCH & 20th St.
OCSD-c	21N	33° 39.843' N	118° 00.785' W	surf	Bolsa Chica/ Huntington Beach	Projection of 17th St.
OCSD-r	HB4	33° 39.680' N	118° 00.613' W	surf	Bolsa Chica/ Huntington Beach	PCH & 13th St.
OCSD-r	HB5	33° 39.414' N	118° 00.310' W	surf	Bolsa Chica/ Huntington Beach	PCH & 6th St.
OCSD-c	15N	33° 39.114' N	117° 59.846' W	surf	Bolsa Chica/ Huntington Beach	Projection of Jack's Snack Bar
OCSD-c	12N	33° 38.854' N	117° 59.413' W	surf	Bolsa Chica/ Huntington Beach	Projection of Beach Blvd
OCSD-c	9N*	33° 38.565' N	117° 58.924' W	surf	Bolsa Chica/ Huntington Beach	Projection of Newland St.

Responsible Agency	Station Location Name	Latitude	Longitude	Depth	Station Location	Station Description
OCSD-c	6N*	33° 38.331' N	117° 58.573' W	surf	Bolsa Chica/ Huntington Beach	Projection of Magnolia St.
OCSD-c	3N*	33° 38.018' N	117° 58.032' W	surf	Bolsa Chica/ Huntington Beach	Projection of Brookhurst St.
OCSD-c	0*	33° 37.764' N	117° 57.598' W	surf	Bolsa Chica/ Huntington Beach	Santa Ana River mouth
OCSD-r	TM	33° 37.994' N	117° 57.645' W	surf	Bolsa Chica/ Huntington Beach	PCH Bridge at Talbert Marsh
OCSD-r	SAR-N	33° 37.870' N	117° 57.434' W	surf	Bolsa Chica/ Huntington Beach	Santa Ana River mouth
OCSD-c	3S	33° 37.619' N	117° 57.264' W	surf	Newport Beach	Projection Orange St.
OCSD-c	6S	33° 37.337' N	117° 56.704' W	surf	Newport Beach	Projection $52^{nd}/53^{rd}$ St.
OCSD-c	9S	33° 37.033' N	117° 56.283' W	surf	Newport Beach	Projection 38^{th} St.
OCSD-c	15S	33° 36.342' N	117° 55.459' W	surf	Newport Beach	Projection of $15^{th}/16^{th}$ St.
OCSD-c	21S	33° 36.059' N	117° 54.213' W	surf	Newport Beach	Upcoast of Balboa Pier
OCSD-c	27S	33° 35.646' N	117° 52.910' W	surf	Newport Beach	The Wedge
OCSD-c	29S	33° 35.559' N	117° 52.508' W	surf	Newport Beach	Corona del Mar State Beach
OCSD-r	BGC	33° 35.384' N	117° 52.117' W	surf	Newport Beach	Little Corona Beach
OCSD-r	PPC	33° 34.490' N	117° 50.512' W	surf	Newport Beach/Crystal Cove	Pelican Point Beach (reef)
OCSD-c	39S	33° 34.700' N	117° 51.946' W	surf	Newport Beach/Crystal Cove	Pelican Point (ramp)

Responsible Agency	Station Location Name	Latitude	Longitude	Depth	Station Location	Station Description
OCSD-r	WFC	33° 34.887' N	117° 51.342' W	surf	Newport Beach/Crystal Cove	Pelican Hill Waterfall
OCSD-r	ONB39	33° 34.450' N	117° 50.449' W	surf	Newport Beach/Crystal Cove	Crystal Cove - Los Trancos
OCSD-r	MDC	33° 33.607' N	117° 49.323' W	surf	Newport Beach/Crystal Cove	Muddy Creek Beach (Reef Point)

The North latitude and West longitude information in Table E-1 and E-2 are approximate for administrative purposes.

Figure E-1. Monthly Water Quality Monitoring Stations (n=28)

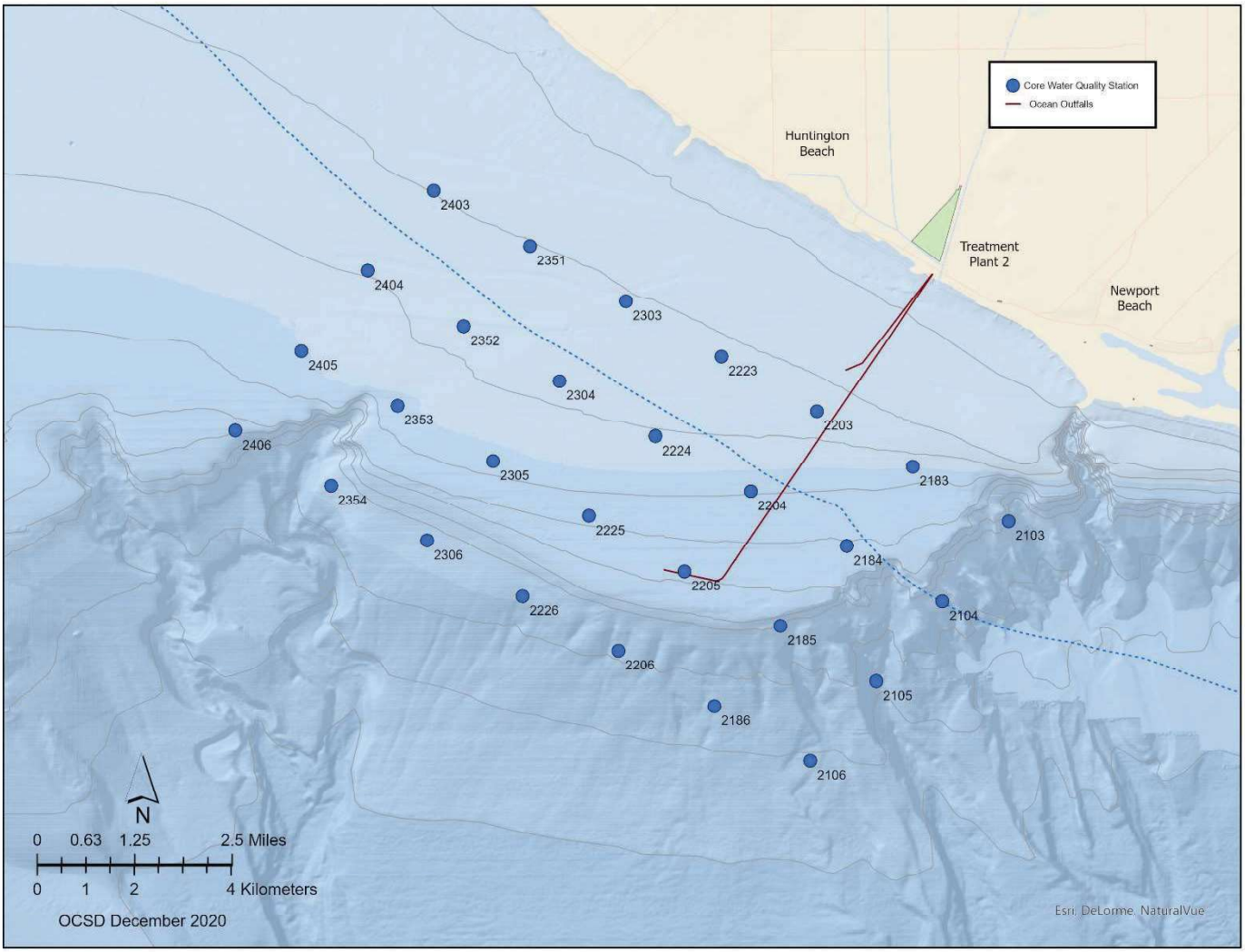


Figure E-2. Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) (n=8)

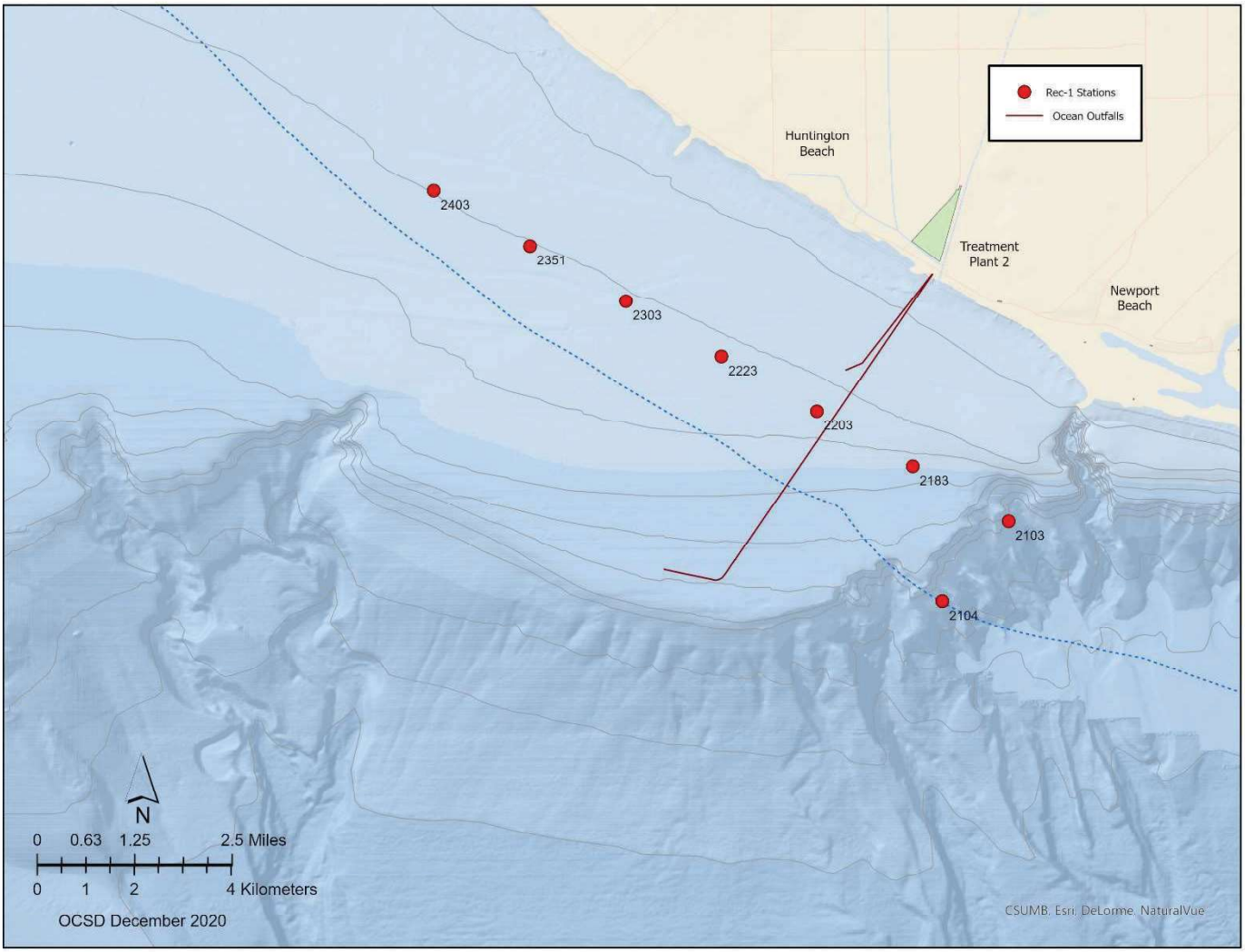


Figure E-3. Benthic Monitoring Stations: Quarterly (n=11), Annual (n=11), and 1/5-year (n=35)

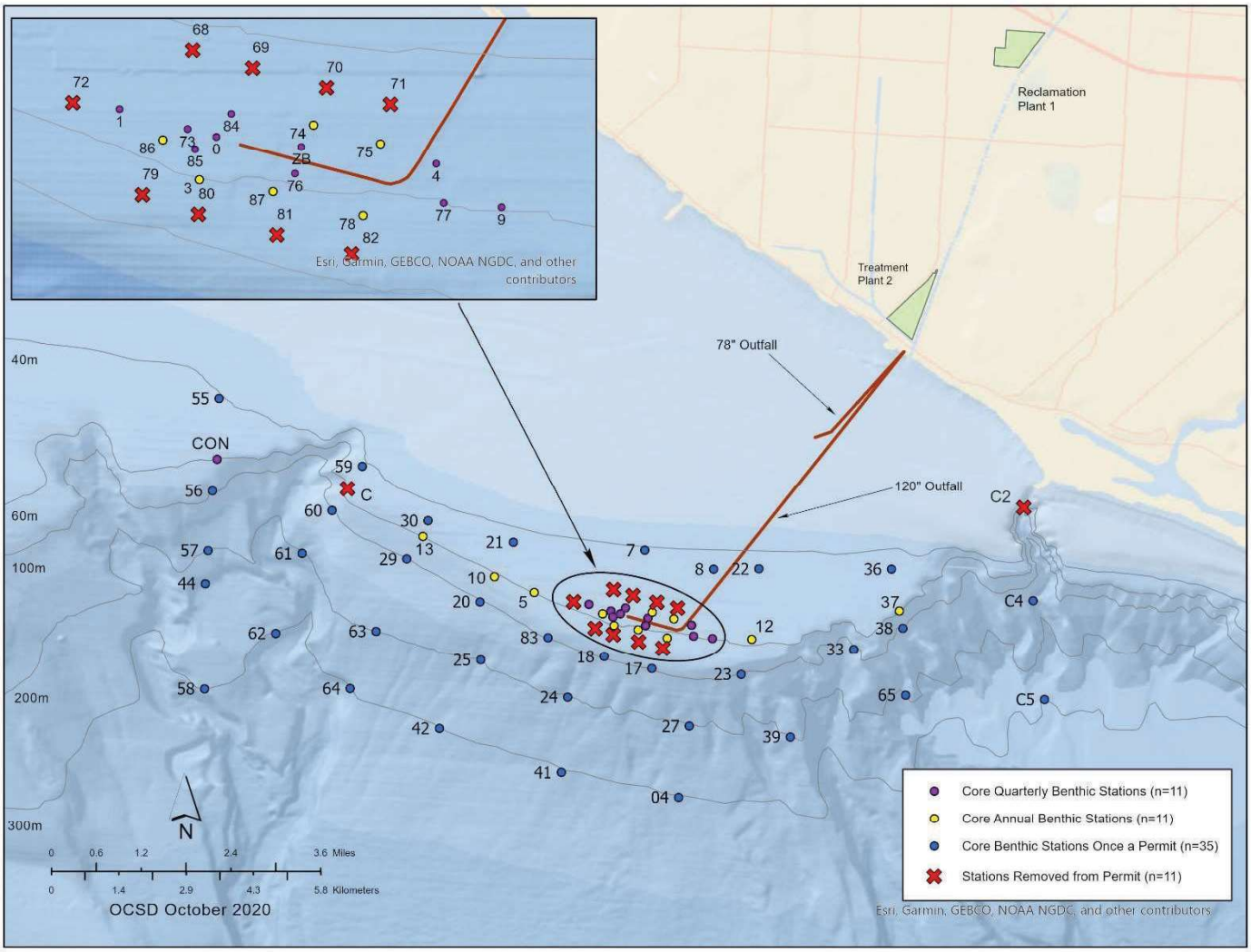


Figure E-4. Semi-annual Trawl Fish Monitoring Stations (n=6) and Annual Trawl Fish Monitoring Stations (n=8)

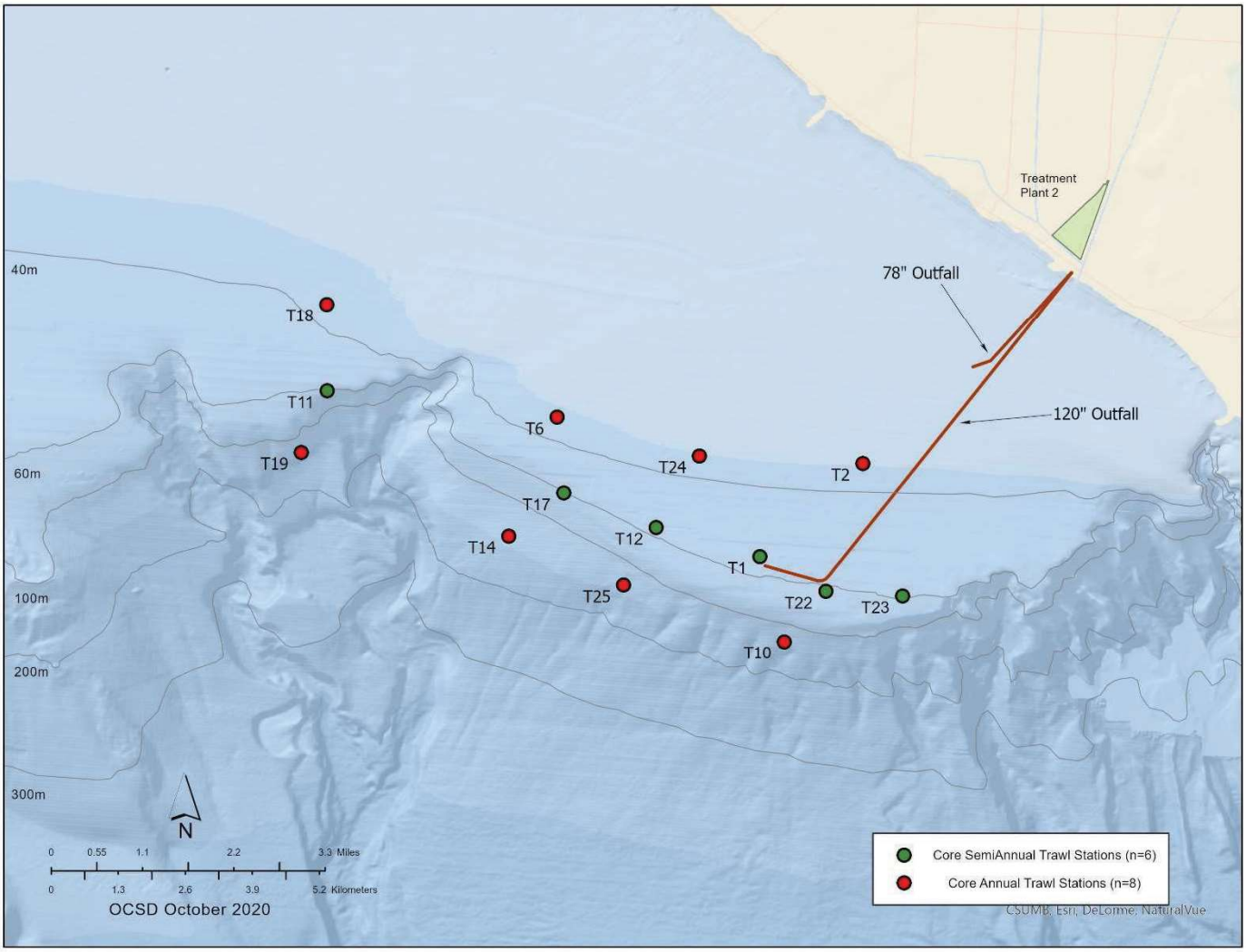


Figure E-5. Annual Rig Fish Monitoring Zones (n=2)

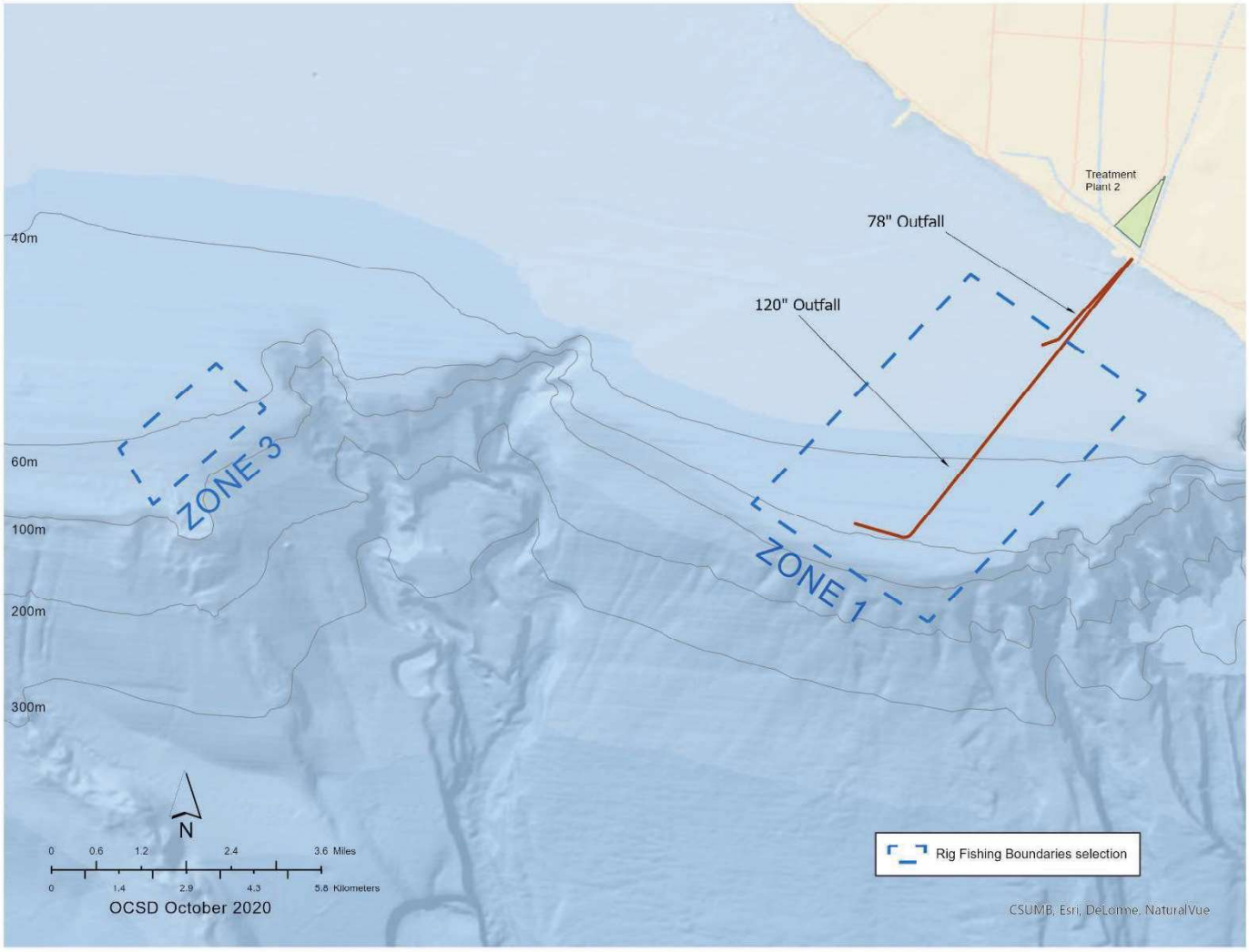


Figure E-6. Quarterly Central Bight Water Quality Monitoring Stations (n=60)

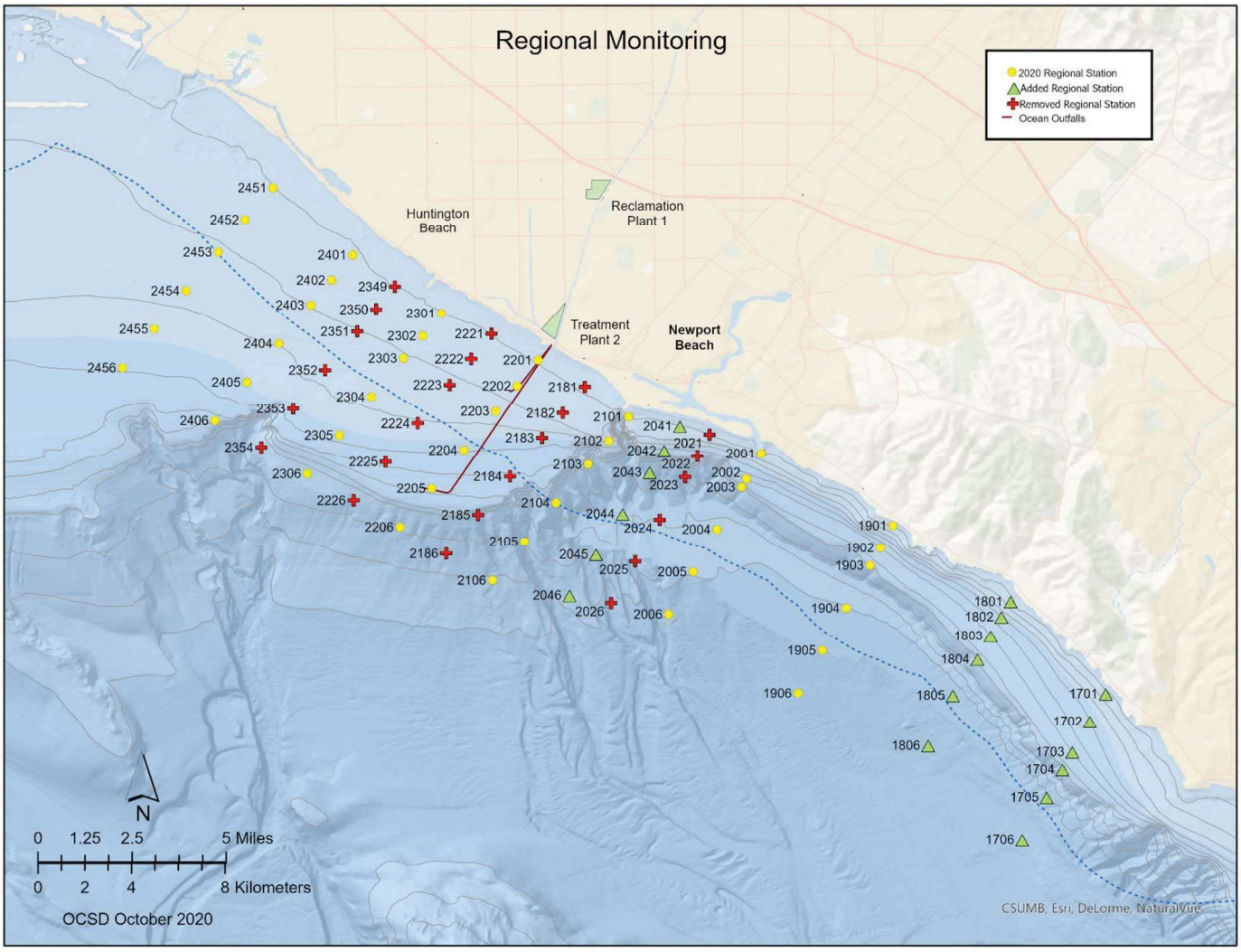
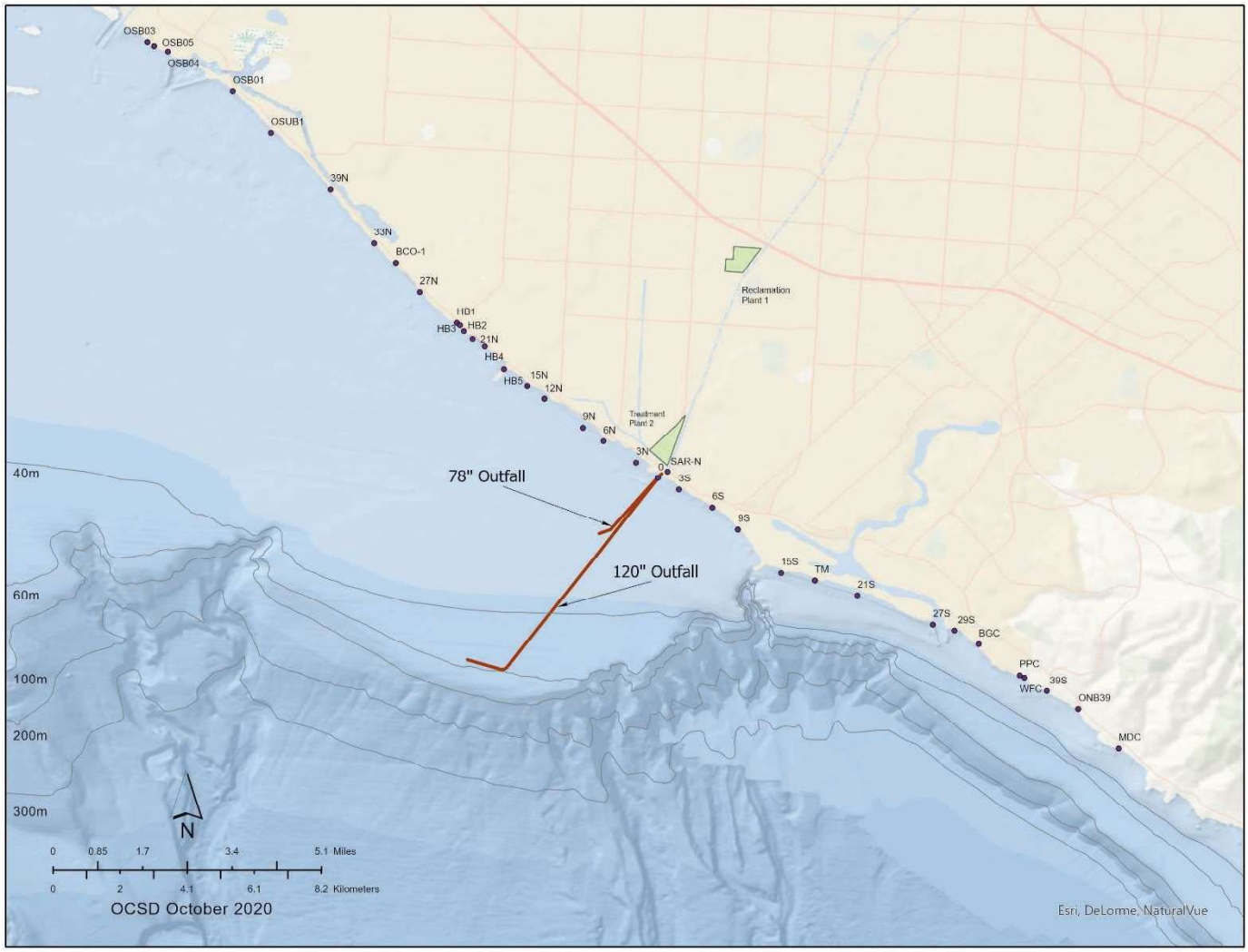


Figure E-7. Orange County Shoreline REC-1 Cooperative Monitoring Stations (Nearshore Zone) (n=36)



III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location – Influent Monitoring Stations (n=2)

The Discharger shall monitor influent to Reclamation Plant No. 1 at INF-001 and Treatment Plant No. 2 at INF-002 (see Table E-1), as follows.

Table E-3. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Miscellaneous				
Flow rate	MGD	recorder/totalizer	continuous	[1]
Nitrite nitrogen	mg/L	24-hr composite	1/quarter	[1]
Nitrate nitrogen	mg/L	24-hr composite	1/quarter	[1]
Organic nitrogen	mg/L	24-hr composite	1/quarter	[1]
Total phosphorous (as P)	mg/L	24-hr composite	1/quarter	[1]
Secondary Treatment Standards and/or Ocean Plan Table 4 (formerly Table A) Effluent Limitations				
Biochemical oxygen demand, 5-day @ 20°C (BOD_5)	mg/L	24-hr composite	1/week	[1]
Carbonaceous biochemical oxygen demand, 5-day @ 20°C ($CBOD_5$)	mg/L	24-hr composite	1/day	[1]
Total suspended solids (TSS)	mg/L	24-hr composite	1/day	[1]
pH	standard units	grab	1/day	[1]
Grease and oil	mg/L	grab	1/month	[1]
Settleable solids	--	--	--	--
Turbidity	--	--	--	--
Ocean Plan Table 3 (formerly Table B) for Protection of Marine Aquatic Life				
Arsenic, total recoverable	μg/L	24-hr composite	1/month	[1]
Cadmium, total recoverable	μg/L	24-hr composite	1/month	[1]
Chromium (VI), total recoverable[2]	μg/L	24-hr composite	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Copper, total recoverable	µg/L	24-hr composite	1/month	[1]
Lead, total recoverable	µg/L	24-hr composite	1/month	[1]
Mercury, total recoverable	ng/L	24-hr composite	1/month	[1,3]
Nickel, total recoverable	µg/L	24-hr composite	1/month	[1]
Selenium, total recoverable	µg/L	24-hr composite	1/month	[1]
Silver, total recoverable	µg/L	24-hr composite	1/month	[1]
Zinc, total recoverable	µg/L	24-hr composite	1/month	[1]
Cyanide	µg/L	grab	1/month	[1,4]
Total chlorine residual	--	--	--	--
Ammonia (as N)	mg/L	24-hr composite	1/week	[1]
Chlorinated phenols[5]	µg/L	24-hr composite	1/month	[1]
Non-chlorinated phenols[5]	µg/L	24-hr composite	1/month	[1]
Endosulfan[5]	µg/L	24-hr composite	2/year	[1]
Endrin	µg/L	24-hr composite	2/year	[1]
HCH[5]	µg/L	24-hr composite	2/year	[1]
Radioactivity	pCi/L	24-hr composite	1/month	[1,6]
Ocean Plan Table 3 (formerly Table B) for Protection of Human Health – Noncarcinogens				
Acrolein	µg/L	grab	1/quarter	[1]
Antimony, total recoverable	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroethoxy)methane	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroisopropyl)ether	µg/L	24-hr composite	1/month	[1]
Chlorobenzene	µg/L	grab	1/quarter	[1]
Chromium (III), total recoverable[2]	µg/L	24-hr composite	1/month	[1]
Di-n-butyl phthalate	µg/L	24-hr composite	1/month	[1]
Dichlorobenzenes[5]	µg/L	grab	1/quarter	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Diethyl phthalate	µg/L	24-hr composite	1/month	[1]
Dimethyl phthalate	µg/L	24-hr composite	1/month	[1]
4,6-dinitro-2-methylphenol	µg/L	24-hr composite	1/month	[1]
2,4-dinitrophenol	µg/L	24-hr composite	1/month	[1]
Ethylbenzene	µg/L	grab	1/quarter	[1]
Fluoranthene	µg/L	24-hr composite	1/month	[1]
Hexachlorocyclopentadiene	µg/L	24-hr composite	1/month	[1]
Nitrobenzene	µg/L	24-hr composite	1/month	[1]
Thallium, total recoverable	µg/L	24-hr composite	1/month	[1]
Toluene	µg/L	grab	1/quarter	[1]
Tributyltin	µg/L	24-hr composite	1/quarter	[1,7]
1,1,1-trichloroethane	µg/L	grab	1/quarter	[1]
Ocean Plan Table 3 (formerly Table B) for Protection of Human Health – Carcinogens				
Acrylonitrile	µg/L	grab	1/quarter	[1]
Aldrin	µg/L	24-hr composite	2/year	[1]
Benzene	µg/L	grab	1/quarter	[1]
Benzidine	µg/L	24-hr composite	1/month	[1]
Beryllium, total recoverable	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroethyl) ether	µg/L	24-hr composite	1/month	[1]
Bis(2-ethylhexyl) phthalate	µg/L	24-hr composite	1/month	[1]
Carbon tetrachloride	µg/L	grab	1/quarter	[1]
Chlordane[5,8]	µg/L	24-hr composite	2/year	[1]
Chlorodibromomethane	µg/L	grab	1/quarter	[1]
Chloroform	µg/L	grab	1/quarter	[1]
DDT[5]	µg/L	24-hr composite	2/year	[1]
1,4-dichlorobenzene	µg/L	grab	1/quarter	[1]
3,3-dichlorobenzidine	µg/L	24-hr composite	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
1,2-dichloroethane	µg/L	grab	1/quarter	[1]
1,1-dichloroethylene	µg/L	grab	1/quarter	[1]
Dichlorobromomethane	µg/L	grab	1/quarter	[1]
Dichloromethane	µg/L	grab	1/quarter	[1]
1,3-dichloropropene[9]	µg/L	grab	1/quarter	[1]
Dieldrin	µg/L	24-hr composite	2/year	[1]
2,4-dinitrotoluene	µg/L	24-hr composite	1/month	[1]
1,2-diphenylhydrazine	µg/L	24-hr composite	1/month	[1]
Halomethanes[5]	µg/L	grab	1/quarter	[1]
Heptachlor	µg/L	24-hr composite	2/year	[1]
Heptachlor epoxide	µg/L	24-hr composite	2/year	[1]
Hexachlorobenzene	µg/L	24-hr composite	1/month	[1]
Hexachlorobutadiene	µg/L	24-hr composite	1/month	[1]
Hexachloroethane	µg/L	24-hr composite	1/month	[1]
Isophorone	µg/L	24-hr composite	1/month	[1]
N-nitrosodimethylamine	µg/L	24-hr composite	1/month	[1]
N-nitrosodi-N-propylamine	µg/L	24-hr composite	1/month	[1]
N-nitrosodiphenylamine	µg/L	24-hr composite	1/month	[1]
PAHs[5]	µg/L	24-hr composite	1/month	[1]
PCBs[5]	µg/L	24-hr composite	2/year	[1]
Individual PCB congeners	--	--	--	--
TCDD equivalents[5]	µg/L	24-hr composite	1/quarter	[1,10]
1,1,2,2-tetrachloroethane	µg/L	grab	1/quarter	[1]
Tetrachloroethylene	µg/L	grab	1/quarter	[1]
Toxaphene	µg/L	24-hr composite	2/year	[1]
Trichloroethylene	µg/L	grab	1/quarter	[1]
1,1,2-trichloroethane	µg/L	grab	1/quarter	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
2,4,6-trichlorophenol	µg/L	24-hr composite	1/month	[1]
Vinyl chloride	µg/L	grab	1/quarter	[1]

[1] As specified in 40 CFR § 136, or in this Order/Permit.

[2] For chromium (III) and (VI), the Discharger may, at its option, meet both the chromium (III) and the chromium (VI) limitations by analyzing for total recoverable chromium.

[3] Mercury, total recoverable: USEPA Method 1631E, with a quantitation level of 0.5 ng/L, shall be used to analyze total recoverable mercury in wastewater.

[4] Cyanide: If the Discharger can demonstrate to the satisfaction of the Santa Ana Water Board (subject to USEPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met (or performance goals may be evaluated) by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometalic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR § 136.

[5] See Attachment A – Definitions.

[6] Radioactivity: The following methods shall be used: USEPA Method 900.0 or Standard Methods 7110B for gross alpha and gross beta; USEPA Method 903.0 or 903.1 for radium-226; USEPA Method 904.0 for radium-228; USEPA Method 906.0 for tritium; USEPA Method 905.0 for strontium-90; and USEPA Method 908.0, 908.1, or 200.8 for uranium. Analysis for combined radium-226 & 228 shall be conducted only if gross alpha or gross beta results for the same sample exceed the stipulated criteria. If combined radium-226 & 228 exceeds the stipulated criteria, then analyze for tritium, strontium-90, and uranium. Note that as of February 2021, the stipulated criteria for gross alpha, gross beta, and radium-226 & 228 are 15 pCi/L, 50 pCi/L, and 5 pCi/L, respectively. These criteria are prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

[7] Tributyltin: SM 6710B or other improved methods approved by the Santa Ana Water Board and USEPA shall be used to analyze tributyltin in wastewater.

[8] Chlordane: The Discharger may temporarily suspend the monitoring requirements for alpha- and gamma-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.

[9] 1,3-dichloropropene is the sum of cis- and trans-1,3-dichloropropene.

[10] TCDD equivalents: TCDD equivalents shall mean the sum of the concentrations of 2,3,7,8-CDDs and 2,3,7,8-CDFs multiplied by their respective toxicity equivalency factor (see Attachment A). For TCDD congeners, the Discharger shall use USEPA Method

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
1613 for dioxins and furans and the minimum levels, as specified in Attachment A – TCDD Equivalents.				

IV. EFFLUENT MONITORING REQUIREMENTS

A. Effluent Monitoring Stations (n=2)

Upon discharge through Discharge Point 001 or Discharge Point 002 during periods of essential maintenance or capital improvement projects of the 120-inch outfall conducted under 40 CFR § 122.41(m)(2), the Discharger shall monitor effluent at EFF-001 or EFF-002 (see Table E-1), respectively, as follows.

Table E-4. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Miscellaneous				
Flow rate	MGD	recorder/ totalizer	continuous	[1]
Fecal coliform density (Discharge Point 001)	MPN /100 mL[2]	grab	1/day	[1]
Fecal coliform density (Discharge Point 002)	MPN /100 mL[2]	grab	3/day	[1]
Enterococcus density (Discharge Point 001)	CFU /100 mL[2]	grab	1/day	[1]
Enterococcus density (Discharge Point 002)	CFU /100 mL[2]	grab	3/day	[1]
Nitrite nitrogen	mg/L	24-hr composite	1/month	[1]
Nitrate nitrogen	mg/L	24-hr composite	1/month	[1]
Organic nitrogen	mg/L	24-hr composite	1/month	[1]
Total nitrogen	lbs/year	calculated	1/year	--
Total phosphorous (as P)	mg/L	24-hr composite	1/month	[1]
Secondary Treatment Standards and/or Ocean Plan Table 4 (formerly Table A) Effluent Limitations				

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Biochemical oxygen demand, 5-day @ 20°C (BOD_5)[3]	mg/L	24-hr composite	1/week	[1]
Carbonaceous biochemical oxygen demand, 5-day @ 20°C ($CBOD_5$)[3]	mg/L	24-hr composite	1/day	[1]
Total suspended solids (TSS)[3]	mg/L	24-hr composite	1/day	[1]
pH	pH units	grab	1/day	[1]
Grease and oil	mg/L	grab	1/month	[1]
Settleable solids	ml/L	grab	1/day	[1]
Turbidity	NTU	24-hr composite	1/month	[1]
Ocean Plan Table 3 (formerly Table B) for Protection of Marine Aquatic Life				
Arsenic, total recoverable	μg/L	24-hr composite	1/month	[1]
Cadmium, total recoverable	μg/L	24-hr composite	1/month	[1]
Chromium (VI), total recoverable[4]	μg/L	24-hr composite	1/month	[1]
Copper, total recoverable	μg/L	24-hr composite	1/month	[1]
Lead, total recoverable	μg/L	24-hr composite	1/month	[1]
Mercury, total recoverable	ng/L	24-hr composite	1/month	[1,5]
Nickel, total recoverable	μg/L	24-hr composite	1/month	[1]
Selenium, total recoverable	μg/L	24-hr composite	1/month	[1]
Silver, total recoverable	μg/L	24-hr composite	1/month	[1]
Zinc, total recoverable	μg/L	24-hr composite	1/month	[1]
Cyanide	μg/L	grab	1/month	[1,6]
Total chlorine residual	μg/L	grab	1/12 hours	[1,7]
Ammonia (as N)	mg/L	24-hr composite	1/week	[1]
Acute toxicity, TST (Discharge Point 001)	Pass “0” or Fail “1”, % Effect	24-hr composite	1/quarter	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Chronic toxicity, TST	Pass "0" or Fail "1", % Effect	24-hr composite	1/month	[1]
Chlorinated phenols[8]	µg/L	24-hr composite	1/month	[1]
Non-chlorinated phenols[8]	µg/L	24-hr composite	1/month	[1]
Endosulfan[8]	µg/L	24-hr composite	2/year	[1]
Endrin	µg/L	24-hr composite	2/year	[1]
HCH[8]	µg/L	24-hr composite	2/year	[1]
Radioactivity	pCi/L	24-hr composite	1/month	[1,9]
Ocean Plan Table 3 (formerly Table B) for Protection of Human Health – Noncarcinogens				
Acrolein	µg/L	grab	1/quarter	[1]
Antimony, total recoverable	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroethoxy) methane	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroisopropyl) ether	µg/L	24-hr composite	1/month	[1]
Chlorobenzene	µg/L	grab	1/quarter	[1]
Chromium (III), total recoverable[4]	µg/L	24-hr composite	1/month	[1]
Di-n-butyl phthalate	µg/L	24-hr composite	1/month	[1]
Dichlorobenzenes[8]	µg/L	grab	1/quarter	[1]
Diethyl phthalate	µg/L	24-hr composite	1/month	[1]
Dimethyl phthalate	µg/L	24-hr composite	1/month	[1]
4,6-dinitro-2-methylphenol	µg/L	24-hr composite	1/month	[1]
2,4-dinitrophenol	µg/L	24-hr composite	1/month	[1]
Ethylbenzene	µg/L	grab	1/quarter	[1]
Fluoranthene	µg/L	24-hr composite	1/month	[1]
Hexachlorocyclopentadiene	µg/L	24-hr composite	1/month	[1]
Nitrobenzene	µg/L	24-hr composite	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Thallium, total recoverable	µg/L	24-hr composite	1/month	[1]
Toluene	µg/L	grab	1/quarter	[1]
Tributyltin	µg/L	24-hr composite	1/quarter	[1,10]
1,1,1-trichloroethane	µg/L	grab	1/quarter	[1]
Ocean Plan Table 3 (formerly Table B) for Protection of Human Health – Carcinogens				
Acrylonitrile	µg/L	grab	1/quarter	[1]
Aldrin	µg/L	24-hr composite	2/year	[1]
Benzene	µg/L	grab	1/quarter	[1]
Benzidine	µg/L	24-hr composite	1/month	[1]
Beryllium, total recoverable	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroethyl) ether	µg/L	24-hr composite	1/month	[1]
Bis(2-ethylhexyl) phthalate	µg/L	24-hr composite	1/month	[1]
Carbon tetrachloride	µg/L	grab	1/quarter	[1]
Chlordane[8,11]	µg/L	24-hr composite	2/year	[1]
Chlorodibromomethane	µg/L	grab	1/quarter	[1]
Chloroform	µg/L	grab	1/quarter	[1]
DDT[8]	µg/L	24-hr composite	2/year	[1]
1,4-dichlorobenzene	µg/L	grab	1/quarter	[1]
3,3-dichlorobenzidine	µg/L	24-hr composite	1/month	[1]
1,2-dichloroethane	µg/L	grab	1/quarter	[1]
1,1-dichloroethylene	µg/L	grab	1/quarter	[1]
Dichlorobromomethane	µg/L	grab	1/quarter	[1]
Dichloromethane	µg/L	grab	1/quarter	[1]
1,3-dichloropropene[12]	µg/L	grab	1/quarter	[1]
Dieldrin	µg/L	24-hr composite	2/year	[1]
2,4-dinitrotoluene	µg/L	24-hr composite	1/month	[1]
1,2-diphenylhydrazine	µg/L	24-hr composite	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Halomethanes[8]	µg/L	grab	1/quarter	[1]
Heptachlor	µg/L	24-hr composite	2/year	[1]
Heptachlor epoxide	µg/L	24-hr composite	2/year	[1]
Hexachlorobenzene	µg/L	24-hr composite	1/month	[1]
Hexachlorobutadiene	µg/L	24-hr composite	1/month	[1]
Hexachloroethane	µg/L	24-hr composite	1/month	[1]
Isophorone	µg/L	24-hr composite	1/month	[1]
N-nitrosodimethylamine	µg/L	24-hr composite	1/month	[1]
N-nitrosodi-N-propylamine	µg/L	24-hr composite	1/month	[1]
N-nitrosodiphenylamine	µg/L	24-hr composite	1/month	[1]
PAHs[8]	µg/L	24-hr composite	1/month	[1]
PCBs[8]	µg/L	24-hr composite	2/year	[1]
Individual PCB congeners	µg/L	24-hr composite	1/year	[1,13]
TCDD equivalents[8]	µg/L	24-hr composite	1/quarter	[1,14]
1,1,2,2-tetrachloroethane	µg/L	grab	1/quarter	[1]
Tetrachloroethylene	µg/L	grab	1/quarter	[1]
Toxaphene	µg/L	24-hr composite	2/year	[1]
Trichloroethylene	µg/L	grab	1/quarter	[1]
1,1,2-trichloroethane	µg/L	grab	1/quarter	[1]
2,4,6-trichlorophenol	µg/L	24-hr composite	1/month	[1]
Vinyl chloride	µg/L	grab	1/quarter	[1]

[1] As specified in 40 CFR § 136, or in this Order/Permit.

[2] Results may be reported as either MPN/100 mL if the laboratory method used provides results in MPN/100 mL or CFU/100 mL if the laboratory method used provides results in CFU/100 mL.

[3] Percent removal shall be calculated based on mass where:

% removal = (influent mass – effluent mass) / influent mass;

influent mass (lbs/day) = influent flow (MGD) x influent concentration (mg/L) x 8.34;

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

effluent mass (lbs/day) = effluent flow (MGD) x effluent concentration (mg/L) x 8.34.

[4] For chromium (III) and (VI), the Discharger may, at its option, meet both the chromium (III) and the chromium (VI) limitations by analyzing for total recoverable chromium.

[5] Mercury, total recoverable: USEPA Method 1631E, with a quantitation level of 0.5 ng/L, shall be used to analyze total recoverable mercury in wastewater.

[6] Cyanide: If the Discharger can demonstrate to the satisfaction of the Santa Ana Water Board (subject to USEPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met (or performance goals may be evaluated) by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometalic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR § 136.

[7] The minimum level (ML) for total chlorine residual in wastewater shall be less than or equal to 50 µg/L.

[8] See Attachment A – Definitions

[9] Radioactivity: The following methods shall be used: USEPA Method 900.0 or Standard Methods 7110B for gross alpha and gross beta; USEPA Method 903.0 or 903.1 for radium-226; USEPA Method 904.0 for radium-228; USEPA Method 906.0 for tritium; USEPA Method 905.0 for strontium-90; and USEPA Method 908.0, 908.1, or 200.8 for uranium. Analysis for combined radium-226 & 228 shall be conducted only if gross alpha or gross beta results for the same sample exceed the stipulated criteria. If combined radium-226 & 228 exceeds the stipulated criteria, then analyze for tritium, strontium-90, and uranium. Note that as of February 2021, the stipulated criteria for gross alpha, gross beta, and radium-226 & 228 are 15 pCi/L, 50 pCi/L, and 5 pCi/L, respectively. These criteria are prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

[10] Tributyltin: SM 6710B or other improved methods approved by the Santa Ana Water Board and USEPA shall be used to analyze tributyltin in wastewater.

[11] Chlordane: The Discharger may temporarily suspend the monitoring requirements for alpha- and gamma-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.

[12] 1,3-dichloropropene is the sum of cis- and trans-1,3-dichloropropene.

[13] PCBs: USEPA draft Method 1668c (and quantitation levels) shall be used to analyze PCB congeners in wastewater. To facilitate interpretation of sediment and fish tissue data, individual PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138,

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
149, 151, 153/168, 156, 157, 158, 167, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified and reported.				
[14] TCDD equivalents: TCDD equivalents shall mean the sum of the concentrations of 2,3,7,8-CDDs and 2,3,7,8-CDFs multiplied by their respective toxicity equivalency factor (see Attachment A). For TCDD congeners, the Discharger shall use USEPA Method 1613 for dioxins and furans and the minimum levels, as specified in Attachment A – TCDD Equivalents.				

B. Emergency Discharge Monitoring Stations (n=2)

Upon emergency discharge through Emergency Discharge Point 002, the Discharger shall monitor effluent at EMG-001 (see Table E-1). Upon emergency discharge through Emergency Discharge Point 003, the Discharger shall monitor effluent at EMG-002 (see Table E-1). At minimum, monitored parameters shall include bacteria indicator organisms (i.e., total coliform, fecal coliform, and enterococcus), parameters with secondary treatment and/or Ocean Plan Table 4 standards, and relevant pollutants of concern (e.g., Total chlorine residual and Ammonia (as N)) in Table E-4. During emergency discharge, the minimum sampling frequency shall be daily, until emergency discharge ceases.

C. Mass Emission Benchmarks

Constituents that have been assigned Mass Emission Benchmarks are listed in the NPDES Order/Permit under Section V.B. The Mass Emission Benchmarks have been established for the discharge through Discharge Point 001 (120” outfall) and shall be reported in metric tons per year (MT/yr). The Discharger shall monitor and report annually the mass emission rate for all constituents that have mass emission benchmarks. For each constituent, the 12-month average mass emission rate, and the effluent concentrations and flows used to calculate that mass emission rate shall be reported in the annual pretreatment report and annual receiving water monitoring report (effluent chapter).

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Whole Effluent Toxicity

1. Monitoring Frequency

The Discharger shall conduct acute toxicity tests on 24-hour composite effluent samples (Table E-4). Once each calendar year, at a different time of year from the previous years, the Discharger shall split a 24-hour composite effluent sample and concurrently conduct toxicity tests using a fish and an invertebrate species. The Discharger shall then continue to conduct routine quarterly toxicity testing using the single, most sensitive species.

Acute toxicity test samples shall be collected at the designated NPDES sampling station for the effluent. In order to better relate toxicity to other effluent characteristics, it is recommended that at least twice per year the Discharger process a split toxicity sample for analysis of all other monitored parameters specified by the effluent monitoring program.

2. Marine and Estuarine Species and Test Methods

   Species and short-term test methods for estimating the acute toxicity of NPDES effluents are generally found in the fifth edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012, 2002; Table IA, 40 CFR § 136).

   For this Order/Permit, the Discharger shall conduct 96-hour static renewal toxicity tests with topsmelt, *Atherinops affinis*, representing a vertebrate species (Test Method 2006.0), and the mysid, *Americamysis bahia*, representing an invertebrate species (Test Method 2007.0).

   If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger shall conduct a 96-hour static renewal toxicity test with the inland silverside, *Menidia beryllina* (Test Method 2006.0).

3. Quality Assurance

   a. Quality assurance measures, instructions, and other recommendations and requirements are found in the test methods manuals previously referenced. Additional requirements are specified, below.

   b. For Discharge Point 001, an acute dilution allowance is authorized such that the critical acute instream waste concentration (IWC) is set at a percent effluent value lower than 100% effluent. The acute IWC for Discharge Point 001 is 5.56% effluent.

   c. Effluent dilution water and control water should be prepared and used as specified in the test methods manual for the test species. If the dilution water is different from test organism culture water, then a second control using culture water shall also be used. If the use of artificial sea salts is considered provisional in the test method, then artificial sea salts shall not be used to increase the salinity of the effluent sample prior to toxicity testing without written approval by the permitting authority.

   d. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).

   e. If the effluent toxicity test during the reporting period for the month does not meet the Test Acceptability Criteria (TAC) in the WET method (EPA/600/R-95/136, 1995), then the permittee shall resample and retest within 14 days. The

results of this retest shall only replace that effluent toxicity test that did not meet TAC during the reporting period for the month.

f. If the discharged effluent is disinfected using chlorine, then total chlorine residual shall not be removed from the effluent sample prior to toxicity testing.

B. Chronic Whole Effluent Toxicity

1. Monitoring Frequency

The Discharger shall conduct chronic toxicity tests on 24-hour composite effluent samples (Table E-4). Once each calendar year, at a different time of year from the previous years, the Discharger shall split a 24-hour composite effluent sample and concurrently conduct three toxicity tests using a fish, an invertebrate, and an algal species. The Discharger shall then continue to conduct routine monthly toxicity testing using the single, most sensitive species.

Chronic toxicity test samples shall be collected at the designated NPDES sampling station for the effluent. In order to better relate toxicity to other effluent characteristics, it is recommended that at least twice per year the Discharger process a split toxicity sample for analysis of all other monitored parameters specified by the effluent monitoring program.

2. Marine and Estuarine Species and Test Methods

Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the first edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995) and applicable water quality standards; also see 40 CFR § 122.41(j)(4) and 122.44(d)(1)(iv), and 40 CFR § 122.21(j)(5)(viii) for POTWs.

The Discharger shall conduct a static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth Test Method 1006.0); a static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth Test Method 1009.0); and a toxicity test with one of the following invertebrate species:

Static non-renewal toxicity test with the red abalone, *Haliotis rufescens* (Larval Shell Development Test Method);

Static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus*, or the sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0).

If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger shall conduct a static renewal toxicity test with the inland silverside, *Menidia beryllina* (Larval Survival and Growth Test Method 1006.0) in the third edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014, 2002).

3. Quality Assurance

   a. Quality assurance measures, instructions, and other recommendations and requirements are found in the chronic test methods manuals previously referenced. Additional requirements are specified, below.

   b. For Discharge Point 001, a chronic dilution allowance is authorized such that the critical chronic instream waste concentration (IWC) is set at a percent effluent value lower than 100% effluent. The chronic IWC for Discharge Point 001 is 0.556% effluent.

      For Discharge Point 002, a chronic dilution allowance is authorized such that the critical chronic instream waste concentration (IWC) is set at a percent effluent value lower than 100% effluent. The chronic IWC for Discharge Point 002 is 2.78% effluent.

   c. Effluent dilution water and control water should be prepared and used as specified in the test methods manual *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995) and/or *Short- term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R- 02/014, 2002). If the dilution water is different from test organism culture water, then a second control using culture water shall also be used. If the use of artificial sea salts is considered provisional in the test method, then artificial sea salts shall not be used to increase the salinity of the effluent sample prior to toxicity testing without written approval by the permitting authority.

   d. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).

   e. If the effluent toxicity test during the reporting period for the month does not meet the Test Acceptability Criteria (TAC) in the WET method (EPA/600/R-95/136, 1995), then the permittee shall resample and retest within 14 days. The results of this retest shall only replace that effluent toxicity test that did not meet TAC during the reporting period for the month.

   f. If the discharged effluent is disinfected using chlorine, then total chlorine residual shall not be removed from the effluent sample prior to toxicity testing.

   g. pH drift during the toxicity test may contribute to artifactual toxicity when pH-dependent toxicants (e.g., ammonia, metals) are present in an effluent. To determine whether or not pH drift during the toxicity test is contributing to artifactual toxicity, the Discharger shall conduct three sets of parallel toxicity tests, in which the pH of one treatment is controlled at the pH of the effluent and the pH of the other treatment is not controlled, as described in Section 13.3.6 of the test methods manual, Short-term Methods for Estimating the

Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms (EPA/821/R-02/014, 2002). Toxicity is confirmed to be artifactual and due to pH drift when no toxicity above the chronic WET permit limit is observed in the treatments controlled at the pH of the effluent. If toxicity is confirmed to be artifactual and due to pH drift, then, following written approval by the permitting authority, the Discharger may use the procedures outlined in Section 13.3.6 of the test methods manual to control sample pH during the toxicity test.

C. Analysis and Reporting of Acute and Chronic Toxicity Monitoring Results

1. For Discharge Point 001, a full toxicity laboratory report for all acute and chronic toxicity testing shall be submitted as an attachment to the Self-Monitoring Report (SMR) for the month in which the toxicity tests are initiated. The laboratory report shall contain: all toxicity test results (raw data and statistical analyses) for each effluent and related reference toxicant tested; chain-of custody; the dates of sample collection and initiation of each toxicity test; control performance; all results for other effluent parameters monitored concurrently with the effluent toxicity tests via split samples; and schedule and progress reports on TRE/TIE studies.
2. For Discharge Point 002, a full toxicity laboratory report for all chronic toxicity testing shall be submitted as an attachment to the SMR for the month in which the toxicity tests are initiated. The laboratory report shall contain: all toxicity test results (raw data and statistical analyses) for each effluent and related reference toxicant tested; chain-of custody; the dates of sample collection and initiation of each toxicity test; control performance; all results for other effluent parameters monitored concurrently with the effluent toxicity tests via split samples; and schedule and progress reports on TRE/TIE studies.
3. The Discharger shall notify the Santa Ana Water Board and USEPA in writing within 14 days of exceedance of an acute or chronic WET permit limit. This notification shall describe actions the Discharger has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this Order/Permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER CORE MONITORING REQUIREMENTS

A. Water Quality Monitoring

1. Monitoring Locations – Monthly Water Quality Monitoring Stations (n=28)

   The Discharger shall monitor the receiving water at the Monthly Water Quality Stations specified in Table E-2, as follows. Reference conditions shall be confirmed for each survey. Water column profiling protocols and analytical methods shall follow those described in Orange County Sanitation District – Ocean Monitoring Program, Quality Assurance and Project Plan (QAPP) (OCSD, MRP QAPP), and

Orange County Sanitation District – Laboratory Monitoring and Compliance Division, Laboratory Standard Operating Procedures (OCSD, Laboratory Quality Manual).

Compliance shall be evaluated based on statistical comparisons between water quality profiles in the reference and plume-affected zones. Appropriate reference stations and plume-impacted stations for each survey day shall be determined based on available current measurements and the presence or absence of typical plume "signals" (e.g., colored dissolved organic matter (CDOM), ammonia (NH_3-N), and/or fecal indicator bacteria). Reference stations shall represent "natural" conditions, excluding the stations affected by the effluent plume.

Table E-5. Water Quality Monitoring

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
Surface Observations[1]	--	visual	Surface	1/month	--
Salinity (calculated)	psu	profile	CTD sampling depths in Table E-2	1/month	[2]
Conductivity	S/m	profile		1/month	[2]
Temperature	°C	profile		1/month	[2]
Dissolved oxygen (DO)	mg/L	profile		1/month	[2]
Transmissivity	%	profile		1/month	[2]
Photosynthetically active radiation (PAR)	µEinsteins sec^{-1} cm^{-2}	profile		1/month	[2]
Chlorophyll-*a* fluorescence	µg/L	profile		1/month	[2]
pH	standard unit	profile		1/month	[2]
Ammonia (NH_3-N)	mg/L	grab	Discrete sampling depths in Table E-2	1/month	[2]
Nitrate nitrogen	mg/L	grab		1/month	[2]

[1] Receiving water observations of any discoloration, turbidity, odor, trash (see Attachment A for the definition of trash), and unusual or abnormal amounts of floating or suspended matter in the water or on the beach, rocks, jetties, or beach structures, shall be made and recorded at stations. The character and extent of such matter shall be described. The dates, times, and depths of sampling and these observations shall also be reported. Recreational use at time of sampling, within a 100 meter radius of each sample location, shall also be recorded and submitted with results. In federal waters, the nature and extent of REC-1 activities shall be recorded and reported whenever a station is sampled. Recreational uses include, but are not limited to, swimming, wading, water-skiing, diving, surfing, and fishing.

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
[2] As specified in 40 CFR § 136, or in the MRP QAPP and Laboratory Quality Manual.					

B. REC-1 Water Quality Monitoring (Offshore Zone)

Based on Chapter II.B.1 of the Ocean Plan, bacterial indicator standards shall be maintained throughout the water column in the Offshore Zone used for water contact sports, as determined by the Santa Ana Water Board or USEPA (i.e., waters designated as REC-1), to assure that the discharge does not pose a threat to water contact recreation.

1. Monitoring Locations – Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) (n=8)

   The Discharger shall monitor the receiving water at the Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) specified in Table E-2, as follows. Water column profiling protocols and analytical methods shall follow those described in the MRP QAPP and Laboratory Quality Manual.

Table E-6. REC-1 Water Quality Monitoring (Offshore Zone)

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
Surface Observations[1]	--	visual	Surface	5 samples over a 30-day period/quarter See Table E-2.	--
Salinity (calculated)	psu	profile	CTD sampling depths in Table E-2		[2]
Conductivity	S/m	profile			[2]
Temperature	°C	profile			[2]
Dissolved oxygen (DO)	mg/L	profile			[2]
Transmissivity	%	profile			[2]
Photosynthetically active radiation (PAR)	µEinsteins sec^{-1} cm^{-2}	profile			[2]
Chlorophyll-*a* fluorescence	µg/L	profile			[2]
pH	standard units	profile			[2]
Ammonia (NH_3-N)	mg/L	grab	Discrete sampling		[2]
Nitrate nitrogen	mg/L	grab			[2]

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
Total coliform density	MPN /100 mL[3]	grab	depths in Table E-2		[2,4]
Enterococcus density	CFU /100 mL[3]	grab			[2,4]
Fecal coliform density	MPN /100 mL[3]	calculated			[2,4]
E. Coli density (converted to fecal coliform density)	MPN /100 mL[3]	grab			[2,4]

[1] Receiving water observations of any discoloration, turbidity, odor, trash (see Attachment A for the definition of trash), and unusual or abnormal amounts of floating or suspended matter in the water or on the beach, rocks, jetties, or beach structures, shall be made and recorded at stations. The character and extent of such matter shall be described. The dates, times, and depths of sampling and these observations shall also be reported. Recreational use at time of sampling, within a 100 meter radius of each sample location, shall also be recorded and submitted with results. In federal waters, the nature and extent of REC-1 activities shall be recorded and reported whenever a station is sampled. Recreational uses include, but are not limited to, swimming, wading, water-skiing, diving, surfing, and fishing.

[2] As specified in 40 CFR § 136, or in the MRP QAPP and Laboratory Quality Manual.

[3] Results may be reported as either MPN/100 mL if the laboratory method used provides results in MPN/100 mL or CFU/100 mL if the laboratory method used provides results in CFU/100 mL.

[4] Total coliform and *E. coli* are analyzed using the Colilert-18 method and *Enterococcus* is analyzed using the Enterolert method. Values for *E. coli* are multiplied by 110% to determine fecal coliform values.

C. Sediment Monitoring

1. Monitoring Locations – Quarterly Benthic Monitoring Stations (n=11), Annual Benthic Monitoring Stations (n=11), and 1/5-year Benthic Monitoring Stations (n=35)

   Sediment Chemistry. Sediment samples collected for chemistry analyses shall be separate from those collected for benthic infauna community analyses or whole sediment toxicity testing. The Discharger shall monitor sediment chemistry at the Quarterly, Annual, and 1/5-year Benthic Monitoring Stations specified in Table E-2. Sampling protocols and analytical methods (and reporting limits) shall follow those described in the MRP QAPP and Laboratory Quality Manual. Sediment samples for chemistry analyses shall be collected from the top 2 cm of undisturbed surface material in a 0.1 m^2 Van Veen grab sample. Results of chemistry analyses shall be reported on a dry weight basis.

Table E-7. Sediment Chemistry Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Miscellaneous				
Sediment grain size	phi	grab	See Table E-2.	[1]
Total organic carbon	%	grab		[1]
Dissolved sulfides	mg/kg	grab		[1]
Total nitrogen	mg/kg	grab		[1]
Total phosphorous	mg/kg	grab		[1]
Metals				
Aluminum, total recoverable	mg/kg	grab	See Table E-2.	[1]
Antimony, total recoverable	mg/kg	grab		[1]
Arsenic, total recoverable	mg/kg	grab		[1]
Barium, total recoverable	mg/kg	grab		[1]
Beryllium, total recoverable	mg/kg	grab		[1]
Cadmium, total recoverable	mg/kg	grab		[1]
Chromium, total recoverable	mg/kg	grab		[1]
Copper, total recoverable	mg/kg	grab		[1]
Iron, total recoverable	mg/kg	grab		[1]
Lead, total recoverable	mg/kg	grab		[1]
Mercury, total recoverable	mg/kg	grab		[1]
Nickel, total recoverable	mg/kg	grab		[1]
Selenium, total recoverable	mg/kg	grab		[1]
Silver, total recoverable	mg/kg	grab		[1]
Zinc, total recoverable	mg/kg	grab		[1]
Pesticides[2]				
2,4'-DDT	µg/kg	grab	See Table E-2.	[1]
4,4'-DDT	µg/kg	grab		[1]
2,4'-DDD	µg/kg	grab		[1]
4,4'-DDD	µg/kg	grab		[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
2,4'-DDE	µg/kg	grab		[1]
4,4'-DDE	µg/kg	grab		[1]
4,4'-DDMU	µg/kg	grab		[1]
Aldrin	µg/kg	grab		[1]
Dieldrin	µg/kg	grab		[1]
cis-Chlordane[3]	µg/kg	grab		[1]
trans-Chlordane[3]	µg/kg	grab		[1]
trans-Nonachlor	µg/kg	grab		[1]
Heptachlor	µg/kg	grab		[1]
Heptachlor epoxide	µg/kg	grab		[1]
Endosulfan	µg/kg	grab		[1]
Endrin	µg/kg	grab		[1]
Hexachlorobenzene	µg/kg	grab		[1]
Lindane (gamma-BHC)	µg/kg	grab		[1]
Mirex	µg/kg	grab		[1]
Polychlorinated Biphenyl (PCB) Congeners				
Individual PCB congeners[4]	µg/kg	grab	See Table E-2.	[1]
Polycyclic Aromatic Hydrocarbons (PAHs) – Low Molecular Weight				
Acenaphthene	µg/kg	grab		[1]
Acenaphthylene	µg/kg	grab		[1]
Anthracene	µg/kg	grab		[1]
Biphenyl	µg/kg	grab		[1]
Fluorene	µg/kg	grab		[1]
2-Methylnapthalene	µg/kg	grab	See Table E-2.	[1]
1-Methylphenanthrene	µg/kg	grab		[1]
Naphthalene	µg/kg	grab		[1]
1-Methylnapthalene	µg/kg	grab		[1]
2,6-Dimethylnaphthalene	µg/kg	grab		[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
1,6,7-Trimethyl-naphthalene (2,3,5-Trimethylnaphthalene)	µg/kg	grab		[1]
Phenanthrene	µg/kg	grab		[1]
Polycyclic Aromatic Hydrocarbons (PAHs) – High Molecular Weight				
Benz[a]anthracene	µg/kg	grab	See Table E-2.	[1]
Benzo[a]pyrene	µg/kg	grab		[1]
Benzo[b/j]fluoranthene	µg/kg	grab		[1]
Benzo[e]pyrene	µg/kg	grab		[1]
Benzo[g,h,i]perylene	µg/kg	grab		[1]
Benzo[k]fluoranthene	µg/kg	grab		[1]
Chrysene	µg/kg	grab		[1]
Dibenz[a,h]anthracene	µg/kg	grab		[1]
Fluoranthene	µg/kg	grab		[1]
Indeno(1,2,3-c,d) pyrene	µg/kg	grab		[1]
Perylene	µg/kg	grab		[1]
Pyrene	µg/kg	grab		[1]

[1] As specified in the MRP QAPP and Laboratory Quality Manual.

[2] Pesticides: The Discharger shall monitor pesticides only in the summer (July, August, and September) at the quarterly and annual Benthic Monitoring Stations and once in five years (in summer) at the 1/5-year station specified in Table E-2.

[3] Chlordane: The Discharger may temporarily suspend the monitoring requirements for cis- and trans- chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.

[4] Individual PCB congeners: Individual PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153/168, 156, 157, 158, 167, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified and reported.

2. Monitoring Locations – Quarterly Benthic Monitoring Stations (n=11), Annual Benthic Monitoring Stations (n=11), and 1/5-year Benthic Monitoring Stations (n=35)

   Benthic Infauna Community. Sediment samples collected for benthic infauna community analyses shall be separate from those collected for chemistry analyses

or whole sediment toxicity testing. The Discharger shall monitor benthic infauna at the Quarterly, Annual, and 1/5-year Benthic Monitoring Stations specified in Table E-2. Sampling protocols, including treatment, storage, and analyses, shall follow those described in the MRP QAPP and Laboratory Quality Manual. Sediment samples for benthic infauna community analyses shall be washed and screened (1.0 mm mesh) from an entire 0.1 m^2 Van Veen grab sample and fixed and preserved for sorting. All retained organisms from the Quarterly, Annual, and 1/5-year stations shall be counted and identified to as low a taxon as possible.

Table E-8. Benthic Infauna Community Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Number of species, per grab sample	--	grab	See Table E-2.	[1]
Number of individuals per species, per grab sample	--	grab		[1]
Benthic response index (BRI)	--	grab		[1]
Shannon-Weiner's diversity index (H')	--	grab		[1]
Swartz's 75% dominance index (SDI)	--	grab		[1]
[1] As specified in the MRP QAPP and Laboratory Quality Manual.				

3. Monitoring Locations – Quarterly Benthic Monitoring Stations (n=11)

   Whole Sediment Toxicity. Sediment samples collected for whole sediment toxicity testing shall be separate from those collected for chemistry analyses or benthic infauna community analyses. The Discharger shall annually monitor whole sediment toxicity at the eleven (11) Quarterly Benthic Monitoring Stations specified in Table E-2. Sampling protocols and analyses shall follow those described in the MRP QAPP and Laboratory Quality Manual. Sediment samples for sediment toxicity testing shall be collected from the top 2 cm of undisturbed surface material in a 0.1 m^2 Van Veen grab sample.

   If a station sample result is statistically significant using a standard t-test of no difference and the magnitude of difference compared to the control is greater than 20 %, the station shall be re-sampled and re-tested in the following quarter to determine if the observed toxicity is persistent. If toxicity is persistent (i.e., the second test also tests significantly toxic), then the Discharger shall report the toxicity test results to the Santa Ana Water Board and USEPA and investigate the causes and report the investigation results and mitigation efforts in the annual monitoring report.

Table E-9. Whole Sediment Toxicity Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Whole sediment acute toxicity	% of home	grab	See Table E-2.	[1]
[1] USEPA 10-day static amphipod (*Eohaustorius estuarius*) survival test: *Methods for Assessing the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Amphipods* (EPA/600/R- 94/025, 1994).				

D. Demersal Fish and Epibenthic Macroinvertebrate Monitoring

1. Monitoring Locations – Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=6) and Annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=8)

   Demersal Fish and Epibenthic Macroinvertebrate Communities. Trawl samples collected for demersal fish and epibenthic macroinvertebrate community structure analyses may be the same as those collected for demersal fish tissue chemistry analyses. The Discharger shall monitor demersal fish and epibenthic macroinvertebrates at the Semi-Annual and Annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations specified in Table E-2. Sampling and analysis protocols shall follow those described in the MRP QAPP and Laboratory Quality Manual. At each station, a single trawl sample shall be collected using one standard semi-balloon otter trawl towed for at least 10 minutes along the respective isobath. Samples shall be processed, with all demersal fish and epibenthic macroinvertebrates, identified to species, counted, measured (fish only), and weighed.

Table E-10. Demersal Fish and Epibenthic Macroinvertebrate Community Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Number of species, per trawl sample	--	trawl	See Table E-2.	[1]
Number of individuals per species, per trawl sample	--	trawl		[1]
Wet weight of macroinvertebrate species, per trawl sample	kg	trawl		[1]
Wet weight of fish species, per trawl sample	kg	trawl		[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Size classes of fish species, per trawl sample	cm	trawl		[1]
Shannon-Weiner's diversity index (H')	--	trawl		[1]
Swartz's 75% dominance index (SDI)	--	trawl		[1]
Fish response index (FRI)	--	trawl		[1]
Abnormalities and disease symptoms	--	trawl		[1]
[1] As specified in the MRP QAPP and Laboratory Quality Manual.				

2. Monitoring Locations – Semi-annual Trawl Fish Monitoring Stations (n=2)

   Demersal Fish Liver Tissue Chemistry. The trawl samples collected for demersal fish liver tissue chemistry analyses may be the same as those collected for demersal fish and epibenthic macroinvertebrate community structure analyses. The Discharger shall annually monitor flatfish (e.g., Pacific Sanddab, Hornyhead Turbot, and English Sole) at the two Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations specified in Table E-2. Sampling and analysis protocols (including reporting limits) shall follow those described in the MRP QAPP and Laboratory Quality Manual. At each station, a single trawl sample shall be collected using one standard semi-balloon otter trawl towed for at least 10 minutes along the specified isobath. A reasonable level of effort (i.e., five (5) trawls per station) shall be used to collect a maximum twenty (20) individuals of flatfish between 15-20 cm standard length at each station. Target fish will be identified to species, counted, measured to the nearest millimeter, weighed, bagged, and transported on wet ice to the Discharger's laboratory for chemical analyses on liver tissue contaminants. Fish will be sorted into two composite samples per station, with a maximum of ten (10) individuals in each composite.

Table E-11. Demersal Fish Liver Tissue Chemistry Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Length of each fish sample, per trawl sample	cm	trawl	See Table E-2.	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Wet weight of each fish sample, per trawl sample	kg	trawl		[1]
Percent lipid	%, wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Arsenic	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Mercury (methylmercury)	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Selenium	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Sum of individual PCB congeners[2]	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Individual PCB congeners[2]	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Sum of individual DDT derivatives[3]	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Sum of individual Chlordane derivatives[4]	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]

[1] As specified in the MRP QAPP and Laboratory Quality Manual.

[2] Individual PCB congeners: Individual PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110,

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
114, 118, 119, 123, 126, 128, 138, 149, 151, 153/168, 156, 157, 158, 167, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified and reported. The analytical report for individual PCB congeners shall be submitted electronically into the State Water Board's California Integrated Water Quality System (CIWQS) in a tabular format as an attachment.				
[3] Individual DDT derivatives: 2,4'- and 4,4'-isomers of DDT, DDE, and DDD, plus 4,4'-DDMU.				
[4] Individual Chlordane derivatives: Cis- and trans-chlordane, cis- and trans-chlordene, heptachlor, heptachlor epoxide, cis- and trans-nonachlor, and oxychlordane. The Discharger may temporarily suspend the monitoring requirements for cis- and trans-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.				

3. Monitoring Locations – Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=2)

   Demersal Fish Liver Histopathology. Histopathological analyses shall be performed annually on liver tissues of flatfish from two Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations specified in Table E-2. A reasonable level of effort (i.e., five (5) trawls per location) shall be used to collect twenty (20) individuals of flatfish at each station. Fish species are the same as those targeted for liver tissue chemistry analyses (e.g., Pacific Sanddab, Hornyhead Turbot, and English Sole).

   The increased frequency of histopathological analyses in this Order/Permit cycle (i.e., annual) is different from that of the previous Order/Permit in order to capture potential environmental effects associated with the Discharger's increased water reclamation efforts.

4. Monitoring Locations – Annual Rig Fishing Monitoring Zones (n=2)

   Sport Fish Muscle Chemistry. The Discharger shall collect ten (10) sexually mature rockfish (e.g., Vermilion Rockfish, Copper Rockfish, and California Scorpionfish) at each Rig Fishing Monitoring Zone specified in Table E-2. Sampling and analysis protocols (including reporting limits) shall follow those described in the MRP QAPP and Laboratory Quality Manual. Target fish will be identified to species, counted, measured to the nearest millimeter, weighed, bagged, and transported on wet ice to the Discharger's laboratory for chemical analyses on muscle tissue contaminants. Fish will be sorted into two composite samples per zone, with a maximum of five (5) individuals in each composite.

Table E-12. Sport Fish Muscle Chemistry Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Length of each fish sample	cm	hook and line	See Table E-2.	[1]
Wet weight of each fish sample	kg	hook and line		[1]
Percent lipid	%, wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Arsenic, total	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Mercury (methylmercury)	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Selenium, total	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Sum of individual PCB congeners[2]	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Individual PCB congeners[2]	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Sum of individual DDT derivatives[3]	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Sum of individual Chlordane derivatives[4]	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]

[1] As specified in the MRP QAPP and Laboratory Quality Manual.

[2] Individual PCB congeners. Individual PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153/168, 156, 157, 158, 167, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified and reported. The analytical report

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
for individual PCB congeners shall be submitted electronically in the State Water Board's California Integrated Water Quality System (CIWQS) in a tabular format as an attachment.				
[3] Individual DDT derivatives. 2,4'- and 4,4'-isomers of DDT, DDE, and DDD, plus 4,4'-DDMU.				
[4] Individual Chlordane derivatives. Cis- and trans-chlordane, cis- and trans-chlordene, heptachlor, heptachlor epoxide, cis- and trans-nonachlor, and oxychlordane. The Discharger may temporarily suspend the monitoring requirements for cis- and trans-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.				

IX. RECEIVING WATER REGIONAL MONITORING REQUIREMENTS

Discharger participation in regional monitoring programs is a required condition of this Order/Permit. The Discharger shall participate in regional monitoring activities coordinated by the Southern California Coastal Water Research Project (SCCWRP), County of Orange Health Care Agency (HCA), the Southern California Coastal Ocean Observation System (SCCOOS), and other appropriate agencies once approved by the Santa Ana Water Board and USEPA.

The regional monitoring programs which must be conducted under this Order/Permit include:

A. Southern California Bight Regional Monitoring Program

The Discharger shall continue to participate in Southern California Bight Regional Monitoring Program studies, including water quality, benthic infauna, sediment chemistry, fish communities, fish predator risk, and ocean acidification, which are coordinated through the Southern California Coastal Water Research Project (SCCWRP) (e.g., the 1994 Southern California Bight Pilot Project, Bight'98, Bight'03, Bight'08, Bight'13, and Bight'18).

Participation in the Southern California Bight Regional Monitoring Program shall include aspects of the program relevant to understanding regional trends and answering regional questions related to public health (i.e., bacterial contamination), water quality, sediment geochemistry, biological communities, and seafood safety (e.g., fish tissue contamination) in the receiving waters environment. For sediment chemistry and benthic infauna communities, this level of effort shall be similar to the 35 one-off (i.e., 1/5-year) summer samples. For trawls, participation shall be equivalent to the 8 annual summer samples. In both cases (i.e., the benthic and trawl programs), 22 quarterly/annual benthic stations and 6 semi-annual trawl stations identified in the monitoring program should continue to be sampled, even during regional monitoring program events, to assess compliance and trends near the discharge.

The Discharger shall complete collection, analysis, and reporting of samples in accordance with the schedules established by the next Bight regional program

development committee(s). Previous participation included method development, research, and monitoring activities involving microbiology, water quality data, marine sediments, fish/macrobenthic assemblages, fish tissue contamination, and harmful algal blooms related to point and nonpoint discharges to the marine environment. Levels of participation and areas of study are dependent upon the final study plans established by Bight regional program development committees, but will be equivalent to that provided by the Discharger in previous regional surveys conducted in 1994, 1998, 2003, 2008, 2013, and 2018. For Bight'18, this involved:

1. Participation in regional microbiological studies testing rapid methods and developing rapid methods for detection of fecal indicator bacteria in beach sands at 2 beach stations.
2. Collection and analysis of water quality samples for analyzing the relationship between nutrients discharged through POTW outfalls, upwelling, and harmful algal blooms. Note that this study was deferred to Bight'23 due to logistical sample deployment issues.
3. Collection and analysis of water quality samples for ocean acidification and hypoxia (OAH), including bongo net towing to collect pteropods, at 4 bongo net tow stations.
4. Collection and analysis of sediment grab samples for geochemistry and benthic infauna at 44 benthic stations .
5. Collection and analyses of fish and macroinvertebrate community structure at 21 trawl stations.
6. Collection and analysis of fish tissue from approximately two zones or the equivalent of 40 tissue samples for chemical contaminants (organics and metals), and analysis of selected biomarkers at a subset of these stations.

B. Southern California Bight Regional Water Quality Program

The Southern California Bight Regional Water Quality Program (SCBRWQP; previously known as the Central Bight Water Quality Cooperative Program or the Central Bight Regional Water Quality Monitoring Program) is a coordinated quarterly receiving water quality monitoring program conducted by OC San, the County Sanitation Districts of Los Angeles, the City of Los Angeles, the City of San Diego, and the City of Oxnard.

1. Monitoring Locations – Quarterly Southern California Bight Regional Water Quality Monitoring Stations (n=60)

   The Discharger shall monitor the receiving water at the Quarterly Southern California Bight Regional Water Quality Monitoring Stations specified in Table E-2 The Discharger shall complete collection and analysis of samples. Results shall be reported in the annual receiving water monitoring report and uploaded, as available, to www.sccoos.org. The Discharger's level of participation shall be consistent with that provided in previous quarterly regional surveys.

Table E-13. Southern California Bight Receiving Water Quality Monitoring

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
Surface Observations[1]	--	visual	surface	1/quarter	--
Salinity (calculated)	psu	profile	CTD sampling depths in Table E-2	1/quarter	[2]
Conductivity	S/m	profile		1/quarter	[2]
Temperature	°C	profile		1/quarter	[2]
Dissolved oxygen (DO)	mg/L	profile		1/quarter	[2]
Transmissivity	%	profile		1/quarter	[2]
Photosynthetically active radiation (PAR)	µEinsteins sec^{-1} cm^{-2}	profile		1/quarter	[2]
Chlorophyll-*a* fluorescence	µg/L	profile		1/quarter	[2]
pH	pH units	profile		1/quarter	[2]

[1] Wind direction and speed, weather, and sea and tidal condition shall be recorded, with the source(s) of the data documented. Observations of unusual water color, turbidity, odor, oil and grease, trash, or other physical evidence of waste discharge and trash in the water shall be noted on the log sheet prepared at the time of sample collection. These observations shall be recorded whenever a station is sampled.

[2] As specified in 40 CFR § 136, or in the MRP QAPP and Laboratory Quality Manual.

C. Central Regional Kelp Survey

This regional survey is designed to determine if the extent of kelp beds in the Southern California Bight are changing over time and if the rate of change differs between kelp beds. A group of private and public agencies cooperatively monitors the health and standing crop of kelp beds using quarterly aerial imaging of kelp bed canopy cover within the central Bight. The data collected in this regional survey will be used to assess status and trends in kelp bed health and spatial extent. The regional nature of the survey will allow the status of kelp beds near to the discharge to be compared to regional trends.

The Discharger shall continue its current level of participation in the Central Region Kelp Survey Consortium (CRKSC) Monitoring Program to conduct regional kelp bed monitoring in Southern California coastal waters. The Discharger shall participate in the regional management and technical committees responsible for the development of the

survey design and the assessment of kelp bed resources in the Bight.

D. Orange County Regional Shoreline REC-1 Cooperative Monitoring Program

This regional program is a coordinated shoreline REC-1 water quality monitoring effort conducted by the Discharger, the Orange County Health Care Agency (OCHCA), the South Orange County Wastewater Authority, and the Orange County Public Works (OC Watersheds) in the Ocean Water Protection Program, along Orange County's coastal shoreline (from Seal Beach to San Clemente State Beach). OCHCA reviews collected bacteriological data to determine whether a station meets Ocean Water-Contact Sports Standard (i.e., Assembly Bill 411; AB411), and uses these results as the basis for health advisories, postings, or beach closures. This Order/Permit requires a minimum level of participation in microbiological regional monitoring.

1. Monitoring Locations – Orange County Regional Shoreline REC-1 Cooperative Monitoring Stations (Nearshore Zone) (n=36)

   The Discharger shall monitor the receiving water at least once per week at the Orange County Regional Shoreline REC-1 Cooperative Monitoring Stations (Nearshore Zone or Surfzone) specified in Table E-2. The Discharger shall complete collection, analysis, and reporting of the regional samples required under this Order/Permit. Results shall be reported in the annual receiving water monitoring report, except that microbiological results shall continue to be reported on a timely basis (approximately daily) to the OCHCA, Environmental Health and placed on the Internet each month.

Table E-14. Orange County Regional Shoreline REC-1 Cooperative Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method
Surface Observations[2]	--	visual	See Table E-2.	[3]
Total coliform density	CFU/100 mL[4]	grab		[3,5]
Fecal coliform density	CFU/100 mL[4]	grab		[3,5]
Enterococcus density	CFU/100 mL[4]	grab		[3,5]

[1] In the event of stormy weather which makes sampling hazardous at certain surfzone stations, collection of samples at such stations can be omitted, provided that such omissions do not occur more than 5 days in any calendar year or occur at consecutive sampling times. The observations shall still be recorded and reported to the Santa Ana Water Board and USEPA for these stations at the time the sample was attempted to be collected.

[2] Wind direction and speed, weather, and sea and tidal condition shall be recorded, with the source(s) of the data documented. Observations of unusual water color, turbidity, odor, oil and grease, trash, or other physical evidence of waste discharge and trash in the water

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method
shall be noted on the log sheet prepared at the time of sample collection. These observations shall be recorded whenever a station is sampled.				
[3] As specified in 40 CFR § 136, or in the MRP QAPP and Laboratory Quality Manual.				
[4] Results may be reported as either MPN/100 mL if the laboratory method used provides results in MPN/100 mL or CFU/100 mL if the laboratory method used provides results in CFU/100 mL.				
[5] Test methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR § 136, unless alternate methods have been approved in advance by USEPA pursuant to 40 CFR § 136, or improved methods have been determined by the Executive Officer and/or USEPA.				

E. Ocean Acidification and Hypoxia (OAH) Mooring

The Discharger shall monitor ocean acidification and hypoxia at a single location. An automated data quality control system shall be established for telemetered data (i.e., real-time, online ocean acidification data) based on the Integrated Ocean Observation System (IOOS) protocols.

X. STRATEGIC PROCESS STUDIES

The Discharger shall conduct Strategic Process Studies (SPS) to document the effectiveness of its source control and wastewater treatment operations in protecting the coastal ocean. SPS are designed to address unanswered questions raised by the Core monitoring program results and/or focus on issues of interest to the Discharger, the Santa Ana Water Board, and/or USEPA. SPS shall be proposed and be approved by the Santa Ana Water Board and USEPA to ensure appropriate focus and level of effort. Five studies below must be conducted under this Order/Permit using previously approved work plans as these studies have been approved during the term of the 2012 Order/Permit and are not yet completed:

A. ROMS-BEC Ocean Outfall Modeling: The Discharger works with SCCWRP and their collaborators to model and assess the spatial and temporal extent of its discharged effluent before and after the implementation of the GWRS Final Expansion.

B. Microplastics Characterization: This SPS characterizes the quantity and types of microplastics throughout the Discharger's treatment system. This study will also develop methods and analyses to help inform the transport, fate and impacts of microplastics through the Discharger's wastewater treatment process to the receiving environment.

C. In-vitro Cell Bioassay Monitoring Assessment: This study will provide a preliminary assessment of contaminants of emerging concern (CEC) in the receiving water using *in-vitro* cell bioassay techniques. Cell bioassays can be used as a screening tool to evaluate potential impacts resulting from changes in the effluent and receiving environment water quality associated with the GWRS Final Expansion.

D. Sediment Linear Alkylbenzenes: Linear Alkylbenzenes (LABs) were previously used to investigate whether other contaminants present in the sediment were associated with the effluent discharge. This SPS will provide updated data within the Discharger's monitoring area for evaluating future changes due to GWRS Final Expansion.

E. Meiofauna Baseline: The Discharger will investigate the impacts of increased RO concentrate flows from the GWRS Final Expansion on marine biota in the receiving water using meiofauna (animals ranging from 63 to 500 µm in size) which are known to be more sensitive to anthropogenic impacts than macrofauna. This SPS will characterize the meiofauna communities in the receiving environment and evaluate the suitability of using meiofauna for a before-after control-impact study of the GWRS Final Expansion.

XI. OTHER MONITORING REQUIREMENTS

A. Contaminants of Emerging Concern (CEC) Monitoring Study

The Discharger shall continue to investigate CEC in the discharge and/or receiving waters, following its approved CEC study workplan. Within six (6) months of the effective date of this Order/Permit, the Discharger shall submit for Executive Officer/Director approval an updated CEC study workplan and submit the special study final report with the application for permit reissuance. The workplan shall include, but is not limited to:

1. Updates of CEC identification for discharge monitoring (e.g., CEC concentrations and mass loadings, sample type, minimum sampling frequency, and analytical test method considering sensitivity, accuracy, availability, and cost). The parameters in Table E-15 may be re-evaluated and modified by the Executive officer/Director. The workplan may also propose surrogate or indicator CEC that may better characterized discharged CEC.

Table E-15. CEC Discharge Monitoring

Parameter	CAS #	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Hormones					
17α-Ethynyl estradiol	57-63-6	ng/L & lb/d	24-hr composite	1/year	[1]
17α-Estradiol	57-91-0	ng/L & lb/d	24-hr composite	1/year	[1]
17β-Estradiol	50-28-2	ng/L & lb/d	24-hr composite	1/year	[1]
Estriol	50-27-1	ng/L & lb/d	24-hr composite	1/year	[1]
Estrone	53-16-7	ng/L & lb/d	24-hr composite	1/year	[1]
Progesterone	57-83-0	ng/L & lb/d	24-hr composite	1/year	[1]

Parameter	CAS #	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Testosterone	58-22-0	ng/L & lb/d	24-hr composite	1/year	[1]
Industrial Endocrine Disrupting Compounds (IEDCs)					
Bisphenol A	80-05-7	ng/L & lb/d	24-hr composite	1/year	[1]
4-para-Nonylphenol	84852-15-3	ng/L & lb/d	24-hr composite	1/year	[1]
Nonylphenol diethoxylate	Not available	ng/L & lb/d	24-hr composite	1/year	[1]
Nonylphenol monoethoxylate	68412-54-4	ng/L & lb/d	24-hr composite	1/year	[1]
Octylphenol	27193-28-8	ng/L & lb/d	24-hr composite	1/year	[1]
4-n-Octylphenol diethoxylate	51437-90-2	ng/L & lb/d	24-hr composite	1/year	[1]
Octylphenol monoethoxylate	5143-89-9	ng/L & lb/d	24-hr composite	1/year	[1]
Pharmaceuticals and Personal Care Products (PPCPs)					
Acetaminophen	298-46-4	ng/L & lb/d	24-hr composite	1/year	[1]
Caffeine	58-08-2	ng/L & lb/d	24-hr composite	1/year	[1]
Carbamazepine	298-46-4	ng/L & lb/d	24-hr composite	1/year	[1]
DEET (N,N-Diethyl-m-toluamide)	134-62-3	ng/L & lb/d	24-hr composite	1/year	[1]
Diclofenac	15307-86-5	ng/L & lb/d	24-hr composite	1/year	[1]
Erythromycin	114-07-8	ng/L & lb/d	24-hr composite	1/year	[1]
Fluoxetine hydrochloride	56296-78-7	ng/L & lb/d	24-hr composite	1/year	[1]
Galaxolide (HHCB)	1222-05-5	ng/L & lb/d	24-hr composite	1/year	[1]
Gemfibrozil	25812-30-0	ng/L & lb/d	24-hr composite	1/year	[1]
Ibuprofen	15687-27-1	ng/L & lb/d	24-hr composite	1/year	[1]
Oxybenzone	131-57-7	ng/L & lb/d	24-hr composite	1/year	[1]
Primidone	125-33-7	ng/L & lb/d	24-hr composite	1/year	[1]
Sulfamethoxazole	723-46-6	ng/L & lb/d	24-hr composite	1/year	[1]
Triclosan	3380-34-5	ng/L & lb/d	24-hr composite	1/year	[1]

Parameter	CAS #	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Pesticides and Insecticides					
Fipronil	120068-37-3	ng/L & lb/d	24-hr composite	1/year	[1]
Fipronil Sulfone	120068-36-2	ng/L & lb/d	24-hr composite	1/year	[1]
Bifenthrin	82657-04-3	ng/L & lb/d	24-hr composite	1/year	[1]
Total Permethrin	52645-53-1	ng/L & lb/d	24-hr composite	1/year	[1]
Chlorpyrifos	2921-88-2	ng/L & lb/d	24-hr composite	1/year	[1]
Diazinon	333-41-5	ng/L & lb/d	24-hr composite	1/year	[1]
Flame Retardants					
BDE 47	Not available	ng/L & lb/d	24-hr composite	1/year	[1,2]
BDE 99	Not available	ng/L & lb/d	24-hr composite	1/year	[1,2]
BDE 100	Not available	ng/L & lb/d	24-hr composite	1/year	[1,2]
BDE 183	Not available	ng/L & lb/d	24-hr composite	1/year	[1,2]
TDCPP; tris(1,3-dichloro-2-propyl)phosphate	13674-87-8	ng/L & lb/d	24-hr composite	1/year	[1]
TCEP; tris(2-chloroethyl)phosphate	115-96-8	ng/L & lb/d	24-hr composite	1/year	[1]
TCPP; tris(1-chloro-2-propyl)phosphate	13674-84-5	ng/L & lb/d	24-hr composite	1/year	[1]
PFAS (per-and polyfluoroalkyl substances) compounds					
PFDA (Perfluorodecanoic acid)	335-76-2	ng/L & lb/d	24-hr composite	1/year	[3]
PFDoA (Perfluorododecanoic acid)	307-55-1	ng/L & lb/d	24-hr composite	1/year	[3]
PFHxA (Perfluorohexanoic acid)	307-24-4	ng/L & lb/d	24-hr composite	1/year	[3]
PFHpA (Perfluoroheptanoic acid)	375-85-9	ng/L & lb/d	24-hr composite	1/year	[3]
PFNA (Perfluorononanoic acid)	375-95-1	ng/L & lb/d	24-hr composite	1/year	[3]

Parameter	CAS #	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
PFOA (Perfluorooctanoic acid)	335-67-1	ng/L & lb/d	24-hr composite	1/year	[3]
PFTeDA (Perfluorotetradecanoic acid)	376-06-7	ng/L & lb/d	24-hr composite	1/year	[3]
PFTrDA (Perfluorotridecanoic acid)	72629-94-8	ng/L & lb/d	24-hr composite	1/year	[3]
PFUnDA (Perfluoroundecanoic acid)	2058-94-8	ng/L & lb/d	24-hr composite	1/year	[3]
PFBS (Perfluorobutane sulfonic acid)	375-73-5	ng/L & lb/d	24-hr composite	1/year	[3]
PFHxS (Perfluorohexane sulfonic acid)	355-46-4	ng/L & lb/d	24-hr composite	1/year	[3]
PFOS (Perfluorooctane sulfonic acid)	1763-23-1	ng/L & lb/d	24-hr composite	1/year	[3]

[1] USEPA Methods 1694 Modified or 1698 Modified; ASTM Methods D7065 or D7485; or other methodologies utilized by the U.S. Geological Survey, California Department of Public Health, or other federal or State agencies.

[2] USEPA Methods 1614A Modified using GC/MS SIM or other methodologies utilized by the U.S. Geological Survey, California Department of Public Health, or other federal or State agencies.

[3] USEPA Method 537.1 Modified with isotope dilution using LC/MS/MS or other methodologies to meet the required reporting limit of 50 ng/L.

2. Characterization of CEC monitoring data for the final effluent and receiving water including sediments, using previously collected monitoring data and monitoring data collected for this study. At minimum, this characterization shall include: identification of all monitored CECs, monitoring dates, frequency and duration; QA/QC information; reporting limits, minimum levels, and minimum detection limits achieved for each methodology; and an analysis of trends.
3. A preliminary workplan for collaborative studies: (1) CECs identification in reclaimed wastewater with the Orange County Water District, and (2) methods development for measuring CECs in marine sediments with the Los Angeles County Sanitation Districts.

B. Outfall and Diffuser System Inspection

The Discharger shall externally inspect each ocean outfall (i.e., 120" and 78" outfalls) every 2.5 years to ensure that the outfall structures are in serviceable condition and that they can continue to be operated safely. Inspections shall include general observations including any collection of debris within the diversion structure surge chamber, and photographic/videographic records of the external outfall pipes and adjacent ballasting system. The inspections may be conducted by remotely operated vehicle, diver, or manned submarine. Within 60 days of the completion of the outfall and diffuser system inspection, a summary report of the inspection findings, including videographic and/or photographic images shall be submitted to the Santa Ana Water Board and USEPA.

XII. 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. If there is no discharge during any reporting period, the report shall so state.
3. Each monitoring report shall contain a separate section titled "Summary of Non-compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with discharge requirements as well as all excursions of effluent limitations.
4. The Discharger shall inform the Santa Ana Water Board and USEPA well in advance of any proposed construction or maintenance activity, or modification to the POTW that could potentially affect compliance with applicable requirements.
5. The date and time of sampling (as appropriate) shall be reported with the analytical values determined.
6. The laboratory conducting analyses shall be certified by the State Water Resources Control Board, Environmental Laboratory Accreditation Program (ELAP), in accordance with CWC section 13176, and must include quality assurance/quality control (QA/QC) data in their reports.
7. The Discharger shall have and implement an acceptable written NPDES monitoring and reporting program QAPP for all monitoring and analyses required under this Order/Permit. For each target analyte, required quality control samples shall be analyzed as described in the laboratory Quality Manual. A summary report of the QA/QC findings for all monitoring and analysis for the previous fiscal year (July 1 through June 30) shall be provided in the annual receiving water monitoring report.
8. QA/QC data associated with a sample must be reported when requested by the Santa Ana Water Board or USEPA. The Santa Ana Water Board and USEPA will reject laboratory data if quality control data is unavailable or unacceptable.

9. When requested by the Santa Ana Water Board or USEPA, the Discharger shall participate in the NPDES DMR QA performance study.
10. Dischargers are to instruct their laboratories to establish calibration standards so that the ML (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. In accordance with Ocean Plan Chapter III.C.5.b, the Discharger's laboratory may employ a calibration standard lower than the ML in Appendix II of the Ocean Plan.
11. Upon request by the Discharger, the Santa Ana Water Board, in consultation with the State Water Board's Quality Assurance Program and/or USEPA, may establish an ML that is not contained in Appendix II of the 2019 Ocean Plan, to be included in the Discharger's NPDES permit, in any of the following situations:
    a. When the pollutant under consideration is not included in Appendix II;
    b. When the Discharger agrees to use a test method that is more sensitive than those specified in 40 CFR § 136 (most recent revision);
    c. When the Discharger agrees to use an ML lower than those listed in Appendix II;
    d. When the Discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Appendix II and proposes an appropriate ML for their matrix; or
    e. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML. In such cases, the Discharger, Santa Ana Water Board, State Water Board and USEPA shall agree on a lowest quantifiable limit, and that limit will substitute for the ML for reporting and compliance determination purposes.
12. Records and reports of receiving water monitoring surveys conducted to meet receiving water monitoring requirements shall include, at a minimum, the following information:
    a. A description of climatic and receiving water characteristics at the time of sampling (weather observations, unusual or abnormal amounts of floating debris, trash, discoloration, odor, oil and grease, wind speed and direction, swell or wave action, sea and tidal condition, time of sampling or measurements, etc.).
    b. The date, exact place and description of sampling stations, including differences unique to each station (e.g., date, time, station location, depth, and sample type).
    c. A list of the individuals participating in field collection of samples or data and description of the sample collection and preservation procedures used in the various surveys.

d. A description of the specific method used for laboratory analysis, the date(s) the analyses were performed and the individuals participating in these analyses.

e. An in-depth discussion of the results of the surveys. All tabulations and computations shall be explained.

13. The results of all monitoring data for this Order/Permit shall be reported in a tabulated format, acceptable by the Santa Ana Water Board and USEPA, that allows direct comparison with the limitations and conditions of this Order/Permit and clearly illustrates whether the facility is operating in compliance with this Order/Permit.

    All receiving water monitoring raw data files should be stored onsite and must be submitted to the Santa Ana Water Board and USEPA upon request.

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 at <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.

2. The Discharger shall report in the SMR the results for all monitoring specified in this Order/Permit. The Discharger shall submit monthly 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.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the schedule in Table E-16. Monitoring and reporting due dates are specified elsewhere in this Order/Permit for: biosolids program annual report; pretreatment program annual reports; pollutant minimization program annual report; spill preventative and contingency plans update report; storm water management plan update; Initial Investigation TRE Workplan update; dilution model update; ocean outfall condition assessment reports; NPDES monitoring data availability via Internet update report; annual receiving water monitoring report (including a chapter for annotated QA/QC findings, chapters summarizing monitored activities for regional monitoring and strategic process studies, and a chapter for the annual mass emission); and outfall and diffuser systems inspection report.

Table E-16. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR/DMR Due Date
Continuous	Effective date	All	Submit with monthly report
Hourly	Effective date	Hourly	Submit with monthly report
Daily (1/day)	Effective date	Midnight through 11:59 pm, or any 24-hr period that reasonably represents a calendar day for sampling purposes	Submit with monthly report
Weekly (1/week)	Sunday following effective date, or on effective date if Sunday	Sunday through Saturday	Submit with monthly report
Monthly (1/month)	First day of calendar month following effective date, or on effective date if first day of month	1st day of calendar month through last day of calendar month	15th day of 2nd month following the monitoring period, submit as monthly report
Quarterly (1/quarter)	Closest of January 1, April 1, July 1, or October 1 following (or on) effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 15, August 15, November 15, February 15, submit with monthly report
Semi-annually (2/year)	Closest of January 1 or July 1 following (or on) effective date	January 1 through June 30 July 1 through December 31	August 15, February 15, submit with monthly report
Annually (1/year)	January 1 following (or on) effective date	January 1 through December 31	February 15, submit with monthly report
Other	On date specified in Order/Permit	As specified in Order/Permit	Submit with monthly report

4. **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 § 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 reported 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.

5. **Compliance Determination.** Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined above and Attachment A of this Order/Permit. For purposes of reporting and administrative enforcement by the Santa Ana Water Board, State Water Board, and USEPA, 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 corresponding effluent limitation and greater than or equal to the reported Minimum Level (ML).

6. **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).

   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 of the 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.

7. 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 (e.g., annual receiving water monitoring report).

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; 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. SMRs must be signed and certified as required by the Standard Provisions (Attachment D).

SMRs submitted to the State that are not DMRs shall also be submitted to USEPA at the following address, unless another USEPA address is specified in this Order/Permit. Signed and certified written reports and receiving water monitoring data may be submitted on a CD-ROM, with a signed cover letter.

U.S. EPA, Region 9
ATTN: NPDES Data Team (ENF 2-3)
Data Solution Section ECAD
75 Hawthorne Street
San Francisco, CA 94105-3901

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: <http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring>.

D. Other Reports

1. **Pretreatment Report**. By October 31st of each year, the Discharger shall submit annual pretreatment reports to the Santa Ana Water Board, the State Water Board, and USEPA, describing the Discharger's pretreatment activities over the previous OCSD fiscal year (July 1 through June 30). The annual reports shall contain, but not be limited to, the information required in the attached *Pretreatment Reporting Requirements* (Attachment H), or an approved revised version thereof. If the Discharger is not in compliance with any conditions or requirements of this Order/Permit, the Discharger shall include the reasons for noncompliance and shall state how and when the Discharger will comply with such conditions and

requirements. Prior to the completion of the GWRS Final Expansion Project, the Discharger shall conduct annual technical review of local limits under 40 CFR § 403.5(c)(1) and submit the results as part of the annual pretreatment report. Within two (2) years of the completion of the GWRS Final Expansion Project, the Discharger shall provide a written technical evaluation of the need to revise local limits under 40 CFR § 403.5(c)(1).

2. **Biosolids Report.** By February 19th of each year, the Discharger shall submit an annual biosolids report into USEPA's CDX electronic reporting system, with an electronic copy to the Santa Ana Water Board by email at santaana@waterboards.ca.gov, for the period covering the previous calendar year (January 1 through December 31). The annual reports shall contain, but not be limited to, the information required in the attached *Biosolids Reporting Requirements* (Attachment G), or an approved revised version thereof. If the Discharger is not in compliance with any conditions or requirements of this Order/Permit, the Discharger shall include the reasons for noncompliance and shall state how and when the Discharger will comply with such conditions and requirements.

3. **Receiving Water Monitoring Report**. By March 15th of each year, the Discharger shall submit an annual receiving water monitoring report for monitored activities during the previous fiscal year (July 1 through June 30), to the Santa Ana Water Board and USEPA. The report shall contain both tabular and graphical summaries of receiving water monitoring data and discuss the compliance record and actions undertaken or proposed which will bring the discharge into full compliance with receiving water monitoring requirements at the earliest time, and an estimate of the date when the Discharger will be in compliance. Receiving water core monitoring results, including annotated QA/QC findings, shall be described and summarized. Separate report chapters for receiving water regional monitoring and strategic process studies shall provide summaries of monitored activities during the previous fiscal year. A separate report chapter for effluent monitoring shall also provide summaries of effluent monitoring including the annual mass emission during the previous fiscal year.

4. **Strategic Process Study Proposal.** In the spring, beginning in 2022 and continuing every-other year during the term of this Order/Permit, the Discharger, Santa Ana Water Board, and USEPA shall consult to determine the need for strategic process studies. By October 1st, the Discharger shall submit proposals to the Santa Ana Water Board and USEPA for the following fiscal year's (July 1 through June 30) monitoring effort, or a letter explaining why no special studies are proposed. Upon approval by the Santa Ana Water Board and USEPA, the Discharger shall implement its strategic process studies. Final scopes of work, including reporting schedules, shall be presented by the Discharger at a spring meeting with Santa Ana Water Board and USEPA staffs to obtain Santa Ana Water Board and USEPA approval.

5. **Other Workplans and Reports.** The Discharger shall report the results of any special studies (e.g., TRE work plan, dilution model update and ocean outfall condition assessment), Pollutant Minimization Program (PMP), updated Storm Water Management Plan, Spill Preventive and Contingency Plan (SPCP), Asset Management Plan (AMP), and Monitoring Data Accessibility Plan required by Special Provisions – Section VII.C of this Order/Permit. The Discharger shall also submit the workplans and report the results of special monitoring studies (e.g., CEC monitoring study and outfall and diffuser system inspection) required by Other Monitoring Requirements – Section XI of Attachment E. The Discharger shall submit workplans and/or reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date in compliance with SMR reporting requirements described in subsection XII.B above.

ATTACHMENT F – FACT SHEET

CONTENTS

I. Permit Information 4
II. Facility Description 5
A. Description of Wastewater and Biosolids Treatment and Controls 5
B. Discharge Points and Receiving Waters 7
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data 8
D. Compliance Summary 11
E. Planned Changes 13
III. Applicable Plans, Policies, and Regulations 14
A. Legal Authorities 14
B. California Environmental Quality Act (CEQA) 15
C. State and Federal Laws, Regulations, Policies, and Plans 15
D. Impaired Water Bodies on the CWA section 303(d) List 18
E. Other Plans, Polices and Regulations 18
IV. Rationale for Effluent Limitations and Discharge Specifications 20
A. Discharge Prohibitions 20
B. Technology-Based Effluent Limitations (TBELs) 21
1. Scope and Authority 21
2. Applicable Technology-Based Effluent Limitations 24
C. Water Quality-Based Effluent Limitations (WQBELs) 24
1. Scope and Authority 24
2. Applicable Beneficial Uses and Water Quality Criteria and Objectives 25
3. Determining the Need for WQBELs 25
4. WQBEL Calculations 38
5. Whole Effluent Toxicity (WET) 41
D. Final Effluent Limitation Considerations 43
1. Anti-Backsliding Requirements 43
2. Antidegradation Policies 43
3. Stringency of Requirements for Individual Pollutants 45
E. Final Effluent Limitations for Discharge Points 001 and 002 46
F. Interim Effluent Limitations – Not Applicable 50
G. Land Discharge Specifications – Not Applicable 50
H. Recycling Specifications – Not Applicable 50
V. Performance Goal and Mass Emission Benchmarks 50
A. Performance Goal 50
B. Mass Emission Benchmarks 52
VI. Rationale for Receiving Water Limitations 53
A. Surface Water 53
B. Groundwater – Not Applicable 54
VII. Rationale for Provisions 54
A. Standard Provisions 54
B. Special Provisions 54

1. Reopener Provisions 54
2. Southern California Bight Monitoring Exchange 55
3. Special Studies, Technical Reports, and Additional Monitoring Requirements... 55
4. Best Management Practices and Pollution Prevention 56
5. Construction, Operation, and Maintenance Specifications 56
6. Special Provisions for Publicly-Owned Treatment Works (POTWs) 57
7. Other Special Provisions 58
8. Compliance Schedules – Not Applicable 59
VIII. Rationale for Monitoring and Reporting Requirements 59
A. Influent Monitoring 60
B. Effluent Monitoring 60
C. Whole Effluent Toxicity Testing Requirements 60
D. Receiving Water Core Monitoring 61
1. Water Quality Monitoring 61
2. REC-1 Water Quality Monitoring (Offshore Zone) 61
3. Sediment Monitoring 62
4. Demersal Fish and Epibenthic Macroinvertebrate Monitoring 63
E. Receiving Water Regional Monitoring 65
F. Strategic Process Studies 66
G. Other Monitoring Requirements 66
1. Contaminants of Emerging Concern (CEC) Monitoring Study 66
2. Outfall and Diffuser System Inspection 67
3. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program 67
IX. Public Participation 67
A. Notification of Interested Parties 68
B. Written Comments 68
C. Public Hearing 68
D. Reconsideration of Waste Discharge Requirements 68
E. Federal NPDES Permit Appeals 69
F. Information and Copying 69
G. Register of Interested Persons 69
H. Additional Information 70

TABLES

Table F-1. Facility Information 4
Table F-2. Discharge Location 8
Table F-3. Historic TBELs and Monitoring Data at EFF-001 9
Table F-4. Historic WQBELs and Monitoring Data at EFF-001 10
Table F-5. Basin Plan Beneficial Uses 15
Table F-6. Ocean Plan Beneficial Uses 16
Table F-7. Federal Secondary Treatment Standards 23
Table F-8. Ocean Plan Table 4 Effluent Limitations 23
Table F-9. Reasonable Potential Analysis for Discharge Point No. 001 (120” Outfall) 29

Table F-10. Reasonable Potential Analysis for Discharge Point No. 002 (78” Outfall) 33
Table F-11. Pollutants with Background Seawater Concentrations (Cs) 38
Table F-12. Example – Ocean Plan Table 3 Water Quality Objectives (Co) 38
Table F-13. Bacteria Water Quality Objectives (Co) in the Ocean Plan 40
Table F-14. Summary of Effluent Limitations – Discharge Point 001 (120” outfall)..... 46
Table F-15. Summary of Effluent Limitations – Discharge Point 002 (78” outfall)..... 48

FIGURE

Figure F-1. Previous and current Southern California Bight Regional Water Quality Program Station transects. 66

ATTACHMENT F – FACT SHEET

As described in section II.B of this Order/Permit, the California Regional Water Quality Control Board, Santa Ana Region (hereinafter Santa Ana Water Board) and USEPA incorporates this Fact Sheet as findings of the Santa Ana Water Board and USEPA supporting the issuance of this Order/Permit. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order/Permit.

This Order/Permit 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/Permit that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order/Permit 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	8 300110002	
Discharger	Orange County Sanitation District	
Name of Facility (and POTW)	Reclamation Plant No. 1 (Fountain Valley), collection system and outfalls Treatment Plant No. 2 (Huntington Beach), collection system and outfalls	
Facility Address	Reclamation Plant No. 1	Treatment Plant No. 2
	10844 Ellis Avenue Fountain Valley, CA 92708	22212 Brookhurst Street Huntington Beach, CA 92646
	Orange County	
Facility Contact, Title and Phone	James Herberg, General Manager (714) 962-2411	
Authorized Person to Sign and Submit Reports	James Herberg, General Manager (714) 962-2411	
Mailing Address	10844 Ellis Avenue, Fountain Valley, CA 92708-7018	
Billing Address	Same	
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	State Water Board Order WQ 2016-0068-DDW	
Facility Permitted Flow	332 MGD (dry weather)	
Facility Design Flow	Reclamation Plant No. 1	Treatment Plant No. 2
	182 MGD (dry weather) 345 MGD (peak wet weather)	150 MGD (dry weather) 317 MGD (peak wet weather)
Watershed	Santa Ana River Watershed	
Receiving Water	Pacific Ocean (Discharge Point Nos.001 and 002) Santa Ana River (Discharge Point No. 003)	
Receiving Water Type	Ocean and inland (tidal prism) waters	

A. Orange County Sanitation District (hereinafter OC San, Permittee or Discharger) is the owner and operator of Reclamation Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in Huntington Beach (hereinafter treatment facilities), a Publicly-Owned Treatment Work (POTW).

For the purposes of this Order/Permit, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater to the Pacific Ocean, a water of the United States. The Discharger was previously regulated by Order No. R8-2012-0035 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0110604 adopted on June 15, 2012 and expired on July 19, 2017. The Discharger filed a report of waste discharge and submitted an application for reissuance of its waste discharge requirements (WDRs) and NPDES permit on January 3, 2017, and the previous order was administratively extended by operation of law. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. Regulations at 40 CFR § 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order/Permit limits the duration of the discharge authorization. However, pursuant to California Code of Regulations, 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. (See also 40 CFR § 122.6(d)).

II. FACILITY DESCRIPTION

A. Description of Wastewater and Biosolids Treatment and Controls

The Discharger's POTW serves approximately 480 square miles of central and northern Orange County, California. Currently, the POTW consists of approximately

388 miles of trunk sewer systems and force mains, 15 offsite pump stations, two wastewater treatment plants, and three outfalls. In addition to the domestic, commercial, and industrial wastewater received from this service area, through interagency agreements, influent flows are contributed by the Santa Ana Watershed Project Authority (SAWPA) including Stringfellow Superfund Site (EPA ID #CAT080012826), Irvine Ranch Water District, and the Sanitation District of Los Angeles County. During dry weather conditions, the Discharger also accepts small volumes (average daily amount up to 10 MGD) of dry weather urban runoff from within the service area. During 2018-2019, the Discharger's wastewater treatment plants received and processed influent volumes averaging 191 MGD.

Raw wastewater entering either Reclamation Plant No. 1 or Treatment Plant No. 2 passes through metering and diversion structures and continues to headworks facilities for preliminary treatment. Note that influent flow from SAWPA is tributary to Reclamation Plant No. 1 via the Santa Ana River Interceptor (SARI). Because the California Department of Health does not permit SARI flow for the Groundwater Replenishment System (GWRS) reclamation, all SARI flow is diverted to Treatment Plant No. 2 through the Interplant Interceptor for treatment and ocean discharge. Preliminary treatment includes grit and screenings removal. Caustic soda shock, ferrous chloride, calcium nitrate, magnesium hydroxide and polymer can be added to reduce corrosion and odor and provide enhanced primary treatment. The wastewater then receives primary treatment in primary sedimentation facilities. The primary effluent is routed to either trickling filters or activated sludge facilities for secondary treatment. Secondary treated trickling filter and activated sludge effluents from Reclamation Plant No. 1 are delivered to the Orange County Water District (OCWD) for further tertiary treatment and reclamation. The OC San discharges secondary treated effluent from Treatment Plant No. 2 through Discharge Point 001 (primary 120" ocean outfall) to the Pacific Ocean, a water of the United States, except under emergency circumstances. In 2023, when the Final Expansion of the GWRS is complete, Treatment Plant No. 2 effluents will also be reclaimed at the GWRS. SARI flow will be separated from other domestic wastewater at Plant No. 2, where it will be secondary treated before being discharged to the ocean. The use of continuous disinfection prior to discharge through Discharge Point No. 001 (120" outfall) has been ceased since May 2015. Effluent disinfection with chlorine bleach followed by de-chlorination with sodium bisulfite occurs at the other two discharge points 002 and 003. Dewatered biosolids are shipped offsite to land application, composting, thermal conversion, or landfill facilities. Attachment B provides a map of the area around the treatment facilities. Attachment C provides flow schematics of the full secondary treatment facilities.

OCWD receives two streams of OC San secondary treated wastewater, one for the Green Acres Project (GAP, out of service in winter) and the second one for the GWRS. Both GAP and GWRS are major regional wastewater reclamation projects owned and operated by OCWD and located adjacent to Reclamation Plant No. 1. Advanced treatment for the GWRS includes microfiltration, reverse osmosis, and advance oxidation (ultraviolet/peroxide). The Discharger provides approximately 100 % of secondary treated effluent from Plant No.1 to GWRS for advanced treatment and

reuse. In Fiscal Year 2018-19, the average effluent flow to OCWD was 117 MGD. The GWRS Final Expansion has been under construction since November 2019, which supports the Discharger's strategic goal of maximizing water recycling up to 175 MGD at both plants, and OCWD's goal to produce up to 130 MGD of purified recycled water by 2023. GAP can divert up to 7.5 MGD of the Discharger's secondary treated wastewater for tertiary treatment, disinfection, and reuse for landscaped irrigation and industrial uses. In Fiscal Year 2018-19 summer months, average flow to GAP was 4 MGD. The GAP and part of the GWRS generates waste streams (e.g., microfiltration backwash, sump waste, and lime waste) are recycled back into the OC San's primary treatment facility, except for RO reject (or concentrate) which are returned to OC San, blended with other secondary treated waste streams and discharged via ocean outfalls.

In 2019, average daily total influent flow to both plants was 192 MGD, but because of water recycling efforts, the average daily ocean discharge was 100 MGD. Based on 2017 OCSD Facilities Master Plan, the average daily influent flow projected for 2025 is 188~206 MGD during the dry weather season and 478~523 MGD during the peak wet weather season. Note that lower and upper bound flows are based on the current trend and a conservative approach, respectively. The projected 2025 average daily ocean discharges are 55~73 MGD for dry weather and 344~389 MGD for peak wet weather, of which RO concentrate flow is 23 MGD.

B. Discharge Points and Receiving Waters

Secondary treated effluents from Plant No. 1 and 2 are discharged to the Pacific Ocean through the Discharger's ocean outfall system. There are two booster pump stations (i.e., the Ocean Outfall Booster Station (OOBS) and the Effluent Pump Station Annex (EPSA)) that pump secondary effluent to two ocean outfalls: Discharge Point 001 via the 120" pipelines and Discharge Point 002 via the 78" pipelines. In addition to these two ocean outfalls, there are two overflow weirs at Plant No. 2 that discharge into the Santa Ana River.

1. **Discharge Point 001 (120" outfall)**. Discharge Point 001 (120" outfall) is the primary discharge point (activated ocean outfall, with a rated capacity of 480 MGD) to the Pacific Ocean terminating in a diffuser with 503 ports, at a depth of about 197 feet (60 meters) below mean sea level. Discharge Point 001 (120" outfall) is approximately 4.5 miles (3.9 nautical miles) offshore in federal waters as the territorial waters of the State end 3 nautical miles from shore. The Ocean Plan (Appendix 1, Ocean Waters) states, "If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters." This Order/Permit contains discharge prohibitions, effluent limitations, receiving water limitations, and other provisions to ensure that discharges from Discharge Point 001 do not affect State waters. The Ocean Plan minimum probable initial dilution (D_m = 180) for this outfall is 181:1.
2. **Discharge Point 002 (78" outfall).** Discharge Point 002 (78" outfall) is an emergency discharge point (deactivated ocean outfall, with a rated capacity of 230

MGD) to the Pacific Ocean terminating in a 130 ports diffuser, approximately 1.5 mile offshore from the mouth of the Santa Ana River, at a depth of about 65 feet (20 meters) below mean sea level. This outfall is used only during an emergency or planned essential maintenance or capital improvement projects to assure efficient operation of the 120" outfall under 40 CFR § 122.41(m)(2) since the 120" outfall was put into service in 1971. The Ocean Plan minimum probable initial dilution (Dm = 36) for this outfall is 37:1.

3. **Discharge Point 003 (Santa Ana River Overflow Weirs).** Discharge Point 003 (i.e., the Santa Ana River Overflow Weirs) is comprised of two extreme emergency discharge points (overflow) to the tidal prism in the Santa Ana River, which eventually flows to the Pacific Ocean. One of the overflow points is located at the termination structure upstream of the EPSA facility and other one is at the OOBS facility. The structure consists of a 50' long overflow weir with two 72" pipes. The total capacity is approximately 605 MGD (i.e., 130 MGD from EPSA and 475 MGD from OOBS), but the actual capacity depends on the water level at the river. This outfall has never discharged over the past 10 years; however, it remains available for extreme emergency uses (e.g., tsunami, earthquake, flood, and acts of war or terrorism).

Table F-2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001 (120" outfall)	Secondary treated effluent and reverse osmosis concentrate	33° 34' 36" N	118° 00' 36" W	Pacific Ocean (4.5 miles offshore)
002 (78" outfall)	Secondary treated effluent and reverse osmosis concentrate	33° 36' 56" N	117° 58' 13" W	Pacific Ocean (1.5 miles offshore)
003 (Santa Ana River overflow weirs)	Secondary treated effluent and reverse osmosis concentrate	33° 38' 06" N	117° 57' 20" W	Santa Ana River Tidal Prism

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the existing Order/Permit for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data for the period from May 2015 to December 2019 are as follows:

Table F-3. Historic Technology Based Effluent Limitations and Monitoring Data at EFF-001

Parameter	Units	Order No. R8-2012-0035 NPDES Permit No. CA0110604 Effluent Limitation			Discharge Monitoring Data (May 2015 – December 2019)		
		Average Monthly	Average Weekly	Instantaneous Maximum	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Instantaneous Maximum Discharge
Secondary Treatment Standards and/or Ocean Plan Table 4 Effluent Limitations							
Carbonaceous Biochemical Oxygen Demand, 5-day @ 20°C ($CBOD_5$)	mg/L	25	40	--	6.5	8.8	--
	lbs/day	57,129	91,406	--	6,072	8,580	--
Total Suspended Solids (TSS)	mg/L	30	45	--	7.4	9.6	--
	lbs/day	68,555	102,832	--	7,167	11,451	--
pH	standard units	6.0 to 9.0 (instantaneous minimum/maximum)			7.06 to 8.41		
Oil and grease	mg/L	25	40	75	1.39	1.39	1.39
	lbs/day	57,129	91,406	171,387	1,106	1,106	--
Settleable Solids	ml/L	1.0	1.5	3.0	--	--	2.5
Turbidity	NTU	75	100	225	6.73	6.73	6.73

Table F-4. Historic Water Quality Based Effluent Limitations and Monitoring Data at EFF-001

Parameter	Units	Order No. R8-2012-0035 NPDES Permit No. CA0110604 Effluent Limitation			Monitoring Data (May 2015 – December 2019)		
		Average Monthly (or 6-Month Median*)	Maximum Daily	Instantaneous Maximum	Highest Average Monthly (or 6-Month Median*)	Highest Maximum Daily Discharge	Highest Instantaneous Maximum Discharge
Ocean Plan Table 3 Water Quality Objectives for Protection of Marine Aquatic Life							
Total chlorine residual	mg/L	0.36*	1.45	10.86	0.09*	0.3	1.2
	lbs/day	823*	3,313	24,817	68*	359	--
Acute toxicity, TST	P or F	--	P	--	Pass		
Chronic toxicity, TST	P or F	--	P	--	Pass		
Radioactivity Gross Alpha Gross Beta Radium-226 & 228	pCi/L	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			36 70 1.14	36 70 1.14	--
Ocean Plan Table 3 Water Quality Objectives for Protection of Human Health - Carcinogens							
Benzidine	µg/L	0.01249	--	--	ND	--	--
	lbs/day	0.0285	--	--	ND	--	--
Hexachloro-benzene	µg/L	0.0380	--	--	ND	--	--
	lbs/day	0.0868	--	--	ND	--	--
PCBs[1]	µg/L	0.0034	--	--	ND	--	--
	lbs/day	0.0078	--	--	ND	--	--
TCDD equivalents[1]	pg/L	0.706	--	--	ND	--	--
	lbs/day	0.000001613	--	--	ND	--	--

Parameter	Units	Order No. R8-2012-0035 NPDES Permit No. CA0110604 Effluent Limitation			Monitoring Data (May 2015 – December 2019)		
		Average Monthly (or 6-Month Median*)	Maximum Daily	Instantaneous Maximum	Highest Average Monthly (or 6-Month Median*)	Highest Maximum Daily Discharge	Highest Instantaneous Maximum Discharge
Toxaphene	µg/L	0.03801	--	--	ND	--	--
	lbs/day	0.0869	--	--	ND	--	--

[1] See Attachment A for definitions.
ND: Not detected

D. Compliance Summary

Completion of Secondary Treatment Projects

Since the construction of the facilities that was required to achieve secondary treatment standards were not completed at the time the previous permit was issued, OC San entered into a consent decree mandating OC San to meet secondary treatment limits by December 31, 2012. After extensive process improvement and Capital Improvement Projects (CIP) including completion of the following:

- Trickling filter project at Reclamation Plant No. 1, completed in Spring 2006;
- Secondary treatment rehabilitation project at Treatment Plant No. 2, completed in Spring 2008;
- New trickling filters and solid contact basins at Treatment Plant No. 2, completed in Summer 2011. The project added 60 MGD of secondary treatment capacity; and
- New activated sludge system at Reclamation Plant No. 1, completed in Fall 2012. The project added 60 MGD of secondary treatment capacity.

The Discharger has officially declared the POTW at full secondary treatment on December 28, 2012 and continue operating at and meeting full secondary requirements.

Cessation of Continuous Disinfection Practices at Discharge Point 001 (120" outfall)

The disinfection program initiated in 2002 was based on using sodium hypochlorite (bleach) for disinfection and sodium bisulfite for dechlorination. Beginning in 2006, the Discharger started to note negative changes in the structure and health of benthic communities within the zone of initial dilution (ZID) around the diffuser to the 120-inch

outfall (the primary discharge point). To determine the causes of these changes to the marine environment, the Discharger conducted detailed studies divided into two phases: Phase I (2009-2010) for an analysis of historical data to identify any potential causes and Phase II (2011-2012) for investigation of operational changes and process improvements that occurred at the treatment facilities and the facility's dry-weather urban runoff diversion program. Based on the results of these investigations, the discharge of chlorinated effluent prior to 2012 resulted in a decline in benthic communities near the ZID. The benthic environment has been improved since 2012 due to reduction of the use of chlorine after achieving full secondary treatment.

After long-term beach water quality studies and oceanographic data evaluation by an Independent Advisory Panel (IAP) of experts hosted by the National Water Research Institute (NWRI), it was concluded that continuing to chlorinate full secondary treated effluent provides little to no public health benefit to local beaches. The Discharger has also achieved continuous compliance with the secondary treatment requirements of the Clean Water Act. On March 17, 2015, based on the observations and recommendations of the IAP and with public support, OC San received approval from the Santa Ana Regional Water Quality Control Board and USEPA to cease disinfection at Discharge Point 001 (120" outfall). OC San has ceased continuous chlorination/dechlorination since May 2015. The disinfection system would remain available for later use, if determined necessary. Use of disinfection remains at the other two discharge points (Discharge Points 002 and 003) to protect human health.

Planned 6-Week Diversion to Discharge Point 002 (78" outfall)

From September 11, 2012 through October 4, 2012, the Discharger temporarily diverted disinfected effluent from Discharge Point 001 (120" outfall) to Discharge Point 002 (78" outfall) as part of an infrastructure rehabilitation project (refer to as Capital Improvement Project J-112) to inspect, assess, and rehabilitate the Outfall Land Section and Ocean Outfall Booster Pump Station Piping. To minimize impacts to public health, the treated wastewater received enhanced disinfection so that state bacterial water contact standards were met prior to discharge and subsequent dilution. The Discharger conducted the J-112 environmental monitoring program including modeling to track the discharged plume, measure the effectiveness of the enhanced disinfection program, and determine environmental impacts to the receiving water during the diversion to the nearshore outfall. The lessons learned report and a more comprehensive report (i.e., 2012 OCSD Outfall Diversion Summary Report) were submitted to the Santa Ana Water Board and USEPA on March 25, 2014, which summarize the sampling methodology during the diversion and provide recommendations for improving monitoring during any future diversions to Discharge Point 002 (78" outfall).

Unintentional Bypass of primary effluent from Plant No. 2 to Discharge Point 001 (120" outfall)

The unintentional bypass of primary effluent into Discharge Point 001 (120" outfall) occurred on July 5, 2020 from 4:28 am to 5:02 am, a duration of 34 minutes, due to a power loss after an Edison transformer failed. The power loss affected equipment

throughout Treatment Plant No. 2 including the trickling filter influent pumps. The trickling filter weir overflowed with primary treated wastewater, approximately 0.94 million gallons of which discharged directly to the 120" outfall.

Another unanticipated bypass of primary effluent into the 120" outfall occurred at the same location due to failure of two of three lead pumps serving the trickling filters pump station (TFPS) during a wet weather event on December 28, 2020 at 7:09 pm for approximately 9 minutes. The estimated flow over the TFPS weir is total 78,500 gallons.

After discovering each incident, the Discharger notified the Santa Ana Water Board and USEPA and investigated the incident to determine the cause and duration of the incident, the volume discharged, and to evaluate and implement appropriate corrective actions to prevent this incident from reoccurring. As part of corrective actions, the TFPS lead pumps were disassembled, and their internal fans replaced. As a key sustainable action, OC San is currently in construction installing an upgraded power monitoring/power management control system to improve the power system response speed to prevent short term power loss event that can lock out equipment. This project is scheduled to be complete by 2023.

E. Planned Changes

GWRS Final Expansion Project

The GWRS is a regional water reclamation program that was initiated jointly by OC San and OCWD and began operation in January 2008. The GWRS Initial Expansion was completed in 2015, which allowed OCWD to take up to 135 MGD of secondary effluent from Plant No. 1 to produce 100 MGD of GWRS product water. Currently, the Discharger sends approximately 100% of secondary effluent from Plant No. 1 to GWRS to provide a drought-proof water supply for Orange County. Also, it delivers up to 4 MGD of secondary effluent from Plant No. 1 to GAP during the summer months to provide recycled water for landscaped irrigation and industrial uses.

The layout of the OCWD facilities has been designed to provide GWRS with an ultimate production capacity of 130 MGD. The GWRS ultimate production capacity of 130 MGD is referred to as the GWRS Final Expansion project. Based on the SP-173 Effluent Reuse Study for the evaluation of reclamation of Plant No. 2 effluent, the following projects are identified by the implementation plan for the GWRS Final Expansion and anticipated to be completed by 2023.

- Modify Plant 2 Headworks Facility to create a reclaimable and non-reclaimable treatment train. Reclaimable flows will go through existing preliminary, primary, and secondary (trickling filter solids contact) treatment before being pumped to GWRS.
- Build a Plant 2 effluent pump station that will convey approximately 50-85 MGD of secondary effluent from Plant No. 2 trickling filter solids contact process to the GWRS Facility.

- Build a 6 MG equalization storage tank at Plant No. 2 to store secondary effluent during peak day flows and be returned to the system during low flow periods to maintain a constant flow to the GWRS.
- Relocate the existing plant water pump station to a location more suitable for receiving the trickling filter solids contact treatment processes. After the GWRS Final Expansion, the activated sludge treatment process will treat only SARI and side-stream flows.
- Convert the unused 66-inch gravity reinforced concrete pipeline into a pressure pipeline using a trenchless pipe repair method, to convey the effluent pump station discharge.

This expansion would require a total flow from OC San plants of approximately 175 MGD to produce 130 MGD of indirect potable reuse water. The Final Expansion of the GWRS will enable the Discharger to recycle the majority of the wastewater generated in its service area and treated at its two wastewater treatment plants.

Organic Waste Co-Digestion Project

Construction and operation of an organic waste co-digestion facility is anticipated to be completed in 2022. An organic waste receiving facility will be constructed to receive, store, and feed approximately 150 tons of pre-processed food waste slurry to the digester complex at Plant No. 2 (by Digester M) to generate additional digester gas per recommendations of the Biosolids Master Plan. This facility will be replaced with a permanent receiving station following completion of a proposed program to replace existing digesters at Plant No. 2. Food waste will be fed into OC San's digesters, creating more gas and electricity, while producing a few extra truckloads of solids per week.

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 (CWC) (commencing with section 13260). This Order/Permit is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the USEPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). This Order shall serve as an NPDES permit for point source discharges from this POTW to waters of the United States. The Order/Permit are consolidated pursuant to 40 CFR. § 124.4(c)(2). Although Discharge Point 001 is beyond the limit of State-regulated ocean waters, effluent plume migration into State waters warrants joint regulation of the discharge by USEPA and the Santa Ana Water Board.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, 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.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The Santa Ana Regional Water Quality Control Board adopted a Water Quality Control Plan for the Santa Ana River Basin (hereinafter Basin Plan) in 1995, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for the Offshore Zone and Nearshore Zone of the Pacific Ocean and the tidal prism of the Santa Ana River. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63 which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Requirements in this Order/Permit implement the Basin Plan. Basin Plan beneficial uses applicable to the Pacific Ocean and/or the Santa Ana River tidal prism are as follows:

Table F-5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 (120” outfall)	Pacific Ocean, Beyond the limit of State waters	**Offshore Zone:** Industrial service supply; navigation; water contact recreation; non-contact water recreation; commercial and sportfishing; wildlife habitat; rare, threatened, or endangered species; spawning, reproduction, and development; and marine habitat. **Nearshore Zone:** Industrial service supply; navigation; water contact recreation; non-contact water recreation; commercial and sportfishing; wildlife habitat; rare, threatened, or endangered species; spawning, reproduction, and development; marine habitat; and shellfish harvesting. **Santa Ana River, Reach 1:** Water contact recreation (access prohibited); non-contact water recreation; warm freshwater habitat; and wildlife habitat.
002 (78” outfall)	Pacific Ocean, Offshore Zone	
003 (Santa Ana River overflow weirs)	Santa Ana River Tidal Prism, Reach 1	

2. **California Ocean Plan.** The State Water Board adopted the Water Quality Control Plan for Ocean Waters of California, California Ocean Plan (hereinafter Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, 2012, 2015, 2018, and 2019. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies

beneficial uses of ocean waters of the state to be protected as summarized below:

Table F-6. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
001 and 002	Pacific Ocean	Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish spawning and shellfish harvesting

In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order/Permit implement the Ocean Plan.

3. **California Thermal Plan.** The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (hereinafter Thermal Plan) on January 7, 1971, and amended this plan on September 18, 1975. This plan contains temperature objectives for coastal and inland surface waters. Requirements of this Order/Permit implement the Thermal Plan.

4. **Antidegradation Policy.** Federal regulation 40 CFR § 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 Santa Ana Regional Water Quality Control 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 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 § 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued Order/Permit must be as stringent as those in the previous Order/Permit, with some exceptions in which limitations may be relaxed.

6. **Alaska Rule.** USEPA has revised its regulation that specifies when new and revised State and tribal water quality standards become effective for CWA purposes. (40 CFR § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska Rule), new and revised standards

submitted to USEPA after May 30, 2000 must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

7. **Section 403(c) of the Clean Water Act (CWA):** Discharges to marine waters are subject to Section 403 of the CWA, which sets forth criteria to prevent unreasonable degradation of the marine environment and authorized imposition of any additional effluent limits necessary to protect the marine environment. Pursuant to 40 CFR § 125.122, unreasonable degradation of the marine environment is evaluated based on ten factors or based on the application of a state's water quality standards. Specifically, 40 CFR § 125.122(b) states that discharges in compliance with State water quality standards "shall be presumed not to cause unreasonable degradation of the marine environment, for any specific pollutants or conditions specified in the variance or the standard." USEPA and the Santa Ana Water Board are applying the Basin Plan and the Ocean Plan as specified in section III.C.1 and 2 of this Fact Sheet, except for evaluating acute/chronic toxicity for Discharge Points 001 and 002 using the TST statistical approach. USEPA has reviewed the previous studies to examine the comparison of toxicity test results using the TST and NOEC statistical approaches and has determined that use of the TST statistical approach is consistent with the Ocean Plan and CWA § 403(c) in that it provides protection of the designated beneficial uses of ocean waters. TST statistical approach is also used in other NPDES permits for large publicly owned treatment works, including City of Los Angeles. Given the available dilution (i.e. 180), the receiving water monitoring requirements, the Discharger's analysis of the ocean discharge criteria as part of its application (See Appendix E.1 Ocean Discharge Criteria Response to CWA 403(c)), and USEPA's additional 403(c) analysis, USEPA makes a determination that the discharges authorized in this permit will not cause unreasonable degradation of the marine environment.

8. **Federal Permit Renewal Contingency.** The renewal of the Discharger's federal permit by USEPA is contingent upon determination by the U.S. Fish and Wildlife Service (USFWS) and NOAA National Marine Fisheries Service (NMFS) that the proposed discharge is consistent with the: (1) federal Endangered Species Act (ESA); (2) the Magnuson-Stevens Fishery Conservation and Management Act (MSA); and (3) the Santa Ana Water Board's certification/concurrence that the discharge will comply with applicable State water quality standards.

   USEPA's reissuance of NPDES No. CA0110604 to OC San is subject to requirements of the ESA and MSA. USEPA may decide that changes to this permit are warranted based on the results of the completed consultation and a reopener provision to this effect has been included in the Order/Permit. Issuance of this NPDES permit which incorporates both federal requirements and State waste discharge requirements will serve as the State's concurrence that the discharge complied with State water quality standards. The California Coastal Commission has indicated that it is not necessary to obtain a consistency

certification pursuant to the Coastal Zone Management Act for the issuance of a federal NPDES permit containing secondary treatment standards.

9. **Endangered Species Act Requirements.** This Order/Permit 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). In July 2020, USEPA requested updated information related to: (1) essential fish habitat and managed and associated species, and (2) threatened and endangered species and their designated critical habitats, in the vicinity of the OC San's outfalls from NMFS. Subsequently, EPA and NMFS exchanged information about the facility, discharge characteristics, action area, OC San's monitoring program, and past consultations in Southern California. USEPA determined that the draft permit would have no effect on listed bird species; may affect but is not likely to adversely affect listed fish and abalone species; and is likely to adversely affect listed sea turtle, seal, and whale species. These effect determinations are explained in the biological evaluation. USEPA is consulting with the United States Fish and Wildlife Service and the National Marine Fisheries Service. This Order/Permit requires compliance with effluent limits, receiving water limits, and other requirements to protect beneficial uses, including protecting threatened and endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on the CWA section 303(d) List

On April 6, 2018, USEPA issued a final decision regarding California's 2014- 2016 CWA Section 303(d) List of Impaired Waters. The list (hereinafter 303(d) list) identifies water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limits by point sources. Huntington Beach State Park is included on the 303(d) list for PCBs (polychlorinated biphenyls). The offshore and nearshore zones off Huntington Beach State Park are the immediately affected receiving waters of discharges from the Facility. A total maximum daily load (TMDL) for PCBs is required but has not been established yet. As such, effluent limitations for PCBs have been established for the Facility until applicable waste load allocations are assigned in a TMDL. A TMDL to address the impairment is not currently scheduled for development.

E. Other Plans, Polices and Regulations

1. **Stringency of Requirements for Individual Pollutants.** This Order/Permit contains technology-based effluent limitations and WQBELs for individual pollutants. Technology-based effluent limitations consist of restrictions on carbonaceous biochemical oxygen demand (5-day), total suspended solids, and pH which implement the minimum, applicable federal technology-based requirements for POTWs. Also, effluent limitations consisting of restrictions on oil and grease, settleable solids, and turbidity are necessary to implement State treatment standards in Ocean Plan Table 4. Discharge Point 001 WQBELs

consisting of restrictions on total chlorine residual, acute toxicity, chronic toxicity, radioactivity, benzidine, hexachlorobenzene, PCBs, TCDD equivalents, and toxaphene more stringent than federal technology-based limitations are necessary to meet State water quality standards in the Ocean Plan Table 3. Discharge Point 002 WQBELs consisting of restrictions on fecal coliform density, *Enterococcus* density, total chlorine residual, ammonia (as nitrogen), chronic toxicity, radioactivity, and TCDD equivalents more stringent than federal technology-based limitations are necessary to meet State water quality standards in the Ocean Plan Table 3. All effluent limitations are discussed in Attachment F-Fact Sheet. Collectively, the restrictions on individual pollutants in this Order/Permit are no more stringent than required by the CWA.

2. **Federal Secondary Treatment Regulations.** The OC San achieved full secondary treatment on December 28, 2012 and continues discharging secondary treated flow. 40 CFR § 133 establishes the minimum levels of effluent quality to be achieved by secondary treatment. These limitations, established by USEPA, are incorporated into this Order/Permit, except where more stringent limitations are required by other applicable plans, policies, or regulations or to prevent backsliding.

3. **Industrial Storm Water Requirements.** The Discharger is not required to be covered under the statewide NPDES general permit for storm water discharges associated with industrial activities (NPDES General Permit No. CAS000001) because all stormwater at the plants is collected by various drains and conveyed downstream of both plants' headworks for treatment. No storm water is diverted untreated to the outfalls. The Discharger has provided certification to the Santa Ana Water Board and USEPA that industrial storm water is managed by internal drainage systems at Reclamation Plant No. 1 and Treatment Plant No. 2, where storm water is captured, treated, and discharged with the treated wastewater regulated under this Order/Permit. This Order/Permit requires the Discharger to submit and implement a Storm Water Management Plan to address onsite storm water quality.

4. **Sanitary Sewer Overflows.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on May 2, 2006, which contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows (SSOs). The Monitoring and Reporting Program for the General Order was amended through the State Water Board's Order WQ 2013-0058-EXEC on August 6, 2013. This General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order also requires agencies to develop sanitary sewer management plans and report all SSOs, among other requirements and prohibitions. The Discharger's collection system is part of the POTW that is subject to this Order/Permit. The Discharger must comply with both the General Order and this Order/Permit.

5. **Pretreatment Requirements.** In compliance with 40 CFR § 403, OC San has developed an approved Pretreatment Program for the POTW that it owns and operates. This Order/Permit includes the Discharger's approved Pretreatment Program and requires the Discharger to continue implementation and control of the Program throughout the service area of its POTW, including contributing jurisdictions.
   The POTW, as Control Authority, may exercise its authority over the entire service area directly, as provided by State law, or may elect to enter into contracts or other multi-jurisdictional agreements with contributing jurisdictions. In case the POTW elects to enter into inter-jurisdictional agreements, the POTW must ensure that discharges received from entities outside of its political boundaries are regulated to the same extent as are discharges within its political boundaries. OC San applies one set of local limits to all discharges to its treatment facilities.

6. **Sewage Sludge/Biosolids Requirements.** Section 405 of the CWA and implementing regulations at 40 CFR § 503 require that producers of sewage sludge/biosolids meet certain reporting, handling, and use or disposal requirements. The State has not been delegated the authority to implement this program; therefore, USEPA is the implementing agency. This Order/Permit contains sewage sludge/biosolids requirements pursuant to 40 CFR § 503 that are applicable to the Discharger.

7. **Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR § 122.41, and additional conditions applicable to POTWs in accordance with 40 CFR § 122.42, are provided in Attachment D. The Santa Ana Water Board and USEPA have also included in this Order/Permit Special Provisions applicable to the Discharger. The rationale for the Special Provisions contained in this Order/Permit is provided in this Fact Sheet.

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 Code of Federal Regulations: 40 CFR § 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR § 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

Discharge Prohibitions in this Order/Permit are based on Ocean Plan discharge prohibitions, Basin Plan discharge prohibitions, and discharge prohibitions in the existing Order/Permit.

1. California Ocean Plan Discharge Prohibitions

a. Prohibition III.B, III.C, III.D, III.E, and III.F: This permit/order implements discharge prohibitions that are applicable under sections III.I.1.a, III.I.2.a, III.I.3.a, III.I.4.a, and III.I.6 of the 2019 California Ocean Plan, respectively.

b. Prohibition III.G (Discharge at Discharge Point 001 without minimum initial dilution of at least 181:1): This prohibition is necessary to ensure that the assumption used to derive the dilution credits established through this Order/Permit remains substantially the same so that the effluent limitations are protective of water quality. This Order considered a dilution credit of 180 (D_m = 180) based on the Discharger's *GWRS Final Expansion Final Implementation Plan, Project No. SP-173, Effluent Reuse Study (October 2016)* to conduct the reasonable potential analysis described in Section IV.C.3 of this Fact Sheet. Moreover, the instream waste concentration (IWC) for the chronic toxicity effluent limitation is based on this dilution credit. When future discharge flows drop below 32 MGD, as a result of GWRS final expansion project, the outfall will likely need to be retrofitted to ensure adequate dilution and to prevent seawater intrusion and potential diffuser plugging. The initial dilution of 181:1 assumes that all 503 outfall ports are operational.

2. Santa Ana River Basin Plan Discharge Prohibitions

a. **Prohibition III.H, III.I, and III.J:** This permit/order implements discharge prohibitions that are applicable under Chapter 5, Waste Discharge Prohibitions A, B.1, and B.2 of the 2019 Basin Plan, respectively.

3. Prohibition III.K (Discharge from any locations other than Discharge Point 001): This prohibition clarifies that any discharges other than those to Discharge Point 001 are unauthorized, except those to Discharge Point Nos. 002 and 003 as explicitly authorized during essential maintenance or an emergency.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR § 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/Permit must meet minimum federal technology-based effluent limitations (TBELs) based on secondary treatment standards for POTWs at 40 CFR § 133.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

a. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial

category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

b. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly-owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.

d. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR § 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the Santa Ana Water Board and USEPA must consider specific factors outlined in 40 CFR § 125.3.

Regulations promulgated in 40 CFR § 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act 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 § 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.

Table F-7. Federal Secondary Treatment Standards

Parameter	Units	30-day Average	7-day Average
BOD_5	mg/L	30	45
	influent % removal	not less than 85	--
$CBOD_5$ (if substituted)	mg/L	25	40
	influent % removal	not less than 85	--
TSS	mg/L	30	45
	influent % removal	not less than 85	--
pH	standard units	6.0 – 9.0 at all times	

On May 13, 2004, the Discharger requested the inclusion of effluent limitations for five-day carbonaceous biochemical oxygen demand ($CBOD_5$), as allowed by 40 CFR § 133.102(a)(4), for the period following completion of expanded secondary treatment facilities. In the 2004 Order/Permit, $CBOD_5$ effluent limitations were applied to the final effluent during partial or full nitrification at the Discharger's secondary treatment facilities, where effluent nitrification is used to reduce ammonia toxicity associated with wastewater treatment and RO concentrate flow from the Groundwater Replenishment System. As nitrifying bacteria use oxygen to degrade nitrogenous compounds otherwise not significantly removed in the secondary treatment process, higher oxygen demand values for the final effluent result. Consequently, the use of $CBOD_5$ effluent limits have been found to ensure that federal secondary treatment standards for POTWs are achieved while allowing the Discharger to use the treatment process of nitrification to reduce ammonia toxicity in the discharged effluent and comply with Ocean Plan requirements for acute and chronic toxicity. $CBOD_5$ effluent limitations have been carried over to this Order/Permit and are applied in lieu of BOD_5 effluent limitations.

The effluent limitations consisting of restrictions on grease and oil, settleable solids, and turbidity are necessary to implement State treatment standards in Ocean Plan Table 4, which are summarized as follows.

Table F-8. Ocean Plan Table 4 Effluent Limitations

Parameter	Units	30-day Average	7-day Average	Instantaneous Maximum
Grease and Oil	mg/L	25	40	75
Suspended Solids	mg/L	--	--	--
	influent % removal	not less than 75	--	--

Parameter	Units	30-day Average	7-day Average	Instantaneous Maximum
Settleable Solids	ml/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	standard units	6.0 – 9.0 at all times		

Compliance with mass emission effluent limitations for TBELs must be met end-of-pipe after Reclamation Plant No. 1 and Treatment Plant No. 2 effluents have commingled. The 2012 Order/Permit established mass emission effluent limitations based on the average daily influent flow projected for 2017 (i.e., 274 MGD). For Discharge Point 001, this Order/Permit establishes mass emission effluent limitations for TBELs based on the average daily upper bound influent flow of 206 MGD projected for 2025, taken from the Discharger's 2017 Master Plan. For Discharge Point 002, mass emission effluent limitations for TBELs continue to be based on the Discharger's conservative estimate for hydraulic flow capacity of the 78-inch outfall of 230 MGD.

2. Applicable Technology-Based Effluent Limitations

A summary of the applicable technology-based effluent limitations is shown in Tables F-14 and F-15, in section IV.E of this Fact Sheet.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA Section 301(b) and 40 CFR § 122.44(d) require that NPDES permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards and State requirements.

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. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) 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). USEPA has applied CWA section 403(c) and 40 CFR § 125, Subpart M, following 40 CFR § 122.

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, and achieve applicable water quality objectives and

criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the Ocean Plan.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan and Ocean Plan designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters of the State. Applicable beneficial uses designated within the Basin Plan and Ocean Plan are listed in Tables F-5 and F-6, in section III.C of this fact sheet. The Basin Plan contains Water Quality Objectives for bacteria for water bodies designated for water contact recreation. The Ocean Plan establishes applicable water quality objectives for the protection of marine aquatic life and human health. The Ocean Plan also includes water quality objectives for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. The water quality objectives from the Ocean Plan and Basin Plan were incorporated into this Order/Permit as either final effluent limitations (based on reasonable potential) or receiving water limitations.

3. Determining the Need for WQBELs

a. RPA Methodology

The 2012 Order/Permit (Order No. R8-2012-0035) contains WQBELs for pollutant parameters based on Table B of the 2009 Ocean Plan. For this Order/Permit, the need for WQBELs based on water quality objectives in Table 3 of the 2019 Ocean Plan was statistically reevaluated in accordance with the Reasonable Potential Analysis (RPA) procedures contained in Appendix VI of the 2019 Ocean Plan.

The statistical RPA method accounts for the averaging period of the water quality objective, accounts for and captures the long-term variability of the pollutant in the effluent, accounts for limitations associated with sparse data sets, accounts for uncertainty associated with censored data sets, and assumes a lognormal distribution of the facility-specific effluent data. The program calculates the upper confidence bound (UCB) of an effluent population percentile after complete mixing. In the evaluation employed in this Order/Permit, the UCB is calculated as the one-sided, upper 95 percent confidence bound for the 95^{th} percentile of the effluent distribution after complete mixing. The calculated $UCB_{95/95}$ is then compared to the appropriate water quality objective to determine the potential for an exceedance of that objective and the need for a WQBEL. For constituents that have an insufficient number of monitoring data or a substantial number of non-detected data with a reporting limit higher than the respective water quality objective, the RPA result is likely to be inconclusive.

According to the Ocean Plan RPA procedure, the RPA can yield three endpoints:

Endpoint 1: An effluent limitation must be developed, and effluent monitoring for the pollutant is required;

Endpoint 2: An effluent limitation is not required, but the Santa Ana Water Board and/or USEPA may require monitoring for the pollutant or for the whole effluent toxicity (WET) as appropriate; or

Endpoint 3: The RPA is inconclusive, and monitoring for the pollutant or WET testing is required. An existing effluent limitation shall remain in the permit, otherwise a permit reopener clause shall be included to allow for subsequent modification of the permit to include an effluent limitation if the monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above the appropriate water quality objective.

b. Minimum Initial Dilution or Dilution Credits

The Discharger updated its dilution analysis as part of the planning process for the GWRS final expansion project (GWRS Final Expansion Final Implementation Plan, Project No. SP-173, Effluent Reuse Study, October 2016). The updated modeling included calibrating current conditions with the modeling completed in 2002 and 2008. The updated modeling continued to use NRFIELD in Visual Plumes, consistent with the past modeling.

The analysis included various scenarios for flow rates, including low effluent flows as the result of the GWRS final expansion project, densities (i.e. temperature and salinity changes based on low effluent flows), and critical stratification conditions (i.e. August to October 2014). The analysis shows that dilution is unlikely to be impacted by the increase in RO concentrate discharged because the total discharge flow will be decreased. As to be expected, model results were the most sensitive to discharge flow rate and stratification and ranged from 151:1 to 363:1 for the various scenarios. Based on the updated modeling, the Santa Ana Water Board and USEPA is carrying over the dilution ratio of 181:1, as this dilution (D_m = 180) is a representative of reasonable worst-case scenario (i.e. high discharge flow rate under strong stratified conditions) and is consistent with antidegradation and anti-backsliding requirements. With exception of radioactivity, the dilution ratio of 181:1 (D_m = 180) has been applied to the final effluent limitations for Discharge Point No. 001. The dilution ratio of 37:1 (D_m = 36) also has retained for Discharge Point No. 002 in this Order/Permit. Based on the Ocean Plan, water quality objectives for radioactivity shall apply directly to the undiluted waste effluent (i.e., D_m = 0 for radioactivity).

c. RPA for Pollutants in Table 3 of the Ocean Plan

RPAs were conducted using the State Water Board's RPcalc 2.0 software tool and minimum probable initial dilution values for Discharge Point 001 (i.e., D_m = 180) and Discharge Point 002 (i.e., D_m = 36), except for radioactivity.

Effluent data provided in the Discharger's monitoring reports from May 2015 to December 2019, after the Discharger achieved full secondary treatment and ceased disinfection, were used in the analyses in order to be representative of current performance. The results of these RPAs are summarized in Table F-9 for Discharge Point 001 (120" outfall) and Table F-10 for Discharge Point 002 (78" outfall).

Based on the RPA for Discharge Point 001, Endpoint 1 is established for total chlorine residual. Consequently, WQBELs for total chlorine residual are included in the Order/Permit and periodic effluent monitoring is also required. The Discharger ceased continuous effluent disinfection using chlorination/dechlorination at Discharge Point 001 (120" outfall). However, sodium hypochlorite has been used as oxidant chemical to treat foul air (i.e., H_2S control) in scrubbers at primary treatment process and to control the bulking from filamentous organisms in the return activated sludge (RAS), which probably causes RP for total chlorine residual. Endpoint 2 is established for the majority of detected Table 3 pollutants. Consequently, WQBELs for these pollutants are not included in the Order/Permit, but periodic effluent monitoring for all Endpoint 2 pollutants is required. Endpoint 3 with inconclusive results was reported for benzidine, hexachlorobenzene, PCBs, TCDD equivalents, and toxaphene. Consequently, existing WQBELs for these five pollutants are retained in this Order/Permit and periodic effluent monitoring is also required. This Order/Permit does not include effluent limitations for other pollutants displaying Endpoint 3; instead, monitoring requirements for those pollutants were included.

Based on the RPA for Discharge Point 002, Endpoint 1 is established for ammonia (as nitrogen), and total chlorine residual. Consequently, WQBELs for ammonia and total chlorine residual are included in the Order/Permit and periodic effluent monitoring is also required. Endpoint 2 is established for the majority of detected Table 3 pollutants. Consequently, WQBELs for these pollutants are not included in the Order/Permit, but periodic effluent monitoring for all Endpoint 2 pollutants is required. Endpoint 3 with inconclusive results was reported for TCDD equivalents and thus, existing WQBELs and quarterly effluent monitoring for TCDD equivalents are retained in this Order/Permit. This Order/Permit does not include effluent limitations for other pollutants displaying Endpoint 3; instead, monitoring requirements for those pollutants were included.

Step 13 of the RPA procedures in the Ocean Plan authorizes RPA based on best professional judgment (BPJ). Information may include the facility type, discharge type, solids loading analysis, lack of dilution, history of compliance problems, potential toxic impact of discharge, fish tissue residue data, water quality and beneficial uses of the receiving water, CWA 303(d) listing for the pollutant, the presence of endangered or threatened species or critical habitat, and other information. Based on Step 13 of the Ocean Plan (i.e., BPJ), reasonable potential for acute and chronic toxicity has been established

for Discharge Point 001 and chronic toxicity for Discharge Point 002 because toxicity levels at POTWs can exceed applicable water quality standards, and numerical water quality objectives/criteria for the majority of chemical pollutants have not been established. In addition, reasonable potential for radioactivity has been established for Discharge Points 001 and 002 because POTWs accept waste from various facilities, including hospitals that could potentially discharge radioactivity into the sewershed, and the Discharger's wastewater treatment plants are not typically designed to remove radioactivity from the effluent. The discharge also had detectable concentrations of radioactivity (i.e., maximum effluent concentration (MEC) for gross alpha of 36 pCi/L and MEC for gross beta of 70 pCi/L). Thus, WQBELs for acute/chronic toxicity and radioactivity at Discharge Point 001 and a WQBLEL for chronic toxicity and radioactivity at Discharge Point 002 are included in this Order/Permit.

Table F-9. Reasonable Potential Analysis for Discharge Point No. 001 (120" Outfall)

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Objectives for Protection of Marine Aquatic Life							
Ammonia (as N)	600	1,699	0	46,000	254	203	Endpoint 2
Arsenic	8	56	0	6.91	3.02	3.02	Endpoint 2
Cadmium	1	56	53	0.240	0.0013	---	Endpoint 2
Chlorinated Phenols	1	55	54	0.54	0.0030	---	Endpoint 2
Chromium (VI)[2]	2	56	6	1.55[2]	0.0086[2]	0.0095[2]	Endpoint 2
Acute Toxicity	PASS	26	0	NA	PASS	NA	Endpoint 1; BPJ
Chronic Toxicity	PASS	71	0	NA	PASS	NA	Endpoint 1; BPJ
Copper	3	56	0	25.2	2.1282	2.0901	Endpoint 2
Cyanide	1	52	1	5.88	0.0325	0.0372	Endpoint 2
Endosulfan	0.009	10	10	<0.0050	$<2.8\times10^{-5}$	---	Endpoint 3
Endrin	0.002	10	10	<0.0028	$<1.5\times10^{-5}$	---	Endpoint 3
HCH	0.004	10	10	<0.0050	$<2.8\times10^{-5}$	---	Endpoint 3
Lead	2	56	47	0.62	0.0034	---	Endpoint 2
Mercury	0.04	55	0	0.0071	5.4×10^{-4}	5.4×10^{-4}	Endpoint 2
Nickel	5	56	0	23.5	0.1298	0.1338	Endpoint 2
Non-chlorinated Phenols	30	55	53	1.56	0.008715	---	Endpoint 2
Radioactivity (Gross Alpha)	[3]	48	8	36 pCi/L	36 pCi/L	54.4435 pCi/L	Endpoint 1; BPJ
Radioactivity (Gross Beta)	[3]	56	0	70 pCi/L	70 pCi/L	76.3882 pCi/L	Endpoint 1; BPJ
Radioactivity (Radium, combined)	[3]	11	0	1.14 pCi/L	1.14 pCi/L	7.5682 pCi/L	Endpoint 1; BPJ
Selenium	15	56	0	21.9	0.1210	0.1509	Endpoint 2

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Silver	0.7	55	46	0.16	0.16	---	Endpoint 2
Total Chlorine Residual[4]	2	5,100	358	1,200	6.63	0.7395	Endpoint 1
Zinc	20	56	0	64.7	8.31	8.21	Endpoint 2
Objectives for Protection of Human Health – Noncarcinogens							
1,1,1-Trichloroethane	540,000	54	54	<1.43	<0.0079	---	Endpoint 3
2,4-Dinitrophenol	4.0	55	55	<3.5	<0.0193	---	Endpoint 3
2-Methyl-4,6-Dinitrophenol	220	55	55	<1.7	<0.0094	---	Endpoint 3
Acrolein	220	54	54	<4.48	<0.0248	---	Endpoint 3
Antimony	1,200	56	0	2.54	0.0140	0.0146	Endpoint 2
Bis(2-Chloroethoxy)Methane	4.4	55	55	<1.1	<0.0061	---	Endpoint 3
Bis(2-Chloroisopropyl)Ether	1,200	55	55	<0.73	<0.0040	---	Endpoint 3
Chlorobenzene	570	54	54	<0.9	<0.0050	---	Endpoint 3
Chromium (III)[2]	190,000	56	6	1.55[2]	0.0086[2]	0.0095[2]	Endpoint 2
Dichlorobenzenes	5,100	55	55	<2	<0.0111	---	Endpoint 3
Diethyl Phthalate	33,000	55	54	0.76	0.0042	---	Endpoint 2
Dimethyl Phthalate	820,000	55	55	<1.64	<0.0091	---	Endpoint 3
Di-n-Butyl Phthalate	3,500	55	54	1.8	0.0099	---	Endpoint 2
Ethylbenzene	4,100	47	47	<1.8	<0.0099	---	Endpoint 3
Fluoranthene	15	55	55	<0.49	<0.0027	---	Endpoint 3
Hexachlorocyclopentadiene	58	55	55	<1.6	<0.0088	---	Endpoint 3
Nitrobenzene	4.9	55	54	0.38	0.0021	---	Endpoint 2
Thallium	2	56	48	0.20	0.0011	---	Endpoint 2
Toluene	85,000	54	50	0.19	0.0010	---	Endpoint 2
Tributyltin	0.0014	[5]	[5]	[5]	[5]	---	[5]
Objectives for Protection of Human Health – Carcinogens							
1,1,2,2-Tetrachloroethane	2.3	54	54	<0.53	<0.0029	---	Endpoint 3

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
1,1,2-Trichloroethane	9.4	54	54	<0.1	<0.0006	---	Endpoint 3
1,1-Dichloroethylene	0.9	54	54	<1.44	<0.0005	---	Endpoint 3
1,2-Dichloroethane	28	54	54	<0.98	<0.0055	---	Endpoint 3
1,2-Diphenylhydrazine	0.16	54	54	<0.60	<0.0033	---	Endpoint 3
1,3-Dichloropropylene	8.9	54	54	<1.56	<0.0087	---	Endpoint 3
1,4-Dichlorobenzene	18	109	109	<0.95	<0.0053	---	Endpoint 3
TCDD Equivalents	3.9×10^{-9}	18	18	$<7.0\times10^{-7}$	$<3.9\times10^{-9}$	---	Endpoint 3; WQBEL carry over
2,4,6-Trichlorophenol	0.29	54	53	0.54	0.0030	---	Endpoint 2
2,4-Dinitrotoluene	2.6	55	55	<2.2	<0.0123	---	Endpoint 3
3,3'-Dichlorobenzidine	0.0081	55	55	<2.58	<0.0144	---	Endpoint 3
Acrylonitrile	0.10	54	54	<1.51	<0.0084	---	Endpoint 3
Aldrin	2.2×10^{-5}	10	10	<0.01	<0.00006	---	Endpoint 3
Benzene	5.9	54	54	<1.37	<0.0077	---	Endpoint 3
Benzidine	6.9×10^{-5}	54	54	<8.27	<0.0462	---	Endpoint 3; WQBEL carry over
Beryllium	0.033	55	55	<0.185	<0.0010	---	Endpoint 3
Bis(2-Chloroethyl)Ether	0.045	55	55	<0.96	<0.0053	---	Endpoint 3
Bis(2-Ethylhexyl)Phthalate	3.5	55	50	3.9	0.0215	---	Endpoint 2
Carbon Tetrachloride	0.90	54	54	<1.79	<0.01	---	Endpoint 3
Chlordane	2.3×10^{-5}	10	10	<0.05	$<2.8\times10^{-4}$	---	Endpoint 3
Chlorodibromomethane	8.6	54	9	4.86	0.0269	0.0235	Endpoint 2
Chloroform	130	54	1	16.6	0.0917	3.285	Endpoint 2
DDT (total)	0.00017	10	10	<0.0031	$<1.7\times10^{-5}$	---	Endpoint 3
Dichlorobromomethane	6.2	54	2	8.98	0.05	0.0534	Endpoint 2
Dichloromethane	450	54	47	8.9	0.0492	---	Endpoint 2

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Dieldrin	4.0×10^{-5}	10	10	<0.01	$<5.587\times10^{-5}$	---	Endpoint 3
Halomethanes	130	54	49	1.37	0.0076	---	Endpoint 2
Heptachlor	5×10^{-5}	10	10	<0.01	$<5.587\times10^{-5}$	---	Endpoint 3
Heptachlor Epoxide	2×10^{-5}	10	10	<0.01	$<5.587\times10^{-5}$	---	Endpoint 3
Hexachlorobenzene	0.00021	55	55	<0.77	<0.0043	---	Endpoint 3; WQBEL carry over
Hexachlorobutadiene	14	55	55	<0.77	<0.0043	---	Endpoint 3
Hexachloroethane	2.5	55	55	<0.63	<0.0035	---	Endpoint 3
Isophorone	730	55	55	<0.77	<0.0043	---	Endpoint 3
N-Nitrosodimethylamine	7.3	55	55	<2.7	<0.0151	---	Endpoint 3
N-Nitrosodi-n-Propylamine	0.38	55	55	<1.36	<0.0076	---	Endpoint 3
N-Nitrosodiphenylamine	2.5	55	55	<1.47	<0.0082	---	Endpoint 3
PAHs (total)	0.0088	55	55	<1.5	<0.0083	---	Endpoint 3
PCBs	1.9×10^{-5}	10	10	<0.50	<0.0028	---	Endpoint 3; WQBEL carry over
Tetrachloroethylene	2.0	54	52	1.58	0.0087	---	Endpoint 2
Toxaphene	0.00021	10	10	<1.2	<0.0067	---	Endpoint 3; WQBEL carry over
Trichloroethylene	27	54	47	<1.49	<0.0083	---	Endpoint 3
Vinyl Chloride	36	54	54	<1.73	<0.0097	---	Endpoint 3

Abbreviations:

Max = maximum
WQO = water quality objective
µg/L = micrograms per liter
pCi/L = pico-curies per liter
NA = not applicable

Footnotes:

[1] Concentrations after mixing include a dilution factor of 180 (D_m), with exception of radioactivity (D_m=0), and applicable background seawater concentrations (C_s) for arsenic, copper, mercury, silver, and zinc.
[2] The Discharger monitored for total chromium, in lieu of chromium (III) and chromium (VI). The maximum detected concentration of total chromium (1.55 µg/L) is less than the water quality objective for chromium (III) and chromium (VI) (i.e., 190,000 µg/L and 2 µg/L, respectively).
[3] Not to exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR.
[4] While the discharger ceased chlorine disinfection of the effluent in May 2015, chlorine is still used at the facility for odor control and in-house water use.
[5] The discharger did not monitor for Tributylin.

Table F-10. Reasonable Potential Analysis for Discharge Point No. 002 (78" Outfall)

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Objectives for Protection of Marine Aquatic Life							
Ammonia (as nitrogen)	600	1,699	0	46,000	1,243	993	Endpoint 1
Arsenic	8	56	0	6.91	3.02	3.1	Endpoint 2
Cadmium	1	56	53	0.240	0.0065	---	Endpoint 2
Chlorinated Phenolics	1	55	54	0.54	0.0146	---	Endpoint 2
Chromium (VI)[2]	2	56	6	1.55[2]	0.0419[2]	0.0464[2]	Endpoint 2
Chronic Toxicity	1.0 TU_c	0	0	NA	NA	NA	Endpoint 1; BPJ

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Copper	3	56	0	25.2	2.627	2.446	Endpoint 2
Cyanide	1	52	1	5.88	0.1589	0.1819	Endpoint 2
Endosulfan (total)	0.009	10	10	<0.0050	<0.0001	---	Endpoint 3
Endrin	0.002	10	10	<0.0028	$<7.6\times10^{-5}$	---	Endpoint 3
HCH	0.004	10	10	<0.0050	<0.0001	---	Endpoint 3
Lead	2	56	47	0.62	0.0168	---	Endpoint 2
Mercury	0.04	55	0	0.0071	0.0007	0.0007	Endpoint 2
Nickel	5	56	0	23.5	0.6351	0.6545	Endpoint 2
Non-chlorinated Phenolics	30	55	53	1.56	0.0422	---	Endpoint 2
Radioactivity (Gross Alpha)	[3]	48	8	36 pCi/L	36 pCi/L	54.4435 pCi/L	Endpoint 1; BPJ
Radioactivity (Gross Beta)	[3]	56	0	70 pCi/L	70 pCi/L	76.3882 pCi/L	Endpoint 1; BPJ
Radioactivity (Radium, combined)	[3]	11	0	1.14 pCi/L	1.14 pCi/L	7.5682 pCi/L	Endpoint 1; BPJ
Selenium	15	3461	3380	21.9	0.5919	0.7383	Endpoint 2
Silver	0.7	55	46	0.16	0.16	---	Endpoint 2
Total Chlorine Residual[4]	2	5100	358	1,200	32.4	9.73	Endpoint 1
Zinc	20	56	0	64.7	9.53	9.03	Endpoint 2
Objectives for Protection of Human Health – Noncarcinogens							
1,1,1-Trichloroethane	540,000	54	54	<1.43	<0.0386	---	Endpoint 3
2,4-Dinitrophenol	4.0	55	55	<3.5	<0.0946	---	Endpoint 3
2-Methyl-4,6-Dinitrophenol	220	55	55	<1.7	<0.0459	---	Endpoint 3
Acrolein	220	54	54	<4.48	<0.01211	---	Endpoint 3
Antimony	1,200	56	0	2.54	0.0686	0.0712	Endpoint 2
Bis(2-Chloroethoxy)Methane	4.4	55	55	<1.1	<0.0297	---	Endpoint 3

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Bis(2-Chloroisopropyl)Ether	1,200	55	55	<0.73	<0.0197	---	Endpoint 3
Chlorobenzene	570	54	54	<0.9	<0.0243	---	Endpoint 3
Chromium (III)[2]	190,000	56	6	1.55[2]	0.0419[2]	0.0464[2]	Endpoint 2
Dichlorobenzenes	5,100	55	55	<2	<0.0556	---	Endpoint 3
Diethyl Phthalate	33,000	55	54	0.76	0.0205	---	Endpoint 2
Dimethyl Phthalate	820,000	55	55	<1.64	<0.0443	---	Endpoint 3
Di-n-Butyl Phthalate	3,500	55	54	1.8	0.0486	---	Endpoint 2
Ethylbenzene	4,100	47	47	<1.8	<0.04866	---	Endpoint 3
Fluoranthene	15	55	55	<0.49	<0.0132	---	Endpoint 3
Hexachlorocyclopentadiene	58	55	55	<1.6	<0.0432	---	Endpoint 3
Nitrobenzene	4.9	55	54	0.38	0.0103	---	Endpoint 2
Thallium	2	56	48	0.20	0.0054	---	Endpoint 2
Toluene	85,000	54	50	0.19	0.0051	---	Endpoint 2
Tributyltin	0.0014	[5]	[5]	[5]	[5]	---	[5]
Objectives for Protection of Human Health – Carcinogens							
1,1,2,2-Tetrachloroethane	2.3	54	54	<0.53	<0.0143	---	Endpoint 3
1,1,2-Trichloroethane	9.4	54	54	<0.1	<0.0027	---	Endpoint 3
1,1-Dichloroethylene	0.9	54	54	<1.44	<0.0389	---	Endpoint 3
1,2-Dichloroethane	28	54	54	<0.98	<0.0265	---	Endpoint 3
1,2-Diphenylhydrazine	0.16	54	54	<0.60	<0.0162	---	Endpoint 3
1,3-Dichloropropylene	8.9	54	54	<1.56	<0.0422	---	Endpoint 3
1,4-Dichlorobenzene	18	109	109	<0.95	<0.0257	---	Endpoint 3
TCDD Equivalents	3.9×10^{-9}	18	18	$<7.0\times10^{-7}$	$<1.9\times10^{-8}$	----	Endpoint 3; WQBEL carry over
2,4,6-Trichlorophenol	0.29	54	53	0.54	0.0146	---	Endpoint 2
2,4-Dinitrotoluene	2.6	55	55	<2.2	<0.0595	---	Endpoint 3

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
3,3'-Dichlorobenzidine	0.0081	55	55	<2.58	<0.0697	---	Endpoint 3
Acrylonitrile	0.10	54	54	<1.51	<0.0408	---	Endpoint 3
Aldrin	2.2×10^{-5}	10	10	<0.01	<0.0003	---	Endpoint 3
Benzene	5.9	54	54	<1.37	<0.0370	---	Endpoint 3
Benzidine	6.9×10^{-5}	54	54	<8.27	<0.2235	---	Endpoint 3
Beryllium	0.033	55	55	<0.185	<0.0051	---	Endpoint 3
Bis(2-Chloroethyl)Ether	0.045	55	55	<0.96	<0.0259	---	Endpoint 3
Bis(2-Ethylhexyl)Phthalate	3.5	55	50	3.9	0.1054	---	Endpoint 2
Carbon Tetrachloride	0.90	54	54	<1.79	<0.484	---	Endpoint 3
Chlordane	2.3×10^{-5}	10	10	<0.05	<0.0014	---	Endpoint 3
Chlorodibromomethane	8.6	54	9	4.86	0.1314	0.1152	Endpoint 2
Chloroform	130	54	1	16.6	0.4486	2.467	Endpoint 2
DDT (total)	0.00017	10	10	<0.0031	<0.0001	---	Endpoint 3
Dichlorobromomethane	6.2	54	2	8.98	0.2427	0.2611	Endpoint 2
Dichloromethane	450	54	47	8.9	0.2405	---	Endpoint 2
Dieldrin	4.0×10^{-5}	10	10	<0.01	<0.0003	---	Endpoint 3
Halomethanes	130	54	49	1.37	0.0370	---	Endpoint 2
Heptachlor	5×10^{-5}	10	10	<0.01	<0.0003	---	Endpoint 3
Heptachlor Epoxide	2×10^{-5}	10	10	<0.01	<0.0003	---	Endpoint 3
Hexachlorobenzene	0.00021	55	55	<0.77	<0.0208	---	Endpoint 3
Hexachlorobutadiene	14	55	55	<0.77	<0.0208	---	Endpoint 3
Hexachloroethane	2.5	55	55	<0.63	<0.017	---	Endpoint 3
Isophorone	730	55	55	<0.77	<0.0208	---	Endpoint 3
N-Nitrosodimethylamine	7.3	55	55	<2.7	<0.0730	---	Endpoint 3
N-Nitrosodi-n-Propylamine	0.38	55	55	<1.36	<0.0368	---	Endpoint 3
N-Nitrosodiphenylamine	2.5	55	55	<1.47	<0.0397	---	Endpoint 3
PAHs (total)	0.0088	55	55	<1.5	<0.0417	---	Endpoint 3

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
PCBs	1.9×10^{-5}	10	10	<0.05	<0.0014	---	Endpoint 3
Tetrachloroethylene	2.0	54	52	1.58	0.0427	---	Endpoint 2
Toxaphene	0.00021	10	10	<1.2	<0.0324	---	Endpoint 3
Trichloroethylene	27	54	47	<1.49	<0.0403	---	Endpoint 3
Vinyl Chloride	36	54	54	<1.73	<0.0468	---	Endpoint 3

Abbreviations:

Max = maximum
WQO = water quality objective
µg/L = micrograms per liter
pCi/L = pico-curies per liter
NA = not applicable

Footnotes:

[1] Concentrations after mixing include a dilution factor of 36 (D_m), with exception of radioactivity (D_m=0), and applicable background seawater concentrations (C_s) for arsenic, copper, mercury, silver, and zinc.
[2] Discharger monitored for total chromium, in lieu of chromium (III) and chromium (VI). The maximum detected concentration of total chromium (1.55 µg/L) is less than the water quality objective for chromium (III) and chromium (VI) (i.e., 190,000 µg/L and 2 µg/L, respectively).
[3] Not to exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR.
[4] While the discharger ceased chlorine disinfection of the effluent in May 2015, chlorine is still used at the facility for odor control and in-house water use.
[5] The discharger did not monitor for Tributylin.

4. WQBEL Calculations

a. Concentration-based WQBEL Calculations

From the Table 3 water quality objectives in the 2019 Ocean Plan, concentration-based WQBELs are calculated according to the following equation for all pollutants, except for acute and chronic toxicity (if applicable):

$C_e = C_o + D_m(C_o - C_s)$

Where,

C_e = the effluent limitation

C_o = the water quality objective to be met at the completion of initial dilution

C_s = background seawater concentration (see Table F-11 below)

D_m = minimum probable initial dilution expressed as parts seawater per part wastewater (i.e., 180 for Discharge Point 001 and 36 for Discharge Point 002)

Background seawater concentration for all Table 3 pollutants is assumed to be zero ($C_s = 0$), except for the following five pollutants:

Table F-11. Pollutants with Background Seawater Concentrations (C_s)

Constituents	Background Seawater Concentration
Arsenic	3 μg/L
Copper	2 μg/L
Mercury	0.0005 μg/L
Silver	0.16 μg/L
Zinc	8 μg/L

The calculation of WQBELs for copper, total chlorine residual, ammonia, and TCDDs are demonstrated below for Discharge Point 002, as examples:

Table F-12. Example – Ocean Plan Table 3 Water Quality Objectives (C_o)

Constituents	6-Month Median	Daily Maximum	Instantaneous Maximum	30 Day Average
Copper	3 μg/L	12 μg/L	30 μg/L	--
Total Chlorine Residual	2 μg/L	8 μg/L	60 μg/L	--
Ammonia	0.60 mg/L	2.4 mg/L	6 mg/L	--
TCDD equivalents	--	--	--	3.9×10^{-9} μg/L

Using the equation, $C_e=C_o+D_m(C_o-C_s)$, effluent limitations are calculated as follows. All calculations are based on discharge through Discharge Point 002 and, therefore, a dilution ratio (D_m) of 36 is applied.

Example - Copper

C_e = 3 + 36 (3 – 2) = 39 μg/L (6-month Median)

C_e = 12 + 36 (12 – 2) = 372 μg/L (Maximum Daily)

C_e = 30 + 36 (30 – 2) = 1,038 μg/L (Instantaneous Maximum)

Total Chlorine Residual

C_e = 2 + 36 (2 – 0) = 74 μg/L (6-month Median)

C_e = 8 + 36 (8 – 0) = 296 μg/L (Maximum Daily)

C_e = 60 + 36 (60 – 0) = 2,220 μg/L (Instantaneous Maximum)

Ammonia

C_e = 0.6 + 36 (0.6 – 0) = 22.2 mg/L (6-month Median)

C_e = 2.4 + 36 (2.4 – 0) = 88.8 mg/L (Maximum Daily)

C_e = 6 + 36 (6 – 0) = 222 mg/L (Instantaneous Maximum)

TCDD equivalents

$C_e = 3.9\times10^{-9} + 36 (3.9\times10^{-9} – 0) = 144.3\times10^{-9}$ μg/L = 0.144 pg/L (Average Monthly)

b. Mass-based WQBEL Calculations

The following equation from the 2019 Ocean Plan Chapter III.C.4.j is used to calculate all mass-based WQBELs.

Mass (in lbs/day) = 0.00834 x C_e x Q

where:

C_e = the effluent concentration limitation (μg/L)

Q = flow rate (MGD)

For example, in the case of PCBs where Q = 206 MGD for Discharge Point 001, the average monthly mass-based WQBEL is:

C_e = 0.00834 x 0.0034 μg/L x 206 MGD = 0.0058 lbs/day

For Discharge Point 001 (120” outfall), the previous Order/Permit established mass emission effluent limitations based on the average daily influent flow (Q) of 274 MGD projected for 2017. This Order/Permit establishes mass emission effluent limitations based on the average daily upper bound influent flow of 206 MGD projected for 2025, which was taken from the Discharger’s 2017 Master Plan. For Discharger Point

002 (78" outfall), consistent with the previous permit, mass emission effluent limitations are based on the Discharger's conservative estimate for the hydraulic flow capacity of the 78" outfall (Q) of 230 MGD. Since Discharge Point 002 is authorized for emergency situations, it is anticipated to use its maximum hydraulic flow capacity of 230 MGD during emergency discharges.

C. Bacteria WQBEL Calculations

Bacteria effluent limitations for Discharge Point 002 remain in the Order/Permit to ensure protection of human health and receiving water quality for REC-1 beneficial uses and compliance with REC-1 water quality objectives for bacteria in the Pacific Ocean.

The Ocean Plan was amended in 2018 to revise the bacterial objectives for ocean waters used for water contact recreation, which includes removal of the previously established total coliform objectives and the revised enterococci objectives based on the EPA 2012 Recreational Criteria for marine waters. This Order/Permit has established bacteria effluent limitations at Discharge Point 002 (78" outfall) based on the amended water quality objectives in Table 1 and 2 of the 2019 Ocean Plan. Fecal coliform and enterococcus WQBELs for Discharge Point 002 are determined using the equation, $C_e=C_o+D_m(C_o-C_s)$ and an Initial dilution of 37:1 (D_m=36). The background conditions for fecal coliform and enterococcus are assumed to be zero.

Table F-13. Bacteria Water Quality Objectives (C_o) in the Ocean Plan

Indicator	Magnitude	WQO
Fecal coliform density	30-day geometric mean	200 /100 mL
	Single sample maximum	400 /100 mL
Enterococci	6-week rolling geometric mean	30 CFU /100 mL
	Statistical threshold value	110 CFU /100 mL

Fecal Coliform

C_e = 200 + 36 (200 – 0) = 7,400 MPN/100 mL (30-day Geometric Mean)

C_e = 400 + 36 (400 – 0) = 14,800 MPN/100 mL (Single Sample Maximum)

Enterococcus

C_e = 30 + 36 (30 – 0) = 1,110 CFU/100 mL (6-Week Rolling Geometric Mean)

C_e = 110 + 36 (110 – 0) = 4,070 CFU/100 mL (Statistical Threshold Value)

Based on the implementing procedures described above, WQBELs have been calculated for bacteria and all Table 3 pollutants (excluding acute and chronic toxicity) from the 2019 Ocean Plan and incorporated into this Order/Permit when applicable. A summary of the applicable WQBELs are shown in Tables F-14 and F-15 in section IV.E of this Fact Sheet.

5. Whole Effluent Toxicity (WET)

Whole Effluent Toxicity (WET) testing protects receiving waters from the aggregate toxic effect of a mixture of pollutants in the effluent or pollutants that are not typically monitored. 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 period of time and measures a sublethal endpoint such as reproduction or growth, and sometimes mortality. Because of the nature of industrial discharges and contaminants of emerging concern (CEC) used in households such as PPCPs, pesticides and PFAS which may be released into the POTW sewershed, toxic constituents in and of itself or in combination may be present in the effluent.

A total of 71 chronic and 26 acute WET tests was conducted on the effluent discharged to Discharge Point 001 (120" outfall) between May 2015 and December 2019. None of the testing results was reported as "Fail" for both acute and chronic toxicity. However, based on Step 13 of the RPA procedures in the Ocean Plan (i.e., best professional judgement), reasonable potential for acute and chronic toxicity has been established for Discharge Point 001 and chronic toxicity for Discharge Point 002 due to potentially toxic chemicals exceeding water quality standards and numerous chemicals having no specific water quality standard. Therefore, the protection of aquatic life through the evaluation of toxicity monitoring is necessary to examine the potential for the individual and/or combination of toxic chemicals that pass through the POTW.

The Ocean Plan addresses the application of chronic and acute toxicity requirements based on minimum probable initial dilutions (D_m) for ocean discharges. Following the Ocean Plan, dischargers are required to conduct chronic toxicity monitoring for ocean discharges with D_m factors ranging from 99 to 349; also, Santa Ana Water Boards or USEPA may require acute toxicity monitoring in addition to chronic toxicity monitoring. Dischargers with D_m factors below 99 are required to conduct only chronic toxicity testing. Since the D_m for Discharge Point 001 is 180, both acute and chronic toxicity final effluent limitations have been assigned to Discharge Point 001. Since the D_m for Discharge Point 002 (i.e., D_m = 36) is less than 99, only chronic toxicity monitoring is specified for Discharge Point 002. No acute toxicity final effluent limitations have been assigned to Discharge Point 002 consistent with 40 CFR § 122.44(d)(1)(v), and because the chronic toxicity final effluent limitation is protective of both chronic and acute toxicity.

The Ocean Plan establishes a daily maximum chronic toxicity objective of 1.0 TU_c = 100/NOEC and a daily maximum acute toxicity objective of 0.3 TU_a = 100/LC_{50}. In 2010, USEPA published a guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), in which they recommend the following: "Permitting authorities should consider adding the Test of Significant Toxicity (TST) statistical approach to their implementation procedures for analyzing valid WET data for their current NPDES WET Program." The TST hypothesis testing

approach more reliably identifies toxicity—in relation to the chronic (equal to or greater than 0.25) and acute (equal to or greater than 0.20) mean responses of regulatory management decision—than the NOEC hypothesis-testing approach used in the Ocean Plan. The TST statistical approach is the improved approach for addressing statistical uncertainty when used in combination with USEPA's toxicity test methods and is implemented in federal permits issued by USEPA Region 9. Therefore, this Order/Permit includes final effluent limitations for both Discharge Point 001 (120"outfall) and Discharge Point 002 (78" outfall) using the TST hypothesis testing approach. This statistical approach is consistent with the Ocean Plan in that it provides maximum protection to the environment since it more reliably identifies acute and chronic toxicity than the NOEC hypothesis-testing approach (See Chapter III.F and Appendix I of the 2019 California Ocean Plan).

The discharge is subject to determination of "Pass" or "Fail" from acute and/or chronic toxicity tests using the TST statistical t-test approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (USEPA 833-R-10-003, 2010), Appendix A, Figure A-1, Table A-1, and Appendix B, Table B-1.

The TST's null hypothesis (H_0) for chronic toxicity is:

H_0: Mean discharge In-stream Waste Concentration (IWC) response ≤0.75 × Mean control response.

The TST's null hypothesis (H_0) for acute toxicity is:

H_0: Mean discharge In-stream Waste Concentration (IWC) response ≤0.80 × 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."

WQBEL Calculation for Chronic Toxicity (Discharge Points 001 and 002)

The chronic toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_0) and regulatory management decision (b value) of 0.75 for the chronic toxicity methods in Attachment E – Monitoring and Reporting Program. The chronic toxicity In-stream Waste Concentration (IWC) is $100/D_m$ = 100/180 = 0.556% for Discharge Point 001 (120" outfall) and IWC = 100/36 = 2.78% for Discharge Point 002 (78" outfall).

The null hypothesis for chronic toxicity at Discharge Point 001 is:

H_0: Mean response (0.556% effluent) ≤ 0.75 mean response (Control)

The null hypothesis for chronic toxicity at Discharge Point 002 is:

H_0: Mean response (2.78% effluent) ≤ 0.75 mean response (Control)

WQBEL Calculation for Acute Toxicity (Discharge Point 001)

The acute toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_0) and regulatory management decision (b value) of 0.80 for the acute toxicity methods in Attachment E – Monitoring and Reporting Program. The acute toxicity In-stream Waste Concentration (in % effluent) for Discharge Point 001 is $100/(0.1*D_m) = 100/(0.1*180) = 5.56\%$.

The null hypothesis for acute toxicity at Discharge Point 001 is:

H_0: Mean response (5.56% effluent) ≤ 0.80 mean response (Control).

Results obtained from evaluating statistically the IWC compared to the control shall be analyzed using the TST hypothesis testing approach in Attachment E – Monitoring and Reporting Program. Compliance with these acute and chronic toxicity WQBELs is demonstrated by rejecting the null hypothesis and reporting "Pass" or "P". The Maximum Daily Effluent Limitation (MDEL) for acute or chronic toxicity is exceeded and a violation will be flagged when WET test, analyzed using the TST statistical approach, results in "Fail".

D. Final Effluent Limitation Considerations

1. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR § 122.44(l) prohibit backsliding in NPDES permits. 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. All effluent limitations and conditions in this Order/Permit are at least as stringent as those in the previous Order/Permit.

This Order/Permit implements different bacteria indicators and water quality objectives based on Chapter II.B.1 of the 2019 Ocean Plan (i.e., State Water Board Water-Contact Objectives for Bacteria). The California Ocean Plan was amended in 2018 to revise the bacterial objectives for ocean waters used for water contact recreation, which includes removal of the previously established total coliform objectives and the revised enterococci objectives based on the EPA 2012 Recreational Criteria for marine waters. This Order/Permit has established bacteria effluent limitations at Discharge Point 002 (78" outfall) based on the amended objectives in the 2019 Ocean Plan. The new effluent limitations are expressed using different averaging periods than the previous limits and are therefore not directly comparable.

2. Antidegradation Policies

Pursuant to 40 CFR 131.12, the state water quality standards must include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. This resolution incorporates the federal antidegradation policy, where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless it is demonstrated that any degradation is consistent with the maximum benefit to

the people of the State, will not unreasonably affect current or possible beneficial uses, and will not result in water quality less than prescribed in applicable policies.

A complete antidegradation analysis is required if the proposed activity results in a substantial increase in mass emissions of pollutants or if the activity results in significant impact to aquatic life. It is not necessary to do a complete antidegradation analysis if the reduction in water quality will be spatially localized or limited with respect to the waterbody. In such cases, a simple antidegradation analysis will suffice. The Santa Ana Water Board and USEPA believe that the simple antidegradation analysis presented herein is consistent with California and Federal antidegradation policies because effects from effluent discharges are spatially and temporally limited and not expected to have a significant impact on receiving water quality.

This Order/Permit includes both narrative and numeric final effluent limitations, receiving water limitations, performance goals, and mass emission benchmarks to maintain the chemical, physical, and biological characteristics, and to protect the beneficial uses, of the receiving water. These requirements ensure that all water quality objectives are being met outside the zone of initial dilution, thereby maintaining the beneficial uses. The Ocean Plan allows for minimal degradation within the zone of initial dilution as long as the water quality objectives are maintained just outside the zone of initial dilution. The minimal degradation permitted by the Ocean Plan is consistent with the antidegradation policy because it maintains maximum benefit to the people of the State, it will not unreasonably affect the present and anticipated beneficial uses, and it will not result in water quality less than that prescribed in the policies.

The final effluent limitations from the previous Order/Permit have been retained. Bacteria limits at Discharge Point 002 (78” outfall) were updated to implement new State water quality objectives for bacteria in the 2019 Ocean Plan. The new effluent limitations for fecal coliform and enterococcus are consistent with the State’s antidegradation policy because the discharge is in compliance with new State Water Board water-contact objectives for bacteria in the Pacific Ocean. In addition, receiving water limitations for bacteria are included to further limit bacteria and to ensure that any increase in the bacteria levels due to cessation of disinfection at Discharge Point 001 (120” outfall) will be maintained below the applicable bacteria water quality standards. Full secondary treatment and these bacteria limitations will ensure that undisinfected effluent discharges will not adversely impact human health and receiving water quality for REC-1 beneficial uses.

The performance goal and mass emission benchmarks are additional incentives for the Discharger to maintain the current treatment quality since they set final effluent targets for the Discharger to meet based on current performance. Most mass emission benchmarks in this Order/Permit are more stringent due to improved performance by full secondary treatment and a basis of lower flow rate (i.e., the average daily influent flow of 206 MGD projected for 2025); however, the

mass emission benchmarks for some constituents (e.g., selenium) have increased due to increased concentrations in the influent and/or more sensitive analysis methods. Since the mass emission benchmarks are based on actual performance and do not exceed the water quality objectives for the receiving water, the increase of any mass emission benchmarks is not expected to result in additional degradation.

Compliance with all permit-specified concentration-based and mass emission-based limits, performance goals, mass emission benchmarks, and the secondary treatment requirements for final effluent discharges in the Order/Permit will result in the use of best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and that the highest water quality consistent with the maximum benefit to the people of the state will be maintained. Additionally, the secondary treatment facilities would support the Groundwater Replenishment System, reduce the effluent discharge volumes to the ocean, and reduce the need for emergency use of Discharge Point 002 (78" short outfall). Therefore, it is believed that these changes would represent socioeconomic and public benefits, and the Discharger meets the goals of the antidegradation policy. Based on these considerations, this Order/Permit is consistent with state and federal antidegradation requirements.

3. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on biochemical oxygen demand (5-day), carbonaceous biochemical oxygen demand (5-day), total suspended solids, and pH which implement the minimum, applicable federal technology-based requirements for POTWs. Also, effluent limitations consisting of restrictions on oil and grease, settleable solids, and turbidity more stringent than federal technology-based limitations are necessary to implement State treatment standards in Ocean Plan Table 4.

Water quality-based effluent limitations (WQBELs) have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. The procedures for calculating the individual WQBELs are based on the Ocean Plan, which was approved by USEPA on February 14, 2006 and has since been further amended. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives 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 § 131.21(c)(1).

Discharge Point 001 WQBELs consisting of restrictions on total chlorine residual, acute toxicity, chronic toxicity, radioactivity, benzidine, hexachlorobenzene,

PCBs, TCDD equivalents, and toxaphene more stringent than federal technology-based limitations are necessary to meet State water quality standards in the Ocean Plan. Discharge Point 002 WQBELs consisting of restrictions on ammonia (as N), total chlorine residual, fecal coliform density, *Enterococcus* density, chronic toxicity, radioactivity, and TCDD equivalents more stringent than federal technology-based limitations are necessary to meet State water quality standards in the Ocean Plan. All effluent limitations are discussed in Attachment F-Fact Sheet. Collectively, the restrictions on individual pollutants in this Order/Permit are no more stringent than required to implement the requirements of the CWA.

E. Final Effluent Limitations for Discharge Points 001 and 002

Table F-14. Summary of Effluent Limitations – Discharge Point 001 (120" outfall)

Parameter	Units	Effluent Limitations[1],[2]					Basis
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]	
Carbonaceous Biochemical Oxygen Demand, 5-day @ 20°C ($CBOD_5$)[5]	mg/L	25	40	–	–	–	Existing/ Secondary treatment standard
	lbs/day	42,951	68,722	–	–	–	
	% removal[6]	≥ 85	–	–	–	–	
Total Suspended Solids (TSS)	mg/L	30	45	–	–	–	Existing/ Secondary treatment standard
	lbs/day	51,541	77,312	–	–	–	
	% removal[6]	≥ 85	–	–	–	–	
pH	standard units	6.0 (instantaneous minimum) – 9.0 (instantaneous maximum)					Existing/ Secondary treatment standard/ Ocean plan
Oil and Grease	mg/L	25	40	–	75	–	Existing/ Ocean Plan
	lbs/day	42,951	68,722	–	128,853	–	
Settleable Solids	ml/L	1.0	1.5	–	3.0	–	Existing/ Ocean Plan
Turbidity	NTU	75	100	–	225	–	Existing/ Ocean Plan
Total chlorine residual	mg/L	–	–	1.45	10.86	0.36	RP
	lbs/day	–	–	2,491	18,658	618	

Parameter	Units	Effluent Limitations[1],[2]					Basis
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]	
Acute toxicity[7]	Pass or Fail	–	–	Pass	–	–	RP/BPJ
Chronic toxicity[7]	Pass or Fail	–	–	Pass	–	–	RP/BPJ
Radioactivity	pCi/L	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.					RP/BPJ Ocean Plan
Benzidine	µg/L	0.0125	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.0215	–	–	–	–	
Hexachloro-benzene	µg/L	0.0380	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.0653	–	–	–	–	
Toxaphene	µg/L	0.0380	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.0653	–	–	–	–	
PCBs[3]	µg/L	0.0034	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.0058	–	–	–	–	
TCDD Equivalents[3]	pg/L	0.7059	–	–	–	–	Inconclusive/ Carry-over
	lbs/day	0.0000012	–	–	–	–	

[1] Mass emission effluent limitations (in lbs/day) are based on the average daily influent flow of 206 MGD projected for 2025, taken from the Discharger's 2017 Master Plan.

[2] The minimum probable initial dilution used to calculate WQBELs for Ocean Plan Table 3 pollutants is 181:1 (D_m = 180).

[3] See Attachment A – Definitions.

[4] The maximum daily effluent limitations shall apply to flow weighted 24-hour composite samples. The instantaneous maximum effluent limitations shall apply to grab samples.

[5] In lieu of the parameter BOD_5 and the BOD_5 levels specified for effluent quality in 40 CFR § 133.102(a)(1), (2), and (3), the parameter $CBOD_5$ and the $CBOD_5$ levels specified for effluent quality in 40 CFR § 133.102(a)(4) are substituted and reported by the Discharger.

[6] In each calendar month, the arithmetic mean of $CBOD_5$ and TSS, by mass, of effluent samples collected at Monitoring Location EFF-001 as described in the MRP, shall not exceed 15 percent of the arithmetic mean of $CBOD_5$ and TSS, by mass, of influent samples

collected at Monitoring Locations INF-001 and INF-002 as described in the MRP, at approximately the same times during the same periods.

[7] The maximum daily effluent limitation shall be reported as "Pass" or "Fail", and "% Effect". See section V of Attachment E.

Table F-15. Summary of Effluent Limitations – Discharge Point 002 (78" outfall)

Parameter	Units	Effluent Limitations[1],[2]					Basis
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]	
Carbonaceous Biochemical Oxygen Demand 5-day @ 20°C ($CBOD_5$)[5]	mg/L	25	40	–	–	–	Existing/ Secondary treatment standard
	lbs/day	47,955	76,728	–	–	–	
	% removal[6]	≥ 85	–	–	–	–	
Total Suspended Solids (TSS)	mg/L	30	45	–	–	–	Existing/ Secondary treatment standard
	lbs/day	57,546	86,319	–	–	–	
	% removal[6]	≥ 85	–	–	–	–	
pH	standard units	6.0 (instantaneous minimum) – 9.0 (instantaneous maximum)					Existing/ Secondary treatment standard/ Ocean plan
Oil and Grease	mg/L	25	40	–	75	–	Existing/ Carry-over; Ocean Plan
	lbs/day	47,955	76,728	–	143,865	–	
Settleable Solids	ml/L	1.0	1.5	–	3.0	–	Existing/ Carry-over; Ocean Plan
Turbidity	NTU	75	100	–	225	–	Existing/ Carry-over; Ocean Plan
Total chlorine residual	mg/L	–	–	0.296	2.22	0.074	RP
	lbs/day	–	–	568	4,258	142	
Ammonia as N	mg/L	–	–	88.8	222	22.2	RP
	lbs/day	–	–	170,336	425,840	42,584	

Parameter	Units	Effluent Limitations[1],[2]					Basis
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]	
Fecal coliform density	MPN /100 mL[7]	A 30-day geometric mean of fecal coliform density not to exceed 7,400 MPN/100 mL; and a single sample maximum not to exceed 14,800 MPN/100 mL.					RP/BPJ Ocean Plan
Enterococcus density	CFU /100 mL[7]	A six-week rolling geometric mean of enterococcus not to exceed 1,110 CFU/100 mL; and a statistical threshold value (STV), corresponding to the 90th percentile of all enterococcus samples collected in a calendar month, not to exceed of 4,070 CFU/100mL.					RP/BPJ Ocean Plan
Chronic toxicity[8]	Pass or Fail	–	–	Pass	–	–	RP/BPJ
Radioactivity	pCi/L	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.					RP/BPJ Ocean Plan
TCDD Equivalents[3]	pg/L	0.14430	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.00000028	–	–	–	–	

[1] Mass emission effluent limitations (in lbs/day) are based on the Discharger's conservative estimate for hydraulic flow capacity of the outfall of 230 MGD.

[2] The minimum probable initial dilution used to calculate WQBELs for Ocean Plan Table 3 pollutants and bacteria is 37:1 (D_m = 36).

[3] See Attachment A – Definitions.

[4] The maximum daily effluent limitations shall apply to flow weighted 24-hour composite samples. The instantaneous maximum effluent limitations shall apply to grab samples.

[5] In lieu of the parameter BOD_5 and the BOD_5 levels specified for effluent quality in 40 CFR § 133.102(a)(1), (2), and (3), the parameter $CBOD_5$ and the $CBOD_5$ levels specified for effluent quality in 40 CFR § 133.102(a)(4) are substituted and reported by the Discharger.

[6] In each calendar month, the arithmetic mean of $CBOD_5$ and TSS, by mass, of effluent samples collected at Monitoring Location EFF-002 or EMG-001 as described in the MRP, shall not exceed 15 percent of the arithmetic mean of $CBOD_5$ and TSS, by mass, of influent samples collected at Monitoring Locations INF-001 and INF-002 as described in the MRP, at approximately the same times during the same periods.

[7] Results may be reported as either MPN/100 mL if the laboratory method used provides results in MPN/100 mL or CFU/100 mL if the laboratory method used provides results in CFU/100 mL.

[8] The maximum daily effluent limitation shall be reported as “Pass” or “Fail”, and “% Effect”. See section V of Attachment E.

F. Interim Effluent Limitations – Not Applicable

G. Land Discharge Specifications – Not Applicable

H. Recycling Specifications – Not Applicable

V. PERFORMANCE GOAL AND MASS EMISSION BENCHMARKS

A. Performance Goal

Section III.F.1, of the 2019 Ocean Plan allows the Santa Ana Water Board to establish more restrictive water quality objectives and effluent limitations than those set forth in the Ocean Plan as necessary for the protection of the beneficial uses of ocean waters.

Pursuant to this provision, performance goals that are more stringent than those based on Ocean Plan objectives are prescribed in this Order/Permit. This approach is consistent with the antidegradation policy in that it requires the Discharger to maintain its treatment level and effluent quality, recognizing normal variations in treatment efficiency and sampling and analytical techniques. However, this approach does not address substantial changes in treatment plant operations that could significantly affect the quality of the treated effluent.

While performance goals were previously placed in many State-issued NPDES permits for POTWs, they have been discontinued for inland surface water discharges. For inland surface waters, the California Toxics Rule (40 CFR § 131.38) has resulted in effluent limitations as stringent as many performance goals. However, the Ocean Plan allows for significant dilution, and the continued use of performance goals serves to maintain existing treatment levels and effluent quality and supports State and federal antidegradation policies.

The performance goals are based upon the last 5-year actual performance of the OC San’s treatment plants and are specified only as an indication of the treatment efficiency of the Facility. The performance goals are not considered enforceable effluent limitations or standards for the regulation of discharge from the treatment facility. They are intended to minimize pollutant loading (primarily for toxics), while maintaining the incentive for future voluntary improvement of water quality whenever feasible, without the imposition of more stringent limits based on improved performance.

The Discharger shall maintain existing treatment levels and the effluent quality at or below the performance goal concentrations. Any two consecutive exceedances of the performance goals shall trigger an investigation into the cause of the exceedance. If the exceedance persists in three successive monitoring periods, the Discharger shall submit a written report to the Santa Ana Water Board and USEPA on the nature of the exceedance and the results of the investigation including the cause of the exceedance.

The Santa Ana Water Board and USEPA recognize that OC San is going through upgrades of treatment plant operations including the GWRS final expansion and

participating in collaborative studies and activities with regional partnerships. This Order/Permit may be reopened to modify any of the performance goals if the Discharger requests and has demonstrated that the change is warranted, including results of completion of the GWRS final expansion.

Procedures for the Determination of Performance Goals

1. For constituents that have been routinely detected in the effluent (at least 20 percent detectable data), performance goals are based on the one-sided, upper 95 percent confidence bound for the 95th percentile of the effluent performance data ($UCB_{95/95}$) from May 2015 through December 2019 using the RPA protocol contained in the 2019 Ocean Plan. Effluent data are assumed log normally distributed. Performance goals are calculated according to the equation $C_{PG} = C_o+D_m(C_o-C_s)$ and setting $C_o = UCB_{95/95}$.

   a. If the maximum detected effluent concentration (MEC) is greater than the calculated performance goal (C_{PG}), then the calculated performance goal (C_{PG}) is used as the performance goal; or

   b. If the MEC is less than the calculated performance goal (C_{PG}), then the MEC is used as the performance goal.

   c. If the performance goal determined in part a or b above is greater than the Water Quality Objective (WQO) in the 2019 Ocean Plan after considering dilution, then the WQO is used as the performance goal.

      For example, the performance goals for arsenic and chloroform at Discharge Point 001 (120" outfall) are calculated as follows:

      Arsenic

      $C_o = UCB_{95/95}$ = 3.02 µg/L ; D_m = 180; C_s = background seawater concentration = 3 µg/L; MEC = 6.91 µg/L; C_{PG} = Performance Goal = (3.02 µg/L) + 180*(3.02 µg/L - 3 µg/L) = 6.62 µg/L.

      Since the MEC of 6.91 µg/L is greater than the calculated PG of 6.62 µg/L, the prescribed performance goal for arsenic is 6.62 µg/L.

      Chloroform

      $C_o = UCB_{95/95}$ = 3.285 µg/L ; D_m = 180; C_s = background seawater concentration = 0 µg/L; MEC = 16.6 µg/L; C_{PG} = Performance Goal = (3.285 µg/L) + 180*(3.285 µg/L - 0 µg/L) = 594.6 µg/L.

      Since the MEC of 16.6 µg/L is less than the calculated PG of 594.6 µg/L, the prescribed performance goal for chloroform is 16.6 µg/L.

2. For constituents where monitoring data have consistently shown nondetectable levels (less than 20 percent detectable data), performance goals are set at the multiplying factor of 2.13 times the Minimum Levels (ML) used for analysis, which is based on statistical procedures outlined in USEPA manual, the *Technical Support Document for Water Quality-Based Toxics Control* (TSD, 1991). These performance goals are estimated assuming a coefficient of variation of 0.6 and the

95 percent confidence interval of the 95th percentile based on an assumed lognormal distribution of daily efficient values (see Table 5-2 of USEPA's TSD)

a. If the MEC is greater than the calculated performance goal based on ML (i.e., 2.13*ML), then the calculated performance goal (i.e., 2.13*ML) is used as the performance goal; or

d. If the MEC is less than the calculated performance goal based on ML (i.e., 2.13*ML), then the MEC is used as the performance goal.

e. If the performance goal determined in part a or b above is greater than the Water Quality Objective (WQO) in the 2019 Ocean Plan after considering dilution, then the WQO is used as the performance goal.

For example, the performance goals for halomethanes and heptachlor at Discharge Point 001 (120" outfall) are calculated as follows:

Halomethanes (5 detected out of 54 samples)

MEC = 1.37 µg/L; ML = 0.2 µg/L; C_{PG} = Performance Goal = 2.13*0.2 = 0.43 µg/L.

Since the MEC of 1.37 µg/L is greater than the calculated PG of 0.43 µg/L, the prescribed performance goal for halomethanes is 0.43 µg/L

Heptachlor (all nondetected)

MEC = NA (all ND); ML = 0.01 µg/L; C_{PG} = Performance Goal = 2.13*0.01 = 0.012 µg/L.

C_o = WQO = 0.00005 µg/L; D_m = 180; C_s = background seawater concentration = 0 µg/L; C_{PG} = Performance Goal = (0.00005 µg/L) + 180*(0.00005 µg/L - 0 µg/L) = 0.009 µg/L.

Since the performance goal based on ML of 0.012 µg/L is greater than the calculated WQO-based performance goal of 0.009 µg/L, so the prescribed performance goal for heptachlor is 0.009 µg/L.

3. For constituents with effluent limitations, if the performance goal derived from the steps, above, exceeds respective effluent limitation, then a performance goal is not prescribed for that constituent.

B. Mass Emission Benchmarks

To address the uncertainty due to potential increases in toxic pollutant loadings from the discharge to the marine environment during the five-year Order/Permit term, and to establish a framework for evaluating the need for an antidegradation analysis to determine compliance with State and federal antidegradation requirements at the time of Order/Permit reissuance, 12-month average mass emission benchmarks have been established for effluent discharged through Discharge Point 001 (120" outfall). These mass emission benchmarks are not enforceable water quality-based effluent limitations. They may be re-evaluated and revised during the five-year Order/Permit term.

The mass emission benchmarks (in metric tons per year; MT/yr) for the discharge were re-evaluated using the same procedures as described above in Section V.A of this Fact Sheet for the calculation of the Performance Goals. The concentration-based Performance Goals were calculated using effluent monitoring data from May 2015 through December 2019 and were converted to mass-based Benchmarks using the Discharger's annual average influent flow of 206 MGD projected for 2025. The following equation was used for the calculation of the Mass Emission Benchmarks:

Mass Emission Benchmark (MT/yr) = (C_{PG} µg/L) x (Q gal/day) x (3.785 L/gal) x (365 days/yr) x (1 MT/10^{12} µg)

where,

C_{PG}: Final performance goal calculated from Section V.A of the fact sheet (µg/L)

Q: Annual average influent flow projected for 2025 = 206×10^{6} gal/day

Most mass emission benchmarks in this Order/Permit are more stringent due to improved performance by completion of full secondary treatment facilities, the use of more sensitive analytical method with lower minimum levels, implementation of an extensive source control pretreatment program, and decreased discharge flowrate (i.e., the projected average daily influent flow reduced from 274 MGD to 206 MGD).

VI. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

The Ocean Plan and Basin Plan contain numeric and narrative water quality standards applicable to surface waters of California. Water quality objectives include a policy to maintain the high-quality waters pursuant to federal regulations (40 CFR § 131.12) and State Water Board Resolution No. 68-16. Receiving water limitations in the Order/Permit are based on the water quality objectives contained in the Ocean Plan chapters II.B, II.C, II.D, II.E, and II.F.

The Ocean Plan was amended in 2018 to revise the bacterial water quality objectives for ocean waters used for water contact recreation, which includes removal of the previously established total coliform objectives and the revised enterococci objectives based on the EPA 2012 Recreational Criteria for marine waters. The previously established fecal coliform objective has been retained as recent epidemiological studies conducted at southern California beaches showed that fecal coliform may be a better indicator of gastrointestinal illness than enterococci during certain types of exposures and environmental conditions. This Order/Permit has established receiving water limitations for bacteria based on these amended objectives in the 2019 Ocean Plan. Bacteria receiving water limitations are necessary to protect human health and the water contact recreation uses of the receiving water.

The Santa Ana Water Board and USEPA has determined that bacterial indicator standards for water contact recreation are applied throughout the water column of the Nearshore Zone (i.e., designated REC-1). Based on Chapter II.B.1 of the Ocean Plan, bacterial indicator standards shall also be maintained throughout the water

column in the Offshore Zone used for water contact sports, as determined by the Santa Ana Water Board and/or USEPA (i.e., waters designated as REC-1), to assure that the discharge does not pose a threat to water contact recreation. Receiving water limitations for enterococcus density in ocean waters beyond the outer limit of the State of California territorial marine waters are based on CWA section 304(a) water quality criteria (i.e., Recreational Water Quality Criteria). These criteria must be achieved beyond the zone of initial dilution in areas where primary contact recreation, as defined in USEPA guidance, occurs. USEPA describes the "primary contact recreation" use as protective when the potential for ingestion of, or immersion in, water is likely. Activities usually include swimming, water-skiing, skin-diving, surfing, and other activities likely to result in immersion (Water Quality Standards Handbook, EPA-823-B-94-005a, 1994, p. 2-2). The nature and extent of primary contact recreational use in federal waters is recorded and reported during water quality monitoring conducted under the receiving water core monitoring program.

B. Groundwater – Not Applicable

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR § 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR § 122.42, are provided in Attachment D of this Order/Permit.

40 CFR § 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. The Order/Permit also incorporates federal conditions that address enforcement authority specified in 40 CFR § 122.41(a)(2) and (3). 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/Permit.

40 CFR § 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR § 123.25, this Order/Permit omits federal conditions that address enforcement authority specified in 40 CFR § 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/Permit incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

The reopener provisions are based on 40 CFR 122.44(c) and 40 CFR § 123.25. The Santa Ana Water Board and USEPA may reopen the Order/Permit to modify conditions and requirements for cause. Causes for modification can include, but are not limited to, the promulgation of new regulations, modification in sludge use or disposal practices, or adoption of new regulations by the State Water Board,

Santa Ana Water Board, or USEPA including revisions to the Ocean Plan and Basin Plan.

2. Southern California Bight Monitoring Exchange

The MRP (Attachment E) may be modified by the Santa Ana Water Board and USEPA to enable the Discharger to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of this permit. The intent of regional monitoring activities is to maximize the efforts of all monitoring partners using a cost-effective monitoring design and to best utilize the pooled scientific resources of the region. During these coordinated monitoring efforts, the Discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of wastewater discharges to the Southern California Bight; however, certain core elements (i.e., monthly water quality monitoring, quarterly REC-1 water quality monitoring, quarterly benthic monitoring, semi-annual trawl fish monitoring, and weekly Orange County Regional Shoreline REC-1 cooperative monitoring) shall remain unchanged. Anticipated modifications to the monitoring program will be coordinated so as to provide a comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollutant sources. If predictable relationships among the biological, water quality and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the Discharger's monitoring effort. Conversely, the monitoring program may be intensified if it appears that the objectives cannot be achieved through the Discharger's existing monitoring program. These changes will improve the overall effectiveness of monitoring in the Southern California Bight. Minor changes may be made without further public notice.

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

a. Toxicity Reduction Requirements

This Order/Permit requires the Discharger to develop procedures to conduct Toxicity Identification and Reduction Evaluations. This provision is based on Chapter III.C.10 of the Ocean Plan. If the discharge consistently exceeds an effluent limitation for toxicity as specified in this Order/Permit, the Discharger shall conduct a Toxicity Reduction Evaluation (TRE) as detailed in section VII.C.3.a of the Order/Permit. The TRE will help the Discharger identify the possible source(s) of toxicity. Once the source(s) of toxicity is identified, the Discharger shall take all reasonable steps to reduce toxicity to the required level.

b. Dilution Model Update

This Permit/Order requires the Discharger to complete an updated dilution analysis for all outfalls as part of its permit application for the next permit reissuance. The Discharger shall update its dilution modeling that is reflective of the future operations upon completion of the GWRS final expansion

project, which includes, but not limited to the increase in RO concentrate and density and lower discharge flow rate. The updated dilution analysis must continue to use near-field modeling to consider how the effluent plumes behave in the zone of initial dilution (ZID) and demonstrate the impacts of final GWRS expansion to dilution under a "reasonable worst-case scenario" (e.g., critical stratification condition).

c. Ocean Outfall Condition Assessment and Scoping Study

As the 120-inch outfall approaches the end of life in 2021, the Discharger is undertaking a condition assessment of the 120-inch ocean outfall (referred to as PS18-09). The project includes removal of accumulated biofouling (i.e., barnacle collar) surrounding the 504 diffuser ports, removal/replacement of manhole covers, the full-length underwater interior inspection of the 120-inch outfall pipe, 3-D scanning and modeling, and analysis of low flow impacts on the diffuser functionality. The first field activity for the 120" inch outfall assessment project (i.e., removal of the barnacles from the outfall ports) was started on July 20, 2020 after the receipt of the Army Corp. of Engineers' permit. OC San also plans to conduct a similar study for Discharge Point 002 (78" outfall) using lessons learned from this 120" outfall condition assessment and scoping study.

Upon completion of each outfall condition assessment project, a summary report of the field work findings, including videographic and/or photographic record of the interior of the outfall, 3-D mapping, and any environmental impacts caused during the field works shall be submitted to the Santa Ana Water Board and USEPA. In addition, a separate analysis report of the impacts of low flows on diffuser hydraulics and plugging shall be provided.

4. Best Management Practices and Pollution Prevention

a. Pollution Minimization Program

This provision is based on the requirements of Chapter III.C.9 of the 2019 Ocean Plan. The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

b. Storm Water Management Plan

This Order/Permit requires the Discharger to update its Storm Water Management Plan to implement the 2015 trash amendments of the Ocean Plan.

5. Construction, Operation, and Maintenance Specifications

This provision is based on the requirements of 40 CFR §122.41(e) and the previous Order/Permit.

a. Roster of Personnel

The Discharger shall update and report annually a roster of personnel who supervises and operates the wastewater treatment plants.

b. Operation and Maintenance Manual

This Order/Permit requires the Discharger to update an Operation and Maintenance Manual prior to start of operations and specifies its periodic updates.

c. Spill Preventive and Contingency Plan (SPCP)

Since spills or overflows are a common event at the POTW, this Order/Permit requires the Discharger to review and update, if necessary, its SPCP whenever there is a change which materially affects the potential for spills or after each incident. The Discharger shall ensure that the up-to-date SPCP is readily available to the sewage system personnel at all times and that the sewage personnel are familiar with it.

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

a. **Biosolids**

To implement CWA section 405(d), on February 19, 1993, USEPA promulgated 40 CFR § 503 to regulate the use and disposal of municipal sewage sludge. This regulation was amended on September 3, 1999. The regulation requires that producers of sewage sludge meet certain reporting, handling, and disposal requirements. It is the responsibility of the Discharger to comply with said regulations that are enforceable by USEPA, because California has not been delegated the authority to implement this biosolid program.

b. **Pretreatment**

This Order/Permit contains pretreatment requirements consistent with applicable effluent limitations, national standards of performance, and toxic and performance effluent standards established pursuant to Sections 208(b), 301, 302, 303(d), 304, 306, 307, 403, 404, 405, and 501 of the CWA, and amendments thereto. This permit contains requirements for the implementation of an effective pretreatment program pursuant to Section 307 of the CWA; 40 CFR § 35 and 403; and/or Section 2233, Title 23, California Code of Regulations.

c. **Collection System**

The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on May 2, 2006. The State Water Board amended the Monitoring and Reporting Program for the General Order through Order WQ 2013-0058-EXEC on August 6, 2013. The General Order requires public agencies that own or operate sanitary sewer systems with sewer lines one mile of pipe or greater to enroll for coverage and comply with the General Order. The General Order requires agencies to develop sanitary sewer management

plans and report all sanitary sewer overflows, among other requirements and prohibitions.

The General Order contains requirements for operation and maintenance 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 General Order by December 1, 2006.

d. **Resource Recovery from Anaerobically Digestible Material**.

Some POTWs choose to accept organic material such as food waste, fats, oils, and grease into their anaerobic digesters for co-digestion to increase production of methane and other biogases for energy production and to prevent such materials from being discharged into the collection system, which could cause sanitary sewer overflows. The California Department of Resources Recycling and Recovery has proposed an exemption from requiring Process Facility/Transfer Station permits where this activity is regulated under waste discharge requirements or NPDES permits. The proposed exemption is restricted to anaerobically digestible material that has been prescreened, slurried, and processed/conveyed in a closed system to be co-digested with regular POTW sludge. The proposed exemption requires that a POTW develop Standard Operating Procedures for the proper handling, processing, tracking, and management of the anaerobically digestible material before it is received by the POTW.

Standard Operating Procedures are required for POTWs that accept hauled food waste, fats, oil, and grease for injection into anaerobic digesters. The development and implementation of Standard Operating Procedures for management of these materials is intended to allow the California Department of Resources Recycling and Recovery to exempt this activity from separate and redundant permitting programs. If the POTW does not accept food waste, fats, oil, or grease for resource recovery purposes, it is not required to develop and implement Standard Operating Procedures.

e. **Ensuring Adequate Treatment Capacity**

The Discharger shall submit a written report to the Santa Ana Water Board and USEPA within 90 days after the monthly average influent flow rate equals or exceeds 75 percent of the secondary design capacity of the POTW to prevent the waste flow exceeding the capacity of the POTW.

f. **Asset Management**

This Order/Permit requires the Discharger to develop an asset management program to cover the POTW.

7. Other Special Provisions

a. **Monitoring Data Accessibility**

This Order/Permit requires the Discharge to make monitoring data accessible to the public via the internet.

8. Compliance Schedules – Not Applicable

VIII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 CFR § 122.41(h), (j)-(*l*), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. California Water Code sections 13267 and 13383 also authorize the Santa Ana Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order 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 for this facility.

The MRP is guided, in part, by the principals, framework, and recommended design for discharge and receiving water monitoring presented in the Ocean Plan and *Model Monitoring Program for Large Ocean Dischargers in Southern California* (SCCWRP Tech. Rep. #357. Southern California Coastal Water Research Project, Westminster, CA. 2002). The conceptual framework for the MRP has three components that comprise a range of spatial and temporal scales: (1) core monitoring, (2) regional monitoring, and (3) strategic process studies.

Core Monitoring. Core monitoring is local in nature and focuses on monitoring trends in quality and effects of the point source discharge. This includes effluent monitoring, as well as many aspects of receiving water monitoring.

Regional Monitoring. Regional monitoring is focused on questions best answered by a region-wide approach that incorporates coordinated survey design and sampling techniques. Key components of regional monitoring include elements to address pollutant mass emission estimates, public health concerns, monitoring trends in natural resources, assessment of regional impacts from all contaminant sources, and beneficial use protection. The final designs of regional monitoring programs are developed by means of steering and technical committees comprised of participating agencies and organizations. For each component of regional monitoring, the MRP specifies the required degree and nature of participation by the Discharger, based upon its past participation in regional monitoring programs.

Strategic Process Studies. Strategic process studies are focused on refined questions regarding specific effects or development of monitoring techniques and are anticipated to be of short duration and/or small scale, although multi-year studies also may be needed. Questions regarding discharge or receiving water quality, discharge impacts, ocean processes in the area of the discharge, or development of techniques for monitoring the same, arising out of the results of core or regional monitoring, may be pursued through strategic process studies. These studies are by nature ad hoc and, typically, cannot be typically anticipated in advance of the five-year permit cycle.

A. Influent Monitoring

Influent monitoring is required to determine compliance with effluent limitations and permit conditions, assess the performance of treatment facilities and evaluate the effectiveness of pretreatment and nonindustrial source control programs.

Influent monitoring in this Order/Permit follows the influent monitoring requirements in the previous Order/Permit with minor changes. The sample type and monitoring frequencies for halomethanes and 1,4-Dichlorobenzene were changed to grab and 1/quarter, respectively, to be consistent with other volatiles constituents. The monitoring frequency for ammonia nitrogen has been changed to weekly for proper self-monitoring as scheduled in Table E-16. The monitoring requirements for tributyltin and TCDD equivalents have been included.

B. Effluent Monitoring

Effluent monitoring is required to determine compliance with effluent limitations and permit conditions, and to identify operational problems and improve treatment facility performance. Effluent monitoring also provides information on discharge characteristics and flows for use in interpreting receiving water monitoring data.

Effluent monitoring requirements also addresses the three management questions for effluent monitoring in *Model Monitoring Program for Large Ocean Discharges in Southern California* (SCCWRP, 2002; Model Monitoring Program):

Is the effluent concentration of selected constituents below levels that will protect human health and aquatic life?

What is the mass of selected constituents that are discharged annually?

Is the effluent concentration or mass changing over time?

Noteworthy changes for this Order/Permit include removal of total coliform monitoring at Discharge Point 002 (78” outfall) due to new bacteria water quality objectives in the 2019 Ocean Plan, more frequent monitoring for nutrient parameters, addition of annual monitoring for total nitrogen and quarterly monitoring for tributyltin, changes in monitoring frequencies for ammonia nitrogen for proper self-monitoring as scheduled in Table E-16, and changes in the sample type and/or monitoring frequencies for halomethanes and 1,4-Dichlorobenzene to be consistent with other volatile constituents.

In addition, effluent monitoring stations have been defined separately, for the effluent discharged to Discharge Point 001 during normal operations as EFF-001 and to Discharge Point 002 during planned essential maintenance or capital improvement projects as EFF-002, in order to determine compliance with each permit limitation and requirement.

C. Whole Effluent Toxicity Testing Requirements

The rationale for WET has been discussed extensively in Section IV.C.5. of this Fact Sheet. Noteworthy WET changes for this Order/Permit include WET testing for Discharge Point 002 (78” outfall) using the TST hypothesis testing approach instead of

NOEC statistical approach. This TST statistical approach is consistent with the Ocean Plan in that it provides maximum protection to the environment since it more reliably identifies chronic toxicity than the previous NOEC hypothesis-testing approach.

D. Receiving Water Core Monitoring

To evaluate potential environmental and human health impacts from its discharge of final effluent into the Pacific Ocean, the Discharger conducts extensive water quality, sediment quality, fish and invertebrate community, and fish health monitoring off the coastal cities of Newport Beach and Huntington Beach, California.

1. Water Quality Monitoring

Offshore water quality monitoring data are used to determine compliance with receiving water limitations and Ocean Plan objectives for physical and chemical parameters, and assist in the interpretation of biological data. Water quality data collected provide the information necessary to demonstrate compliance with the water quality standards.

Water quality monitoring requirements also addresses the two management questions for water quality monitoring in the Model Monitoring Program:

Are water column physical and chemical parameters within ranges that ensure protection of the ecosystem?

What is the fate of the discharge plume?

Monthly water quality monitoring will be carried out over a large grid of 28 stations centered on Discharge Point 001 (120” outfall). The station grid covers from the coastline of Huntington Beach to Newport Beach.

Noteworthy changes for this Order/Permit include the addition of monthly monitoring for nitrate nitrogen to further investigate nutrients driving ocean acidification and the relationship between nutrients discharged through Discharge Point 001 (120” outfall) and harmful algal blooms.

2. REC-1 Water Quality Monitoring (Offshore Zone)

This REC-1 water quality monitoring is designed to determine if Ocean Plan water quality objectives for physical and chemical parameters and bacteria are being met. Data collected at these REC-1 monitoring stations provide the means to determine whether water quality standard and bacteriological objectives for water contact are being met.

REC-1 monitoring requirements also addresses the two management questions for REC-1 monitoring in the Model Monitoring Program:

Does sewage effluent reach water contact zones?

Are densities of bacteria in water contact zones below levels that will ensure public safety?

Quarterly (5-days/30-day period), REC-1 monitoring will be carried out over a picket-line of the 8 stations centered inshore of Discharge Point 001 (120”

outfall), in State waters. The south-to-north station alignment is adjacent to the coastline of Huntington Beach and Newport Beach.

3. Sediment Monitoring

The purpose of sediment monitoring is to map the area of impact and detect spatial and temporal trends in sediment pollutants and benthic infauna in the area of the discharge, and to assess compliance with State water quality standards and federal criteria. The data collected are used for regular assessment of trends in sediment contamination and biological response along a fixed grid of sites within the influence of the discharge.

Sediment monitoring requirements also addresses the two management questions for sediment monitoring in the Model Monitoring Program:

> Are sediments in the vicinity of the discharge impaired? If so, what is the spatial extent of impairment?
>
> Are sediment conditions changing over time?

The previous benthic sampling grid consisted of 29 semi-annual monitoring stations and 39 annual monitoring stations. The previous semi-annual station array is based on a sediment mapping study conducted by the Southern California Coastal Water Research Project (SCCWRP) from 2009 to 2012. This study recommended the design to best capture changes in sediment quality resulting from the effluent discharge.

The investigation into changes in benthic community health as a result of the District's effluent disinfection with chlorine bleach (*Changes in Biological Communities near the OCSD Outfall*, OCSD Marine Monitoring, 2013) revealed that impacts to benthic communities were localized to stations at and near (< 1 km) the 120" outfall diffuser. Impacts were seen at Stations 0, 1, 3, 4, 9, 84, 85, 86, 87, and ZB. All other stations were unaffected even though the degree of impact was severe at near outfall stations. Based on these results and over three decades of monitoring data, a more effective and efficient sediment monitoring station design has been constructed in this Order/Permit as below:

a. Quarterly sampling for sediment chemistry and benthic infauna at 11 stations immediately surrounding the 120" outfall diffuser along the 60-meter contour line, including 3 stations within the ZID boundaries. (Note that these quarterly monitoring stations were the first and the most severely impacted stations by effluent chlorination.)

b. Annual whole sediment toxicity sampling at the 11 quarterly monitoring stations.

c. Annual (summer) sampling for sediment chemistry and benthic infauna at 11 stations located near the outfall and extending northward and southward along the 60-meter contour line.

d. Once per 5 year (1/5-year) sampling for sediment chemistry and benthic infauna at an additional 35 stations centered on Discharge Point 001 (120" outfall) from Huntington Beach to Newport Beach coastlines.

Stations 68, 69, 70,71, 72, 79, 80, 81, and 82 were eliminated as they are redundant to the station design. Downcoast Station C2 and farfield upcoast Station C were also removed as the sediment quality and biological community at these stations have been consistently different from those of other 60 m stations including control station, considering outliers. Therefore, total number of stations is reduced from 68 stations to 57 stations. The reduction in taxonomic and sediment geochemical analyses would enable the Discharger to redirect its efforts toward SPS and special studies to evaluate potential environmental impacts related to increased wastewater reclamation efforts and investigate CEC identification and characterization in effluent and sediments and toward the regional monitoring programs including Bight 18.

With the new sediment monitoring design, the number of stations sampled annually in summer is reduced from 68 to 22, which can reduce the turn-around time for summer data from approximately 9 to 12 months to 3 months, especially for the 11 quarterly stations in all seasons. This will provide a rapid assessment of sediment conditions and a more rapid response to changes in sediment quality and/or benthic infauna community within the monitoring area.

Noteworthy changes for this Order/Permit also include the change in sampling frequency for 35 monitoring stations that previously sampled annually to one-off (i.e., once per 5 years) since these stations are either not directly or not significantly impacted by the effluent discharge. Three (3) stations (i.e., Stations 10, 13, and 37) at the 60-m contour line remains as annual monitoring stations. Sampling these 1/5-year monitoring stations allows long-term trend analysis to continue in these areas where change occurs much more slowly in response to changes in effluent quality than at the outfall diffuser.

4. Demersal Fish and Epibenthic Macroinvertebrate Monitoring

The purpose of demersal fish and epibenthic macroinvertebrate monitoring is to detect spatial and temporal trends in demersal fish and epibenthic community structure, demersal fish liver tissue chemistry and liver histopathology, and sport fish muscle tissue chemistry in the area of the discharge, and to assess compliance with State water quality standards and federal criteria. The demersal fish and epibenthic macroinvertebrate monitoring data collected are used for regular assessment of temporal trends in community structure along an array of sites within the influence of the discharge. The sport fish monitoring data collected are used to provide information necessary for the management of local seafood consumption advisories.

Demersal fish and epibenthic invertebrate monitoring requirements also address the four management questions for fish and epibenthic invertebrate monitoring and seafood safety monitoring in the Model Monitoring Program:

Is the health of fish populations and communities impaired? Are fish populations and communities changing over time? Is fish tissue contamination changing over time?

Are seafood tissue concentrations below levels that will ensure public safety?

Annual demersal fish and epibenthic community monitoring continues to be carried out over a grid of 14 stations upcoast of Discharge Point 001 (120" outfall); of these 14 stations, the 6 stations at the outfall depth (60 meters) are monitored semi-annually. The monitoring area covers approximately 27 square kilometers adjacent to the coastline of Huntington Beach and Newport Beach. Annual demersal fish tissue chemistry monitoring is carried out over two stations upcoast of Discharge Point 001 at the outfall depth. Annual sport fish muscle tissue chemistry monitoring is also conducted in summer at two zones. Noteworthy changes for this Order/Permit are listed below:

a. **Target fish species.** For demersal fish and epibenthic community monitoring, the previous Order/Permit required at least 10 individuals of each target species (i.e., Hornyhead Turbot and English Sole) per station. This Order/Permit allows the Discharger to collect 20 individuals total of flat fish (e.g., Pacific Sanddab, Hornyhead Turbot and English Sole) per station. For sport fish monitoring, the Discharger can collect 10 individuals total of rockfish (e.g., Vermilion Rockfish, Copper Rockfish, and California Scorpionfish) at each rig fish monitoring zone. Kelp bass and Sandbass are removed from the target species list in this Order/Permit because none of these fishes was caught by the Discharger at any of the three rig fishing zones in the past three monitoring periods (2014 – 2016).

b. **Demersal fish tissue chemistry monitoring - Target tissue.** The previous Order/Permit required sampling and analysis of both fish liver and muscle tissues in Hornyhead Turbot and English Sole for the assessment of predator wildlife risk by consuming these two target fish species. Noteworthy change in demersal fish tissue chemistry monitoring for this Order/Permit includes removal of muscle tissue and analysis of contaminants in fish liver tissue only. The concentration of contaminants in demersal fish muscle tissue were relatively negligible for two permit cycles compared with liver tissues, given that liver tissue has higher lipid content than muscle tissue and therefore can bioaccumulate higher concentrations of lipid-soluble contaminants such as PCBs and DDT. It stands to reason that when this demersal fish is consumed whole by a fish predator, it is likely that the predator will acquire considerably higher contaminant loads from liver tissue as compared to muscle tissue, rendering the muscle tissue analysis dispensable.

c. **Chemical analysis changes – Composite sampling**. To monitor bioaccumulation of organic contaminants (i.e., PCBs, DDT, and Chlordane) and metals (i.e., Arsenic, Selenium, and Mercury) in either demersal fish liver tissue or sport fish muscle tissue, composite samples of target fish will be

analyzed instead of individual sample analysis. This composite tissue analysis can minimize the variation between contaminant measurements, increase the ability to detect target compounds that are present in low concentrations, and improve the representativeness of the contaminant measurements at each sampling site, which is also consistent with fish tissue analysis protocols of other POTW ocean monitoring programs within the Southern California Bight.

d. **Monitoring frequency of demersal fish liver histopathology.** Liver histopathology will be conducted on an annual basis instead of once every permit cycle to facilitate rapid detection of potential adverse effects on fish health by the anticipated changes in effluent quality and characteristics with GWRS final expansion (e.g., increased RO concentrate flow). Fish liver histopathology was used in the investigation of effluent chlorination effects and was found to be a useful biomarker of impact and the only significant effect on fish health.

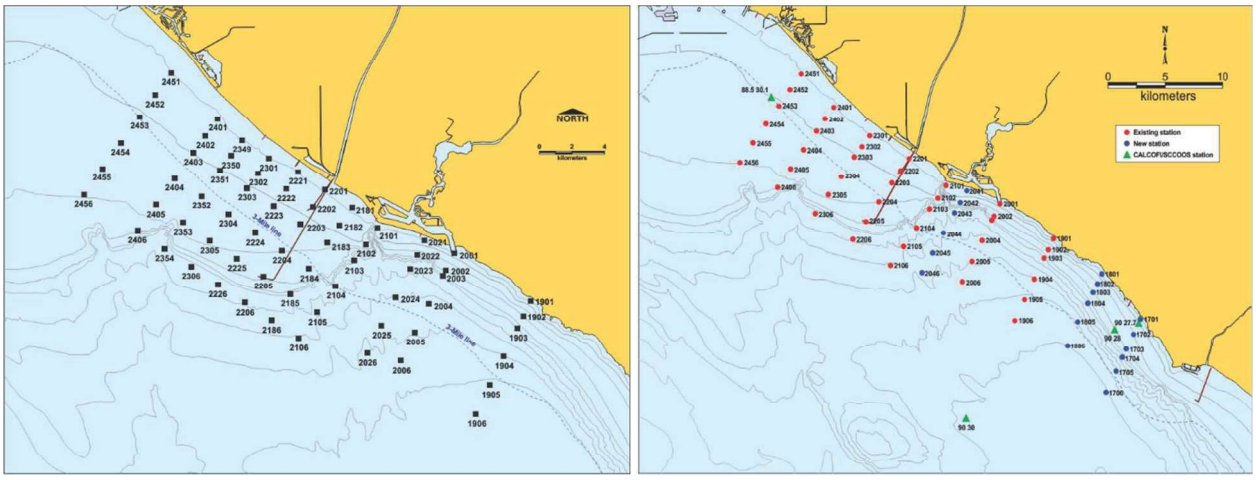
e. **Sport fish monitoring - Farfield reference zone.** The Discharger was not able to catch the number of fish samples required by the previous Order/Permit at the farfield reference zone (Zone 2) in two consecutive years (2014 – 2015) after the issuance of the previous 2012 Order/Permit. After consulting with scientists from the California Department of Fish and Wildlife, the reference zone was relocated to an area near the Huntington Beach oil rigs (Zone 3) as this site only met the species and number of fish requirements among several candidate sites. In this Order/Permit, Zone 2 was replaced with Zone 3 as a farfield reference zone.

E. Receiving Water Regional Monitoring

Discharger participation in regional monitoring programs continues to be a required condition of the Order/Permit. Regional monitoring programs which must be conducted under the Order/Permit include: Southern California Bight Regional Monitoring Program, Southern California Bight Regional Water Quality Program, Central Regional Kelp Survey, Orange County Regional Shoreline REC-1 Cooperative Monitoring Program, and Ocean Acidification and Hypoxia (OAH) Mooring. The Discharger currently participates in all five programs. For the regional monitoring program, collaboration with other water sectors (e.g., water supply, wastewater, groundwater, and stormwater) is encouraged to evaluate implementation of integrated water resource projects that helps achieve sustainable integrated water resources management.

Noteworthy changes for the Southern California Bight Regional Water Quality Program under this Order/Permit include the addition of four field sampling surveys per year, removal of stations transects 2021, 2181, 2221, and 2349 for more equal spacing of transects, and creation of transect lines 1701, 1801, and 2041 to extend sampling downcoast to Dana Point.

Figure F-1. Previous and Current Southern California Bight Regional Water Quality Program Station Transects.



Overall, the number of Southern California Bight Regional Water Quality Program stations were reduced from 66 to 60. The number of Orange County Regional Shoreline REC-1 Cooperative Monitoring Program stations has been changed from 38 to 36 due to removal of two Stations (i.e., OSB02 and ELMORO) at the request of the Orange County Health Care Agency.

F. Strategic Process Studies

Discharger investigations conducted through strategic process studies continues to be a required condition of the Order/Permit. Strategic process studies which must be conducted under the Order/Permit include: ROMS-BEC Ocean Outfall Modeling, Microplastics Characterization, Contaminants of Emerging Concern Monitoring, Sediment Linear Alkylbenzenes, and Meiofauna Baseline. These studies have been approved by the Santa Ana Water Board and USEPA during the term of the 2012 Order/Permit but not yet completed by the Discharger. Additional studies will be proposed over the next permit cycle to ascertain if GWRS final expansion, which will result in lower outfall flows and higher concentration of the final effluent due to RO reject flow, will result in deleterious environmental impacts.

G. Other Monitoring Requirements

1. Contaminants of Emerging Concern (CEC) Monitoring Study

The Discharger shall continue to investigate CECs identification and characterization in the final effluent, listed in Table E-15 of the MRP (Attachment E). The Discharger has annually screened for 15 pharmaceuticals and personal care products (PPCPs), 7 hormones, 7 industrial endocrine disrupting compounds (IEDCs), and 9 flame retardants in the final effluent in the previous permit. In addition, this Order/Permit requires the Discharger to conduct monitoring for new CECs of 6 pesticides and insecticides (i.e., Fipronil, Fipronil Sulfone, Bifenthrin, Total Permethrin, Chlorpyrifos, and Diazinon), 3 flame

retardants (i.e., TDCPP, TCEP, and TCPP) and 12 per- and polyfluoroalkyl substances (PFAS) compounds.

With regard to PFAS compounds, POTWs are potentially significant receivers of PFAS from various sources, including disposal of landfill leachate and firefighting foam, results in PFAS in the influent to POTWs. Typical POTW treatment systems are not designed to remove PFAS, and therefore, the discharge from POTWs, especially those with industrial inputs, are possible contributors of PFAS to the surface waters. Based on the State Water Board's PFAS analytical data obtained from PFAS Investigative Orders, 12 PFAS compounds (i.e., PFDA, PFDoA, PFNA, PFHxA, PFHpA, PFOA, PFTA, PFTrDA, PFUnA, PFBS, PFHxS, and PFOS) are included in this Order/Permit to identify and understand PFAS in wastewater.

2. Outfall and Diffuser System Inspection

This survey investigates the condition of the outfall structures to determine if the structures are in serviceable condition to ensure their continued safe operation. The inspection frequency has been increased to twice per permit term as the 120-inch outfall approaches the end of life in 2021. The data collected will be used for a periodic assessment of the integrity of the outfall pipes and diffuser system.

3. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program

Under the authority of section 308 of the CWA (33 U.S.C. § 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) Per 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.

IX. PUBLIC PARTICIPATION

The Santa Ana Water Board and USEPA have considered the issuance of WDRs and an NPDES permit for OC San. As a step in this process, the Santa Ana Water Board and

USEPA staff have developed a tentative WDRs and draft permit and have encouraged public participation in the reissuance process.

A. Notification of Interested Parties

The Santa Ana Water Board and USEPA have notified the Discharger and interested agencies and persons of their intent to reissue the Order/Permit for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the posting of the Notice and tentative Order/Permit on the Santa Ana Water Board's and USEPA's websites.

The public had access to the agenda and any changes in dates and locations through the Santa Ana Water Board's website at http://www.waterboards.ca.gov/santaana/ and USEPA's website at https://www.epa.gov/npdes-permits/npdes-permits-epas-pacific-southwest-region-region-9.

B. Written Comments

Interested persons were invited to submit written comments concerning the tentative WDRs and NPDES Order/Permit as provided through the notification process. Comments should be submitted either in person or by mail to the Executive Office at the Santa Ana Water Board at the address on the cover page of this Order/Permit, or by email to Ryan.Harris@waterboards.ca.gov or Song.Julie@epa.gov.

To be fully responded to by staff and considered by the Santa Ana Water Board and USEPA, the written comments were due by 5:00 p.m. on March 4, 2021.

C. Public Hearing

The Santa Ana 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:	June 18, 2021
Time:	9 am
Location:	Meeting was remote, due to COVID-19 restrictions.

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

D. Reconsideration of Waste Discharge Requirements

Any aggrieved person by the adoption of the WDRs and Order/Permit may petition the State Water Board to review the decision of the Santa Ana Water Board and USEPA regarding the final WDRs and Order/Permit in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this 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:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition for review, see the Water Quality Petitions Website:
(htttps://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

E. Federal NPDES Permit Appeals

When a final NPDES permit is issued by USEPA, it will become effective 33 days following the date it is mailed to the Discharger, unless a request for review is filed. If a request for review is filed, only those permit conditions which are uncontested will go into effect pending disposition of the request for review. Requests for review must be filed within 33 days following the date the final permit is mailed and must meet the requirements of 40 CFR 124.19. All requests for review should be addressed to the Environmental Appeals Board (EAB) as follows. Requests sent through the U.S. Postal Service (except by Express Mail) must be addressed to the EAB's mailing address, which is:

U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board (MC 1103B) Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001

All filings delivered by hand or courier, including Federal Express, UPS, and U.S. Postal Express Mail, should be directed to the following address:

Environmental Appeals Board
U.S. Environmental Protection Agency Colorado Building
1341 G Street, N.W., Suite 600
Washington, D.C. 20460

Those persons filing a request for review must have filed written comments on the draft federal permit. Otherwise, any such request for review may be filed only to the extent of changes from the draft to the final permit decision.

F. Information and Copying

The Report of Waste Discharge (ROWD), other supporting documents, and comments received are on file and may be inspected by appointment at the Santa Ana Water Board and USEPA addresses on the cover page of this Order/Permit, at any time between 9:00 a.m. and 3:00 p.m., Monday through Friday. Copying of documents may be arranged through either the Santa Ana Water Board by calling (951) 782-4130 or USEPA by calling (415) 972-3035.

G. 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 Santa Ana Water Board, reference this facility, and provide a name, address, and phone number.

H. Additional Information

Requests for additional information or questions regarding this Order/Permit should be directed to the Santa Ana Water Board or USEPA staffs.

Santa Ana Water Board: Ryan Harris at (951) 320-2008 or Ryan.Harris@waterboards.ca.gov.

USEPA: Julie Song at (415) 972-3035 or Song.Julie@epa.gov.

ATTACHMENT G – BIOSOLIDS

As described in section VII.C.6.a of this Order/Permit, the Santa Ana Water Board and USEPA incorporates these biosolids conditions as requirements of this Order/Permit.

I. GENERAL REQUIREMENTS

A. All biosolids generated by the Discharger shall be used or disposed of biosolids generated by the Discharger shall be used or disposed of in compliance with the applicable portions of 40 CFR § 257, 258 and 503, and the applicable State regulations. The Discharger is responsible for assuring that all biosolids produced at the facility are used or disposed of in accordance with these rules, whether the Discharger uses or disposes of the biosolids itself or transfers them to another party for further treatment and use or disposal. The Discharger is responsible for informing subsequent preparers, appliers, and disposers of the requirements that they must meet under these rules, and any monitoring requirements, including required frequencies of monitoring and maximum hold times for pathogen and indicator organism samples.

B. Duty to mitigate. 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, and use or disposal shall not contaminate groundwater.

E. Biosolids treatment, storage, and use or disposal shall be performed in a manner as to minimize nuisances such as objectionable odors or flies.

F. The Discharger shall assure that haulers transporting biosolids off site for further treatment, storage, use, or disposal take all necessary measures to keep the biosolids contained. The Discharger shall maintain and have haulers adhere to a spill clean-up plan. Any spills shall be reported to USEPA and State agency in which the spill occurred. All trucks hauling biosolids that are not Class A, as defined at 40 CFR 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.

G. Trucks used to haul Class B biosolids shall not be used to haul animal feed or food on the return trip, unless approved by USEPA after a demonstration of the truck cleaning methods at the unloading site has been made.

H. If biosolids are stored for over two years from the time they are generated by the Discharger or their contractor, the Discharger must submit a written notification to USEPA with the information in 40 CFR § 503.20(b), demonstrating the need for longer temporary storage.

I. 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 in the site to

escape from the site. Adequate protection is defined as protection from at least a 100-year storm and from the highest tidal stage that may occur.

II. REQUIREMENTS FOR BIOSOLIDS LAND APPLICATION

"Land application" is the placement of biosolids on the land for the specific purpose of growing a crop or other vegetation. Land application requirements are addressed in 40 CFR § 503 subpart B.

A. A representative sample shall be representative sample shall be collected and analyzed for the pollutants required under 40 CFR § 503.13 and for total nitrogen, organic nitrogen, and ammonia nitrogen, at the following frequency, based on the tonnage of biosolids produced per year (as expressed on a 100% solids basis). All results shall be reported on a 100% dry weight basis:

   Less than 290 dry metric tons (dmt)/year: once/year.

   290 to 1,500 dmt/year: once/quarter or 4 samples of accumulated biosolids

   1,500 to 15,000 dmt/year: once/two months or 6 samples of accumulated biosolids.

   Over 15,000 dmt/year: monthly or 12 samples of accumulated biosolids.

B. The Discharger shall demonstrate that the biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed in 40 CFR § 503.32.

C. If Class B is demonstrated by testing fecal coliform, during each sampling event, 7 grab samples must be collected and analyzed, and the geometric mean of these samples calculated to determine the fecal coliform level for the sampling period.

D. When using fecal coliforms to demonstrate Class A, in conjunction with operational parameters or in conjunction with testing of enteric viruses and helminth ova, four grab samples of fecal coliform shall be collected and analyzed each sampling period. Each of these samples must have levels of <1,000 MPN/gram, dry weight basis.

E. If Class A or B pathogen requirements are met by monitoring pathogens and/or indicator organisms, samples must be collected in sterile containers, immediately cooled, and analysis started within the USEPA-specified holding times for these analyses: 8 hours for fecal coliform (24 hours for fecal coliform if the biosolids have been digested or composted), 24 hours for salmonella, 2 weeks for enteric viruses when frozen, 1 month for helminth ova when cooled to 4 degrees C).

F. If pathogen reduction is demonstrated using a Process to Significantly/Further Reduce Pathogens, the Discharger shall maintain daily records of the operating parameters used to achieve this reduction.

G. The Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction (VAR) requirements in 40 CFR § 503.33(b). If VAR is met at the application site by incorporation or covering, the Discharger must obtain certification that these requirements have been met from the land applier or surface disposal site operator, and maintain these with their records.

III. REQUIREMENTS FOR SURFACE DISPOSAL

"Surface disposal" is the placement of biosolids on the land in a sludge-only dedicated land disposal site or monofill for the purpose of disposal. Surface disposal requirements are addressed in 40 CFR § 503 subpart C.

A. If the surface disposal site is unlined, a representative sample shall be collected and analyzed for the pollutants required under 40 CFR § 503.23, at the following frequency, based on the tonnage of biosolids produced per year (as expressed on a 100% solids basis). All results shall be reported on a 100% dry weight basis:

   Less than 290 dry metric tons (dmt)/year: once/year.

   290 to 1,500 dmt/year: once/quarter or 4 samples of accumulated biosolids

   1,500 to 15,000 dmt/year: once/two months or 6 samples of accumulated biosolids.

   Over 15,000 dmt/year: monthly or 12 samples of accumulated biosolids

B. The Discharger shall demonstrate that the biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed in 40 CFR § 503.32, or cover the site at the end of each operating day.

C. If Class B is demonstrated by testing fecal coliform, during each sampling event, 7 grab samples must be collected and analyzed, and the geometric mean of these samples calculated to determine the fecal coliform level for the sampling period.

D. If Class A or B pathogen requirements are met by monitoring pathogens and/or indicator organisms, samples must be collected in sterile containers, immediately cooled, and analysis started within the USEPA-specified holding times for these analyses: 8 hours for fecal coliform (24 hours for fecal coliform if the biosolids have been digested or composted), 24 hours for salmonella, 2 weeks for enteric viruses when frozen, 1 month for helminth ova when cooled to 4 degrees C).

E. If pathogen reduction is demonstrated using a Process to Significantly/Further Reduce Pathogens, the Discharger shall maintain daily records of the operating parameters used to achieve this reduction.

F. The Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction (VAR) requirements in 40 CFR § 503.33(b). If VAR is met at the surface disposal site by incorporation or covering, the Discharger must obtain certification that these requirements have been met from the land applier or surface disposal site operator, and maintain these with their records.

IV. REQUIREMENTS FOR DISPOSAL IN MUNICIPAL LANDFILL

"Disposal in a municipal landfill" is the placement of biosolids in a landfill subject to the requirements in 40 CFR § 258 where it is mixed with other materials being placed in the landfill, or used as alternative daily or final cover at the landfill.

A. The Discharger shall ensure that the landfill used is in compliance with 40 CFR § 258 requirements and applicable State or Tribal requirements.

B. If the biosolids are less than 15% solids, the Discharger shall run a paint filter test on an as-needed basis to demonstrate that the biosolids does not contain free liquids.

V. NOTIFICATION REQUIREMENTS

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

A. Notification of non-compliance: The Discharger shall notify USEPA and the applicable Santa Ana Water Board or State agency of any non-compliance within 24 hours by phone or e-mail if the non-compliance may seriously endanger public health or the environment. A written report shall also be submitted within 5 working days of knowing the non-compliance. For other instances of non-compliance, the Discharger shall notify USEPA and the Santa Ana Water Board of the non-compliance in writing within 5 working days of becoming aware of the non-compliance. The Discharger shall require their biosolids management contractors to notify USEPA and the Santa Ana Water Board of any non-compliance within the same time-frames.

B. If biosolids are shipped to another State or to Tribal Lands, the Discharger shall send 30 days prior notice of the shipment to the USEPA and permitting authorities in the receiving State/Tribal authority.

C. The Discharger shall notify USEPA and the Santa Ana Water Board at least 60 days prior to starting a new biosolids use or disposal practice.

VI. REPORTING REQUIREMENTS

A. The Discharger shall submit an annual biosolids report into USEPA's CDX electronic reporting system, with an electronic copy to the Santa Ana Water Board by email at santaana@waterboards.ca.gov, by February 19 of each year for the period covering the previous calendar year. The report shall include the tonnages of biosolids (reported in dry metric tons, 100% dry weight), that were land applied (without further treatment by another party), land applied after further treatment by another preparer, disposed in a sludge-only surface disposal site, sent to a landfill for alternative cover or fill, stored on site or off site, or used for another purpose. The report shall include the following attachments:

1. Monitoring results from laboratories (results only, QA/QC pages not required). Copies of original lab reports must be available upon request and confirm the results are on a 100% dry weight basis. Lab reports for fecal coliforms must show the time the samples were collected and the time analysis was started.

2. If operational parameters were used to demonstrate compliance with pathogen reduction and vector attraction reduction, the minimum mean of these parameters for each sampling period (i.e., minimum mean cell residence times (MCRTs) and minimum temperatures).

3. If biosolids are stored on-site or off-site for more than 2 years, the information required in 40 CFR § 503.20(b) to demonstrate that the storage is temporary.

B. If biosolids were land applied, the Discharger shall have the person applying the biosolids submit a pdf report to USEPA and State agency showing the name of each field; location, ownership, size in acres; the dates of applications, seedings, harvesting; the tonnage applied to field, in actual and dry weight; the calculated Plant Available Nitrogen; and copies of applier's certifications of management practices and site restrictions.

ATTACHMENT H – PRETREATMENT

As described in section VII.C.6.b of this Order/Permit, the Santa Ana Water Board and USEPA incorporates these pretreatment conditions as requirements of this Order/Permit.

I. GENERAL PRETREATMENT REQUIREMENTS

A. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR § 403, including any subsequent regulatory revisions to Part 403. Where Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within one (1) year from the issuance date of this permit or the effective date of the Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines and other remedies by the USEPA or other appropriate parties, as provided in the Act. USEPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the Act.

B. Prior to the completion of GWRS Final Expansion project, the Discharger shall conduct annual Technical Review of local limits under 40 CFR § 403.5(c)(1) and submit the results as part of the annual pretreatment report. Within two (2) years of the completion of the GWRS Final Expansion project, the Discharger shall provide a written technical evaluation of the need to revise local limits under 40 CFR § 403.5(c)(1), as required in 40 CFR § 122.44(j)(2)(ii).

C. The Discharger shall enforce the requirements promulgated under CWA sections 307(b), 307(c), 307(d) and 402(b) with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic 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 nondomestic user, upon commencement of the discharge.

D. The Discharger shall perform the pretreatment functions as required in 40 CFR § 403 including, but not limited to:

1. Implement the necessary legal authorities as provided in 40 CFR § 403.8(f)(1);
2. Enforce the pretreatment requirements under 40 CFR § 403.5 and 403.6;
3. Implement the programmatic functions as provided in 40 CFR § 403.8(f)(2); and
4. Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR § 403.8(f)(3).

E. The Discharger shall submit annually a report to USEPA and the Santa Ana Water Board describing its pretreatment activities over the previous year. In the event the Discharger is not in compliance with any conditions or requirements of this Order/Permit, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements. This annual report shall cover operations from July 1 through June 30

and is due on October 31st of each year. The report shall contain, but not be limited to, the following information:

1. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under CWA section 307(a) which are known or suspected to be discharged by nondomestic users. This will consist of an annual full priority pollutant scan, with quarterly samples analyzed only for those pollutants detected in the full scan. The Discharger is not required to sample and analyze for asbestos. Sludge sampling and analysis are covered in the sludge section of this Order/Permit. The Discharger shall also provide any influent or effluent monitoring data for nonpriority pollutants which the Discharger believes may be causing or contributing to interference or pass through. Sampling and analysis shall be performed with the techniques prescribed in 40 CFR § 136.
2. A discussion of Upset, Interference or Pass Through incidents, if any, at the treatment plant 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, the corrective actions taken and, if known, the name and address of the nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent pass through or interference.
3. An updated list of the Discharger's significant industrial users (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 limitations.
4. The Discharger shall characterize the compliance status of each SIU by providing a list or table which includes the following information: Name of the SIU; category, if subject to federal categorical standards; type of wastewater treatment or control processes in place; number of samples taken by the POTW during the year; number of samples taken by the SIU during the year; for an SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided; a list of the standards violated during the year, where categorical standards and/or local limits violations are identified; whether the facility is in significant noncompliance (SNC) as defined at 40 CFR § 403.8(f)(2)(viii) at any time during the year; and a summary of enforcement or other actions taken during the year to return the SIU to compliance, where the type of action, final compliance date, and the amount of fines and penalties collected, if any, are described, including any proposed actions for bringing the SIU into compliance.
5. A brief description of any programs the POTW implements to reduce pollutants from nondomestic users that are not classified as SIUs.

6. A brief description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning the program's administrative structure, local limits, monitoring program or monitoring frequencies, legal authority, enforcement policy, funding levels, or staffing levels;
7. A summary of the annual mass emission, and the effluent concentrations and flows used to calculate the annual mass emission (see section V.B of the Order/Permit);
8. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases;
9. A summary of activities to involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 CFR § 403.8(f)(2)(viii); and
10. Results from annual Technical Review of local limits which is conducted under 40 CFR § 403.5(c)(1). See Section I.B of Attachment H.

Santa Ana Regional Water Quality Control Board

July 28, 2021

James Herberg, General Manager
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

WASTE DISCHARGE REQUIREMENTS AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR ORANGE COUNTY SANITATION DISTRICT PUBLICLY OWNED TREATMENT WORKS (RECLAMATION PLANT NO. 1, TREATMENT PLANT NO. 2, COLLECTION SYSTEM AND OUTFALLS), ORDER NO. R8-2021-0010, NPDES NO. CA0110604.

Dear Mr. Herberg:

Enclosed is an original copy of Order No. R8-2021-0010, NPDES Permit No. CA0110604, for your records. The Order includes waste discharge requirements and National Pollutant Discharge Elimination System permit for Orange County Sanitation District's Publicly Owned Treatment Works (Reclamation Plant No. 1, Treatment Plant No. 2, Collection System and Outfalls)..

This Order was adopted by the Santa Ana Water Board during their June 18, 2021 Board meeting. If you have any questions regarding this matter, please contact myself at (951) 320-2008 and/or at Ryan.Harris@waterboards.ca.gov.

Sincerely,

Ryan Harris
Digitally signed by Ryan Harris
Date: 2021.07.28 15:23:14 -07'00'
Water Boards

Ryan L. Harris, PE
Water Resources Control Engineer

Enclosure: Original signed Order No. R8-2021-0010

CC: Dindo Carrillo, DCARRILLO@OCSD.COM
Susan Beeson, Susan.Beeson@waterboards.ca.gov

CIWQS Place ID:
Plant 1 – 758392
Plant 2 – 259158

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

3737 Main Street, Suite 500, Riverside, CA 92501-3348
Phone 951-782-4130 • Fax 951-781-6288
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U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 9

75 Hawthorne Street, San Francisco, CA 94105-3901
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https://www.epa.gov/aboutepa/epa-region-9-pacific-southwest/

ORDER NO. R8-2021-0010
NPDES NO. CA0110604

WASTE DISCHARGE REQUIREMENTS AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR ORANGE COUNTY SANITATION DISTRICT PUBLICLY OWNED TREATMENT WORKS (RECLAMATION PLANT NO. 1, TREATMENT PLANT NO. 2, COLLECTION SYSTEM, AND OUTFALLS)

As set forth in this State Order/federal Permit, the following Discharger (Table 1) is authorized to discharge from the locations listed in Table 2 in accordance with both the State waste discharge requirements (WDRs) and the federal National Pollutant Discharge Elimination System (NPDES) permit requirements. The Order/Permit are consolidated under 40 CFR § 124.4(c)(2).

Table 1. Discharger Information

Discharger	Orange County Sanitation District
Name of Facilities (and POTW)	Reclamation Plant No. 1 (Fountain Valley), collection system and outfalls
	Treatment Plant No. 2 (Huntington Beach), collection system and outfalls
Facility Addresses	10844 Ellis Avenue, Fountain Valley, CA 92708-7018
	22212 Brookhurst Street, Huntington Beach, CA 92646-8406
	Orange County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001 (120” Outfall)	Secondary treated effluent and reverse osmosis concentrate	33° 34' 36" N	118° 00' 36" W	Pacific Ocean (4.5 miles offshore)
002 (78” Outfall)	Secondary treated effluent and reverse osmosis concentrate	33° 36' 56" N	117° 58' 13" W	Pacific Ocean (1.5 miles offshore)
003 (Santa Ana River Overflow Weirs)	Secondary treated effluent and reverse osmosis concentrate	33° 38' 06" N	117° 57' 20" W	Santa Ana River

Table 3. Administrative Information for State WDRs

This Order was adopted on:	**June 18, 2021**
This Order shall become effective on:	**August 1, 2021**
This Order shall expire on:	**July 31, 2026**
The Discharger shall file a ROWD as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a NPDES permit no later than:	**February 1, 2026**
The USEPA and California Regional Water Quality Control Board, Santa Ana Region have classified this discharge as follows:	**Major**

I, Hope A. Smythe, Executive Officer, do hereby certify that this State Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on the date indicated above.

Hope Smythe
Digitally signed by Hope Smythe
Date: 2021.06.21 11:36:38 -07'00'
Water Boards

Hope A. Smythe, Executive Officer

Table 4. Administrative Information for Federal NPDES Permit

This Permit was issued on:	**Date of signature below**
This Permit shall become effective on:	**August 1, 2021**
This Permit shall expire on:	**July 31, 2026**
The Discharger shall file an application for reissuance of a NPDES permit in accordance with 40 CFR § 122.21(d) no later than:	**February 1, 2026**
The USEPA has classified this discharge as follows:	**Major**

This federal NPDES Permit is signed and issued on the date indicated above, for the Regional Administrator.

TOMAS TORRES

Digitally signed by TOMAS TORRES
Date: 2021.06.23 15:55:32 -07'00'

Tomás Torres, Water Division Director

CONTENTS

I. Facility Information 7
II. Findings 7
III. Discharge Prohibitions 8
IV. Effluent Limitations and Discharge Specifications 10
A. Discharge Specifications – Discharge Points 001 and 002 10
B. Effluent Limitations – Discharge Points 001 and 002 10
1. Final Effluent Limitations – Discharge Point 001 (120” outfall) 11
2. Final Effluent Limitations – Discharge Point 002 (78” outfall) 13
3. Interim Effluent Limitations – Not Applicable 16
C. Land Discharge Specifications – Not Applicable 16
D. Recycling Specifications – Not Applicable 16
V. Performance Goals and Mass Emission Benchmarks 16
A. Performance Goals – Discharge point 001 16
B. Mass Emission Benchmarks – Discharge point 001 17
VI. Receiving Water Limitations 21
A. Surface Water Limitations 21
B. Groundwater Limitations – Not Applicable 24
VII. Provisions 24
A. Standard Provisions 24
B. Monitoring and Reporting Program (MRP) Requirements 26
C. Special Provisions 26
1. Reopener Provisions 26
2. Southern California Bight Monitoring Exchange 27
3. Special Studies, Technical Reports and Additional Monitoring Requirements 28
4. Best Management Practices and Pollution Prevention 31
5. Construction, Operation and Maintenance Specifications 32
6. Special Provisions for Publicly-Owned Treatment Works (POTWs) 33
7. Other Special Provisions 35
8. Compliance Schedules – Not Applicable 36
VIII. Compliance Determination 36

TABLES

Table 1. Discharger Information 1
Table 2. Discharge Location 2
Table 3. Administrative Information for State WDRs 3
Table 4. Administrative Information for Federal NPDES Permit 4
Table 5. Effluent Limitations – Discharge Point 001 (120” outfall) 11
Table 6. Effluent Limitations – Discharge Point 002 (78” outfall) 13
Table 7. Performance Goals and Mass Emission Benchmarks – Discharge point 001 17

ATTACHMENTS

Attachment A – Definitions A-1
Attachment B – Map B-1
Attachment C – Flow Schematic C-1
Attachment D – Standard Provisions D-1
Attachment E – Monitoring and Reporting Program E-1
Attachment F – Fact Sheet F-1
Attachment G – Biosolids G-1
Attachment H – Pretreatment H-1

I. FACILITY INFORMATION

Information describing the Orange County Sanitation District (hereinafter "OC San", "Permittee" or "Discharger") is summarized in Tables 1 and 2, and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter "Santa Ana Water Board") and the United States Environmental Protection Agency, Region 9 (hereinafter "USEPA") find:

A. Legal Authorities. This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (CWC; commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) (Public Law 92-500, as amended, 33 U.S.C. 1251 et seq.) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the CWC (commencing with section 13370). It shall serve as the State's National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge locations described in Table 2, subject to the WDRs in this Order (hereinafter "Order"). The Order/Permit are consolidated under 40 CFR § 124.4(c)(2).

Although Discharge Point 001 is beyond the limit of State-regulated ocean waters, effluent plume migration into State waters warrants joint regulation of the discharge by USEPA and the Santa Ana Water Board. Therefore, pursuant to 40 CFR § 124.4, this Order shall serve as a joint consolidated State and federal NPDES Permit authorizing the Discharger to discharge into waters of the United States at the discharge locations described in Table 2, subject to the limitations, conditions and all other requirements set forth herein (hereinafter "Order/Permit"). The Permit is both a federal permit and a state permit by operation of law.

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

C. Permit Renewal Contingency. The Discharger's federal NPDES Permit renewal is contingent upon:

1. Determination by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) that the discharge is consistent with the federal Endangered Species Act (ESA) of 1973, as amended (16 U.S. Code (U.S.C.) section 1531 et seq.);

2. Determination by the NOAA NMFS that the proposed discharge is consistent with the Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976, as amended (16 U.S.C. section 1801 et seq.);
3. Determination by the California Coastal Commission (CCC) that the proposed discharge is consistent with the Coastal Zone Management Act (CZMA) of 1972, as amended (16 U.S.C. section 1451 et seq.); and
4. The Santa Ana Water Board's certification/concurrence that the discharge will comply with applicable State water quality standards.

D. Notification of Interested Parties. The Santa Ana Water Board and USEPA have notified the Discharger and interested agencies and persons of their intent to jointly issue consolidated WDRs and NPDES Permit requirements; and has provided an opportunity to submit written comments and recommendations. Details of the notification are provided in the Fact Sheet and the joint public notice for this Order/Permit.

E. Consideration of Public Comment. The USEPA considered all written comments pertaining to the discharge. The Santa Ana Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Santa Ana Water Board's Public Hearing are provided in the Fact Sheet (Attachment F).

THEREFORE, IT IS HEREBY ORDERED, that this Order/Permit supersedes Order No. R8-2012-0035 except for enforcement purposes, and, 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/Permit. This action in no way prevents the Santa Ana Water Board and/or USEPA from taking enforcement action for violations of the previous Order/Permit.

III. DISCHARGE PROHIBITIONS

A. The discharge of waste/pollutants in a manner or at locations that have not been specifically authorized by this Order/Permit is prohibited.

B. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste into the ocean is prohibited.

C. Waste shall not be discharged to designated Areas of Special Biological Significance, except as provided in Chapter III.E of the Ocean Plan (i.e., Implementation Provisions for Marine Managed Areas).

D. Pipeline discharge of sludge to the ocean is prohibited by federal law; the discharge of municipal and industrial waste sludge directly to the ocean, or into a waste stream that discharges to the ocean, is prohibited by the California Ocean Plan. The discharge of sludge digester supernatant directly to the ocean, or to a waste stream that discharges to the ocean without further treatment, is prohibited.

E. The bypassing of untreated wastes containing concentrations of pollutants in excess of those in Table 4 or Table 3 of the California Ocean Plan to the ocean is prohibited.

F. The discharge of trash to surface waters of the State or the deposition of trash where it may be discharged into surface waters of the State is prohibited.

G. Discharge at Discharge Point 001 (120" outfall) is prohibited when the discharge does not receive a minimum initial dilution of at least 181:1 (D_m = 180), as modeled assuming no currents. Compliance shall be achieved by proper operation and maintenance of the discharge outfall to ensure that it (or its replacement, in whole or part) is in good working order and is consistent with, or can achieve better mixing than, 181:1. The Discharger shall notify the Santa Ana Water Board and USEPA if outfall ports will be retrofitted, as the 181:1 dilution assumes all outfall ports are operational.

H. Unless regulated by appropriate waste discharge requirements, the discharge to surface or groundwaters of waste which contains the following substances is prohibited: toxic substances or materials; pesticides; PCBs (polychlorinated biphenyls); mercury or mercury compounds; radioactive substances or material in excess of levels allowed by the California Code of Regulations. This list is not necessarily all-inclusive.

I. The discharge of untreated sewage to any surface water stream, natural or man-made, or to any drainage system intended to convey storm water runoff to surface water streams is prohibited.

J. The discharge of treated sewage to streams, lakes or reservoirs, or to tributaries thereto, which are designated MUN and which are used as a domestic water supply is prohibited unless approved by the California Department of Public Health. The discharge of treated sewage to waterbodies which are excepted from MUN (Basin Plan Table 3-1) but which are tributary to waters designated MUN and are used as a domestic water supply is prohibited unless the discharge of treated sewage to the drinking water supply is precluded or approved by the California Department of Public Health.

K. The discharge of wastewater to a water of the United States from any locations other than Discharge Point 001 (120" outfall) is prohibited, except during the following situations:

   1. Emergency discharge of disinfected secondary effluent and/or reverse osmosis (RO) concentrate to Discharge Point 002 (78" outfall) when the flow rate exceeds the hydraulic capacity of Discharge Point 001, provided that discharges through Discharge Point 001 (120" outfall) and discharges to Orange County Water District (OCWD)'s water recycling facilities are maximized to a functional capacity that is necessary to prevent infrastructure or equipment damage before wastewater is discharged through Discharge Point 002;

   2. Emergency discharge of disinfected secondary effluent and/or RO concentrate to Discharge Point 003 (Santa Ana River overflow weirs) in the event of an extreme emergency (e.g., tsunami, earthquake, flood, and acts of war or terrorism) that precludes discharging all wastewater to Discharge Points 001 and 002, provided that discharges through Discharge Points 001 (120" outfall) and 002 (78" outfall) are maximized before wastewater is discharged through Discharge Point 003; or

3. Discharge of disinfected secondary effluent and/or RO concentrate to Discharge Point 002 (78" outfall) during planned essential maintenance or capital improvement projects to assure efficient operation of Discharge Point 001 (120" outfall) when there is no other feasible alternative.

The Santa Ana Water Board Executive Officer and USEPA Water Division Director are notified of the pending discharge as soon as possible. During a planned diversion such as essential maintenance or capital improvement projects, this notification shall be submitted a minimum of 10 days prior to diverting flow to Discharge Point 002 (78" outfall), and include the rationale for the discharge, the expected time, date, and the duration of the discharge. Projects warranting such a diversion must be approved by the Santa Ana Water Board Executive Officer and USEPA Water Division Director prior to diverting flow to Discharge Point 002. The Discharger shall take all steps required by the Santa Ana Water Board Executive Officer or USEPA Water Division Director to minimize any harm resulting from the discharge.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Discharge Specifications – Discharge Points 001 and 002

1. Waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
2. Waste discharged to the ocean must be essentially free of: Material that is floatable or will become floatable upon discharge; settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life; substances which will accumulate to toxic levels in marine waters, sediments or biota; substances that significantly decrease the natural light to benthic communities and other marine life; and materials that result in aesthetically undesirable discoloration of the ocean surface.
3. Waste effluents shall be discharged in a manner which provides sufficient initial dilution (D_m = 180 for Discharge Point 001 and D_m = 36 for Discharge Point 002), with exception of radioactivity, to minimize the concentrations of substances not removed in the treatment.
4. Waste that contains pathogenic organisms or viruses should be discharged a sufficient distance from naturally occurring shellfishing and water contact sports are to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. Disinfection procedures at Discharge Point 002 (78" outfall) that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

B. Effluent Limitations – Discharge Points 001 and 002

1. Final Effluent Limitations – Discharge Point 001 (120" outfall)

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

Table 5. Effluent Limitations – Discharge Point 001 (120" outfall)

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Carbonaceous Biochemical Oxygen Demand, 5-day @ 20°C ($CBOD_5$)[5]	mg/L	25	40	–	–	–	–
	lbs/day	42,951	68,722	–	–	–	–
	% removal[6]	≥ 85	–	–	–	–	–
Total Suspended Solids (TSS)	mg/L	30	45	–	–	–	–
	lbs/day	51,541	77,312	–	–	–	–
	% removal[6]	≥ 85	–	–	–	–	–
pH	standard units	–	–	–	6.0	9.0	–
Oil and Grease	mg/L	25	40	–	–	75	–
	lbs/day	42,951	68,722	–	–	128,853	–
Settleable Solids	ml/L	1.0	1.5	–	–	3.0	–
Turbidity	NTU	75	100	–	–	225	–
Total chlorine residual	mg/L	–	–	1.45	–	10.86	0.36
	lbs/day	–	–	2,491	–	18,658	618
Acute toxicity[7]	Pass or Fail	–	–	Pass	–	–	–
Chronic toxicity[7]	Pass or Fail	–	–	Pass	–	–	–
Radioactivity	pCi/L	[8]					
Benzidine	µg/L	0.0125	–	–	–	–	–
	lbs/day	0.0215	–	–	–	–	–

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Hexachloro-benzene	µg/L	0.0380	–	–	–	–	–
	lbs/day	0.0653	–	–	–	–	–
Toxaphene	µg/L	0.0380	–	–	–	–	–
	lbs/day	0.0653	–	–	–	–	–
PCBs[3]	µg/L	0.0034	–	–	–	–	–
	lbs/day	0.0058	–	–	–	–	–
TCDD Equivalents[3]	pg/L	0.7059	–	–	–	–	–
	lbs/day	0.0000012	–	–	–	–	–

Notes:

[1] Mass emission effluent limitations (in lbs/day) are based on the average daily influent flow of 206 MGD projected for 2025, taken from the Discharger's 2017 Master Plan.

[2] The minimum probable initial dilution used to calculate WQBELs for Ocean Plan Table 3 pollutants is 181:1 (D_m=180).

[3] See Attachment A – Definitions.

[4] The maximum daily effluent limitations shall apply to flow weighted 24-hour composite samples. The instantaneous maximum/minimum effluent limitations shall apply to grab samples.

[5] In lieu of the parameter BOD_5 and the BOD_5 levels specified for effluent quality in 40 CFR § 133.102(a)(1), (2), and (3), the parameter $CBOD_5$ and the $CBOD_5$ levels specified for effluent quality in 40 CFR § 133.102(a)(4) are substituted and reported by the Discharger.

[6] In each calendar month, the arithmetic mean of $CBOD_5$ and TSS, by mass, of effluent samples collected at Monitoring Location EFF-001 as described in the MRP, shall not exceed 15 percent of the arithmetic mean of $CBOD_5$ and TSS, by mass, of influent samples collected at Monitoring Locations INF-001 and INF-002 as described in the MRP, at approximately the same times during the same periods.

[7] The maximum daily effluent limitation shall be reported as "Pass" or "Fail", and "% Effect". See section IV.B.1.b-c below and section V of Attachment E.

[8] Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

b. **Acute Toxicity:** The acute toxicity WQBEL for Discharge Point 001 (120" outfall) is expressed as a null hypothesis (H_0) and regulatory management decision (*b* value) of 0.80 for the acute toxicity methods in Attachment E of this Order/Permit. The null hypothesis for this discharge is:

H_0: Mean response (5.56% effluent) ≤ 0.80 mean response (Control).

Results obtained from an acute toxicity test shall be analyzed using the Test of Significant Toxicity (TST) statistical approach (EPA 833-R-10-003, 2010; Appendix A). Compliance with this acute toxicity WQBEL is demonstrated by rejecting the null hypothesis and reporting "0" = "Pass".

Percent Effect" (or Effect, in %) = [(Control mean response – IWC mean response) ÷ Control mean response)] ×100

c. **Chronic Toxicity:** The chronic toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_0) and regulatory management decision (*b* value) of 0.75 for the chronic toxicity methods in Attachment E of this Order/Permit. The null hypothesis for this discharge is:

H_0: Mean response (0.556% effluent) ≤ 0.75 mean response (Control).

Results obtained from a chronic toxicity test shall be analyzed using the TST statistical approach (EPA 833-R-10-003, 2010; Appendix A). Compliance with this acute toxicity WQBEL is demonstrated by rejecting the null hypothesis and reporting "0" = "Pass".

Percent Effect" (or Effect, in %) = [(Control mean response – IWC mean response) ÷ Control mean response)] ×100

2. Final Effluent Limitations – Discharge Point 002 (78" outfall)

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 002 (78" outfall), with compliance measured at Monitoring Location EFF-002 or EMG-001 as described in the Monitoring and Reporting Program, Attachment E:

Table 6. Effluent Limitations – Discharge Point 002 (78" outfall)

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Carbonaceous Biochemical Oxygen Demand 5-day @ 20°C ($CBOD_5$)[5]	mg/L	25	40	–	–	–	–
	lbs/day	47,955	76,728	–	–	–	–
	% removal[6]	≥ 85	–	–	–	–	–

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Total Suspended Solids (TSS)	mg/L	30	45	–	–	–	–
	lbs/day	57,546	86,319	–	–	–	–
	% removal[6]	≥ 85	–	–	–	–	–
pH	standard units	–	–	–	6.0	9.0	–
Oil and Grease	mg/L	25	40	–	–	75	–
	lbs/day	47,955	76,728	–	–	143,865	–
Settleable Solids	ml/L	1.0	1.5	–	–	3.0	–
Turbidity	NTU	75	100	–	–	225	–
Total chlorine residual	mg/L	–	–	0.296	–	2.22	0.074
	lbs/day	–	–	568	–	4,258	142
Ammonia as N	mg/L	–	–	88.8	–	222	22.2
	lbs/day	–	–	170,336	–	425,840	42,584
Fecal coliform density	MPN /100 mL[7]	[8]					
Enterococcus density	CFU /100 mL[7]	[8]					
Chronic toxicity[9]	Pass or Fail	–	–	Pass	–	–	–
Radioactivity	pCi/L	[10]					
TCDD Equivalents[3]	pg/L	0.1443	–	–	–	–	–
	lbs/day	0.00000028	–	–	–	–	–

Parameter	Units	Effluent Limitations[1],[2]					
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Minimum[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]
Notes:	[1] Mass emission effluent limitations (in lbs/day) are based on the Discharger's conservative estimate for hydraulic flow capacity of the outfall of 230 MGD. [2] The minimum probable initial dilution used to calculate WQBELs for Ocean Plan Table 3 pollutants and bacteria is 37:1 (D_m=36). [3] See Attachment A – Definitions. [4] The maximum daily effluent limitations shall apply to flow weighted 24-hour composite samples. The instantaneous maximum/minimum effluent limitations shall apply to grab samples. [5] In lieu of the parameter BOD_5 and the BOD_5 levels specified for effluent quality in 40 CFR § 133.102(a)(1), (2), and (3), the parameter $CBOD_5$ and the $CBOD_5$ levels specified for effluent quality in 40 CFR § 133.102(a)(4) are substituted and reported by the Discharger. [6] In each calendar month, the arithmetic mean of $CBOD_5$ and TSS, by mass, of effluent samples collected at Monitoring Location EFF-002 or EMG-001 as described in the MRP, shall not exceed 15 percent of the arithmetic mean of $CBOD_5$ and TSS, by mass, of influent samples collected at Monitoring Locations INF-001 and INF-002 as described in the MRP, at approximately the same times during the same periods. [7] Results may be reported as either Most Probable Number (MPN)/100 mL if the laboratory method used provides results in MPN/100 mL or Colony Forming Units (CFU)/100 mL if the laboratory method used provides results in CFU/100 mL. [8] See section IV.B.2.b below for the effluent limitations for fecal coliform density and e*nterococcus* density. [9] The maximum daily effluent limitation shall be reported as "Pass" or "Fail", and "% Effect". See section IV.B.2.c below and section V of Attachment E. [10] Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.						

b. **Bacteria Water Quality Based Effluent Limitations (WQBELs):** The discharge at Discharge Point 002 (78" outfall) shall meet the following effluent limitations for fecal coliform density and *enterococcus* density, with compliance measured at Monitoring Location EFF-002 or EMG-001, as described in the MRP:

Fecal Coliform

1. The 30-day geometric mean of fecal coliform density shall not exceed 7,400 MPN/100 mL, calculated based on the five most recent samples; and
2. The single sample maximum shall not exceed 14,800 MPN/100 mL.

Enterococcus

1. The six-week rolling geometric mean of enterococcus bacteria, calculated weekly, shall not exceed 1,110 CFU/100 mL or MPN/100 mL; and
2. No more than 10 percent of all enterococcus bacteria samples collected in a calendar month shall exceed a statistical threshold value of 4,070 CFU/100 mL or MPN/100 mL.

Compliance with these enterococcus limits shall be evaluated as follows:

- Six-week rolling geometric mean. Compliance with this limit shall be determined weekly by calculating the geometric mean of all enterococcus sample results from the past six weeks.
- 10 percent of sample. Compliance with this limit shall be determined based on measured sample results. The Discharger shall not report interpolated results. If the Discharger has 9 or fewer sample results in a calendar month, compliance shall be based on the highest result. If the Discharger has 10 to 19 sample results, compliance shall be based on the second highest result, and so on.

c. **Chronic Toxicity:** The chronic toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_0) and regulatory management decision (*b* value) of 0.75 for the chronic toxicity methods in Attachment E – Monitoring and Reporting Program. The null hypothesis for this discharge is:

H_0: Mean response (2.78% effluent) ≤ 0.75 mean response (Control).

Results obtained from a chronic toxicity test shall be analyzed using the TST statistical approach (EPA 833-R-10-003, 2010; Appendix A). Compliance with this chronic toxicity WQBEL is demonstrated by rejecting the null hypothesis and reporting “0” = “Pass”.

Percent Effect” (or Effect, in %) = [(Control mean response – IWC mean response) ÷ Control mean response)] ×100

3. Interim Effluent Limitations – Not Applicable

C. Land Discharge Specifications – Not Applicable

D. Recycling Specifications – Not Applicable

V. PERFORMANCE GOALS AND MASS EMISSION BENCHMARKS

A. Performance goals – Discharge point 001

The performance goals for Discharge Point 001 (120” outfall) are prescribed below in Table 7 in this Order/Permit. Performance goals are based upon last 5-year actual

performance data for the OC San's secondary treatment plants and are specified only as an indication of the treatment efficiency of the plants. The performance goals are not considered enforceable effluent limitations or standards for the regulation of discharge from the treatment facility.

The Discharger shall maintain existing treatment levels and the effluent quality at or below the performance goal concentrations. Any two consecutive exceedances of the performance goals shall trigger an investigation into the cause of the exceedance. If the exceedance persists in three successive monitoring periods, the Discharger shall submit a written report to the Santa Ana Water Board and USEPA on the nature of the exceedance, the results of the investigation including the cause of the exceedance.

The Santa Ana Water Board and USEPA may reopen the Order/Permit to modify any of the performance goals if the Discharger submits a request and demonstrates that the change is warranted, including results of completion of GWRS final expansion.

B. Mass Emission Benchmarks – Discharge point 001

The following 12-month average mass emission benchmarks for Discharge Point 001 (120" outfall) are prescribed below in Table 7. For each parameter with a mass emission benchmark, the Discharger shall report the annual mass emission and the effluent concentrations and flows used to calculate the annual mass emission in the annual pretreatment report and annual receiving water monitoring report (effluent chapter).

These mass emission benchmarks are not enforceable water quality-based effluent limitations. They may be re-evaluated and revised during the five-year permit term. For this Order/Permit, the mass emissions benchmarks (in metric tons per year; MT/yr) were determined based on 2015 through 2019 effluent mass emission and the Discharger's annual average influent flow of 206 MGD projected for 2025 (see section V of the fact sheet in Attachment F).

Table 7. Performance Goals and Mass Emission Benchmarks – Discharge point 001

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
Marine Aquatic Life Toxicants		
Arsenic, total recoverable	6.62	1.88
Cadmium, total recoverable	0.24	0.07
Chromium (VI)[1]	1.55	0.44
Copper, total recoverable	18.31	5.21
Lead, total recoverable	0.62	0.18
Mercury, total recoverable	0.0071	0.002
Nickel, total recoverable	23.50	6.69
Selenium, total recoverable	21.90	6.23

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
Silver, total recoverable	0.16	0.05
Zinc, total recoverable	46.01	13.09
Cyanide, total recoverable[2]	5.88	1.67
Ammonia as Nitrogen	36,743	10,457
Total Chlorine Residual[3]	--	38.09
Non-chlorinated Phenols[4]	1.56	0.44
Chlorinated Phenols[4]	0.54	0.15
Endosulfan[4]	0.011	0.003
Endrin	0.021	0.006
Hexachlorocyclohexane (HCH)[4]	0.011	0.003
Radioactivity[3]	--	--
Human Health Toxicants – Non-Carcinogens		
Acrolein	10.65	3.03
Antimony	2.54	0.72
Bis(2-chloroethoxy) methane	10.65	3.03
Bis(2-chloroiso-propyl)ether	4.26	1.21
Chlorobenzene	4.26	1.21
Chromium (III)[1]	1.55	0.44
Di-n-butyl-phthalate	1.80	0.51
Dichlorobenzenes[4]	2.13	0.61
Diethyl phthalate	0.76	0.22
Dimethyl phthalate	4.26	1.21
4,6-dinitro-2-methylphenol	10.65	3.03
2,4-dinitrophenol	10.65	3.03
Ethylbenzene	4.26	1.21
Fluoranthene	2.13	0.61
Hexachlorocyclopentadiene	10.65	3.03
Nitrobenzene	0.38	0.11
Thallium	0.20	0.06
Toluene	0.19	0.05

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
Tributyltin	0.25	0.07
1,1,1-Trichloroethane	4.26	1.21
Human Health Toxicants – Carcinogens		
Acrylonitrile	4.26	1.21
Aldrin	0.004	0.001
Benzene	4.26	1.21
Benzidine[3]	--	0.004
Beryllium	1.07	0.30
Bis(2-chloroethyl) ether	2.13	0.61
Bis(2-ethylhexyl) phthalate	3.90	1.11
Carbon tetrachloride	4.26	1.21
Chlordane[4,5]	0.004	0.001
Chlorodibromomethane	4.25	1.21
Chloroform	16.60	4.72
DDT[4]	0.011	0.003
1,4-dichloro-benzene	0.43	0.12
3,3'-dichloro-benzidine	1.47	0.42
1,2-dichloroethane	4.26	1.21
1,1-dichloro-ethylene	4.26	1.21
Dichlorobromomethane	8.98	2.56
Dichloro-methane	4.26	1.21
1,3-dichloropropene	4.26	1.21
Dieldrin	0.007	0.002
2,4-dinitrotoluene	10.65	3.03
1,2-diphenyl-hydrazine	2.13	0.61
Halomethanes	0.43	0.12
Heptachlor	0.009	0.003
Heptachlor epoxide	0.004	0.001
Hexachlorobenzene[3]	--	0.01
Hexachlorobutadiene	2.13	0.61
Hexachloroethane	2.13	0.61

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
Isophorone	2.13	0.61
N-Nitroso-dimethylamine	10.65	3.03
N-Nitrosodi-N-propylamine	10.65	3.03
N-Nitroso-diphenylamine	2.13	0.61
Polycyclic Aromatic Hydrocarbons (PAHs)[4]	1.59	0.45
Total Polychlorinated Biphenyls (PCBs)[3,4]	--	0.001
TCDD Equivalents[3,4]	--	2.01×10^{-7}
1,1,2,2-Tetrachloroethane	4.26	1.21
Tetrachloroethylene	1.58	0.45
Toxaphene[3]	--	0.01
Trichloroethylene	4.26	1.21
1,1,2-Trichloroethane	4.26	1.21
2,4,6-Trichlorophenol	0.54	0.15
Vinyl chloride	4.26	1.21
Notes:	[1] The Discharger may at its option meet both the chromium III and the chromium VI performance goals or mass emission benchmarks by analyzing for total recoverable chromium. [2] Cyanide: If the Discharger can demonstrate to the satisfaction of the Santa Ana Water Board (subject to USEPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met (or performance goals may be evaluated) by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometalic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR § 136.	

Parameter	Average Monthly Performance Goals (µg/L)	12-month Average Mass Emission Benchmarks (MT/yr)
	[3] Enforceable effluent limitations for these parameters have been determined due to RP. [4] See Attachment A for definition of terms. [5] Chlordane: The Discharger may temporarily suspend the monitoring requirements for alpha- and gamma-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.	

VI. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge of waste by the Discharger shall not cause a violation of the California Ocean Plan water quality objectives and USEPA water quality criteria specified below. Compliance shall be determined from samples collected at stations representative of the area within the waste field where initial dilution is completed.

1. **Bacterial Characteristics**

   a. State Water Board Water-Contact Objectives

      i. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Santa Ana Water Board or USEPA (i.e., waters designated as REC-1), but including all kelp beds, the following bacterial water quality objectives shall be maintained throughout the water column:

         Fecal Coliform

         A 30-day geometric mean of fecal coliform density shall not exceed 200/100 mL, calculated based on the geometric mean of the five most recent samples from each site, and a single sample maximum shall not exceed 400/100 mL.

         Enterococci

         A 6-week rolling geometric mean of enterococci, calculated weekly, shall not exceed 30 CFU or MPN per 100 mL. The geometric mean value shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples distributed over a 6-week period.

A statistical threshold value of 110 CFU or MPN per 100 mL shall not be exceeded by more than 10 percent of all enterococci samples collected in a calendar month, calculated in a static manner.

ii. The Initial Dilution Zone of wastewater outfalls shall be excluded from designation as kelp beds for purposes of bacterial standards. Adventitious assemblages of kelp on waste discharge structures (e.g., outfall pipes and multiport diffusers) do not constitute kelp beds for purposes of bacterial standards.

b. State Water Board Beach Notification Levels

Minimum protective bacteriological standards for coastal waters adjacent to public beaches and for public water-contact sports areas in ocean waters are established in the California Code of Regulations, Title 17 (beginning at div. 1, ch. 5, section 7958 et seq.), which are not water quality objectives. When a public beach or public water-contact sports area fails to meet these standards, the California Department of Public Health or the local public health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met. The regulations impose more frequent monitoring and more stringent posting and closure requirements on certain high-use public beaches that are located adjacent to a storm drain that flows in the summer.

c. State Water Board Shellfish Harvesting Standards

At all areas where shellfish may be harvested for human consumption, as determined by the Santa Ana Water Board and USEPA, the following bacterial objectives shall be maintained throughout the water column: The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

d. USEPA Recreational Water Quality Criteria (RWQC)

Ocean waters beyond the outer limit of the territorial sea shall not exceed the following RWQC for *Enterococcus* density beyond the zone of initial dilution in areas where primary contact recreation occurs. The 2012 RWQC describes the criteria are designed to protect “primary contact recreation”, including swimming, bathing, surfing, water skiing, tubing, water play by children, and similar water contact activities where a high degree of bodily contact with the water, immersion and ingestion are likely (Recreational Water Quality Criteria, EPA-820-F-12-058, 2012, p. 6.).

Estimated illness rate of 32 per 1,000 primary contact recreators:

A 30-day geometric mean shall not exceed 30 CFU or MPN per 100 mL, which is calculated based on a statistically sufficient number of samples (generally not less than five samples equally spaced over any 30-day period).

A statistical threshold value corresponding to the 90th percentile of the same water quality distribution shall not exceed 110 CFU or MPN per 100 mL in the same 30-day interval.

2. **Physical Characteristics**

   a. Floating particulates and grease and oil shall not be visible.

   b. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.

   c. Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste.

   d. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

   e. Trash from the discharge shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.

3. **Chemical Characteristics**

   a. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.

   b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

   c. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.

   d. The concentration of substances, set forth in Chapter II, Table 3 of the California Ocean Plan, in marine sediments shall not be increased to levels which would degrade indigenous biota.

   e. The concentration of organic materials in marine sediments shall not be increased to levels which would degrade marine life.

   f. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.

   g. Numerical water quality objectives established in Table 3 of the California Ocean Plan shall not be exceeded as a result of discharges from the facility through Discharge Points 001 and 002 (as computed using an applicable dilution factor).

4. **Biological Characteristics**

   a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.

   b. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.

c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

5. **Radioactivity**

a. Discharge of radioactive waste, which meets the definition of "pollutant" at 40 CFR § 122.2, shall not degrade marine life.

B. Groundwater Limitations – Not Applicable

VII. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.
2. The Facility shall be protected to reduce infrastructure vulnerability to extreme wet weather events, flooding, storm surges, and projected sea level rise resulting from current and future impacts associated with climate change.
3. This Order/Permit expires on July 31, 2026, after which, the terms and conditions of this Order/Permit are automatically continued pending issuance of a new Order, provided that all requirements of USEPA's NPDES regulations at 40 CFR 122.6 and the State's regulations at CCR title 23, section 2235.4 regarding the continuation of expired permits and waste discharge requirements are met.
4. The Discharger shall comply with the following Santa Ana Water Board standard provisions and USEPA Region 9 standard provisions. In the event that there is any conflict, duplication, or overlap between provisions or requirements specified by this Order/Permit, the more stringent provision or requirement shall apply:

a. Consistent with the requirements in Attachment D. Standard Provisions – Reporting, section V.E. Twenty-Four Hour Reporting of this Order/Permit, in the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this Order/ Permit, the Discharger shall notify the Santa Ana Water Board by telephone (951) 782-4130 and USEPA by telephone (415) 947-4179 and by email R9NPDES@epa.gov within 24 hours of having knowledge of such noncompliance and shall confirm this notification in writing within five (5) working days, unless the Santa Ana Water Board and USEPA waives written confirmation. Other noncompliance requires written notification as above, at the time of the next self-monitoring report (SMR)/discharge monitoring report (DMR).

b. Neither the treatment nor the discharge of wastes shall cause, or threaten to cause, a pollution, contamination, or nuisance or as defined in California Water Code section 13050.

c. The Discharger shall take all reasonable steps to minimize and correct any adverse impact to receiving waters resulting from noncompliance with this Order/ Permit, including accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.

d. The Discharger shall file with the Santa Ana Water Board and USEPA a Report of Waste Discharge/application for permit modification at least 180 days before making any material change in the character, location, or volume of the discharge. A material change includes, but is not limited to, the following: Adding a major industrial waste discharge to a discharge of essentially domestic sewage, or adding a new process or product by an industrial facility resulting in a change in the character of the waste; significantly changing the disposal method or location, such as changing the disposal to another drainage area or waterbody; significantly changing the method of treatment; increasing the treatment plant design capacity beyond that specified in this Order/Permit.

e. The Discharger shall maintain a full and complete copy of this Order/Permit at the site so that it is available to site operating personnel, the Santa Ana Water Board, the California State Water Resources Control Board (hereinafter “State Water Board”), and USEPA at all times. Key operating personnel shall be familiar with its content.

f. Collected screenings, sludge, and other solids removed from liquid wastes shall be managed in accordance with federal, state, and local regulations (see Attachment G - Biosolids).

g. Permit Transfer. In the event of any change in control or ownership of land or waste discharge facility presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of this Order/Permit by letter, a copy of which shall be sent to the Santa Ana Water Board and USEPA. As an alternative to transfers under 40 CFR § 122.61(a), this Permit/Order may be automatically transferred to a new permittee if: The minimum 30 day notice to the USEPA Water Division Director includes a written agreement between the Discharger and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and the Director does not notify the Discharger and the proposed new permittee of his/her intent to modify or revoke and reissue the Permit. (A modification under this paragraph may also be a minor modification under 40 CFR § 122.63.) If this notice is not received, the transfer is effective on the date specified in the written agreement between the Discharger and the new permittee. (40 CFR § 122.61(b).)

h. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

i. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the Discharger from its liabilities under federal, state, or local laws, nor guarantee the Discharger a capacity right in the receiving waters.

j. Termination of Permits. The causes for terminating a permit during its term, or for denying a permit renewal application, are found at 40 CFR § 122.64 and are incorporated into this Order/Permit by reference.

k. Availability of Reports. Except for data determined to be confidential under 40 CFR § 2, all reports prepared in accordance with the terms of this Order/Permit shall be available for public inspection at the offices of the Santa Ana Water Board and USEPA. As required by the CWA, permit applications, permits, and effluent data shall not be considered confidential. (Pursuant to CWA section 308.)

l. Severability. The provisions of this Order/Permit are severable, and if any provision of this Order/Permit, or the application of any provision of this Order/Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order/Permit shall not be affected thereby. (Pursuant to CWA section 512.)

m. Civil and Criminal Liability. Except as provided in standard conditions (Attachment D) on Bypass and Upset, nothing in this Order/Permit shall be construed to relieve the Discharger from civil or criminal penalties for noncompliance. (Pursuant to CWA section 309.)

n. Oil and Hazardous Substances Liability. Nothing in this Order/Permit shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject under CWA section 311.

o. State, Tribe, or Territory Law. Nothing in this Order/Permit shall be construed to preclude the institution of any legal action or relieve the operator from any responsibilities, liabilities, or penalties established pursuant to any applicable State, Tribe, or Territory law or regulation under authority preserved by CWA section 510.

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

This Order/Permit may be reopened for modification prior to its expiration date in accordance with the requirements set forth at 40 CFR § 122 and 124 to:

a. Include an effluent limitation if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a California Ocean Plan Table 3 water quality objective.

b. Revise or modify the Order/Permit if present or future investigations demonstrate that the discharges governed by this Order/Permit have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.

c. Include effluent limitations for pollutants determined to be present in the discharge.

d. Address any changes in State or federal plans, policies, or regulations that would affect the quality requirements of the discharge.

e. Include conditions or effluent or receiving water limitations based on newly available information (e.g., effluent toxicity, dilution, significant change in waste flow, strategic process study results, etc.).

f. Include revised effluent limitations or conditions to address acute or chronic toxicity in the effluent or receiving water, as a result of the discharge; or to implement new, revised, or newly interpreted water quality standards applicable to acute or chronic toxicity.

g. Revise performance goals or mass emission benchmarks contained in this Order/Permit (see Section V).

h. Incorporate a promulgated CWA section 405(d) standard for sewage sludge use or disposal more stringent than any requirements for sludge use or disposal in this Order/Permit, or control a pollutant or practice not limited in this Order/Permit. (40 CFR § 122.44(c).)

i. Incorporate any effluent standard or discharge prohibition (including any schedule of compliance specified in such effluent standard or prohibition) established under CWA section 307(a) for a pollutant which is present in the discharge, and such standard or prohibition is more stringent than any requirement for that pollutant in this Order/Permit.

j. This Order/Permit may be modified, or revoked and reissued, based on the results of Magnuson-Stevens Fishery Conservation and Management Act and/or Endangered Species Act section 7 consultation(s) with the National Marine Fisheries Service and/or U.S. Fish and Wildlife Service.

k. This Order/Permit may be reopened and modified if new or revised water quality objectives or total maximum daily loads (TMDLs) come into effect for contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order/Permit may be modified as necessary to reflect the updated water quality objectives and wasteload allocations in the TMDLs. Adoption of effluent limitations contained in this Order/Permit is not intended to restrict in any way future modifications based on legally adopted water quality objectives, TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

l. Or as otherwise authorized by law.

2. Southern California Bight Monitoring Exchange

The MRP (Attachment E) may be modified by the Santa Ana Water Board and USEPA to enable the Discharger to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of this permit. The intent of regional monitoring activities is to maximize the efforts of all monitoring partners using a cost-effective monitoring design and to best utilize the pooled scientific resources of the region. During these coordinated monitoring efforts, the

Discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of wastewater discharges to the Southern California Bight; however, certain core elements (i.e., monthly water quality monitoring, quarterly REC-1 water quality monitoring, quarterly benthic monitoring, semi-annual trawl fish monitoring, and weekly Orange County Regional Shoreline REC-1 cooperative monitoring) shall remain unchanged. Anticipated modifications to the monitoring program will be coordinated so as to provide a comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollutant sources. If predictable relationships among the biological, water quality and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the Discharger's monitoring effort. Conversely, the monitoring program may be intensified if it appears that the objectives cannot be achieved through the Discharger's existing monitoring program. These changes will improve the overall effectiveness of monitoring in the Southern California Bight. Minor changes may be made without further public notice.

3. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Toxicity Reduction Requirements

If the discharge exceeds an effluent limitation for toxicity specified in Table 5 and 6, the Discharger shall conduct a Toxicity Reduction Evaluation (TRE) defined in Attachment A, in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is not an effluent limitation for toxicity.

i. TRE Work Plan

Within 90 days of the Order/Permit effective date, the Discharger shall prepare and submit a copy of their Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan to the Santa Ana Water Board and USEPA for review and approval by the Santa Ana Water Board Executive Officer and USEPA Water Division Director. The TRE Work Plan must be developed in accordance with USEPA guidance, EPA manual *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA/ 833/B-99/002, 1999), and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision. This plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity and shall describe the steps the Discharger intends to follow if toxicity is measured above an acute or chronic WET permit limit. The TRE Work Plan should include, at minimum:

(a) A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of the exceedance, effluent variability, and/or efficiency of the treatment system in removing toxic substances. This shall include a description of an accelerated chronic toxicity testing program;

(b) A description of the methods to be used for investigating and maximizing

in-house treatment system efficiency and good housekeeping practices, and a list of all chemicals used in operations at the facility;

(c) A description of the evaluation process to be used to determine if implementation of a more detailed Toxicity Reduction Evaluation and Toxicity Identification Evaluation (TRE/TIE) is necessary;

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

ii. Accelerated Toxicity Monitoring Specifications and TRE/TIE Initiation

When a WET permit limit is exceeded during regular toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required below. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the WET permit limit during accelerated monitoring.

(a) If an acute or chronic WET permit limit is exceeded and the source(s) of toxicity is easily identified (e.g., a temporary plant upset), then the Discharger shall make necessary corrections to the facility and shall conduct one (1) additional toxicity test using the same species and test method. This test shall begin within 14 days of notification by the laboratory of the exceedance of the WET permit limit. If the additional toxicity test does not exceed the WET permit limit, then the Discharger may return to their regular testing frequency.

(b) If an acute or chronic WET permit limit is exceeded and the source of toxicity is not known, then the Discharger shall conduct four (4) additional toxicity tests using the same species and test method, approximately every two weeks, over an eight (8) week period. This testing shall begin within 14 days of notification by the laboratory of the exceedance of the WET permit limit. The following protocol shall be used for accelerated monitoring and TRE initiation:

(1) If none of the additional four (4) consecutive toxicity tests exceed the WET permit limit, then the Discharger may cease accelerated monitoring and resume their regular toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Santa Ana Water Board Executive Officer and/or USEPA Water Division Director may require that the Discharger initiate a TRE.

(2) If one of the additional toxicity tests (in paragraphs ii(a) or ii(b) above) exceeds the WET permit limit, then, within 14 days of receipt of this test result, the Discharger shall cease accelerated monitoring and initiate a TRE using as guidance, based on the type of treatment facility, USEPA manual *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA/ 833/B-99/002, 1999). In conjunction, within 30 days of notification by the laboratory of any

test result exceeding the WET permit limits during accelerated monitoring, the Discharger shall develop and submit a TRE Action Plan to the Santa Ana Water Board and USEPA, which shall include specific actions undertaken by the Discharger to investigate, identify, and correct the cause(s) of toxicity, including a TRE WET monitoring schedule; specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and a schedule for these actions.

(c) 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 test method manuals: *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents*, Phase I (EPA/600/6-91/005F, 1992); 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 *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996).

b. Dilution Model Update

No later than 4 years after the effective date of this Order/Permit, the Discharger shall submit a work plan for an updated dilution modeling that is reflective of current operations, including the increase in RO concentrate that may be discharged upon completion of the groundwater replenishment system (GWRS) final expansion project. The purpose of the study is to determine initial dilution under a reasonable worst-case scenario (e.g., strongest density stratification and zero current). The discharger shall include explanation of the conditions and data used, assessment of compliance with applicable water quality objectives, and determination of an appropriate dilution ratio for each outfall. Specifically, the work plan shall include:

- Model inputs and assumptions,
- Describe trapping levels and any boundary effects in the observed range of the ambient density stratification,
- Assume zero current, consistent with the California Ocean Plan,
- Account for a decrease in flow and an increase in pollutant concentrations,
- Include WET assessment using synthetic effluent to approximate future final conditions, and
- Include a sensitivity analysis for how different inputs affect the initial dilution, including effluent temperature and density.

c. Ocean Outfall Condition Assessment and Scoping Study

Within 180 days after completion of outfall condition assessment project for Discharge Point 001 (120” outfall) or Discharge Point 002 (78” outfall) if performed during this permit term, the Discharger shall submit a report of each

comprehensive ocean outfall condition assessment to the Santa Ana Water Board and USEPA, which shall include, but not limited to:

- Field work findings (e.g., Barnacle Collar removal and manhole cover removal/ replacement),
- Any environmental impacts caused during the field works,
- Videographic/photographic records of the interior of the outfall pipe and ballast and manhole cover conditions,
- 3-D mapping,
- Analysis of the impacts of low flows on diffuser hydraulics and plugging, and
- The potential rehabilitation projects recommendation.

4. Best Management Practices and Pollution Prevention

a. Pollutant Minimization Program

The Discharger shall develop and conduct a Pollutant Minimization Program (PMP) as 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/Permit, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a pollutant is present in the effluent above an effluent limitation and either:

i. The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported minimum level (ML), using definitions described in Attachment A and reporting protocols described in MRP section XII.B.4.

ii. The concentration of the pollutant is reported as not detected (ND) and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP section XII.B.4.

By March 1 of each year, the Discharger shall submit its annual PMP Report to the Santa Ana Water Board and USEPA, for the previous calendar year. The PMP report shall include, but not be limited to, the following actions and submittals acceptable to the Santa Ana Water Board and USEPA:

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

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

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

iv. Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and

v. An annual status report that shall be sent to the Santa Ana Water Board and USEPA including: All PMP monitoring results for the previous year; a list of potential sources of the reportable pollutant(s); a summary of all actions undertaken pursuant to the control strategy; and a description of actions to be taken the following year.

b. Storm Water Management Plan

Onsite storm water at this POTW shall be captured, treated, and discharged with the treated municipal wastewater regulated under this Order/Permit. The Discharger shall file with the Santa Ana Water Board and USEPA, within 180 days of the effective date of this Order/Permit, an updated Storm Water Management Plan for discharges of storm water associated with industrial activities excluding construction activities at its treatment/reclamation plants to prevent trash being present in the discharge. The Storm Water Management Plan must include the trash management to incorporate the 2015 trash amendments of the Ocean Plan.

5. Construction, Operation and Maintenance Specifications

a. The Discharger's wastewater treatment plants 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. The Discharger shall report annually to the Santa Ana Water Board and USEPA a roster of such personnel, including job titles, duties, and level of State certification for each individual.

b. The Discharger shall develop an Operation and Maintenance Manual (O&M Manual). If an O&M Manual has been developed, then the Discharger shall update it as necessary to conform to the most recent plant changes and requirements. The O&M Manual shall be readily available to operating personnel onsite. The O&M Manual shall include:

i. A detailed description of safe and effective operation and maintenance of treatment processes, process control instrumentation, and equipment.

ii. A description of the treatment plant organization showing the number of employees, duties and qualifications, plant attendance schedules (daily, weekends and holidays, part-time, etc.), and emergency contact information. The description should include documentation that the personnel are knowledgeable and qualified to operate the treatment facility so as to achieve the required level of treatment at all times.

iii. A description of laboratory and quality assurance procedures.

iv. Process and equipment inspection and maintenance schedules.

v. A description of safeguards (e.g., standby or emergency power and/or storage capacity or other means) to assure that, should there be reduction, loss, or failure of electric power, the Discharger will be able to comply with the requirements of this Order/Permit.

vi. A description of and reference to the most current spill preventive and contingency plan for controlling accidental discharges, and for minimizing the effect of such events (see the paragraph c below).

c. **Spill Preventive and Contingency Plan (SPCP).** The Discharger shall file with the Santa Ana Water Board and USEPA, within 180 days after the effective date of this Order/Permit, the Discharger's spill preventive (fail-safe) and contingency plan (response and cleanup) in an up-to-date condition. The Discharger shall amend this plan 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 plan as appropriate after each spill from the POTW. At a minimum, this plan shall:

i. Identify the possible sources of accidental discharges, untreated or partially treated waste bypass, overflows, and contaminated drainage that reach water bodies including dry channels and beach sands. Loading and storage areas, power outage, waste treatment outage, and failure of process equipment, tanks, and collection system sewer pipes and pump stations should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and when they become operational. Describe present facilities and procedures needed for effective preventive and contingency plans.

iii. Describe any new facilities and procedures needed. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

iv. Describe the activities and protocols to address clean-up of spills and containment measures, public notifications, monitoring, and the procedures to be carried out if floatable material is visible on the water surface near the discharge point or has been washed ashore.

v. Describe proposed and completed training programs and schedules to train and familiarize plant operating personnel with the Discharger's SPCP for controlling accidental discharges and for minimizing the effects of such events. (California Water Code sections 13267(b) and 13268.)

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

a. Biosolids. The Discharger shall manage its sludge and biosolids in accordance with federal regulations (40 CFR § 257, 258 and 503) and the requirements specified in Attachment G of this Order/Permit.

b. Pretreatment. The Discharger shall implement and enforce its approved pretreatment program in accordance with federal pretreatment regulations (40 CFR § 403); pretreatment standards promulgated under CWA sections 307(b), 307(c), 307(d), and 402(b); pretreatment requirements specified under 40 CFR § 122.44(j); and the requirements specified in Attachment H of this Order/Permit.

c. Collection System. The Discharger is subject to the requirements of and must comply with State Water Resources Control Board (State Water Board) Order 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, including monitoring and reporting requirements as amended by State Water Board Order WQ 2013-0058-EXEC and any subsequent order. Regardless of the coverage obtained under the General Order, as amended, the Discharger's collection system is part of the POTW that is subject to this Order/Permit. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system (40 CFR § 122.41(e)), report any non-compliance (40 CFR § 122.41(l)(6) and (7)), and mitigate any discharge from the collection system in violation of this Order/Permit (40 CFR § 122.41(d)).

d. Resource Recovery from Anaerobically Digestible Material. If the Discharger will receive hauled-in anaerobically digestible material for injection into an anaerobic digester, the Discharger shall notify the Santa Ana Water Board and USEPA and develop and implement Standard Operating Procedures for this activity. The Standard Operation Procedures shall be developed prior to receiving hauled-in anaerobically digestible material. The Standard Operating Procedures shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; and spill response. In addition, the Standard Operating Procedures shall address avoidance of the introduction of materials that could cause interference, pass-through, or upset of the treatment processes; avoidance of prohibited material; vector control; odor control; operation and maintenance; and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall train its staff on the Standard Operating Procedures and shall maintain records for a minimum of five years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of five years for the disposition, location, and quantity of cumulative pre-digestion-segregated solid waste hauled offsite.

e. Ensuring Adequate Treatment Capacity. The Discharger shall submit a written report to the Santa Ana Water Board Executive Officer and USEPA Water Division Director within 90 days after the monthly average daily dry-weather influent flow rate equals or exceeds 75 percent of the daily dry-weather design flow of the treatment plants (i.e., 0.75 x 332 MGD = 249 MGD). The Discharger's senior administrative officer shall sign a letter in accordance with the Standard Provisions (Attachment D) which transmits the report and certifies that the policy-making body is adequately informed of the influent flow rate relative to the POTW design capacity. The report shall include the following: Daily average influent flow

for the calendar month, the date on which the maximum daily flow occurred, and the rate of that maximum flow; the Discharger's best estimate of when the daily average influent flow for a calendar month will equal or exceed the design capacity of the treatment plants (i.e., 332 MGD); and the Discharger's intended schedule for studies, design, and other steps needed to provide additional treatment for the wastewater from the collection system before the waste flow exceeds the capacity of the POTW.

f. Asset Management. The Discharger shall develop an asset management program to cover the POTW. The Discharger shall:

i. Develop and utilize an asset management program within two years of the effective date of this Order/Permit. This program shall include a detailed inventory of critical assets; condition rating and/or likelihood of failure of said assets; rehabilitation and replacement planning, capacity assurance planning, and maintenance strategy to ensure the Discharger's system meets a desired level of service and plan for future needs and requirements; and funding source to support the planned asset maintenance, rehabilitation, and replacement activities. Critical assets may include, but are not limited to sewer lines, manholes, outfalls, pump stations, force mains, and wastewater treatment facility assets.

ii. Create and submit to the Santa Ana Water Board and USEPA an Asset Management Plan (AMP) within one year of the effective date of this Order/Permit. The AMP shall be updated and re-evaluated every five years. The AMP shall include the following components: A Rehabilitation and Replacement Plan identifying and prioritizing upcoming rehabilitation and replacement projects for critical assets and outlining a proposed schedule for completion of each project; a Maintenance Plan identifying major maintenance activities, frequency performed for critical assets, and estimates of ongoing and projected costs of maintenance activities; and a Sewer Collection System Map incorporating assets from the asset management inventory. Finally, the AMP shall include estimated costs for the Rehabilitation and Replacement Plan and the Maintenance Plan. Expenses may include operational, administrative, interest, or capital expenses. The cost estimate shall include a determination of whether the planned expenditures are capital or operational and the source of funds: user or connection fees, grants, bonds, or reserves.

7. Other Special Provisions

a. **Monitoring Data Accessibility.** The Discharger shall make monitoring data accessible to the public via the Internet. Within 180 days of the effective date of this Order/Permit, the Discharger shall submit a report to the Santa Ana Water Board and USEPA that updates the Discharger's plans and activities making monitoring data accessible to the public via the Internet, including implementation schedules. The Santa Ana Water Board and USEPA shall be informed of any change, in writing, within 30 days of the change.

8. Compliance Schedules – Not Applicable

VIII. COMPLIANCE DETERMINATION

A. Effluent Limitations

Compliance with the effluent limitations contained in section IV of this Order/Permit shall be determined as specified below.

1. Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation. If the analytical result of any single sample (daily discharge) monitored monthly, or less frequently, exceeds the AMEL (or 6-month median effluent limitation), then the Discharger shall increase the monitoring frequency to weekly until compliance with the effluent limitation is demonstrated.
2. Compliance with Effluent Limitations expressed as Single Constituents

   Dischargers are out of compliance with the effluent limitation if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level (i.e., ML or RL).
3. Compliance with Effluent Limitations expressed as Sum of Several Constituents

   Dischargers are out of compliance with an effluent limitation which 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. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.
4. 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 of the 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.
5. Average Monthly Effluent Limitation (AMEL)

   If the average (or when applicable, the median determined by subsection 4 above for multiple sample data reduction) of daily discharges over a calendar month exceeds (is higher than) 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 non-compliance in a 31-day month). However, an alleged violation of the AMEL will be considered one violation for the purpose of assessing State mandatory minimum penalties. If only a single sample is collected during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger may be considered out of compliance for that calendar month. For those average monthly effluent limitations that are based on the 6-month median water quality objectives in the 2019 Ocean Plan, the daily value used to calculate these average monthly values for intermittent discharges, shall be considered to equal zero for days on which no discharge occurred. The Discharger will only be considered out of compliance for days when the discharge occurs. If no sample (daily discharge) is taken over any one calendar month, no compliance determination can be made for that month with respect to effluent violation determination, but compliance determination can be made for that month with respect to reporting violation determination.

A month will begin on the first day of the calendar month and end on the last day of the calendar month, in order to calculate and report a consecutive (uninterrupted) average value for the AMEL for a calendar month.

6. Average Weekly Effluent Limitation (AWEL)

   If the average (or when applicable, the median determined by subsection 4 above for multiple sample data reduction) of daily discharges over a calendar week exceeds (is higher than) 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 (e.g., resulting in seven days of non-compliance). However, an alleged violation of the AWEL will be considered one violation for the purpose of assessing State mandatory minimum penalties. The average of daily discharges over a 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 collected 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. If no sample (daily discharge) is taken over a calendar week, no compliance determination can be made for that week with respect to effluent violation determination, but compliance determination can be made for that week with respect to reporting violation determination.

   A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value for the AWEL on Saturday.

7. Maximum Daily Effluent Limitation (MDEL)

   If a daily discharge on a calendar day exceeds (is higher than) the MDEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that day for that parameter. If no sample (daily discharge) is taken over a calendar day, no compliance determination can be made for that day

with respect to effluent violation determination, but compliance determination can be made for that day with respect to reporting violation determination.

8. Instantaneous Minimum Effluent Limitation

   If the analytical result of a single grab sample exceeds (is lower than) the instantaneous minimum effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that single sample for that parameter. Non-compliance for each single grab sample will be considered separately (e.g., the analytical results of two grab samples taken over a calendar day that are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

9. Instantaneous Maximum Effluent Limitation

   If the analytical result of a single grab sample exceeds (is higher than) the instantaneous maximum effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that single sample for that parameter. Non-compliance for each single grab sample will be considered separately (e.g., the analytical results of two grab samples taken over a calendar day that both are higher than the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

10. Six-month Median Effluent Limitation (i.e., 180-day Median Effluent Limitation)

    If the median of daily discharges over any 180-day period exceeds (is higher than) the 6-month median effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that 180-day period (e.g., resulting in 180 days of non-compliance in any 180-day period). The next assessment of compliance will occur when the next sample is taken. If only a single sample is collected during a given 180-day period and the analytical result for that sample exceeds the six-month median, the Discharger will be considered out of compliance for the 180-day period. If no sample (daily discharge) is taken over a 180-day period, no compliance determination can be made for that period with respect to effluent violation determination, but compliance determination can be made for that period with respect to reporting violation determination.

11. 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 mass emission rate determined from that sample concentration shall also be reported as ND or DNQ.

12. Mass Emission Rate

The daily discharge mass emission rate for any calendar day is calculated using the following equations:

$$\text{Daily Discharge mass emission rate (lb/day)} = \frac{8.34}{N}\sum_{i=1}^{N} Q_i C_i$$

in which "N" is the number of samples taken over any calendar day. If grab samples are taken, "Ci" is the constituent concentration (mg/L) and "Qi" is the flow rate (MGD) associated with each "N" grab sample. If composite samples are taken, "Ci" is the constituent concentration (mg/L) in each composite sample and "Qi" is the average flow rate (MGD) during the period over which sample compositing occurs.

The daily discharge concentration of a constituent shall be determined from the flow-weighted average of the same constituent in the combined waste stream using the following equation:

$$\text{Daily discharge concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

in which "N" is the number of component waste streams. "Ci" is the constituent concentration (mg/L) and "Qi" is the flow rate (MGD) associated with each "N" component waste stream. "Qt" is the total flow rate of the combined waste stream.

13. Bacterial Standards and Analysis

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

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

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

    b. For bacterial analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 mL for total and fecal coliform, at a minimum, and 1 to 1000 per 100 mL for *Enterococcus*). The detection methods used for each analysis shall be reported with the results of the analyses.

    c. Detection methods used for coliforms (total and fecal) and enterococcus shall be those presented in Table IA of 40 CFR § 136, unless alternate methods have been approved by USEPA pursuant to 40 CFR § 136, or improved methods have been determined by the Santa Ana Water Board and/or USEPA.

14. Sample Reporting Protocols

    The Discharger must report with each sample result the reported Minimum Level, selected and used in accordance with Ocean Plan Chapters III.C.5 and 6, the laboratory's current Method Detection Limit. In accordance with Ocean Plan Chapter III.C.7, the Discharger must also 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 Minimum Level must be reported “as measured” by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the reported Minimum Level, but greater than or equal to the laboratory’s Method Detection Limit, must be reported as “Detected, but Not Quantified”, or “DNQ”. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words “Estimated Concentration” (may be shortened to “Est. Conc.”).

c. Sample results less than the laboratory’s Method Detection Limit must be reported as “Not Detected”, or “ND”.

ATTACHMENT A – DEFINITIONS

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.

Areas of Special Biological Significance (ASBS)
Those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that maintenance of natural water quality is assured. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS (SWQPA). ASBS are also referred to as State Water Quality Protection Areas – Areas of Special Biological Significance (SWQPA-ASBS).

Average Monthly Effluent Limitation (AMEL)
Means 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. (40 CFR § 122.2)

Average Weekly Effluent Limitation (AWEL)
Means 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. (40 CFR § 122.2)

Best Management Practices (BMPs)
Means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States". BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillages or leaks, sludge or waste disposal, or drainage from raw material storage. (40 CFR § 122.2)

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

Chlorinated Phenols
The sum of 2-chlorophenol, 2,4-dichlorophenol, 4-chloro-3-methylphenol, 2,4,6-trichlorophenol, and pentachlorophenol.

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.

Composite Sample
Means a time-proportioned mixture of not less than eight discrete aliquots obtained at equal time intervals (e.g., 24-hour composite means a minimum of eight samples collected every three hours). The volume of each aliquot shall be directly proportional to the discharge flow

rate at the time of sampling, but not less than 100 ml. The compositing period shall equal the specified sampling period, or 24 hours, if no period is specified.

For a composite sample, if the duration of the discharge is less than 24 hours but greater than 8 hours, at least eight flow-weighted individual sample portions shall be taken during the duration of the discharge and composited. For a discharge duration of 8 hours or less, eight individual “grab samples” may be substituted and composited.

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 one day.

For composite sampling, if one 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, 2,4’DDD, and 4,4’DDMU.

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 (ML), but greater than or equal to the laboratory’s Maximum Detection Limit (MDL). Sample results reported as DNQ are estimated concentrations.

Dichlorobenzenes
Shall mean the sum of 1,2- and 1,3-dichlorobenzene.

Dilution Credit
Dilution Credit is 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.

Downstream Ocean Waters
Shall mean waters downstream with respect to ocean currents.

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

Eelgrass Beds
Are aggregations of the aquatic plant species of the genus *Zostera*.

Enclosed Bays
Are indentations along the coast which 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. Enclosed bays do not include inland surface waters or ocean waters.

Endosulfan
Shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

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, Russian, Klamath, San Diego, and Otay Rivers. Estuaries do not include inland surface waters or ocean waters.

Facility or Activity
Means any NPDES “point source” or any other facility or activity (including land or appurtenances thereto) this is subject to regulation under the NPDES program. (40 CFR § 122.2)

Geometric Mean (GM)
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 nth root of the product of n numbers. The formula is expressed as: $GM = (C_1 \times C_2 \times \ldots \times C_n)^{1/n}$, where *C* is the sample value and n is the number of samples taken.

Grab Sample
Is a single sample collected during a period of time, not to exceed 15 minutes, which represents the composition of the discharge only at a particular time and place. Grab samples

shall be collected during normal peak loading conditions for the parameter of interest, which may or may not occur during hydraulic peaks.

Halomethanes
Shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

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

Indicator Bacteria
Includes total coliform bacteria, fecal coliform bacteria (or *E. coli*) and/or Enterococcus bacteria.

Initial Dilution
Is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Santa Ana Water Board and/or USEPA, whichever results in the lower estimate for initial dilution.

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 effluent 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 effluent limitation).

Kelp Beds
Are aggregations of marine algae of the order *Laminariales*, including species in the genera *Macrocystis*, *Nereocystis*, and *Pelagophycus*. Kelp beds include the total foliage canopy throughout the water column.

Mariculture
The culture of algae, plants, and animals in marine waters independent of any pollution source.

Marine Managed Areas
Are named, discrete geographic marine or estuarine areas along the California coast designated by law or administrative action, and intended to protect, conserve, or otherwise

manage a variety of resources and their uses. According to the California Public Resources Code (§§ 36600 et seq.) there are six classifications of marine managed areas, including State Marine Reserves, State Marine Parks and State Marine Conservation Areas, State Marine Cultural Preservation Areas, State Marine Recreational Management Areas, and State Water Qualtiy Protection Areas.

Material
(a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of the Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period) (40 CFR § 122.2). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day. Also, Maximum Daily Discharge Limitation (MDDL).

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

Method Detection Limit (MDL)
Is the minimum measured 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 § 136, Appendix B.

Minimum Level (ML)
Is 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.

Multiport Diffusers
Are linear structures consisting of spaced ports or nozzles that are installed on submerged marine outfalls.

Municipal Separate Storm Sewer System (MS4)
Has the same meaning as set forth in 40 CFR § 122.26(b)(8).

Natural Light
Reduction of natural light may be determined by the Santa Ana Water Board and USEPA by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Santa Ana Water Board and USEPA.

No Discharge Zone (NDZ)
Is an area in which both treated and untreated sewage discharges from vessels are prohibited. Within NDZ boundaries, vessel operators are required to retain their sewage discharges onboard for disposal at sea (beyond 3 nautical miles from shore) or onshore at a pump-out facility.

Non-Chlorinated Phenols
The sum of 2,4-dimethylphenol, 2-nitrophenol, 4-nitrophenol, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, and phenol.

Non-Storm Water Discharge
Is any runoff that is not the result of a precipitation event. This is often referred to as “dry weather flow”.

Not Detected (ND)
Sample results which are less than the laboratory’s MDL.

Ocean Waters
Are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

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

PCBs (polychlorinated biphenyls) as Aroclors
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.

PCBs as congeners
The sum of the following 41 individually quantified PCB congeners or mixtures of isomers of a single congener in a co-elution: PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

Permitting Authority
Means the State Water Board or Regional Waterboard, whichever issues the permit, and USEPA which issues the permit.

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 the 2019 Ocean Plan Table 3 pollutants 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 Santa Ana Water Board and USEPA 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.

Pollution Prevention
Any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in CWC section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board), Santa Ana Water Board, or USEPA.

Publicly-Owned Treatment Works (POTWs)
A treatment works as defined by section 212 of the CWA, which is owned by a State or municipality (as defined by section 502(4) of the Act). 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. The term also means the municipality which has jurisdiction over the Indirect Discharges to and the discharges from such treatment works. (40 CFR § 403.3(q).)

Reported Minimum Level (RML)
Is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in their permit, which is also known as the Reporting Level (RL). The MLs included in this permit correspond to approved analytical methods for reporting a sample result that are selected by the Santa Ana Water Board in accordance with Ocean Plan Chapter III.C.5. The ML is based on the proper application of method-specific analytical procedures 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 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 reported ML. (See Chapter III.C.6 of the 2019 Ocean Plan.).

Salinity
Is a measure of the dissolved salts in a volume of water. For the purposes of the Ocean Plan, salinity shall be measured using a standard method approved by the Santa Ana Water Board

and USEPA (e.g., Standard Method 2520 B, EPA Method 120.1, EPA Method 160.1) and reported in parts per thousand (ppt). For historical salinity data not recorded in parts per thousand, the Santa Ana Water Boards and USEPA may accept converted data at their discretion.

Seawater
Is salt water that is in or from the ocean.

Sensitive Habitats
For the purposes of the Ocean Plan, are kelp beds, rocky substrate, surfgrass beds, eelgrass beds, oyster beds, spawning grounds for State or federally managed species, market squid nurseries, or other habitats in need of special protection as determined by the Water Boards.

Shellfish
Are organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams and oysters).

Significant Difference
Is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level, unless otherwise specified by the permitting authority.

Single Sample Maximum (SSM)
A maximum value not to be exceeded in any single sample.

Six-Month Median Effluent Limitation (i.e., 180-Day Median Effluent Limitation)
The highest allowable moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.

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.

State Water Quality Protection Areas (SWQPAs)
Non-terrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) that were previously designated by the State Water Board in Resolutions 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by the Ocean Plan.

State Water Quality Protection Areas – General Protection (SWQPA-GP)
Designed by the State Water Board to protect marine species and biological communities from undesirable alteration in natural water quality within State Marine Parks and State Marine Conservation Areas.

Statistical Threshold Value (STV)
Is defined for the bacteria water quality objectives as a set value that approximates the 90th percentile of the water quality distribution of a bacterial population. The STV for the enterococcus water quality objective is 110 CFU/100mL.

Storm Water
Has the same meaning as set forth in 40 CFR § 122.26(b)(13).

Surfgrass Beds
Are aggregations of marine flowering plants of the genus *Phyllospadix*.

TCDD Equivalents (TEQ)
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 equivalency factor (TEF), as shown in the table below.

Congener	TEF	Minimum Level (pg/L)
chlorinated dibenzo-p-dioxins		
2,3,7,8-tetraCDD	1.0	5
1,2,3,7,8-pentaCDD	0.5	25
1,2,3,4,7,8-hexaCDD	0.1	25
1,2,3,6,7,8-hexaCDD	0.1	25
1,2,3,7,8,9-hexaCDD	0.1	25
1,2,3,4,6,7,8-heptaCDD	0.01	25
OctaCDD	0.001	50
chlorinated dibenzofurans		
2,3,7,8-tetraCDF	0.1	5
1,2,3,7,8-pentaCDF	0.05	25
2,3,4,7,8-pentaCDF	0.5	25
1,2,3,4,7,8-hexaCDF	0.1	25
1,2,3,6,7,8-hexaCDF	0.1	25
1,2,3,7,8,9-hexaCDF	0.1	25
2,3,4,6,7,8-hexaCDF	0.1	25
1,2,3,4,6,7,8-heptaCDF	0.01	25
1,2,3,4,7,8,9-heptaCDF	0.01	25
OctaCDF	0.001	50

Test of Significant Toxicity (TST)
A statistical approach used to analyze toxicity test data. The TST incorporates a restated null hypothesis, Welch's t-test, and the biological effect thresholds for chronic and acute toxicity.

Toxicity Identification Evaluation (TIE)
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.

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 TIE may be required as part of the TRE, if appropriate.

Trash
Means all improperly discarded solid material from any production, manufacturing, or processing operations including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.

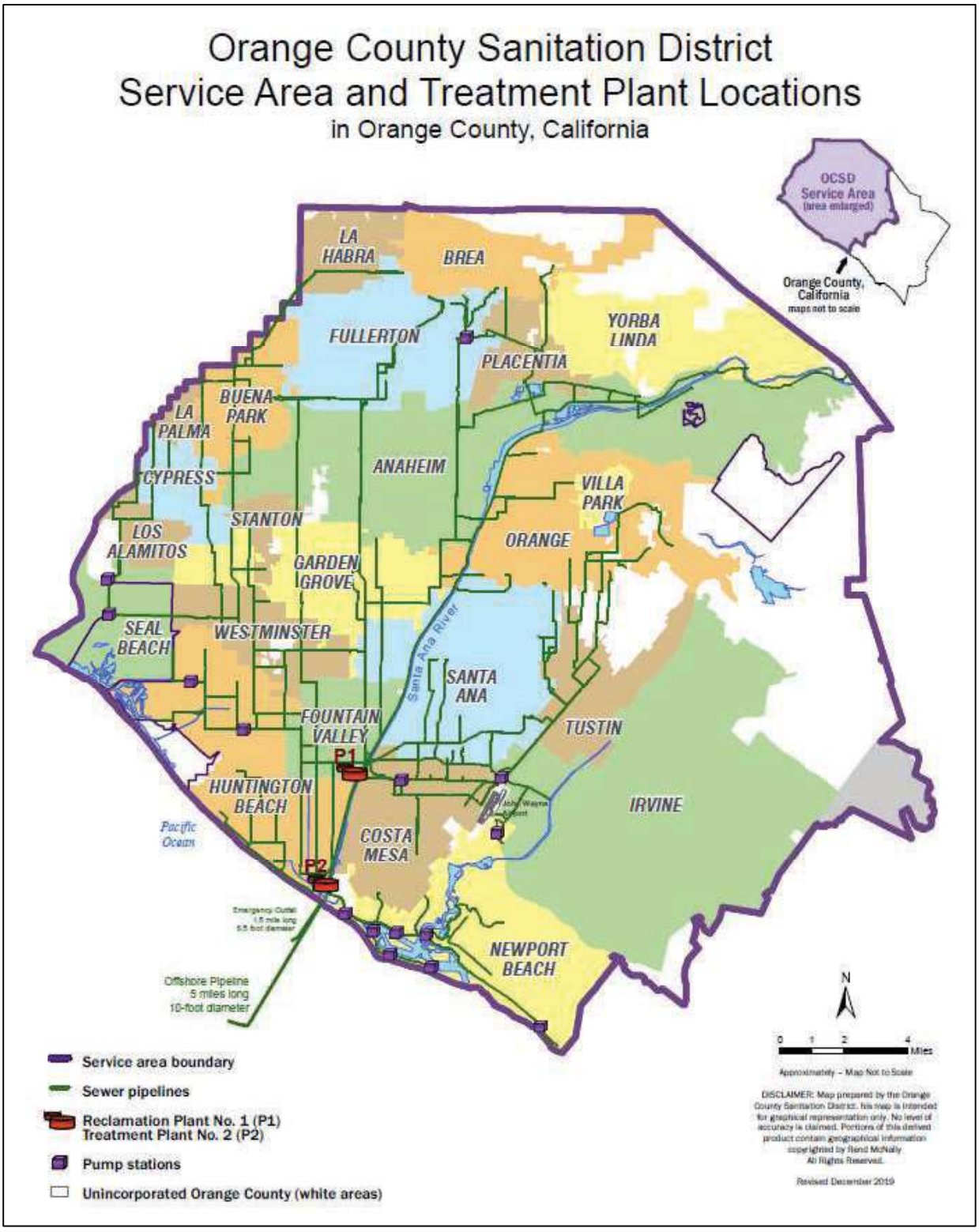
Trash Provisions
Are the water quality objective for Trash, as well as the prohibition of discharge set forth in Chapter III.I and implementation requirements set forth in Chapter III.L of the Ocean Plan.

Waste
As used in the Ocean Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

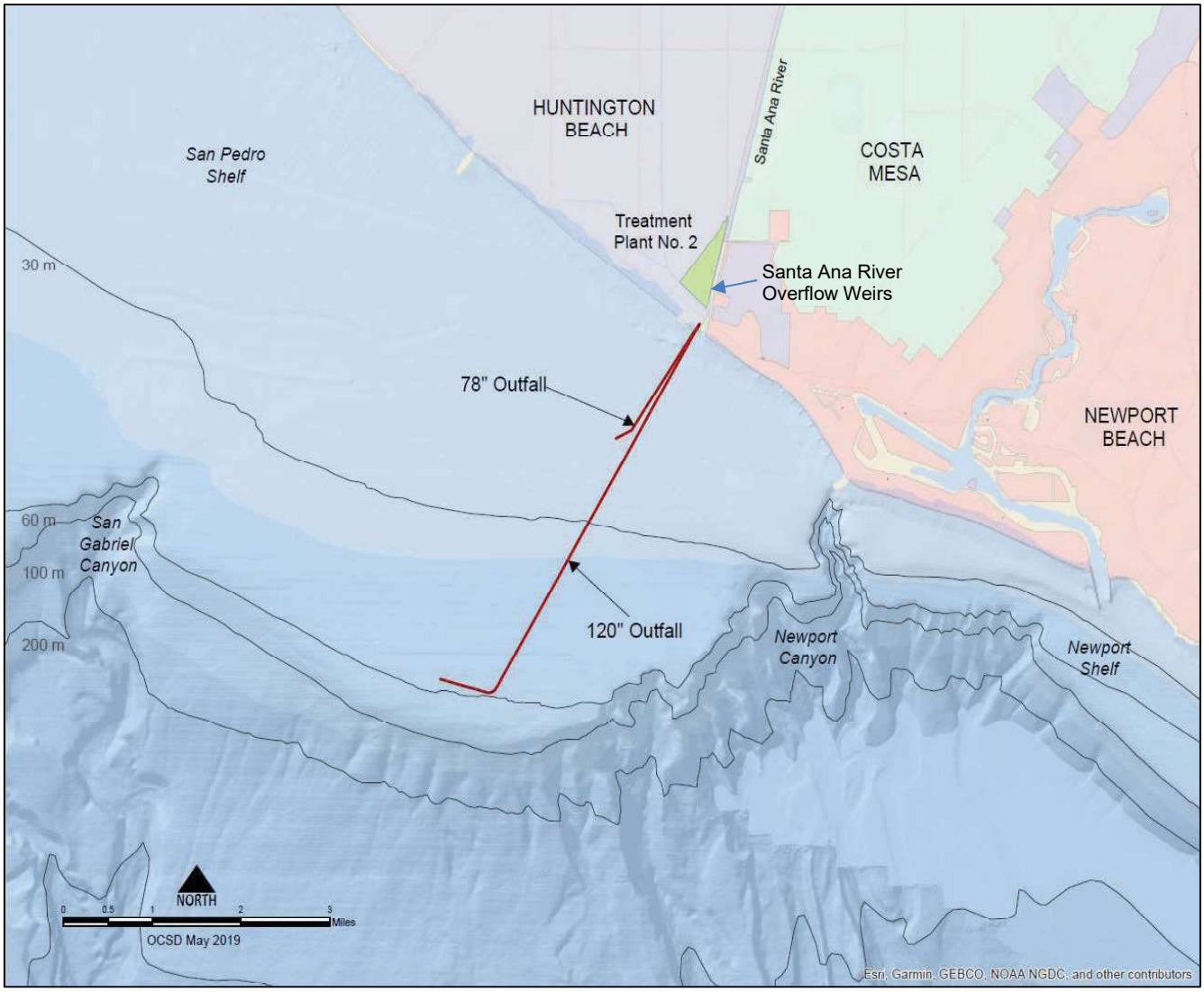
Water Reclamation
The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

ATTACHMENT B – MAPS

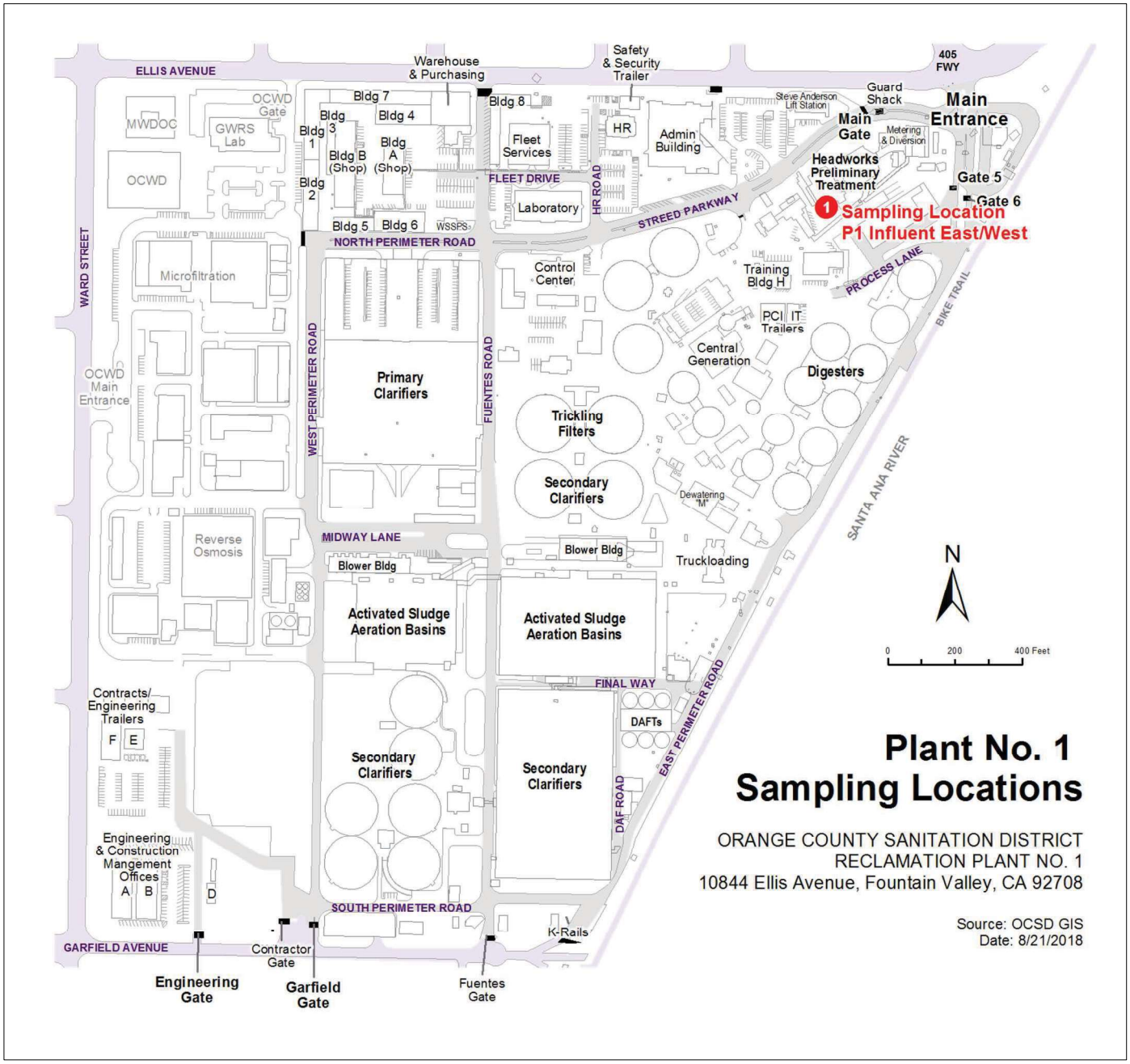
Attachment B1 – Map of Service Area and Treatment Plant Locations



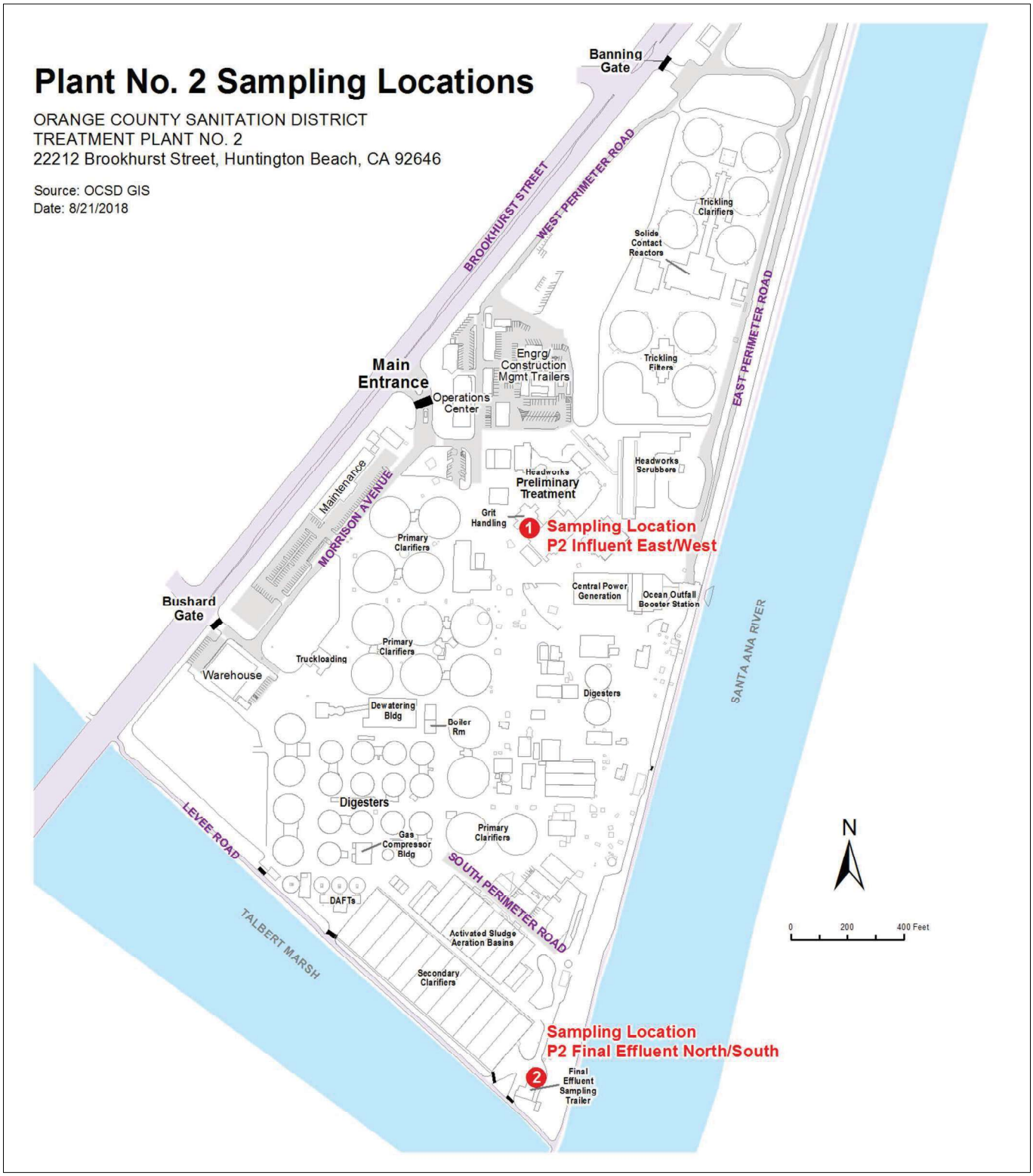
Attachment B2 – Map of Outfall Location



Attachment B3 – Site Layout of Plant No. 1 and Sampling Locations

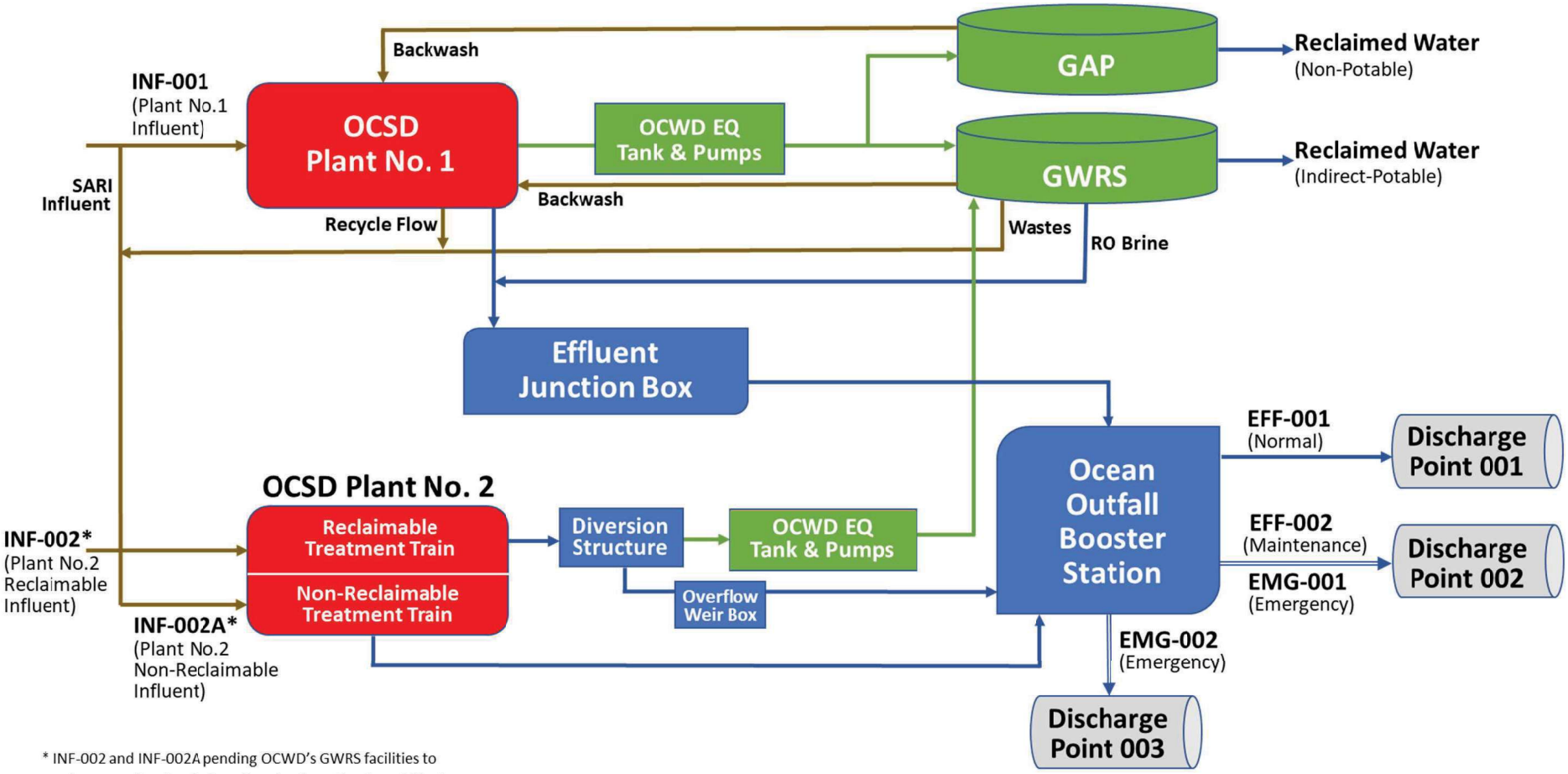


Attachment B4 – Site Layout of Plant No. 2 and Sampling Locations



ATTACHMENT C – FLOW SCHEMATICS

Figure C-1. Simplified Flow Schematic and Monitoring Locations after GWRS Final Expansion in 2023



* INF-002 and INF-002A pending OCWD's GWRS facilities to receive secondary treated wastewater from Treatment Plant No. 2 (i.e., completion of the GWRS Final Expansion Project)

Figure C-2. Process Schematic for OC San Reclamation Plant No. 1

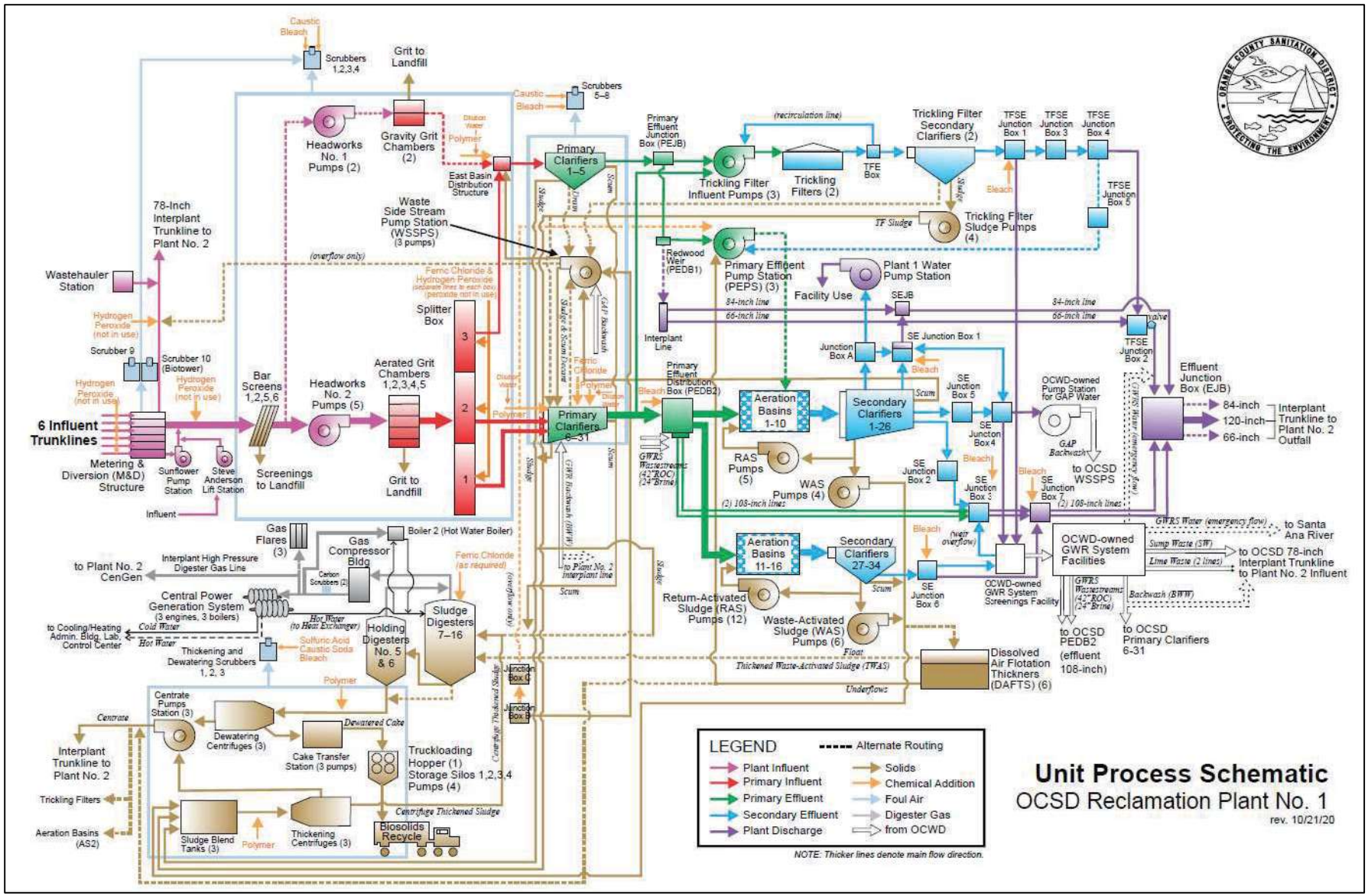


Figure C-3. Process Schematic for OC San Treatment Plant No. 2

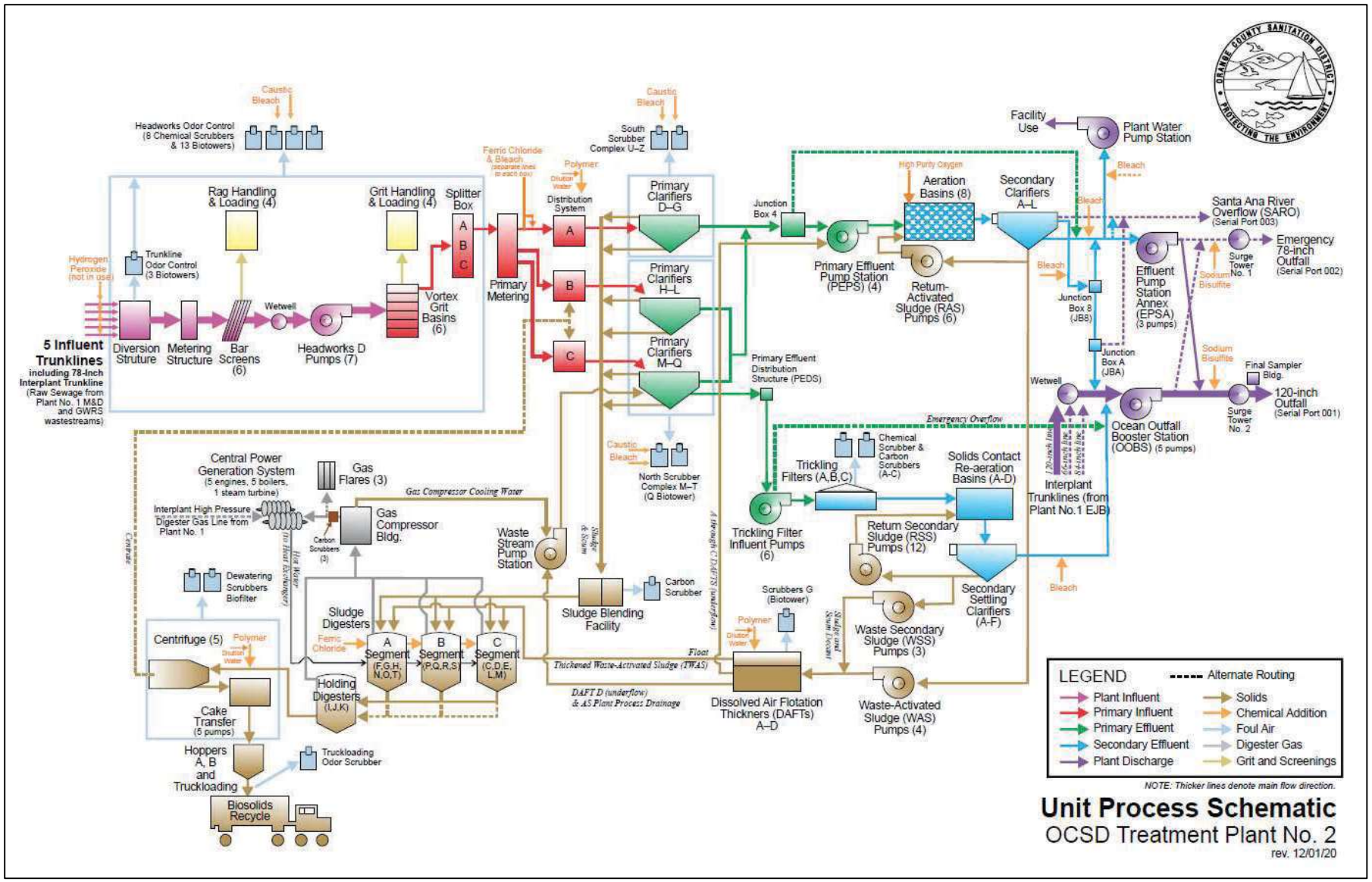


Figure C-4. Future Process Schematic for OC San Treatment Plant No. 2 after GWRS Final Expansion in 2023

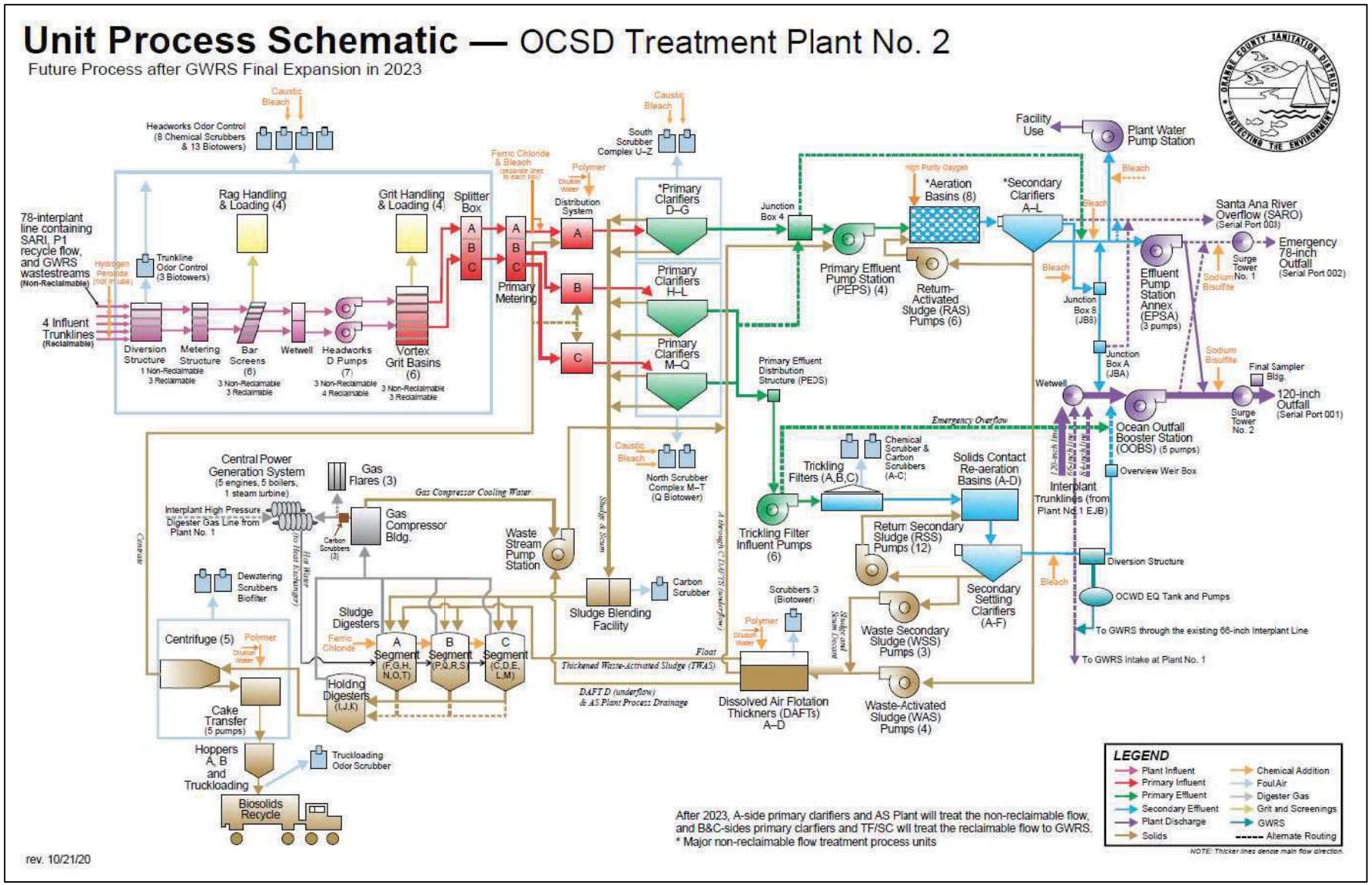
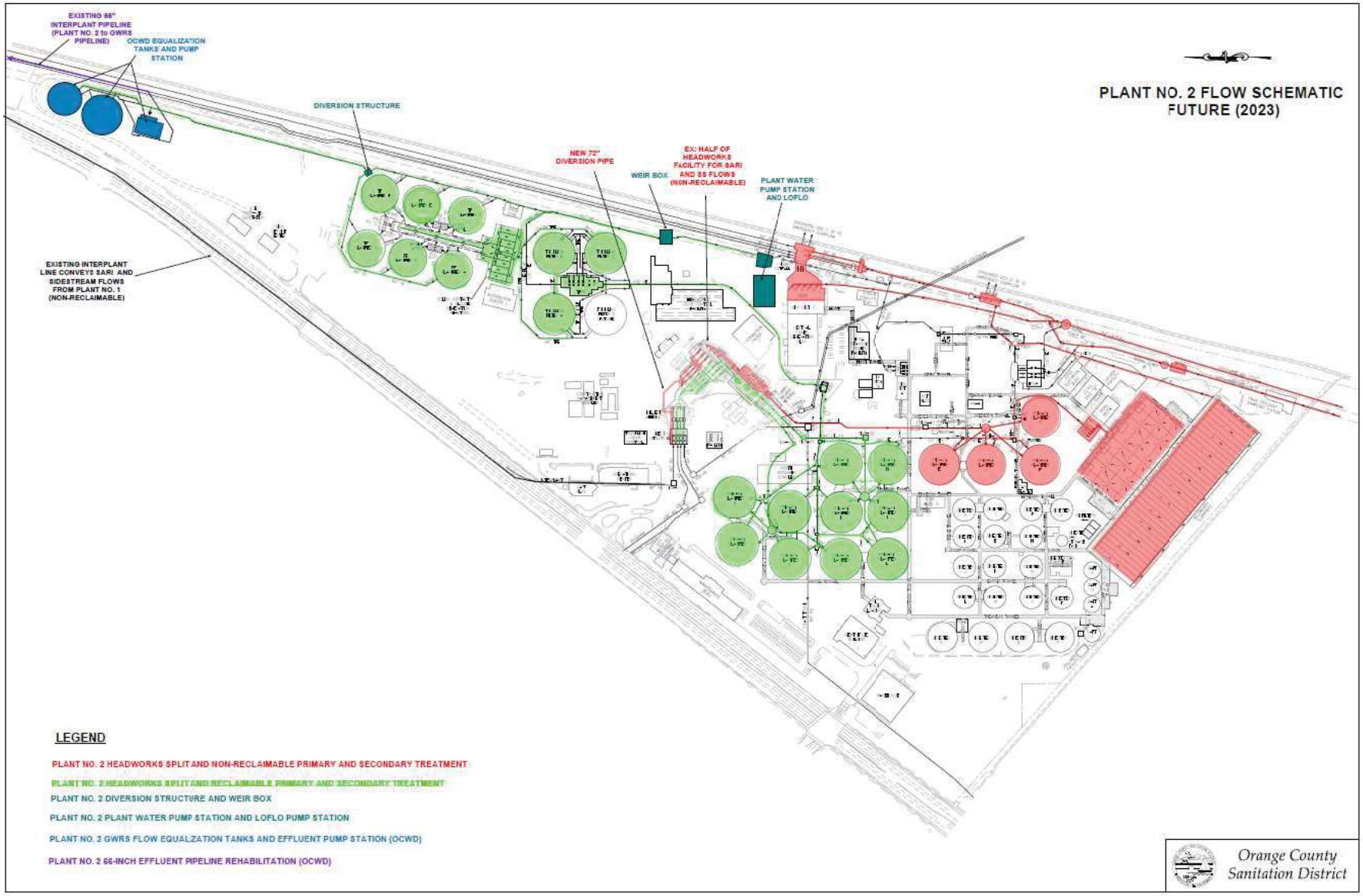


Figure C-5. Future Site Layout of OC San Treatment Plant No. 2



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all conditions, terms, and requirements of this Order/Permit. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and California Water Code (CWC) and is grounds for enforcement action; for Order/Permit termination, revocation and reissuance, or modification; or denial of an Order/Permit renewal application. (40 CFR § 122.41(a); CWC 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)
2. The Discharger shall comply with effluent standards or prohibitions established under CWA section 307(a) for toxic pollutants and with standards for sewage sludge use and disposal established under CWA section 405(d) within the time provided in the regulations that establish these standards or prohibitions or standards of sewages sludge use or disposal, even if the Order/Permit has not yet been modified to incorporate the requirement. (40 CFR § 122.41(a)(1).)
3. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation, as adjusted annually for inflation pursuant to the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, and as currently set forth in 40 CFR § 19.4. The Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or

subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions. (40 CFR § 122.41(a)(2).)

4. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000. The civil and administrative penalty amounts are adjusted annually for inflation pursuant to the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, and the current penalty amounts are set forth in 40 CFR § 19.4.

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/Permit. (40 CFR § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order/Permit which 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/Permit. Proper operation and maintenance also include 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 the Order/Permit. (40 CFR § 122.41(e).)

E. Property Rights

1. This Order/Permit does not convey any property rights of any sort or any exclusive privilege. (40 CFR § 122.41(g).)
2. The issuance of this Order/Permit 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 Santa Ana Water Board, State Water Board, USEPA, and/or an authorized representative (including an authorized contractor acting as their representative), upon presentation of credentials and other documents as may be required by law, to (33 USC 1318(a)(4)(b); 40 CFR § 122.41(i); CWC 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/Permit (33 USC 1318(a)(4)(b)(i); 40 CFR § 122.41(i)(1); CWC 13267, 13383);
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order/Permit (33 USC 1318(a)(4)(b)(ii); 40 CFR § 122.41(i)(2); CWC 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/Permit (33 USC 1318(a)(4)(b)(ii); 40 CFR § 122.41(i)(3); CWC 13267, 13383); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order/Permit compliance or as otherwise authorized by the CWA or the California Water Code, any substances or parameters at any location. (33 USC 1318(a)(4)(b); 40 CFR § 122.41(i)(4); CWC 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 effluent limitations to be exceeded, but only if it is also 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. (40 CFR § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Santa Ana Water Board/USEPA 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 notices as required under Standard Provisions – Permit Compliance I.G.5. (40 CFR § 122.41(m)(4)(i)(C).)

4. The Santa Ana Water Board/USEPA may approve an anticipated bypass, after considering its adverse effects, if the Santa Ana Water Board/USEPA determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3. (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 ten days before the date of the bypass. The notice shall be sent to the Santa Ana Water Board and USEPA. As of December 21, 2025 all notices submitted in compliance with this section must be submitted electronically by the Discharger to the Santa Ana Water Board and USEPA or initial recipient, as defined in 40 CFR § 127.2(b), in compliance with this section and 40 CFR § 3 (including, in all cases, subpart D to part 3), 122.22 and part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the Discharger may be required to report electronically if specified by a particular Order/Permit or if required to do so by State law. (40 CFR § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Attachment D. Standard Provisions – Reporting V.E (24-hour notice). As of December 21, 2025 all notices submitted in compliance with this section must be submitted electronically by the Discharger to the Santa Ana Water Board and USEPA or initial recipient, as defined in 40 CFR § 127.2(b), in compliance with this section and 40 CFR § 3 (including, in all cases, subpart D to part 3), 122.22 and part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the Discharger may be required to report electronically if specified by a particular Order/Permit or if required to do so by State law. (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 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)); and
    c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b (24-hour notice) (40 CFR § 122.41(n)(3)(iii)).
    d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C. (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/Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for Order/Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order/Permit condition. (40 CFR § 122.41(f).)

B. Duty to Reapply

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

C. Transfers

This Order/Permit is not transferable to any person except after notice to the Santa Ana Water Board/USEPA. The Santa Ana Water Board/USEPA may require modification or revocation and reissuance of the Order/Permit to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and CWC. (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 § 136 for the analyses of pollutants unless another method is required under 40 CFR § 1, subchapter N or O. (40 CFR § 122.41(j)(4).)

C. Monitoring for quantitative data shall be conducted in accordance with sufficiently sensitive analytical methods approved under 40 CFR § 136 or required under 40 CFR § 1, subchapter N or O. For the purposes of this requirement, a method approved under 40 CFR § 136 or required under 40 CFR § 1, subchapter N or O 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 Order/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 § 136 or required under 40 CFR § 1, subchapter N or O 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 § 136 or otherwise required under 40 CFR § 1, subchapter N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. §§ 122.21(e)(3),122.41(j)(4), 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order/Permit related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR § 503), 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/Permit, and records of all data used to complete the application for this Order/Permit, 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 Santa Ana Water Board/USEPA 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 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger. (40 C.F.R. § 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 Santa Ana Water Board, State Water Board, and/or USEPA within a reasonable time, any information which the Reginal Water Board, State Water Board, and/or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order/Permit or to determine compliance with this Order/Permit. Upon request, the Discharger shall also furnish to the Santa Ana Water Board, State Water Board, and/or USEPA copies of records required to be kept by this Order/Permit. (40 CFR § 122.41(h); CWC 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Santa Ana 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)(1).)
2. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order/Permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. (40 CFR § 122.41(k)(2).)
3. For a municipality, State, federal, or other public agency. 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).)

4. All reports required by this Order/Permit and other information requested by the Santa Ana Water Board, State Water Board, and/or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.3, 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.3 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 Santa Ana Water Board, State Water Board, and USEPA (40 CFR § 122.22(b)(3).)
5. Changes to authorization. If an authorization under Standard Provisions – Reporting V.B.4 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.4 must be submitted to the Santa Ana Water Board, State Water Board, and USEPA prior to or together with any reports, information, or applications to be signed by an authorized representative. (40 CFR § 122.22(c).)
6. Certification. Any person signing a document under Standard Provisions – Reporting V.B.3 or V.B.4 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).)
7. Electronic reporting. If documents described in Standard Provisions – Reporting V.B.1, V.B.3, or V.B.4 are submitted electronically by or on behalf of the NPDES-regulated facility, any person providing the electronic signature for such documents shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure shall ensure that all of the relevant requirements of 40 CFR § 3 (including, in all cases, subpart D to part 3) (Cross-Media Electronic Reporting) and 40 CFR § 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 CFR § 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified elsewhere in this Order/Permit. (40 CFR § 122.41 (l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Santa Ana Water Board, State Water Board, and/or USEPA for reporting results of monitoring of sludge use or disposal practices. As of December 21, 2016 all reports and forms submitted in compliance with this section must be submitted electronically by the Discharger to the initial recipient defined in Standard Provisions – Reporting V.J and comply with this section and 40 CFR § 3, 40 CFR § 122.22, and 40 CFR § 127. (40 CFR § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order/Permit using test procedures approved under 40 CFR § 136, or another method required for an industry-specific waste stream under 40 CFR § 1, subchapter N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Santa Ana Water Board, State Water Board, and/or USEPA. (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/Permit. (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/Permit 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 (combined sewer overflows, sanitary sewer overflows or bypass events), type of overflow structure (e.g., manhole, combined sewer overflows), discharge volumes untreated by the treatment works treating domestic sewage, types of human

health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather.

As of December 21, 2025, all reports related to combined sewer overflows, sanitary sewer overflows or bypass events must be submitted to the Santa Ana Water Board/USEPA and must be submitted electronically by the Discharger to the initial recipient defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 CFR § 3, 40 CFR § 122.22, and 40 CFR § 127. The Santa Ana Water Board/USEPA 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 which must be reported within 24 hours:

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

   b. Any upset which exceeds any effluent limitation in the Order/Permit. (40 CFR § 122.41(l)(6)(ii)(B).)

   c. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Santa Ana Water Board/USEPA in the Order/Permit to be reporting within 24 hours. (See 122.44(g).) (40 CFR § 122.41(l)(6)(ii)(C).)

3. The Santa Ana Water Board/USEPA 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)(iii).)

F. Planned Changes

The Discharger shall give notice to the Santa Ana Water Board/USEPA as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required 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 40 CFR § 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 which are subject neither to effluent limitations in the Order/Permit, nor to notification requirements under 40 CFR § 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A). (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 Order/Permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the Order/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 Santa Ana Water Board/USEPA of any planned changes in the permitted facility or activity that may result in noncompliance with Order/Permit 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, at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E. 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 § 127. As of December 21, 2025, all reports related to combined sewer overflows, sanitary sewer overflows or bypass events submitted in compliance with this section must be submitted electronically by the Discharger to the Santa Ana Water Board/USEPA or initial recipient, as defined in 40 CFR § 127.2(b), in compliance with this section and 40 CFR § 3 (including, in all cases, subpart D to 3), 122.22, and 40 CFR § 127. (40 CFR § 122.41(l)(7).)

I. Other Information

Where the Discharger becomes aware that it failed to submit any relevant facts in an order/permit application, or submitted incorrect information in an order/permit application or in any report to the Santa Ana Water Board, State Water Board, or USEPA, it shall promptly submit such facts or information. (40 CFR § 122.41(l)(8).)

J. Identification of the Initial Recipient for NPDES Electronic Reporting Data

The owner, operator, or the duly authorized representative of an NPDES-regulated entity is required to electronically submit the required NPDES information (as specified in appendix A to 40 CFR § 127) to the appropriate initial recipient defined in 40 CFR § 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 § 127.2(c)). USEPA will update and maintain this listing. (40 CFR § 122.41(l)(9).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Reginal Water Board and/or USEPA is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13268, 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Santa Ana Water Board/USEPA of the following (40 CFR § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA sections 301 or 306 if it were directly discharging those pollutants (40 CFR § 122.42(b)(1)); and
2. 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 issuance of the Order/Permit. (40 CFR § 122.42(b)(2).)
3. For the purposes of this paragraph, adequate notice shall include information on the quality and quantity of effluent introduced into the POTW, and 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

I. General Monitoring Provisions 3
II. Monitoring Locations 7
III. Influent Monitoring Requirements 29
A. Monitoring Location – Influent Monitoring Stations (n=2) 29
IV. Effluent Monitoring Requirements 34
A. Effluent Monitoring Stations (n=2) 34
B. Emergency Discharge Monitoring Stations (n=2) 40
C. Mass Emission Benchmarks 40
V. Whole Effluent Toxicity Testing Requirements 40
VI. Land Discharge Monitoring Requirements – Not Applicable 44
VII. Recycling Monitoring Requirements – Not Applicable 44
VIII. Receiving Water Core Monitoring Requirements 44
A. Water Quality Monitoring 44
B. REC-1 Water Quality Monitoring (Offshore Zone) 46
C. Sediment Monitoring 47
D. Demersal Fish and Epibenthic Macroinvertebrate Monitoring 52
IX. Receiving Water Regional Monitoring Requirements 57
A. Southern California Bight Regional Monitoring Program 57
B. Southern California Bight Regional Water Quality Program 58
C. Central Regional Kelp Survey 59
D. Orange County Regional Shoreline REC-1 Cooperative Monitoring Program 60
E. Ocean Acidification and Hypoxia (OAH) Mooring 61
X. Strategic Process Studies 61
XI. Other Monitoring Requirements 62
A. Contaminants of Emerging Concern (CEC) Monitoring Study 62
B. Outfall and Diffuser System Inspection 65
XII. Reporting Requirements 66
A. General Monitoring and Reporting Requirements 66
B. Self-Monitoring Reports (SMRs) 68
C. Discharge Monitoring Reports (DMRs) 71
D. Other Reports 71

TABLES

Table E-1. Monitoring Station Locations 7
Table E-2. Receiving Water Core and Regional Monitoring Station Locations 9
Table E-3. Influent Monitoring 29
Table E-4. Effluent Monitoring 34
Table E-5. Water Quality Monitoring 45
Table E-6. REC-1 Water Quality Monitoring (Offshore Zone) 46

Table E-7. Sediment Chemistry Monitoring 48
Table E-8. Benthic Infauna Community Monitoring 51
Table E-9. Whole Sediment Toxicity Monitoring 52
Table E-10. Demersal Fish and Epibenthic Macroinvertebrate Community Monitoring 52
Table E-11. Demersal Fish Liver Tissue Chemistry Monitoring 53
Table E-12. Sport Fish Muscle Chemistry Monitoring 56
Table E-13. Southern California Bight Receiving Water Quality Monitoring 59
Table E-14. Orange County Regional Shoreline REC-1 Cooperative Monitoring 60
Table E-15. CEC Discharge Monitoring 62
Table E-16. Monitoring Periods and Reporting Schedule 69

FIGURES

Figure E-1. Monthly Water Quality Monitoring Stations (n=28) 22
Figure E-2. Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) (n=8) 23
Figure E-3. Benthic Monitoring Stations: Quarterly (n=11), Annual (n=11), and 1/5-year (n=35) 24
Figure E-4. Semi-annual Trawl Fish Monitoring Stations (n=6) and Annual Trawl Fish Monitoring Stations (n=8) 25
Figure E-5. Annual Rig Fish Monitoring Zones (n=2) 26
Figure E-6. Quarterly Central Bight Water Quality Monitoring Stations (n=60) 27
Figure E-7. Orange County Shoreline REC-1 Cooperative Monitoring Stations (Nearshore Zone) (n=36) 28

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Section 308 of the federal Clean Water Act (CWA) and 40 CFR § 122.41(h), (j)-(l), 122.44(i) and 122.48 require that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Santa Ana Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This MRP establishes monitoring, reporting, and recordkeeping requirements that implement federal and California laws and/or regulations. The Discharger shall comply with this MRP of this Order/Permit.

I. GENERAL MONITORING PROVISIONS

A. The Santa Ana Water Board and USEPA, working with other groups, have developed a comprehensive basis for effluent and receiving water monitoring appropriate to large publicly-owned treatment works (POTWs) discharging to waters of the Southern California Bight. This effort has culminated in the publication by the Southern California Coastal Water Research Project (SCCWRP) of the Model Monitoring Program guidance document (Schiff, K.C., J.S. Brown and S.B. Weisberg. 2001. *Model Monitoring Program for Large Ocean Dischargers in Southern California*. SCCWRP Tech. Rep. #357. Southern California Coastal Water Research Project, Westminster, CA. 101 pp.). This guidance provides the principles, framework and recommended design for effluent and receiving water monitoring elements that have guided development of the monitoring program described below.

B. This conceptual framework along with the California Ocean Plan has three components that comprise a range of spatial and temporal scales: (1) core monitoring; (2) regional monitoring; and (3) strategic process studies.

1. **Core Monitoring.** Core monitoring is local in nature and focuses on monitoring trends in quality and effects of the point source discharge. This includes discharge monitoring, as well as some aspects of receiving water monitoring. Core monitoring results for the effluent shall be submitted on monthly Discharge Monitoring Reports/State Monitoring Reports (DMR/SMR) and summarized in the annual receiving water monitoring report if needed. Core monitoring results for receiving water, including annotated QA/QC findings, shall be described and summarized in the annual receiving water monitoring report, due by March 15th of each year, for the previous fiscal year (July 1 through June 30). The annual receiving water monitoring report shall include the specified parameters for each station along with more detailed statistical comparisons, including analyses to elucidate spatial and temporal trends in the data, and in relation to the wastewater plume. Statistical methods shall include, but are not limited to, various multivariate techniques such as cluster analysis, ordination, and regression. The applicability and choice of statistical methods shall be explained in the report.

2. **Regional Monitoring.** Regional monitoring is focused on questions best answered by a region-wide approach that incorporates coordinated survey design and sampling techniques. Key components of regional monitoring include elements to address pollutant mass emission estimates, public health concerns, monitoring trends in natural resources, assessment of regional impacts from all contaminant

sources, and beneficial use protection. The final designs of regional monitoring programs are developed by means of steering and technical committees comprised of participating agencies. For each component of regional monitoring, this Order/Permit specifies the required degree and nature of participation by Orange County Sanitation District (OC San), based upon its past participation in regional monitoring programs. The degree and nature of OC San's participation in regional monitoring programs shall be briefly described and summarized in the annual receiving water monitoring report. Each year, as part of the annual receiving monitoring report, the Discharger shall provide an informational report summarizing to date its contributing activities towards coordinated implementation of regional monitoring programs.

Although participation in regional monitoring programs is required under this Order/Permit, revisions to Attachment E, at the direction of the Santa Ana Water Board and USEPA, may be necessary to accomplish the goals of regional monitoring.

3. **Strategic Process Studies.** Strategic process studies are focused on refined questions regarding specific effects or development of monitoring techniques and are anticipated to be of short duration and/or small scale, although multi-year studies may be needed. Questions regarding discharge or receiving water quality, discharge impacts, ocean processes in the area of the discharge, or development of techniques for monitoring the same, arising out of the results of core, regional monitoring, or other relevant studies shall be pursued through these studies. These studies are by nature ad hoc and, typically, cannot be anticipated in advance of the five-year permit cycle. Monitoring efforts, status of in-progress studies, and summary results for completed strategic process studies shall be briefly described and summarized in the annual receiving water monitoring report.

   In the spring, beginning in 2022 and continuing every-other year during the term of this Order/Permit, the Discharger, Santa Ana Water Board, and USEPA shall consult to determine the need for strategic process studies. By October 1st, the Discharger shall submit proposals to the Santa Ana Water Board and USEPA for the following fiscal year's (July 1 through June 30) monitoring effort, or a letter explaining why no special studies are proposed. Final scopes of work, including reporting schedules, shall be presented by the Discharger at a spring meeting with Santa Ana Water Board and USEPA to obtain Santa Ana Water Board and USEPA approval. Upon approval, the Discharger shall implement its strategic process studies.

C. Every five years SCCWRP coordinates receiving water regional monitoring within the Southern California Bight and compiles monitoring data collected by the dischargers and other participating entities. The sixth regional monitoring program (Bight '18) occurred primarily during the summer of 2018. The next (seventh) regional monitoring program (Bight '23) is expected to take place during 2023. While participation in regional monitoring programs is required under this Order/Permit, revisions to the Discharger's monitoring program at the direction of the Santa Ana Water Board and

USEPA may be necessary to accomplish the goals of regional monitoring or to allow the performance of special studies to investigate regional or site-specific water issues of concern. These revisions may include a reduction or increase in the number of parameters to be monitored, the frequency of monitoring, or the number and size of samples to be collected, which are applicable to receiving water monitoring program only. Such changes shall be authorized by the Santa Ana Water Board Executive Officer and USEPA Director upon written notification to the Discharger.

Permittee participation in regional monitoring programs is required as a condition of this Order/Permit. The Discharger shall complete collection and analysis of samples in accordance with the schedule established by the Steering Committee directing the Bight-wide regional monitoring surveys. The level of participation shall be similar to that provided by the Discharger in previous regional surveys conducted in 1994, 1998, 2003, 2008, 2013, and 2018.

D. All plant samples shall be representative of the waste discharge under conditions of peak load. Results of quarterly, semiannual, and annual analyses shall be reported by the due date specified in Table E-16 of the MRP. Should there be instances when monitoring could not be performed during these specified months, the Discharger must notify the Santa Ana Water Board and USEPA, state the reason why monitoring could not be conducted, and obtain approval from the Santa Ana Water Board and USEPA for an alternate schedule.

E. Pollutants shall be analyzed using the analytical methods described in 40 CFR § 136; or where no methods are specified for a given pollutant, by methods approved by the Santa Ana Water Board, the State Water Board, and/or USEPA. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level. USEPA published regulations for the Sufficiently Sensitive Methods Rule (SSM Rule) which became effective September 18, 2015. For the purposes of monitoring and reporting under the NPDES program, when more than one test procedure is approved under 40 CFR § 136 for the analysis of a pollutant or pollutant parameter, the test procedure must be sufficiently sensitive as defined at 40 CFR § 122.21(e)(3) and 122.44(i)(1)(iv). A USEPA-approved analytical method is sufficiently sensitive where:

1. The ML is at or below both the level of the applicable water quality criterion/objective and the permit limitation or performance goal for the measured pollutant or pollutant parameter; or
2. In permit applications, the ML is above the applicable water quality criterion/objective, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or
3. The method has the lowest ML of the USEPA-approved analytical methods where none of the USEPA-approved analytical methods for a pollutant can achieve the MLs necessary to assess the need for effluent limitations or to monitor compliance with a permit limitation.

The MLs in Ocean Plan Appendix II remain applicable. However, there may be situations when analytical methods are published with MLs that are more sensitive than the MLs for analytical methods listed in the Ocean Plan. For instance, USEPA Method 1631E for mercury is not currently listed in Ocean Plan Table II, but it is published with an ML of 0.5 ng/L that makes it a sufficiently sensitive analytical method.

F. In conformance with federal regulations 40 CFR § 122.45(c), analyses to determine compliance with the effluent limitations for metals shall be conducted using the total recoverable method. For chromium (III) and (VI), the Discharger may, at its option, meet both the chromium (III) and the chromium (VI) limitations by analyzing for total recoverable chromium.

G. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR § 136.3. All quality assurance/quality control (QA/QC) analyses must be run in the same preparation and analytical batches in which samples are actually analyzed. The Discharger shall retain the QA/QC documentation in its files and make available for inspection and/or submit this documentation when requested by the Santa Ana Water Board and/or USEPA. Proper chain of custody procedures must be followed, and a copy of this documentation shall be submitted with the monthly report.

H. If the Discharger samples and performs analyses (other than for process/operational control, startup, research, or equipment testing) on any influent, effluent, or receiving water constituent more frequently than required by this Order/Permit using approved analytical methods, the results of those analyses shall be included in the monitoring report. These results shall be reflected in the calculation of the average (or median) used in demonstrating compliance with limitations set forth in this Order/Permit.

I. 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. In the event that continuous monitoring equipment is out of service for greater than a 24-hour period, the Discharger shall obtain a representative grab sample each day the equipment is out of service. The Discharger shall correct the cause(s) of failure of the continuous monitoring equipment as soon as practicable. In its monitoring report, the Discharger shall specify the period(s) during which the equipment was out of service and, if the problem has not been corrected, shall identify the steps which the Discharger is taking or proposes to take to bring the equipment back into service and the schedule for these actions.

J. For every item of monitoring data where the requirements are not met, the monitoring report shall include a statement discussing the reasons for noncompliance, the actions undertaken or proposed that will bring the discharge into full compliance with requirements at the earliest time and an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Santa Ana Water Board and USEPA by letter when compliance with the time schedule has been achieved.

K. Laboratory Certification. Laboratories analyzing monitoring samples shall be certified by the State Water Board, Environmental Laboratory Accreditation Program (ELAP), in accordance with CWC section 13176, and must include QA/QC data in their reports.

L. The Discharger shall have and implement an acceptable written QA plan for laboratory analyses. The Discharger shall ensure that the results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Board the following address:

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

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description	Latitude	Longitude
Influent Monitoring Stations (n=2)				
Reclamation Plant No. 1 Influent	INF-001	Reclamation Plant No. 1 sampling stations shall be located at each point of inflow to the treatment plant and upstream of any in-plant return flows, where representative samples of the influent can be obtained.	33° 41.588' N	117° 56.294' W
Treatment Plant No. 2 Influent (Before OCWD receives reclaimed water from Plant No.2)	INF-002	Treatment Plant No. 2 sampling stations shall be located at each point of inflow to the treatment plant and upstream of any in-plant return flows, where representative samples of the influent can be obtained.	33° 38.342' N	117° 57.462' W
Treatment Plant No. 2 Influent (Pending until OCWD receives reclaimed water from Plant No.2)	INF-002	INF-002 sampling stations shall be located at each point of reclaimable inflow to the Treatment Plant No.2, where representative samples of the reclaimable influent can be obtained.	33° 38.342' N	117° 57.462' W

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description	Latitude	Longitude
	INF-002A	INF-002A sampling station shall be located at a point of non-reclaimable influent from the 78-inch interplant trunkline containing SARI influent, Reclamation Plant No.1 recycle flow, and GWRS wastestream.	33° 38.317' N	117° 57.453' W
Effluent Monitoring Stations (n=2)				
Effluent discharged to Discharge Point 001 (during normal operation)	EFF-001	Sampling station shall be located downstream of any in-plant return flows, but before entering 120-inch outfall, where representative effluent samples can be obtained.	33° 38.012' N	117° 57.452' W
Effluent discharged to Discharge Point 002 (during essential maintenance or capital improvement projects)	EFF-002	Sampling station can be same as EFF-001, but before entering 78-inch outfall, where representative samples of the disinfected effluent discharge can be obtained.	33° 38.012' N	117° 57.452' W
Emergency Discharge Monitoring Stations (n=2)				
Emergency discharges to Discharge Point 002 (during an emergency)	EMG-001	Sampling station shall be located downstream of any in-plant return flows, but before entering the emergency 78-inch outfall, where representative samples of the disinfected effluent discharge can be obtained.	33° 38.012' N	117° 57.452' W
Santa Ana River Overflow to Discharge Point 003 (during an extreme emergency)	EMG-002	Sampling station shall be located before entering the Santa Ana River overflow weirs, where representative samples of the disinfected effluent discharge can be obtained.	33° 38.297' N	117° 57.356' W

Table E-2. Receiving Water Core and Regional Monitoring Station Locations

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
Receiving Water Core Monitoring Stations						
Monthly Water Quality Monitoring Stations (n=28) * = Station sampled for ammonia (NH_3-N) and nitrate nitrogen.						
*	2103	33° 35.089' N	117° 56.678' W	110	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2104	33° 34.199' N	117° 57.414' W	143	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2105	33° 33.309' N	117° 58.150' W	280	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2106	33° 32.420' N	117° 58.885' W	309	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2183	33° 35.701' N	117° 57.744' W	36	1 - 2 m above bottom	1, 10, 20, 30, 34
*	2184	33° 34.811' N	117° 58.480' W	51	1 - 2 m above bottom	1, 10, 20, 30, 40, 49
*	2185	33° 33.922' N	117° 59.215' W	114	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2186	33° 33.032' N	117° 59.951' W	247	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2203	33° 36.313' N	117° 58.810' W	25	1 - 2 m above bottom	1, 10, 20, 23
*	2204	33° 35.423' N	117° 59.546' W	39	1 - 2 m above bottom	1, 10, 20, 30, 37
ZID boundary; *	2205	33° 34.534' N	118° 00.282' W	57	1 - 2 m above bottom	1, 10, 20, 30, 40, 50, 55
*	2206	33° 33.644' N	118° 01.018' W	185	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2223	33° 36.924' N	117° 59.871' W	22	1 - 2 m above bottom	1, 10, 20
*	2224	33° 36.035' N	118° 00.608' W	31	1 - 2 m above bottom	1, 10, 20, 29

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
*	2225	33° 35.146' N	118° 01.346' W	47	1 - 2 m above bottom	1, 10, 20, 30, 40, 45
*	2226	33° 34.257' N	118° 02.083' W	135	1 - 75 m	1, 10, 20, 30, 40, 50, 60
*	2303	33° 37.537' N	118° 00.936' W	21	1 - 2 m above bottom	1, 10, 19
*	2304	33° 36.649' N	118° 01.674' W	29	1 - 2 m above bottom	1, 10, 20, 27
*	2305	33° 35.760' N	118° 02.412' W	38	1 - 2 m above bottom	1, 10, 20, 30, 36
*	2306	33° 34.871' N	118° 03.149' W	114	1 - 75 m	1, 10, 20, 30, 40, 50, 60
--	2351	33° 38.151' N	118° 02.001' W	21	1 - 2 m above bottom	None
--	2352	33° 37.262' N	118° 02.739' W	29	1 - 2 m above bottom	None
--	2353	33° 36.373' N	118° 03.477' W	37	1 - 2 m above bottom	None
--	2354	33° 35.484' N	118° 04.214' W	123	1 - 75 m	None
--	2403	33° 38.765' N	118° 03.072' W	21	1 - 2 m above bottom	None
--	2404	33° 37.875' N	118° 03.808' W	30	1 - 2 m above bottom	None
--	2405	33° 36.986' N	118° 04.544' W	37	1 - 2 m above bottom	None
--	2406	33° 36.096' N	118° 05.280' W	60	1 - 2 m above bottom	None
Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) (n=8) Quarterly REC-1 stations are monitored 5 days over a 30-day period in spring, summer, fall, and winter for geometric mean calculation (“spring” means April, May, or June; “summer” means July, August, or September; “fall” means October, November, or December; and “winter” means January, February, or March).						
--	2103	33° 35.089' N	117° 56.678' W	110	1 - 75 m	1, 10, 20, 30, 40, 50, 60

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
--	2104	33° 34.199' N	117° 57.414' W	143	1 - 75 m	1, 10, 20, 30, 40, 50, 60
--	2183	33° 35.701' N	117° 57.744' W	36	1 - 2 m above bottom	1, 10, 20, 30, 34
--	2203	33° 36.313' N	117° 58.810' W	25	1 - 2 m above bottom	1, 10, 20, 23
--	2223	33° 36.924' N	117° 59.871' W	22	1 - 2 m above bottom	1, 10, 20
--	2303	33° 37.537' N	118° 00.936' W	21	1 - 2 m above bottom	1, 10, 19
--	2351	33° 38.151' N	118° 02.001' W	21	1 - 2 m above bottom	1, 10, 19
--	2403	33° 38.765' N	118° 03.072' W	21	1 - 2 m above bottom	1, 10, 19
Quarterly Benthic Monitoring Stations (n=11) Quarterly benthic stations are monitored for infauna and sediment geochemistry (except pesticides) every quarter in spring, summer, fall, and winter ("spring" means April, May, or June; "summer" means July, August, or September; "fall" means October, November, or December; and "winter" means January, February, or March) as well as sampled annually in summer for pesticides and annually for whole sediment toxicity.						
ZID Boundary	0	33° 34.573' N	118° 00.598' W	56	--	--
--	1	33° 34.657' N	118° 00.968' W	56	--	--
ZID Boundary	4	33° 34.498' N	117° 59.761' W	56	--	--
--	9	33° 34.363' N	117° 59.510' W	59	--	--
--	73	33° 34.596' N	118° 00.709' W	55	--	--
ZID Boundary	76	33° 34.459' N	118° 00.297' W	58	--	--
--	77	33° 34.373' N	117° 59.730' W	60	--	--
--	84	33° 34.648' N	118° 00.543' W	54	--	--
--	85	33° 34.532' N	118° 00.679' W	57	--	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
Farfield Reference	CON	33° 36.037' N	118° 05.387' W	59	--	--
ZID Boundary	ZB	33° 34.545' N	118° 00.274' W	56	--	--
Annual Benthic Monitoring Stations (n=11) Annual benthic stations are monitored only in the "summer" (July, August, or September) for infauna and sediment geochemistry.						
--	3	33° 34.434' N	118° 00.660' W	60	--	--
--	5	33° 34.749' N	118° 01.612' W	59	--	--
--	10	33° 34.902' N	118° 02.081' W	62	--	--
--	12	33° 34.385' N	117° 59.054' W	58	--	--
--	13	33° 35.307' N	118° 02.944' W	59	--	--
--	37	33° 34.832' N	117° 57.369' W	56	--	--
--	74	33° 34.616' N	118° 00.230' W	57	--	--
--	75	33° 34.559' N	117° 59.974' W	60	--	--
--	78	33° 34.329' N	118° 00.035' W	63	--	--
--	86	33° 34.400' N	118° 00.380' W	57	--	--
--	87	33° 34.780' N	118° 00.842' W	60	--	--
1/5-year Benthic Monitoring Stations (n=35) 1/5-year benthic stations are monitored once every five years in the "summer" (July, August, or September) for infauna and sediment geochemistry.						
--	7	33° 35.325' N	118° 00.367' W	41	--	--
--	8	33° 35.164' N	117° 59.555' W	44	--	--
--	17	33° 33.961' N	118° 00.187' W	91	--	--
--	18	33° 34.064' N	118° 00.750' W	91	--	--
--	20	33° 34.599' N	118° 02.229' W	100	--	--
--	21	33° 35.313' N	118° 01.891' W	44	--	--
--	22	33° 35.204' N	117° 59.028' W	45	--	--
--	23	33° 33.968' N	117° 59.147' W	100	--	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
--	24	33° 33.563' N	118° 01.140' W	200	--	--
--	25	33° 33.924' N	118° 02.176' W	200	--	--
--	27	33° 33.326' N	117° 59.708' W	200	--	--
--	29	33° 35.033' N	118° 03.113' W	100	--	--
--	30	33° 35.493' N	118° 02.899' W	46	--	--
--	33	33° 34.349' N	117° 57.866' W	100	--	--
--	36	33° 35.308' N	117° 57.495' W	45	--	--
--	38	33° 34.634' N	117° 57.317' W	100	--	--
--	39	33° 33.283' N	117° 58.531' W	200	--	--
--	40	33° 32.496' N	117° 59.775' W	303	--	--
--	41	33° 32.690' N	118° 01.149' W	303	--	--
--	42	33° 33.098' N	118° 02.598' W	303	--	--
--	44	33° 34.586' N	118° 05.422' W	241	--	--
--	55	33° 36.739' N	118° 05.413' W	40	--	--
--	56	33° 35.665' N	118° 05.417' W	100	--	--
--	57	33° 34.970' N	118° 05.418' W	200	--	--
--	58	33° 33.365' N	118° 05.347' W	300	--	--
--	59	33° 36.070' N	118° 03.701' W	40	--	--
--	60	33° 35.532' N	118° 04.017' W	100	--	--
--	61	33° 35.011' N	118° 04.326' W	200	--	--
--	62	33° 34.069' N	118° 04.568' W	300	--	--
--	63	33° 34.173' N	118° 03.407' W	200	--	--
--	64	33° 33.484' N	118° 03.663' W	300	--	--
--	65	33° 33.859' N	117° 57.230' W	200	--	--
--	83	33° 34.239' N	118° 01.414' W	100	--	--
--	C4	33° 35.056' N	117° 55.833' W	187	--	--
--	C5	33° 33.920' N	117° 55.620' W	296	--	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=6) Semi-annual trawl stations are monitored in summer (July, August, or September) and winter (January, February, or March). * = Station is also sampled annually in one of the four quarters for demersal fish liver tissue chemistry and demersal fish liver histopathology.						
Outfall; *	T1	33° 34.641' N	118° 00.567' W	55	--	--
Farfield reference; *	T11	33° 36.055' N	118° 05.199' W	60	--	--
--	T12	33° 34.868' N	118° 01.670' W	57	--	--
--	T17	33° 35.309' N	118° 02.987' W	60	--	--
--	T22	33° 34.326' N	117° 59.856' W	60	--	--
--	T23	33° 34.336' N	117° 59.051' W	58	--	--
Annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=8) Annual trawl stations are monitored in summer (July, August, or September).						
--	T2	33° 35.688' N	117° 59.561' W	35	--	--
--	T6	33° 35.946' N	118° 02.785' W	36	--	--
--	T10	33° 33.771' N	118° 00.250' W	137	--	--
--	T14	33° 34.672' N	118° 03.200' W	137	--	--
--	T18	33° 36.960' N	118° 05.273' W	36	--	--
--	T19	33° 35.394' N	118° 05.424' W	137	--	--
--	T24	33° 35.648' N	118° 01.274' W	36	--	--
--	T25	33° 34.245' N	118° 01.967' W	137	--	--
Annual Rig Fish Monitoring Zones (n=2) Annual rig fishing stations are monitored in summer (July, August, or September). ***** All station positions and depths shall be determined prior to the first sampling.						

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
Zone 1 (outfall)	RF1	Inshore of the 60 m depth contour bounded by coordinates: 33° 36.272' N / 117° 57.264' W, 33° 37.522' N / 117° 59.374' W along the 15 m contour; 33° 34.698' N / 118° 01.713' W along the 80 m contour; and 33° 33.475' N / 117° 59.583' W along the 180 m contour.		*	--	--
Zone 3 (farfield reference)	RF3	Offshore of Huntington Beach along 60 m depth contour bounded by the coordinates: 33° 35.885' N / 118° 08.013' W; 33° 35.407' N / 118° 07.408' W; 33° 34.213' N / 118° 08.628' W; 33° 34.830' N / 118° 09.065' W.		*	--	--
Receiving Water Regional Monitoring Stations						
Quarterly Southern California Bight Regional Water Quality Monitoring Stations (n=60) * = Core water quality monitoring station sampled during Southern California Bight Regional Water Quality surveys (n=16).						
--	1701	33° 29.878' N	117° 44.721' W	10	1 - 2 m above bottom	--
--	1702	33° 29.180' N	117° 45.120' W	40	1 - 2 m above bottom	--
--	1703	33° 28.472' N	117° 45.524' W	60	1 - 2 m above bottom	--
--	1704	33° 28.071' N	117° 45.752' W	100	1 - 100 m	--
--	1705	33° 27.434' N	117° 46.115' W	400	1 - 100 m	--
--	1706	33° 26.455' N	117° 46.679' W	600	1 - 100 m	--
--	1801	33° 32.027' N	117° 46.910' W	10	1 - 2 m above bottom	--
--	1802	33° 31.591' N	117° 47.158' W	40	1 - 2 m above bottom	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
--	1803	33° 31.154' N	117° 47.406' W	60	1 - 2 m above bottom	--
--	1804	33° 30.612' N	117° 47.710' W	100	1 - 100 m	--
--	1805	33° 29.782' N	117° 48.277' W	500	1 - 100 m	--
--	1806	33° 28.618' N	117° 48.847' W	600	1 - 100 m	--
--	1901	33° 33.682' N	117° 49.654' W	10	1 - 2 m above bottom	--
--	1902	33° 33.165' N	117° 49.944' W	60	1 - 2 m above bottom	--
--	1903	33° 32.762' N	117° 50.182' W	100	1 - 75 m	--
--	1904	33° 31.787' N	117° 50.734' W	405	1 - 75 m	--
--	1905	33° 30.810' N	117° 51.285' W	510	1 - 75 m	--
--	1906	33° 29.829' N	117° 51.842' W	550	1 - 75 m	--
--	2001	33° 35.335' N	117° 52.692' W	10	1 - 2 m above bottom	--
--	2002	33° 34.755' N	117° 53.028' W	60	1 - 2 m above bottom	--
--	2003	33° 34.565' N	117° 53.144' W	100	1 - 75 m	--
--	2004	33° 33.589' N	117° 53.708' W	345	1 - 75 m	--
--	2005	33° 32.613' N	117° 54.063' W	410	1 - 75 m	--
--	2006	33° 31.647' N	117° 54.824' W	470	1 - 75 m	--
--	2041	33° 35.969' N	117° 54.567' W	10	1 - 2 m above bottom	--
--	2042	33° 35.413' N	117° 54.930' W	53	1 - 2 m above bottom	--
--	2043	33° 34.908' N	117° 55.265' W	165	1 - 75 m	--
--	2044	33° 33.951' N	117° 55.887' W	300	1 - 75 m	--
--	2045	33° 33.013' N	117° 56.500' W	390	1 - 75 m	--
--	2046	33° 32.080' N	117° 57.110' W	432	1 - 75 m	--
--	2101	33° 36.183' N	117° 55.749' W	10	1 - 2 m above bottom	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
--	2102	33° 35.631' N	117° 56.206' W	26	1 - 2 m above bottom	--
*	2103	33° 35.089' N	117° 56.678' W	110	1 - 75 m	--
*	2104	33° 34.199' N	117° 57.414' W	143	1 - 75 m	--
*	2105	33° 33.309' N	117° 58.150' W	280	1 - 75 m	--
*	2106	33° 32.420' N	117° 58.885' W	309	1 - 75 m	--
--	2201	33° 37.493' N	117° 57.831' W	10	1 - 2 m above bottom	--
--	2202	33° 36.901' N	117° 58.314' W	16	1 - 2 m above bottom	--
*	2203	33° 36.313' N	117° 58.810' W	25	1 - 2 m above bottom	--
*	2204	33° 35.423' N	117° 59.546' W	39	1 - 2 m above bottom	--
*	2205	33° 34.534' N	118° 00.282' W	57	1 - 2 m above bottom	--
*	2206	33° 33.644' N	118° 01.018' W	185	1 - 75 m	--
--	2301	33° 38.572' N	118° 00.064' W	10	1 - 2 m above bottom	--
--	2302	33° 38.053' N	118° 00.495' W	15	1 - 2 m above bottom	--
*	2303	33° 37.537' N	118° 00.936' W	21	1 - 2 m above bottom	--
*	2304	33° 36.649' N	118° 01.674' W	29	1 - 2 m above bottom	--
*	2305	33° 35.760' N	118° 02.412' W	38	1 - 2 m above bottom	--
*	2306	33° 34.871' N	118° 03.149' W	114	1 - 75 m	--
--	2401	33° 39.920' N	118° 02.103' W	10	1 - 2 m above bottom	--
--	2402	33° 39.342' N	118° 02.593' W	16	1 - 2 m above bottom	--

Station Description	Station Location Name	Latitude	Longitude	Depth (m)	CTD Sampling Depths (1 m intervals)	Discrete Sampling Depths (m)
*	2403	33° 38.765' N	118° 03.072' W	21	1 - 2 m above bottom	--
*	2404	33° 37.875' N	118° 03.808' W	29	1 - 2 m above bottom	--
*	2405	33° 36.986' N	118° 04.544' W	37	1 - 2 m above bottom	--
*	2406	33° 36.096' N	118° 05.280' W	60	1 - 2 m above bottom	--
--	2451	33° 41.475' N	118° 03.944' W	10	1 - 2 m above bottom	--
--	2452	33° 40.739' N	118° 04.584' W	17	1 - 2 m above bottom	--
--	2453	33° 39.987' N	118° 05.204' W	22	1 - 2 m above bottom	--
--	2454	33° 39.098' N	118° 05.946' W	30	1 - 2 m above bottom	--
--	2455	33° 38.210' N	118° 06.675' W	36	1 - 2 m above bottom	--
--	2456	33° 37.318' N	118° 07.411' W	42	1 - 2 m above bottom	--

Responsible Agency	Station Location Name	Latitude	Longitude	Depth	Station Location	Station Description
Orange County Regional Shoreline REC-1 Cooperative Monitoring Program Stations (Nearshore Zone) (n=36) r = Regional OCHCA station. c = OC San station. Orange County Regional Shoreline REC-1 stations are monitored at least once per week. * = These stations are monitored at least twice per week.						
OCSD-r	OSB03	33° 44.355' N	118° 06.449' W	surf	Seal Beach/ Sunset Beach	Projection of 8th St.
OCSD-r	OSB05	33° 44.296' N	118° 06.378' W	surf	Seal Beach/ Sunset Beach	100 yards south of Pier
OCSD-r	OSB04	33° 44.209' N	118° 06.121' W	surf	Seal Beach/ Sunset Beach	Projection of 14th St.

Responsible Agency	Station Location Name	Latitude	Longitude	Depth	Station Location	Station Description
OCSD-r	OSB01	33° 43.603' N	118° 05.041' W	surf	Seal Beach/ Sunset Beach	Projection of Seaway
OCSD-r	OSUB1	33° 42.986' N	118° 04.341' W	surf	Seal Beach/ Sunset Beach	Projection of Broadway
OCSD-c	39N	33° 42.114' N	118° 03.321' W	surf	Bolsa Chica/ Huntington Beach	Bolsa Chica Beach
OCSD-c	33N	33° 41.281' N	118° 02.495' W	surf	Bolsa Chica/ Huntington Beach	Projection of Bolsa Chica Reserve
OCSD-r	BCO-1	33° 40.994' N	118° 02.138' W	surf	Bolsa Chica/ Huntington Beach	Bolsa Chica Wetlands Channel
OCSD-c	27N	33° 40.587' N	118° 01.712' W	surf	Bolsa Chica/Huntington Beach	Bluffs at Sea Pointe (Dog Beach)
OCSD-r	HB1	33° 40.065' N	118° 01.937' W	surf	Bolsa Chica/ Huntington Beach	PCH & Goldenwest
OCSD-r	HB2	33° 40.022' N	118° 01.937' W	surf	Bolsa Chica/ Huntington Beach	PCH & 22nd St.
OCSD-r	HB3	33° 39.952' N	118° 00.933' W	surf	Bolsa Chica/ Huntington Beach	PCH & 20th St.
OCSD-c	21N	33° 39.843' N	118° 00.785' W	surf	Bolsa Chica/ Huntington Beach	Projection of 17th St.
OCSD-r	HB4	33° 39.680' N	118° 00.613' W	surf	Bolsa Chica/ Huntington Beach	PCH & 13th St.
OCSD-r	HB5	33° 39.414' N	118° 00.310' W	surf	Bolsa Chica/ Huntington Beach	PCH & 6th St.
OCSD-c	15N	33° 39.114' N	117° 59.846' W	surf	Bolsa Chica/ Huntington Beach	Projection of Jack's Snack Bar
OCSD-c	12N	33° 38.854' N	117° 59.413' W	surf	Bolsa Chica/ Huntington Beach	Projection of Beach Blvd
OCSD-c	9N*	33° 38.565' N	117° 58.924' W	surf	Bolsa Chica/ Huntington Beach	Projection of Newland St.

Responsible Agency	Station Location Name	Latitude	Longitude	Depth	Station Location	Station Description
OCSD-c	6N*	33° 38.331' N	117° 58.573' W	surf	Bolsa Chica/ Huntington Beach	Projection of Magnolia St.
OCSD-c	3N*	33° 38.018' N	117° 58.032' W	surf	Bolsa Chica/ Huntington Beach	Projection of Brookhurst St.
OCSD-c	0*	33° 37.764' N	117° 57.598' W	surf	Bolsa Chica/ Huntington Beach	Santa Ana River mouth
OCSD-r	TM	33° 37.994' N	117° 57.645' W	surf	Bolsa Chica/ Huntington Beach	PCH Bridge at Talbert Marsh
OCSD-r	SAR-N	33° 37.870' N	117° 57.434' W	surf	Bolsa Chica/ Huntington Beach	Santa Ana River mouth
OCSD-c	3S	33° 37.619' N	117° 57.264' W	surf	Newport Beach	Projection Orange St.
OCSD-c	6S	33° 37.337' N	117° 56.704' W	surf	Newport Beach	Projection $52^{nd}/53^{rd}$ St.
OCSD-c	9S	33° 37.033' N	117° 56.283' W	surf	Newport Beach	Projection 38^{th} St.
OCSD-c	15S	33° 36.342' N	117° 55.459' W	surf	Newport Beach	Projection of $15^{th}/16^{th}$ St.
OCSD-c	21S	33° 36.059' N	117° 54.213' W	surf	Newport Beach	Upcoast of Balboa Pier
OCSD-c	27S	33° 35.646' N	117° 52.910' W	surf	Newport Beach	The Wedge
OCSD-c	29S	33° 35.559' N	117° 52.508' W	surf	Newport Beach	Corona del Mar State Beach
OCSD-r	BGC	33° 35.384' N	117° 52.117' W	surf	Newport Beach	Little Corona Beach
OCSD-r	PPC	33° 34.490' N	117° 50.512' W	surf	Newport Beach/Crystal Cove	Pelican Point Beach (reef)
OCSD-c	39S	33° 34.700' N	117° 51.946' W	surf	Newport Beach/Crystal Cove	Pelican Point (ramp)

Responsible Agency	Station Location Name	Latitude	Longitude	Depth	Station Location	Station Description
OCSD-r	WFC	33° 34.887' N	117° 51.342' W	surf	Newport Beach/Crystal Cove	Pelican Hill Waterfall
OCSD-r	ONB39	33° 34.450' N	117° 50.449' W	surf	Newport Beach/Crystal Cove	Crystal Cove - Los Trancos
OCSD-r	MDC	33° 33.607' N	117° 49.323' W	surf	Newport Beach/Crystal Cove	Muddy Creek Beach (Reef Point)

The North latitude and West longitude information in Table E-1 and E-2 are approximate for administrative purposes.

Figure E-1. Monthly Water Quality Monitoring Stations (n=28)

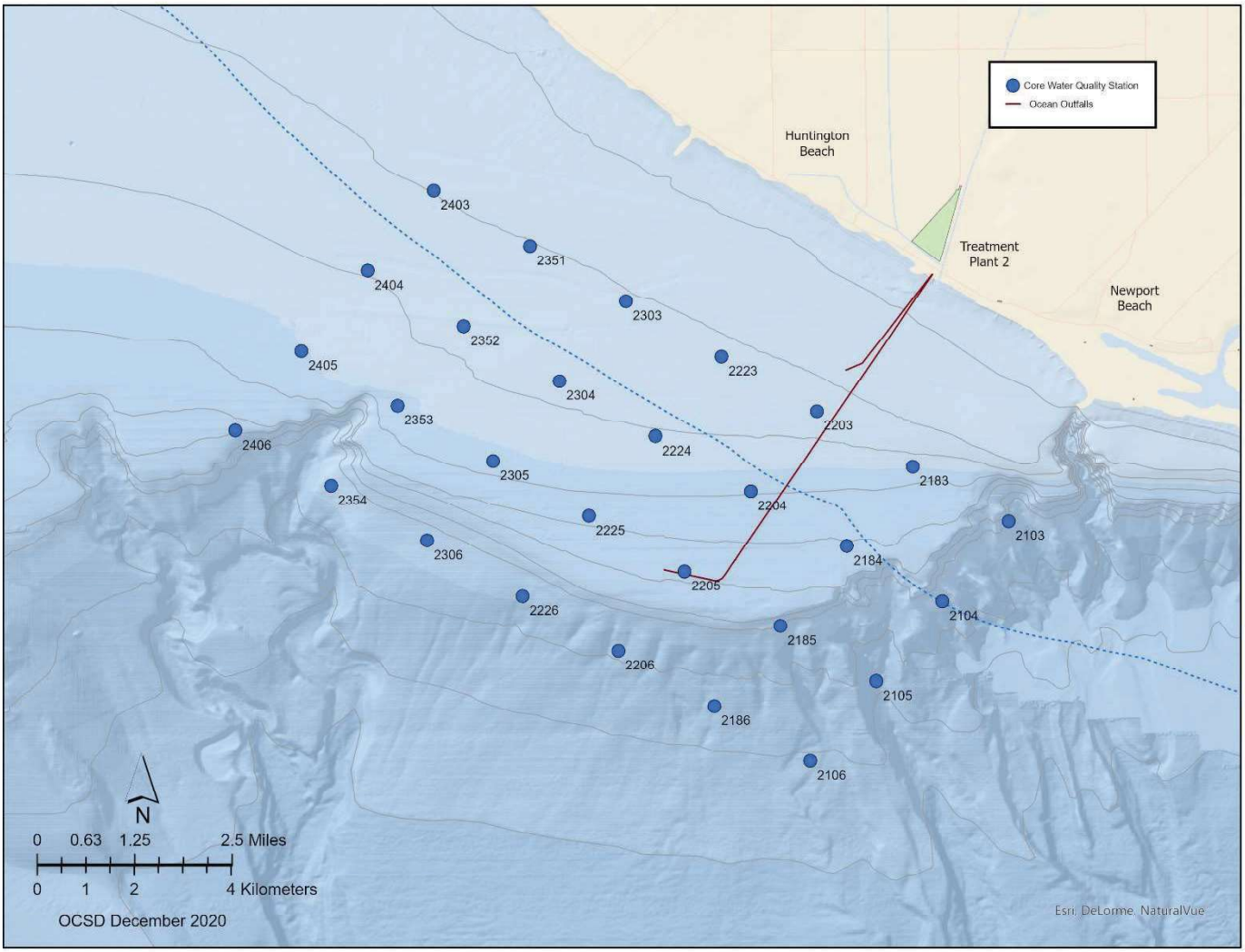


Figure E-2. Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) (n=8)

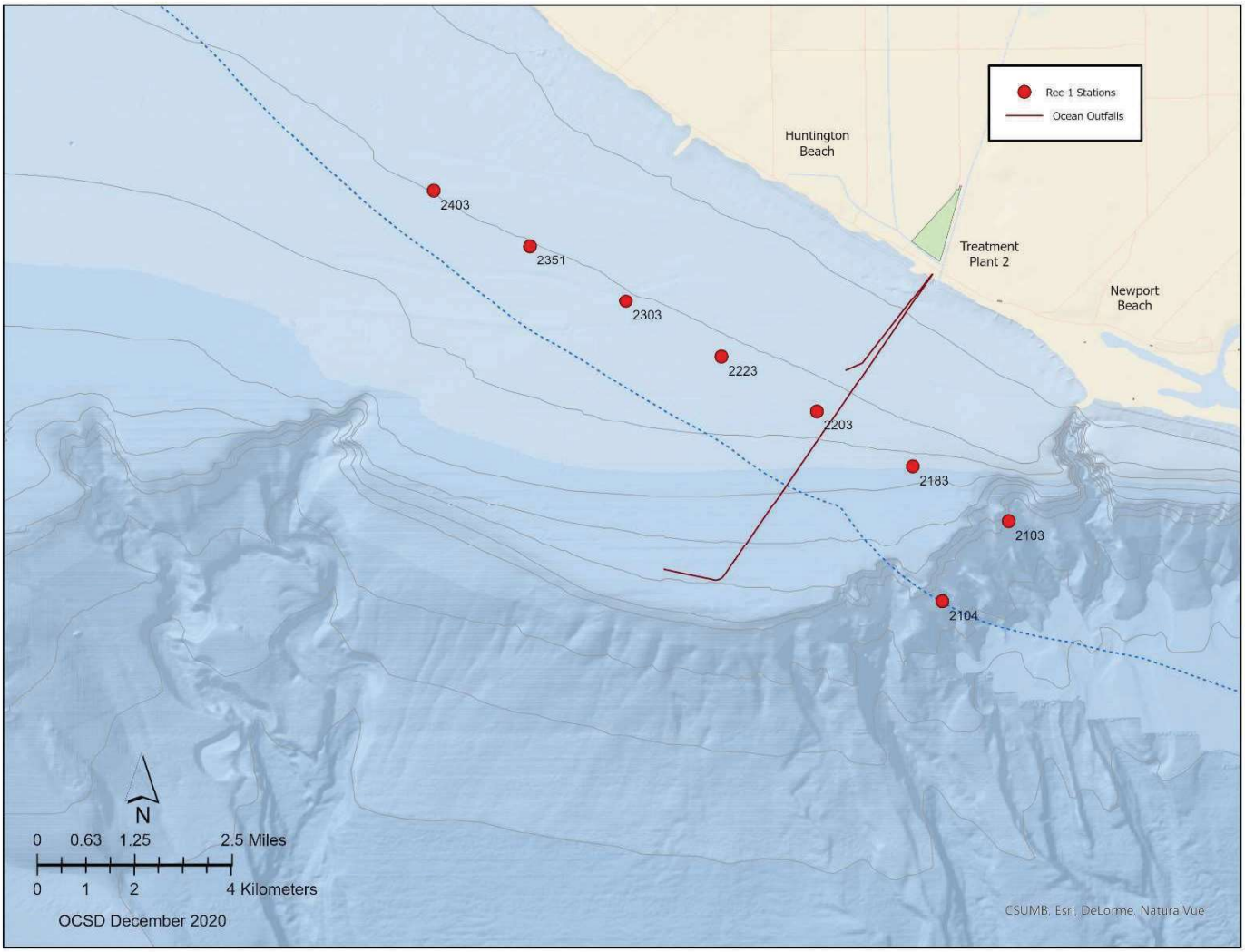


Figure E-3. Benthic Monitoring Stations: Quarterly (n=11), Annual (n=11), and 1/5-year (n=35)

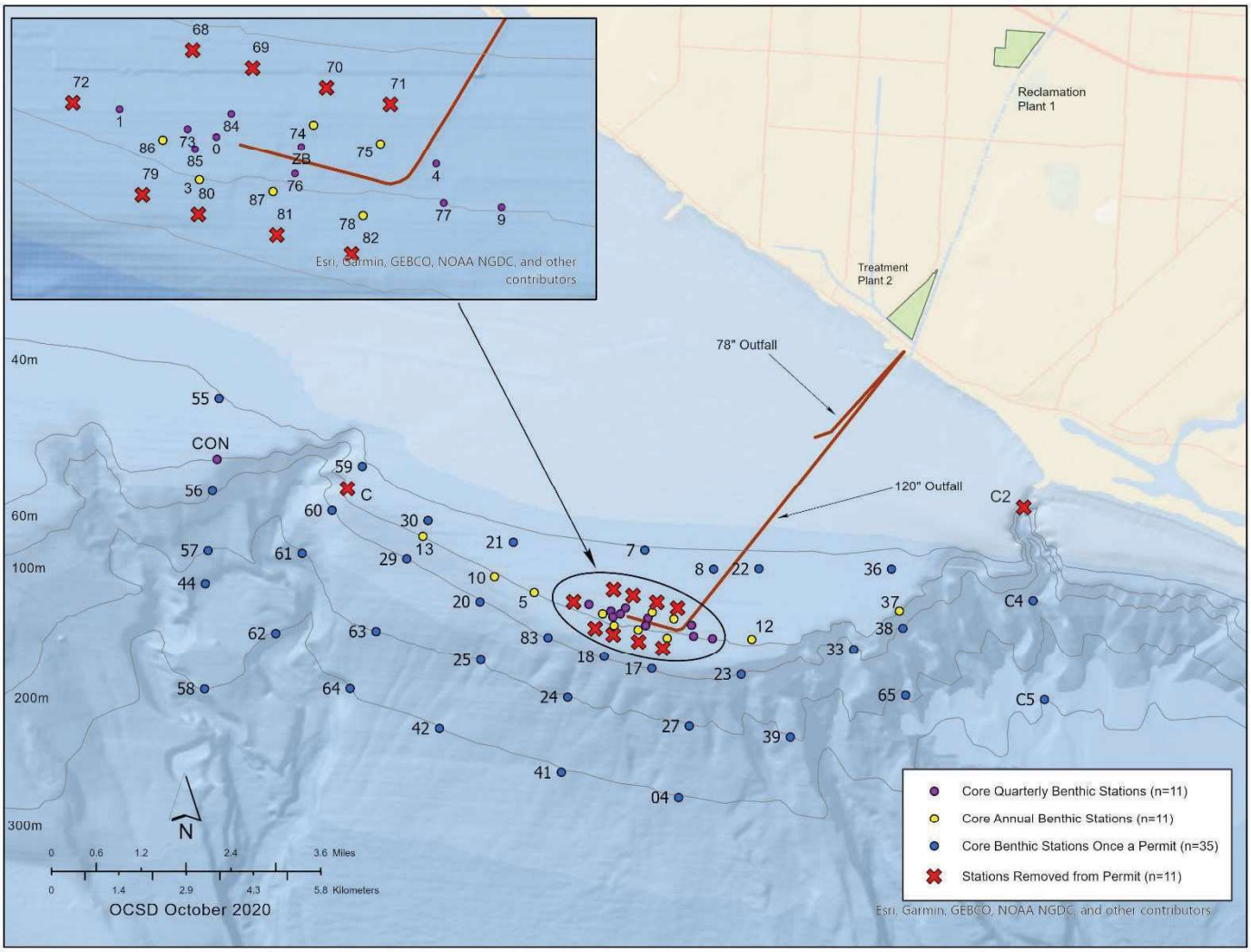


Figure E-4. Semi-annual Trawl Fish Monitoring Stations (n=6) and Annual Trawl Fish Monitoring Stations (n=8)

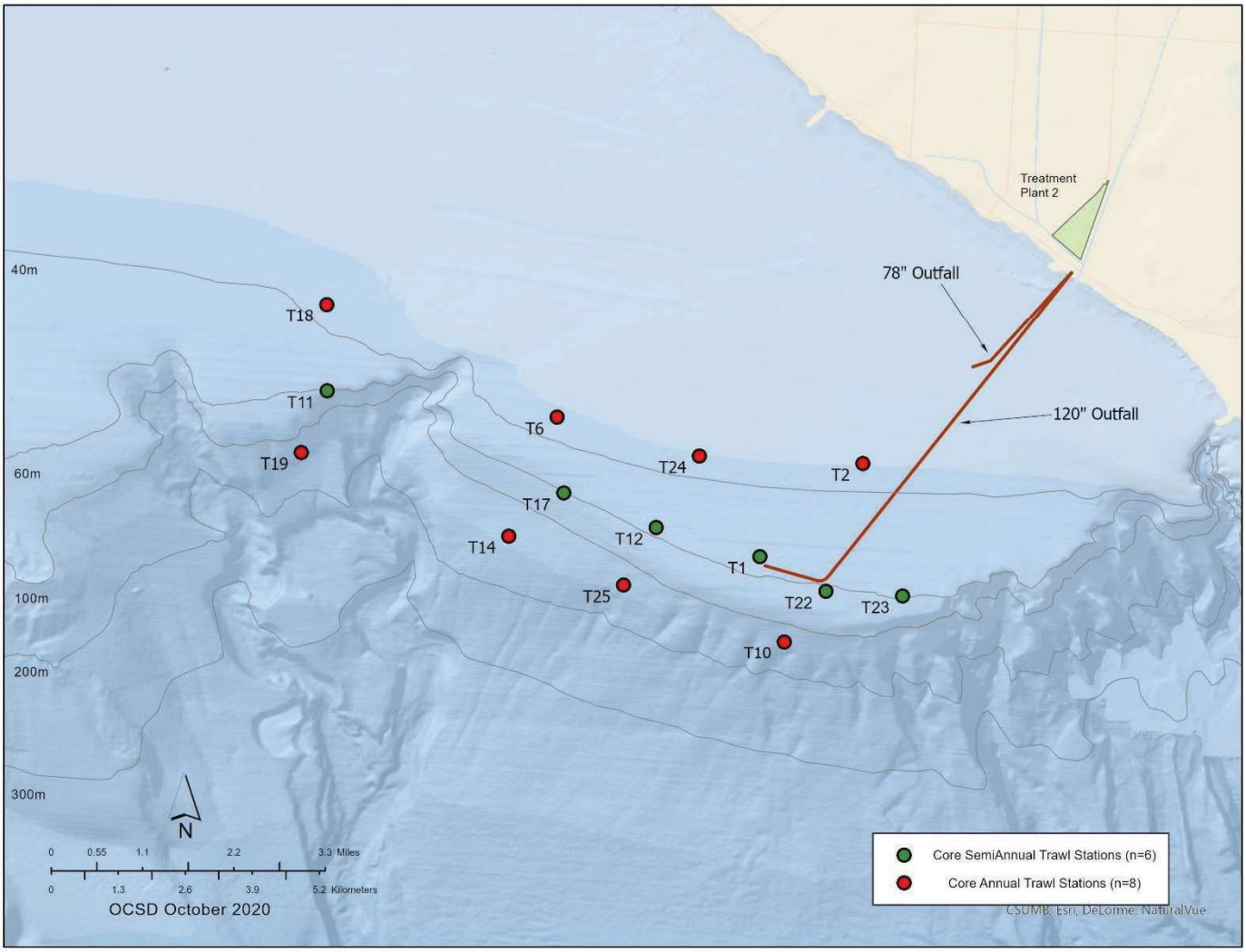


Figure E-5. Annual Rig Fish Monitoring Zones (n=2)

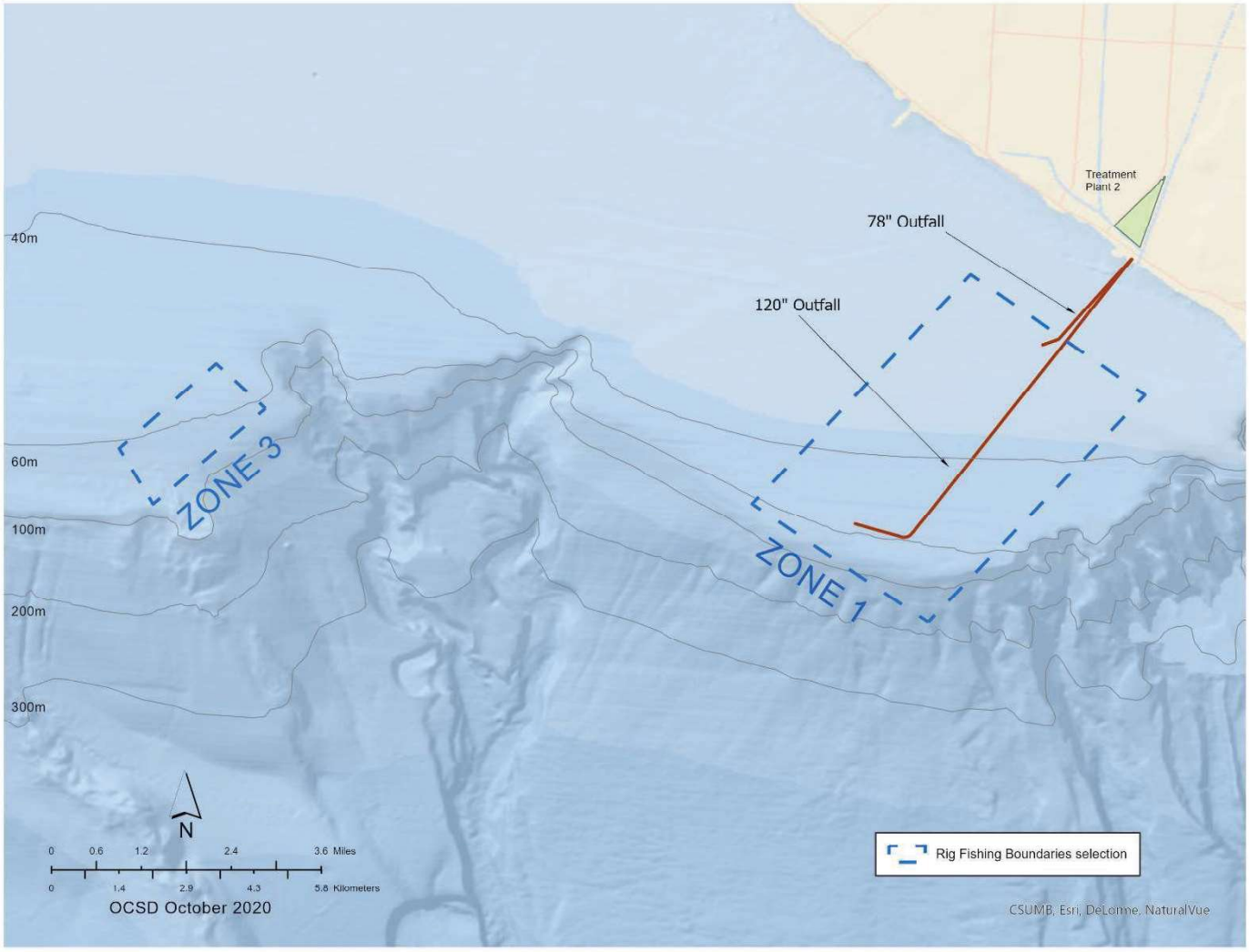


Figure E-6. Quarterly Central Bight Water Quality Monitoring Stations (n=60)

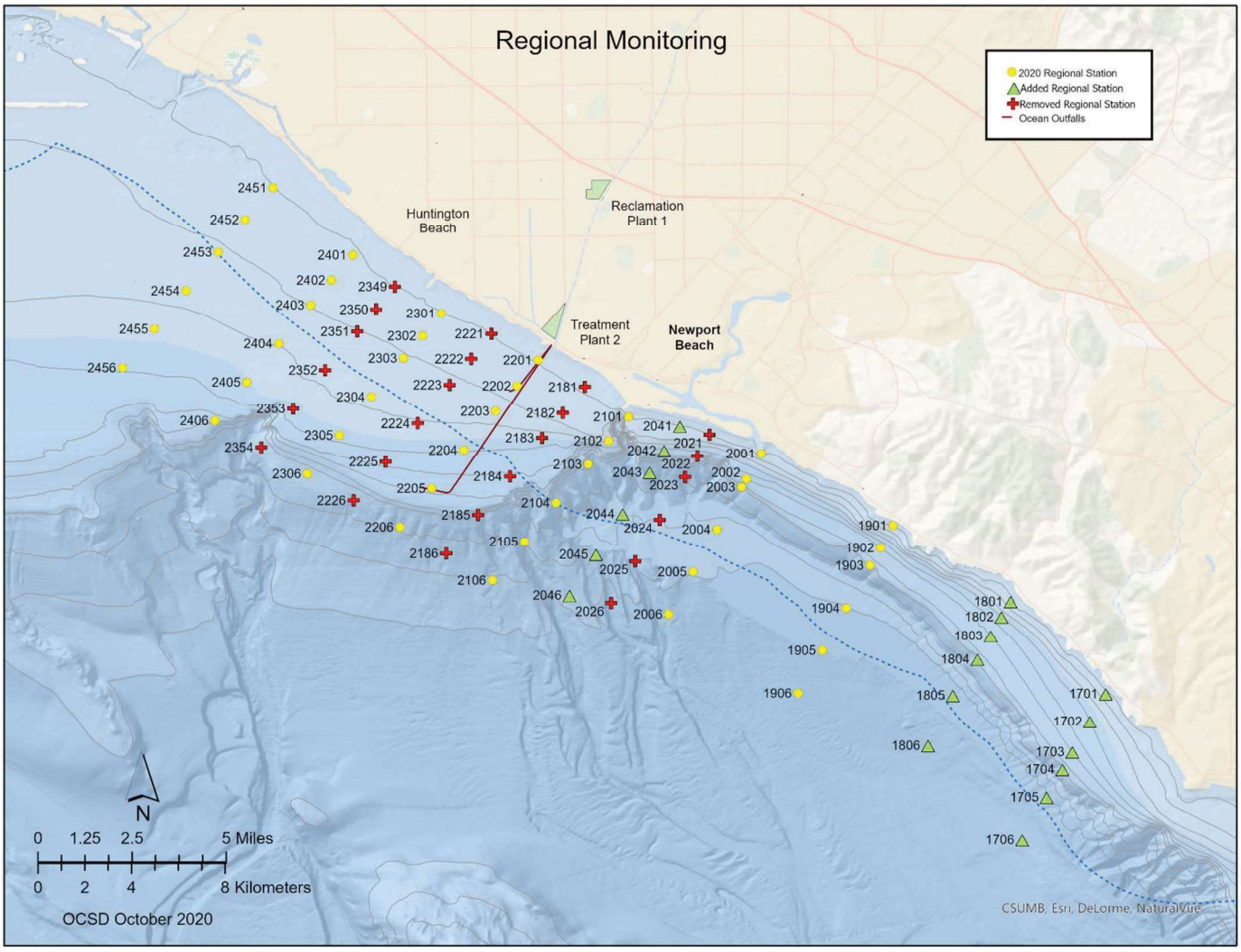
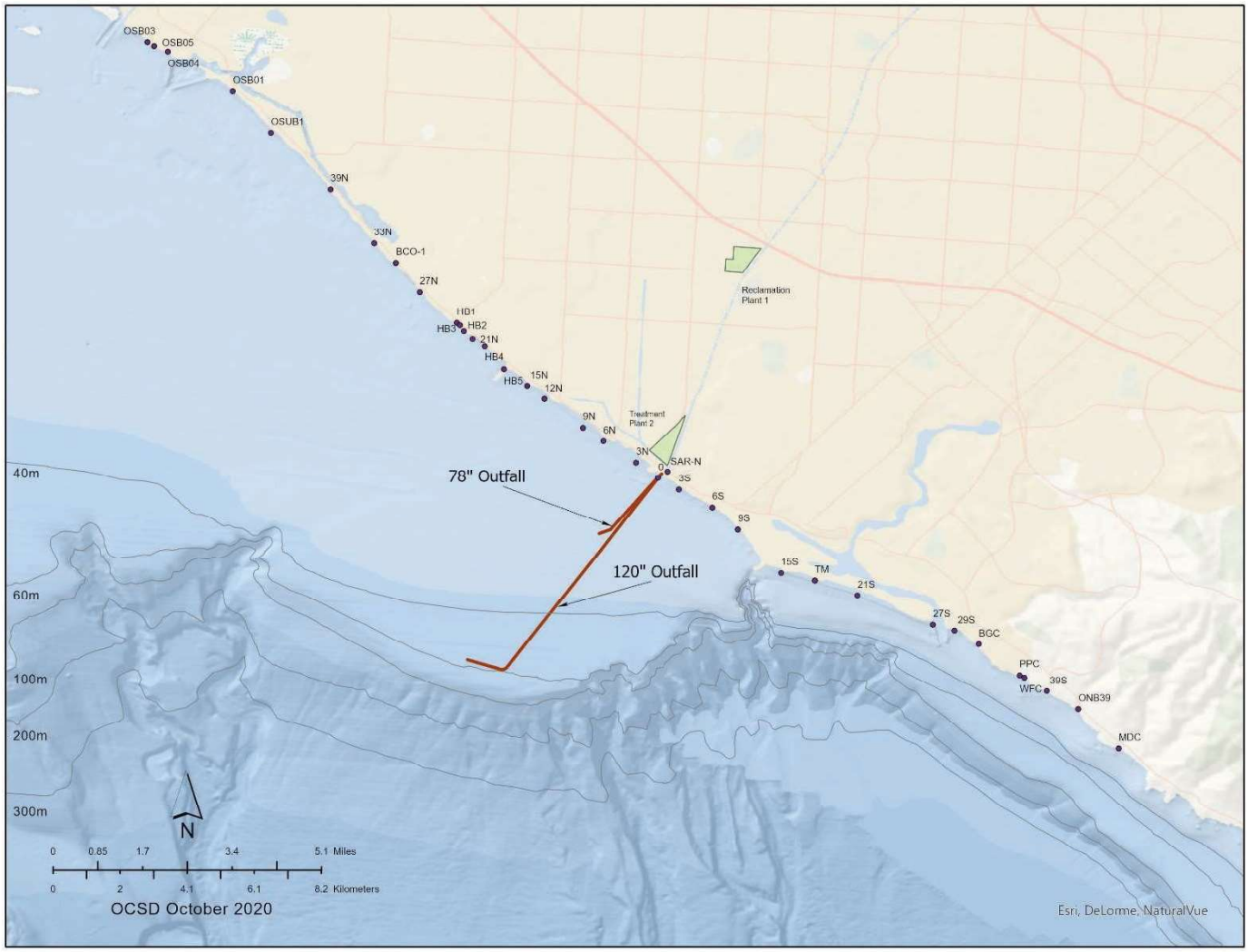


Figure E-7. Orange County Shoreline REC-1 Cooperative Monitoring Stations (Nearshore Zone) (n=36)



III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location – Influent Monitoring Stations (n=2)

The Discharger shall monitor influent to Reclamation Plant No. 1 at INF-001 and Treatment Plant No. 2 at INF-002 (see Table E-1), as follows.

Table E-3. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Miscellaneous				
Flow rate	MGD	recorder/totalizer	continuous	[1]
Nitrite nitrogen	mg/L	24-hr composite	1/quarter	[1]
Nitrate nitrogen	mg/L	24-hr composite	1/quarter	[1]
Organic nitrogen	mg/L	24-hr composite	1/quarter	[1]
Total phosphorous (as P)	mg/L	24-hr composite	1/quarter	[1]
Secondary Treatment Standards and/or Ocean Plan Table 4 (formerly Table A) Effluent Limitations				
Biochemical oxygen demand, 5-day @ 20°C (BOD_5)	mg/L	24-hr composite	1/week	[1]
Carbonaceous biochemical oxygen demand, 5-day @ 20°C ($CBOD_5$)	mg/L	24-hr composite	1/day	[1]
Total suspended solids (TSS)	mg/L	24-hr composite	1/day	[1]
pH	standard units	grab	1/day	[1]
Grease and oil	mg/L	grab	1/month	[1]
Settleable solids	--	--	--	--
Turbidity	--	--	--	--
Ocean Plan Table 3 (formerly Table B) for Protection of Marine Aquatic Life				
Arsenic, total recoverable	μg/L	24-hr composite	1/month	[1]
Cadmium, total recoverable	μg/L	24-hr composite	1/month	[1]
Chromium (VI), total recoverable[2]	μg/L	24-hr composite	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Copper, total recoverable	µg/L	24-hr composite	1/month	[1]
Lead, total recoverable	µg/L	24-hr composite	1/month	[1]
Mercury, total recoverable	ng/L	24-hr composite	1/month	[1,3]
Nickel, total recoverable	µg/L	24-hr composite	1/month	[1]
Selenium, total recoverable	µg/L	24-hr composite	1/month	[1]
Silver, total recoverable	µg/L	24-hr composite	1/month	[1]
Zinc, total recoverable	µg/L	24-hr composite	1/month	[1]
Cyanide	µg/L	grab	1/month	[1,4]
Total chlorine residual	--	--	--	--
Ammonia (as N)	mg/L	24-hr composite	1/week	[1]
Chlorinated phenols[5]	µg/L	24-hr composite	1/month	[1]
Non-chlorinated phenols[5]	µg/L	24-hr composite	1/month	[1]
Endosulfan[5]	µg/L	24-hr composite	2/year	[1]
Endrin	µg/L	24-hr composite	2/year	[1]
HCH[5]	µg/L	24-hr composite	2/year	[1]
Radioactivity	pCi/L	24-hr composite	1/month	[1,6]
Ocean Plan Table 3 (formerly Table B) for Protection of Human Health – Noncarcinogens				
Acrolein	µg/L	grab	1/quarter	[1]
Antimony, total recoverable	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroethoxy)methane	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroisopropyl)ether	µg/L	24-hr composite	1/month	[1]
Chlorobenzene	µg/L	grab	1/quarter	[1]
Chromium (III), total recoverable[2]	µg/L	24-hr composite	1/month	[1]
Di-n-butyl phthalate	µg/L	24-hr composite	1/month	[1]
Dichlorobenzenes[5]	µg/L	grab	1/quarter	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Diethyl phthalate	µg/L	24-hr composite	1/month	[1]
Dimethyl phthalate	µg/L	24-hr composite	1/month	[1]
4,6-dinitro-2-methylphenol	µg/L	24-hr composite	1/month	[1]
2,4-dinitrophenol	µg/L	24-hr composite	1/month	[1]
Ethylbenzene	µg/L	grab	1/quarter	[1]
Fluoranthene	µg/L	24-hr composite	1/month	[1]
Hexachlorocyclopentadiene	µg/L	24-hr composite	1/month	[1]
Nitrobenzene	µg/L	24-hr composite	1/month	[1]
Thallium, total recoverable	µg/L	24-hr composite	1/month	[1]
Toluene	µg/L	grab	1/quarter	[1]
Tributyltin	µg/L	24-hr composite	1/quarter	[1,7]
1,1,1-trichloroethane	µg/L	grab	1/quarter	[1]
Ocean Plan Table 3 (formerly Table B) for Protection of Human Health – Carcinogens				
Acrylonitrile	µg/L	grab	1/quarter	[1]
Aldrin	µg/L	24-hr composite	2/year	[1]
Benzene	µg/L	grab	1/quarter	[1]
Benzidine	µg/L	24-hr composite	1/month	[1]
Beryllium, total recoverable	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroethyl) ether	µg/L	24-hr composite	1/month	[1]
Bis(2-ethylhexyl) phthalate	µg/L	24-hr composite	1/month	[1]
Carbon tetrachloride	µg/L	grab	1/quarter	[1]
Chlordane[5,8]	µg/L	24-hr composite	2/year	[1]
Chlorodibromomethane	µg/L	grab	1/quarter	[1]
Chloroform	µg/L	grab	1/quarter	[1]
DDT[5]	µg/L	24-hr composite	2/year	[1]
1,4-dichlorobenzene	µg/L	grab	1/quarter	[1]
3,3-dichlorobenzidine	µg/L	24-hr composite	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
1,2-dichloroethane	µg/L	grab	1/quarter	[1]
1,1-dichloroethylene	µg/L	grab	1/quarter	[1]
Dichlorobromomethane	µg/L	grab	1/quarter	[1]
Dichloromethane	µg/L	grab	1/quarter	[1]
1,3-dichloropropene[9]	µg/L	grab	1/quarter	[1]
Dieldrin	µg/L	24-hr composite	2/year	[1]
2,4-dinitrotoluene	µg/L	24-hr composite	1/month	[1]
1,2-diphenylhydrazine	µg/L	24-hr composite	1/month	[1]
Halomethanes[5]	µg/L	grab	1/quarter	[1]
Heptachlor	µg/L	24-hr composite	2/year	[1]
Heptachlor epoxide	µg/L	24-hr composite	2/year	[1]
Hexachlorobenzene	µg/L	24-hr composite	1/month	[1]
Hexachlorobutadiene	µg/L	24-hr composite	1/month	[1]
Hexachloroethane	µg/L	24-hr composite	1/month	[1]
Isophorone	µg/L	24-hr composite	1/month	[1]
N-nitrosodimethylamine	µg/L	24-hr composite	1/month	[1]
N-nitrosodi-N-propylamine	µg/L	24-hr composite	1/month	[1]
N-nitrosodiphenylamine	µg/L	24-hr composite	1/month	[1]
PAHs[5]	µg/L	24-hr composite	1/month	[1]
PCBs[5]	µg/L	24-hr composite	2/year	[1]
Individual PCB congeners	--	--	--	--
TCDD equivalents[5]	µg/L	24-hr composite	1/quarter	[1,10]
1,1,2,2-tetrachloroethane	µg/L	grab	1/quarter	[1]
Tetrachloroethylene	µg/L	grab	1/quarter	[1]
Toxaphene	µg/L	24-hr composite	2/year	[1]
Trichloroethylene	µg/L	grab	1/quarter	[1]
1,1,2-trichloroethane	µg/L	grab	1/quarter	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
2,4,6-trichlorophenol	µg/L	24-hr composite	1/month	[1]
Vinyl chloride	µg/L	grab	1/quarter	[1]

[1] As specified in 40 CFR § 136, or in this Order/Permit.

[2] For chromium (III) and (VI), the Discharger may, at its option, meet both the chromium (III) and the chromium (VI) limitations by analyzing for total recoverable chromium.

[3] Mercury, total recoverable: USEPA Method 1631E, with a quantitation level of 0.5 ng/L, shall be used to analyze total recoverable mercury in wastewater.

[4] Cyanide: If the Discharger can demonstrate to the satisfaction of the Santa Ana Water Board (subject to USEPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met (or performance goals may be evaluated) by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometalic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR § 136.

[5] See Attachment A – Definitions.

[6] Radioactivity: The following methods shall be used: USEPA Method 900.0 or Standard Methods 7110B for gross alpha and gross beta; USEPA Method 903.0 or 903.1 for radium-226; USEPA Method 904.0 for radium-228; USEPA Method 906.0 for tritium; USEPA Method 905.0 for strontium-90; and USEPA Method 908.0, 908.1, or 200.8 for uranium. Analysis for combined radium-226 & 228 shall be conducted only if gross alpha or gross beta results for the same sample exceed the stipulated criteria. If combined radium-226 & 228 exceeds the stipulated criteria, then analyze for tritium, strontium-90, and uranium. Note that as of February 2021, the stipulated criteria for gross alpha, gross beta, and radium-226 & 228 are 15 pCi/L, 50 pCi/L, and 5 pCi/L, respectively. These criteria are prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

[7] Tributyltin: SM 6710B or other improved methods approved by the Santa Ana Water Board and USEPA shall be used to analyze tributyltin in wastewater.

[8] Chlordane: The Discharger may temporarily suspend the monitoring requirements for alpha- and gamma-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.

[9] 1,3-dichloropropene is the sum of cis- and trans-1,3-dichloropropene.

[10] TCDD equivalents: TCDD equivalents shall mean the sum of the concentrations of 2,3,7,8-CDDs and 2,3,7,8-CDFs multiplied by their respective toxicity equivalency factor (see Attachment A). For TCDD congeners, the Discharger shall use USEPA Method

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
1613 for dioxins and furans and the minimum levels, as specified in Attachment A – TCDD Equivalents.				

IV. EFFLUENT MONITORING REQUIREMENTS

A. Effluent Monitoring Stations (n=2)

Upon discharge through Discharge Point 001 or Discharge Point 002 during periods of essential maintenance or capital improvement projects of the 120-inch outfall conducted under 40 CFR § 122.41(m)(2), the Discharger shall monitor effluent at EFF-001 or EFF-002 (see Table E-1), respectively, as follows.

Table E-4. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Miscellaneous				
Flow rate	MGD	recorder/ totalizer	continuous	[1]
Fecal coliform density (Discharge Point 001)	MPN /100 mL[2]	grab	1/day	[1]
Fecal coliform density (Discharge Point 002)	MPN /100 mL[2]	grab	3/day	[1]
Enterococcus density (Discharge Point 001)	CFU /100 mL[2]	grab	1/day	[1]
Enterococcus density (Discharge Point 002)	CFU /100 mL[2]	grab	3/day	[1]
Nitrite nitrogen	mg/L	24-hr composite	1/month	[1]
Nitrate nitrogen	mg/L	24-hr composite	1/month	[1]
Organic nitrogen	mg/L	24-hr composite	1/month	[1]
Total nitrogen	lbs/year	calculated	1/year	--
Total phosphorous (as P)	mg/L	24-hr composite	1/month	[1]
Secondary Treatment Standards and/or Ocean Plan Table 4 (formerly Table A) Effluent Limitations				

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Biochemical oxygen demand, 5-day @ 20°C (BOD_5)[3]	mg/L	24-hr composite	1/week	[1]
Carbonaceous biochemical oxygen demand, 5-day @ 20°C ($CBOD_5$)[3]	mg/L	24-hr composite	1/day	[1]
Total suspended solids (TSS)[3]	mg/L	24-hr composite	1/day	[1]
pH	pH units	grab	1/day	[1]
Grease and oil	mg/L	grab	1/month	[1]
Settleable solids	ml/L	grab	1/day	[1]
Turbidity	NTU	24-hr composite	1/month	[1]
Ocean Plan Table 3 (formerly Table B) for Protection of Marine Aquatic Life				
Arsenic, total recoverable	μg/L	24-hr composite	1/month	[1]
Cadmium, total recoverable	μg/L	24-hr composite	1/month	[1]
Chromium (VI), total recoverable[4]	μg/L	24-hr composite	1/month	[1]
Copper, total recoverable	μg/L	24-hr composite	1/month	[1]
Lead, total recoverable	μg/L	24-hr composite	1/month	[1]
Mercury, total recoverable	ng/L	24-hr composite	1/month	[1,5]
Nickel, total recoverable	μg/L	24-hr composite	1/month	[1]
Selenium, total recoverable	μg/L	24-hr composite	1/month	[1]
Silver, total recoverable	μg/L	24-hr composite	1/month	[1]
Zinc, total recoverable	μg/L	24-hr composite	1/month	[1]
Cyanide	μg/L	grab	1/month	[1,6]
Total chlorine residual	μg/L	grab	1/12 hours	[1,7]
Ammonia (as N)	mg/L	24-hr composite	1/week	[1]
Acute toxicity, TST (Discharge Point 001)	Pass “0” or Fail “1”, % Effect	24-hr composite	1/quarter	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Chronic toxicity, TST	Pass "0" or Fail "1", % Effect	24-hr composite	1/month	[1]
Chlorinated phenols[8]	µg/L	24-hr composite	1/month	[1]
Non-chlorinated phenols[8]	µg/L	24-hr composite	1/month	[1]
Endosulfan[8]	µg/L	24-hr composite	2/year	[1]
Endrin	µg/L	24-hr composite	2/year	[1]
HCH[8]	µg/L	24-hr composite	2/year	[1]
Radioactivity	pCi/L	24-hr composite	1/month	[1,9]
Ocean Plan Table 3 (formerly Table B) for Protection of Human Health – Noncarcinogens				
Acrolein	µg/L	grab	1/quarter	[1]
Antimony, total recoverable	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroethoxy) methane	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroisopropyl) ether	µg/L	24-hr composite	1/month	[1]
Chlorobenzene	µg/L	grab	1/quarter	[1]
Chromium (III), total recoverable[4]	µg/L	24-hr composite	1/month	[1]
Di-n-butyl phthalate	µg/L	24-hr composite	1/month	[1]
Dichlorobenzenes[8]	µg/L	grab	1/quarter	[1]
Diethyl phthalate	µg/L	24-hr composite	1/month	[1]
Dimethyl phthalate	µg/L	24-hr composite	1/month	[1]
4,6-dinitro-2-methylphenol	µg/L	24-hr composite	1/month	[1]
2,4-dinitrophenol	µg/L	24-hr composite	1/month	[1]
Ethylbenzene	µg/L	grab	1/quarter	[1]
Fluoranthene	µg/L	24-hr composite	1/month	[1]
Hexachlorocyclopentadiene	µg/L	24-hr composite	1/month	[1]
Nitrobenzene	µg/L	24-hr composite	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Thallium, total recoverable	µg/L	24-hr composite	1/month	[1]
Toluene	µg/L	grab	1/quarter	[1]
Tributyltin	µg/L	24-hr composite	1/quarter	[1,10]
1,1,1-trichloroethane	µg/L	grab	1/quarter	[1]
Ocean Plan Table 3 (formerly Table B) for Protection of Human Health – Carcinogens				
Acrylonitrile	µg/L	grab	1/quarter	[1]
Aldrin	µg/L	24-hr composite	2/year	[1]
Benzene	µg/L	grab	1/quarter	[1]
Benzidine	µg/L	24-hr composite	1/month	[1]
Beryllium, total recoverable	µg/L	24-hr composite	1/month	[1]
Bis(2-chloroethyl) ether	µg/L	24-hr composite	1/month	[1]
Bis(2-ethylhexyl) phthalate	µg/L	24-hr composite	1/month	[1]
Carbon tetrachloride	µg/L	grab	1/quarter	[1]
Chlordane[8,11]	µg/L	24-hr composite	2/year	[1]
Chlorodibromomethane	µg/L	grab	1/quarter	[1]
Chloroform	µg/L	grab	1/quarter	[1]
DDT[8]	µg/L	24-hr composite	2/year	[1]
1,4-dichlorobenzene	µg/L	grab	1/quarter	[1]
3,3-dichlorobenzidine	µg/L	24-hr composite	1/month	[1]
1,2-dichloroethane	µg/L	grab	1/quarter	[1]
1,1-dichloroethylene	µg/L	grab	1/quarter	[1]
Dichlorobromomethane	µg/L	grab	1/quarter	[1]
Dichloromethane	µg/L	grab	1/quarter	[1]
1,3-dichloropropene[12]	µg/L	grab	1/quarter	[1]
Dieldrin	µg/L	24-hr composite	2/year	[1]
2,4-dinitrotoluene	µg/L	24-hr composite	1/month	[1]
1,2-diphenylhydrazine	µg/L	24-hr composite	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Halomethanes[8]	µg/L	grab	1/quarter	[1]
Heptachlor	µg/L	24-hr composite	2/year	[1]
Heptachlor epoxide	µg/L	24-hr composite	2/year	[1]
Hexachlorobenzene	µg/L	24-hr composite	1/month	[1]
Hexachlorobutadiene	µg/L	24-hr composite	1/month	[1]
Hexachloroethane	µg/L	24-hr composite	1/month	[1]
Isophorone	µg/L	24-hr composite	1/month	[1]
N-nitrosodimethylamine	µg/L	24-hr composite	1/month	[1]
N-nitrosodi-N-propylamine	µg/L	24-hr composite	1/month	[1]
N-nitrosodiphenylamine	µg/L	24-hr composite	1/month	[1]
PAHs[8]	µg/L	24-hr composite	1/month	[1]
PCBs[8]	µg/L	24-hr composite	2/year	[1]
Individual PCB congeners	µg/L	24-hr composite	1/year	[1,13]
TCDD equivalents[8]	µg/L	24-hr composite	1/quarter	[1,14]
1,1,2,2-tetrachloroethane	µg/L	grab	1/quarter	[1]
Tetrachloroethylene	µg/L	grab	1/quarter	[1]
Toxaphene	µg/L	24-hr composite	2/year	[1]
Trichloroethylene	µg/L	grab	1/quarter	[1]
1,1,2-trichloroethane	µg/L	grab	1/quarter	[1]
2,4,6-trichlorophenol	µg/L	24-hr composite	1/month	[1]
Vinyl chloride	µg/L	grab	1/quarter	[1]

[1] As specified in 40 CFR § 136, or in this Order/Permit.

[2] Results may be reported as either MPN/100 mL if the laboratory method used provides results in MPN/100 mL or CFU/100 mL if the laboratory method used provides results in CFU/100 mL.

[3] Percent removal shall be calculated based on mass where:

% removal = (influent mass – effluent mass) / influent mass;

influent mass (lbs/day) = influent flow (MGD) x influent concentration (mg/L) x 8.34;

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

effluent mass (lbs/day) = effluent flow (MGD) x effluent concentration (mg/L) x 8.34.

[4] For chromium (III) and (VI), the Discharger may, at its option, meet both the chromium (III) and the chromium (VI) limitations by analyzing for total recoverable chromium.

[5] Mercury, total recoverable: USEPA Method 1631E, with a quantitation level of 0.5 ng/L, shall be used to analyze total recoverable mercury in wastewater.

[6] Cyanide: If the Discharger can demonstrate to the satisfaction of the Santa Ana Water Board (subject to USEPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met (or performance goals may be evaluated) by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometalic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR § 136.

[7] The minimum level (ML) for total chlorine residual in wastewater shall be less than or equal to 50 µg/L.

[8] See Attachment A – Definitions

[9] Radioactivity: The following methods shall be used: USEPA Method 900.0 or Standard Methods 7110B for gross alpha and gross beta; USEPA Method 903.0 or 903.1 for radium-226; USEPA Method 904.0 for radium-228; USEPA Method 906.0 for tritium; USEPA Method 905.0 for strontium-90; and USEPA Method 908.0, 908.1, or 200.8 for uranium. Analysis for combined radium-226 & 228 shall be conducted only if gross alpha or gross beta results for the same sample exceed the stipulated criteria. If combined radium-226 & 228 exceeds the stipulated criteria, then analyze for tritium, strontium-90, and uranium. Note that as of February 2021, the stipulated criteria for gross alpha, gross beta, and radium-226 & 228 are 15 pCi/L, 50 pCi/L, and 5 pCi/L, respectively. These criteria are prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

[10] Tributyltin: SM 6710B or other improved methods approved by the Santa Ana Water Board and USEPA shall be used to analyze tributyltin in wastewater.

[11] Chlordane: The Discharger may temporarily suspend the monitoring requirements for alpha- and gamma-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.

[12] 1,3-dichloropropene is the sum of cis- and trans-1,3-dichloropropene.

[13] PCBs: USEPA draft Method 1668c (and quantitation levels) shall be used to analyze PCB congeners in wastewater. To facilitate interpretation of sediment and fish tissue data, individual PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138,

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
149, 151, 153/168, 156, 157, 158, 167, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified and reported.				
[14] TCDD equivalents: TCDD equivalents shall mean the sum of the concentrations of 2,3,7,8-CDDs and 2,3,7,8-CDFs multiplied by their respective toxicity equivalency factor (see Attachment A). For TCDD congeners, the Discharger shall use USEPA Method 1613 for dioxins and furans and the minimum levels, as specified in Attachment A – TCDD Equivalents.				

B. Emergency Discharge Monitoring Stations (n=2)

Upon emergency discharge through Emergency Discharge Point 002, the Discharger shall monitor effluent at EMG-001 (see Table E-1). Upon emergency discharge through Emergency Discharge Point 003, the Discharger shall monitor effluent at EMG-002 (see Table E-1). At minimum, monitored parameters shall include bacteria indicator organisms (i.e., total coliform, fecal coliform, and enterococcus), parameters with secondary treatment and/or Ocean Plan Table 4 standards, and relevant pollutants of concern (e.g., Total chlorine residual and Ammonia (as N)) in Table E-4. During emergency discharge, the minimum sampling frequency shall be daily, until emergency discharge ceases.

C. Mass Emission Benchmarks

Constituents that have been assigned Mass Emission Benchmarks are listed in the NPDES Order/Permit under Section V.B. The Mass Emission Benchmarks have been established for the discharge through Discharge Point 001 (120” outfall) and shall be reported in metric tons per year (MT/yr). The Discharger shall monitor and report annually the mass emission rate for all constituents that have mass emission benchmarks. For each constituent, the 12-month average mass emission rate, and the effluent concentrations and flows used to calculate that mass emission rate shall be reported in the annual pretreatment report and annual receiving water monitoring report (effluent chapter).

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Whole Effluent Toxicity

1. Monitoring Frequency

The Discharger shall conduct acute toxicity tests on 24-hour composite effluent samples (Table E-4). Once each calendar year, at a different time of year from the previous years, the Discharger shall split a 24-hour composite effluent sample and concurrently conduct toxicity tests using a fish and an invertebrate species. The Discharger shall then continue to conduct routine quarterly toxicity testing using the single, most sensitive species.

Acute toxicity test samples shall be collected at the designated NPDES sampling station for the effluent. In order to better relate toxicity to other effluent characteristics, it is recommended that at least twice per year the Discharger process a split toxicity sample for analysis of all other monitored parameters specified by the effluent monitoring program.

2. Marine and Estuarine Species and Test Methods

   Species and short-term test methods for estimating the acute toxicity of NPDES effluents are generally found in the fifth edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012, 2002; Table IA, 40 CFR § 136).

   For this Order/Permit, the Discharger shall conduct 96-hour static renewal toxicity tests with topsmelt, *Atherinops affinis*, representing a vertebrate species (Test Method 2006.0), and the mysid, *Americamysis bahia*, representing an invertebrate species (Test Method 2007.0).

   If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger shall conduct a 96-hour static renewal toxicity test with the inland silverside, *Menidia beryllina* (Test Method 2006.0).

3. Quality Assurance

   a. Quality assurance measures, instructions, and other recommendations and requirements are found in the test methods manuals previously referenced. Additional requirements are specified, below.

   b. For Discharge Point 001, an acute dilution allowance is authorized such that the critical acute instream waste concentration (IWC) is set at a percent effluent value lower than 100% effluent. The acute IWC for Discharge Point 001 is 5.56% effluent.

   c. Effluent dilution water and control water should be prepared and used as specified in the test methods manual for the test species. If the dilution water is different from test organism culture water, then a second control using culture water shall also be used. If the use of artificial sea salts is considered provisional in the test method, then artificial sea salts shall not be used to increase the salinity of the effluent sample prior to toxicity testing without written approval by the permitting authority.

   d. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).

   e. If the effluent toxicity test during the reporting period for the month does not meet the Test Acceptability Criteria (TAC) in the WET method (EPA/600/R-95/136, 1995), then the permittee shall resample and retest within 14 days. The

results of this retest shall only replace that effluent toxicity test that did not meet TAC during the reporting period for the month.

f. If the discharged effluent is disinfected using chlorine, then total chlorine residual shall not be removed from the effluent sample prior to toxicity testing.

B. Chronic Whole Effluent Toxicity

1. Monitoring Frequency

The Discharger shall conduct chronic toxicity tests on 24-hour composite effluent samples (Table E-4). Once each calendar year, at a different time of year from the previous years, the Discharger shall split a 24-hour composite effluent sample and concurrently conduct three toxicity tests using a fish, an invertebrate, and an algal species. The Discharger shall then continue to conduct routine monthly toxicity testing using the single, most sensitive species.

Chronic toxicity test samples shall be collected at the designated NPDES sampling station for the effluent. In order to better relate toxicity to other effluent characteristics, it is recommended that at least twice per year the Discharger process a split toxicity sample for analysis of all other monitored parameters specified by the effluent monitoring program.

2. Marine and Estuarine Species and Test Methods

Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the first edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995) and applicable water quality standards; also see 40 CFR § 122.41(j)(4) and 122.44(d)(1)(iv), and 40 CFR § 122.21(j)(5)(viii) for POTWs.

The Discharger shall conduct a static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth Test Method 1006.0); a static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth Test Method 1009.0); and a toxicity test with one of the following invertebrate species:

Static non-renewal toxicity test with the red abalone, *Haliotis rufescens* (Larval Shell Development Test Method);

Static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus*, or the sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0).

If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger shall conduct a static renewal toxicity test with the inland silverside, *Menidia beryllina* (Larval Survival and Growth Test Method 1006.0) in the third edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014, 2002).

3. Quality Assurance

   a. Quality assurance measures, instructions, and other recommendations and requirements are found in the chronic test methods manuals previously referenced. Additional requirements are specified, below.

   b. For Discharge Point 001, a chronic dilution allowance is authorized such that the critical chronic instream waste concentration (IWC) is set at a percent effluent value lower than 100% effluent. The chronic IWC for Discharge Point 001 is 0.556% effluent.

      For Discharge Point 002, a chronic dilution allowance is authorized such that the critical chronic instream waste concentration (IWC) is set at a percent effluent value lower than 100% effluent. The chronic IWC for Discharge Point 002 is 2.78% effluent.

   c. Effluent dilution water and control water should be prepared and used as specified in the test methods manual *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995) and/or *Short- term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R- 02/014, 2002). If the dilution water is different from test organism culture water, then a second control using culture water shall also be used. If the use of artificial sea salts is considered provisional in the test method, then artificial sea salts shall not be used to increase the salinity of the effluent sample prior to toxicity testing without written approval by the permitting authority.

   d. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).

   e. If the effluent toxicity test during the reporting period for the month does not meet the Test Acceptability Criteria (TAC) in the WET method (EPA/600/R-95/136, 1995), then the permittee shall resample and retest within 14 days. The results of this retest shall only replace that effluent toxicity test that did not meet TAC during the reporting period for the month.

   f. If the discharged effluent is disinfected using chlorine, then total chlorine residual shall not be removed from the effluent sample prior to toxicity testing.

   g. pH drift during the toxicity test may contribute to artifactual toxicity when pH-dependent toxicants (e.g., ammonia, metals) are present in an effluent. To determine whether or not pH drift during the toxicity test is contributing to artifactual toxicity, the Discharger shall conduct three sets of parallel toxicity tests, in which the pH of one treatment is controlled at the pH of the effluent and the pH of the other treatment is not controlled, as described in Section 13.3.6 of the test methods manual, Short-term Methods for Estimating the

Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms (EPA/821/R-02/014, 2002). Toxicity is confirmed to be artifactual and due to pH drift when no toxicity above the chronic WET permit limit is observed in the treatments controlled at the pH of the effluent. If toxicity is confirmed to be artifactual and due to pH drift, then, following written approval by the permitting authority, the Discharger may use the procedures outlined in Section 13.3.6 of the test methods manual to control sample pH during the toxicity test.

C. Analysis and Reporting of Acute and Chronic Toxicity Monitoring Results

1. For Discharge Point 001, a full toxicity laboratory report for all acute and chronic toxicity testing shall be submitted as an attachment to the Self-Monitoring Report (SMR) for the month in which the toxicity tests are initiated. The laboratory report shall contain: all toxicity test results (raw data and statistical analyses) for each effluent and related reference toxicant tested; chain-of custody; the dates of sample collection and initiation of each toxicity test; control performance; all results for other effluent parameters monitored concurrently with the effluent toxicity tests via split samples; and schedule and progress reports on TRE/TIE studies.
2. For Discharge Point 002, a full toxicity laboratory report for all chronic toxicity testing shall be submitted as an attachment to the SMR for the month in which the toxicity tests are initiated. The laboratory report shall contain: all toxicity test results (raw data and statistical analyses) for each effluent and related reference toxicant tested; chain-of custody; the dates of sample collection and initiation of each toxicity test; control performance; all results for other effluent parameters monitored concurrently with the effluent toxicity tests via split samples; and schedule and progress reports on TRE/TIE studies.
3. The Discharger shall notify the Santa Ana Water Board and USEPA in writing within 14 days of exceedance of an acute or chronic WET permit limit. This notification shall describe actions the Discharger has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this Order/Permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER CORE MONITORING REQUIREMENTS

A. Water Quality Monitoring

1. Monitoring Locations – Monthly Water Quality Monitoring Stations (n=28)

   The Discharger shall monitor the receiving water at the Monthly Water Quality Stations specified in Table E-2, as follows. Reference conditions shall be confirmed for each survey. Water column profiling protocols and analytical methods shall follow those described in Orange County Sanitation District – Ocean Monitoring Program, Quality Assurance and Project Plan (QAPP) (OCSD, MRP QAPP), and

Orange County Sanitation District – Laboratory Monitoring and Compliance Division, Laboratory Standard Operating Procedures (OCSD, Laboratory Quality Manual).

Compliance shall be evaluated based on statistical comparisons between water quality profiles in the reference and plume-affected zones. Appropriate reference stations and plume-impacted stations for each survey day shall be determined based on available current measurements and the presence or absence of typical plume "signals" (e.g., colored dissolved organic matter (CDOM), ammonia (NH_3-N), and/or fecal indicator bacteria). Reference stations shall represent "natural" conditions, excluding the stations affected by the effluent plume.

Table E-5. Water Quality Monitoring

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
Surface Observations[1]	--	visual	Surface	1/month	--
Salinity (calculated)	psu	profile	CTD sampling depths in Table E-2	1/month	[2]
Conductivity	S/m	profile		1/month	[2]
Temperature	°C	profile		1/month	[2]
Dissolved oxygen (DO)	mg/L	profile		1/month	[2]
Transmissivity	%	profile		1/month	[2]
Photosynthetically active radiation (PAR)	µEinsteins sec^{-1} cm^{-2}	profile		1/month	[2]
Chlorophyll-*a* fluorescence	µg/L	profile		1/month	[2]
pH	standard unit	profile		1/month	[2]
Ammonia (NH_3-N)	mg/L	grab	Discrete sampling depths in Table E-2	1/month	[2]
Nitrate nitrogen	mg/L	grab		1/month	[2]

[1] Receiving water observations of any discoloration, turbidity, odor, trash (see Attachment A for the definition of trash), and unusual or abnormal amounts of floating or suspended matter in the water or on the beach, rocks, jetties, or beach structures, shall be made and recorded at stations. The character and extent of such matter shall be described. The dates, times, and depths of sampling and these observations shall also be reported. Recreational use at time of sampling, within a 100 meter radius of each sample location, shall also be recorded and submitted with results. In federal waters, the nature and extent of REC-1 activities shall be recorded and reported whenever a station is sampled. Recreational uses include, but are not limited to, swimming, wading, water-skiing, diving, surfing, and fishing.

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
[2] As specified in 40 CFR § 136, or in the MRP QAPP and Laboratory Quality Manual.					

B. REC-1 Water Quality Monitoring (Offshore Zone)

Based on Chapter II.B.1 of the Ocean Plan, bacterial indicator standards shall be maintained throughout the water column in the Offshore Zone used for water contact sports, as determined by the Santa Ana Water Board or USEPA (i.e., waters designated as REC-1), to assure that the discharge does not pose a threat to water contact recreation.

1. Monitoring Locations – Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) (n=8)

   The Discharger shall monitor the receiving water at the Quarterly REC-1 Water Quality Monitoring Stations (Offshore Zone) specified in Table E-2, as follows. Water column profiling protocols and analytical methods shall follow those described in the MRP QAPP and Laboratory Quality Manual.

Table E-6. REC-1 Water Quality Monitoring (Offshore Zone)

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
Surface Observations[1]	--	visual	Surface	5 samples over a 30-day period/quarter See Table E-2.	--
Salinity (calculated)	psu	profile	CTD sampling depths in Table E-2		[2]
Conductivity	S/m	profile			[2]
Temperature	°C	profile			[2]
Dissolved oxygen (DO)	mg/L	profile			[2]
Transmissivity	%	profile			[2]
Photosynthetically active radiation (PAR)	µEinsteins sec^{-1} cm^{-2}	profile			[2]
Chlorophyll-*a* fluorescence	µg/L	profile			[2]
pH	standard units	profile			[2]
Ammonia (NH_3-N)	mg/L	grab	Discrete sampling		[2]
Nitrate nitrogen	mg/L	grab			[2]

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
Total coliform density	MPN /100 mL[3]	grab	depths in Table E-2		[2,4]
Enterococcus density	CFU /100 mL[3]	grab			[2,4]
Fecal coliform density	MPN /100 mL[3]	calculated			[2,4]
E. Coli density (converted to fecal coliform density)	MPN /100 mL[3]	grab			[2,4]

[1] Receiving water observations of any discoloration, turbidity, odor, trash (see Attachment A for the definition of trash), and unusual or abnormal amounts of floating or suspended matter in the water or on the beach, rocks, jetties, or beach structures, shall be made and recorded at stations. The character and extent of such matter shall be described. The dates, times, and depths of sampling and these observations shall also be reported. Recreational use at time of sampling, within a 100 meter radius of each sample location, shall also be recorded and submitted with results. In federal waters, the nature and extent of REC-1 activities shall be recorded and reported whenever a station is sampled. Recreational uses include, but are not limited to, swimming, wading, water-skiing, diving, surfing, and fishing.

[2] As specified in 40 CFR § 136, or in the MRP QAPP and Laboratory Quality Manual.

[3] Results may be reported as either MPN/100 mL if the laboratory method used provides results in MPN/100 mL or CFU/100 mL if the laboratory method used provides results in CFU/100 mL.

[4] Total coliform and *E. coli* are analyzed using the Colilert-18 method and *Enterococcus* is analyzed using the Enterolert method. Values for *E. coli* are multiplied by 110% to determine fecal coliform values.

C. Sediment Monitoring

1. Monitoring Locations – Quarterly Benthic Monitoring Stations (n=11), Annual Benthic Monitoring Stations (n=11), and 1/5-year Benthic Monitoring Stations (n=35)

   Sediment Chemistry. Sediment samples collected for chemistry analyses shall be separate from those collected for benthic infauna community analyses or whole sediment toxicity testing. The Discharger shall monitor sediment chemistry at the Quarterly, Annual, and 1/5-year Benthic Monitoring Stations specified in Table E-2. Sampling protocols and analytical methods (and reporting limits) shall follow those described in the MRP QAPP and Laboratory Quality Manual. Sediment samples for chemistry analyses shall be collected from the top 2 cm of undisturbed surface material in a 0.1 m^2 Van Veen grab sample. Results of chemistry analyses shall be reported on a dry weight basis.

Table E-7. Sediment Chemistry Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Miscellaneous				
Sediment grain size	phi	grab	See Table E-2.	[1]
Total organic carbon	%	grab		[1]
Dissolved sulfides	mg/kg	grab		[1]
Total nitrogen	mg/kg	grab		[1]
Total phosphorous	mg/kg	grab		[1]
Metals				
Aluminum, total recoverable	mg/kg	grab	See Table E-2.	[1]
Antimony, total recoverable	mg/kg	grab		[1]
Arsenic, total recoverable	mg/kg	grab		[1]
Barium, total recoverable	mg/kg	grab		[1]
Beryllium, total recoverable	mg/kg	grab		[1]
Cadmium, total recoverable	mg/kg	grab		[1]
Chromium, total recoverable	mg/kg	grab		[1]
Copper, total recoverable	mg/kg	grab		[1]
Iron, total recoverable	mg/kg	grab		[1]
Lead, total recoverable	mg/kg	grab		[1]
Mercury, total recoverable	mg/kg	grab		[1]
Nickel, total recoverable	mg/kg	grab		[1]
Selenium, total recoverable	mg/kg	grab		[1]
Silver, total recoverable	mg/kg	grab		[1]
Zinc, total recoverable	mg/kg	grab		[1]
Pesticides[2]				
2,4'-DDT	µg/kg	grab	See Table E-2.	[1]
4,4'-DDT	µg/kg	grab		[1]
2,4'-DDD	µg/kg	grab		[1]
4,4'-DDD	µg/kg	grab		[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
2,4'-DDE	µg/kg	grab		[1]
4,4'-DDE	µg/kg	grab		[1]
4,4'-DDMU	µg/kg	grab		[1]
Aldrin	µg/kg	grab		[1]
Dieldrin	µg/kg	grab		[1]
cis-Chlordane[3]	µg/kg	grab		[1]
trans-Chlordane[3]	µg/kg	grab		[1]
trans-Nonachlor	µg/kg	grab		[1]
Heptachlor	µg/kg	grab		[1]
Heptachlor epoxide	µg/kg	grab		[1]
Endosulfan	µg/kg	grab		[1]
Endrin	µg/kg	grab		[1]
Hexachlorobenzene	µg/kg	grab		[1]
Lindane (gamma-BHC)	µg/kg	grab		[1]
Mirex	µg/kg	grab		[1]
Polychlorinated Biphenyl (PCB) Congeners				
Individual PCB congeners[4]	µg/kg	grab	See Table E-2.	[1]
Polycyclic Aromatic Hydrocarbons (PAHs) – Low Molecular Weight				
Acenaphthene	µg/kg	grab		[1]
Acenaphthylene	µg/kg	grab		[1]
Anthracene	µg/kg	grab		[1]
Biphenyl	µg/kg	grab		[1]
Fluorene	µg/kg	grab		[1]
2-Methylnapthalene	µg/kg	grab	See Table E-2.	[1]
1-Methylphenanthrene	µg/kg	grab		[1]
Naphthalene	µg/kg	grab		[1]
1-Methylnapthalene	µg/kg	grab		[1]
2,6-Dimethylnaphthalene	µg/kg	grab		[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
1,6,7-Trimethyl-naphthalene (2,3,5-Trimethylnaphthalene)	µg/kg	grab		[1]
Phenanthrene	µg/kg	grab		[1]
Polycyclic Aromatic Hydrocarbons (PAHs) – High Molecular Weight				
Benz[a]anthracene	µg/kg	grab	See Table E-2.	[1]
Benzo[a]pyrene	µg/kg	grab		[1]
Benzo[b/j]fluoranthene	µg/kg	grab		[1]
Benzo[e]pyrene	µg/kg	grab		[1]
Benzo[g,h,i]perylene	µg/kg	grab		[1]
Benzo[k]fluoranthene	µg/kg	grab		[1]
Chrysene	µg/kg	grab		[1]
Dibenz[a,h]anthracene	µg/kg	grab		[1]
Fluoranthene	µg/kg	grab		[1]
Indeno(1,2,3-c,d) pyrene	µg/kg	grab		[1]
Perylene	µg/kg	grab		[1]
Pyrene	µg/kg	grab		[1]

[1] As specified in the MRP QAPP and Laboratory Quality Manual.

[2] Pesticides: The Discharger shall monitor pesticides only in the summer (July, August, and September) at the quarterly and annual Benthic Monitoring Stations and once in five years (in summer) at the 1/5-year station specified in Table E-2.

[3] Chlordane: The Discharger may temporarily suspend the monitoring requirements for cis- and trans- chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.

[4] Individual PCB congeners: Individual PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153/168, 156, 157, 158, 167, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified and reported.

2. Monitoring Locations – Quarterly Benthic Monitoring Stations (n=11), Annual Benthic Monitoring Stations (n=11), and 1/5-year Benthic Monitoring Stations (n=35)

   Benthic Infauna Community. Sediment samples collected for benthic infauna community analyses shall be separate from those collected for chemistry analyses

or whole sediment toxicity testing. The Discharger shall monitor benthic infauna at the Quarterly, Annual, and 1/5-year Benthic Monitoring Stations specified in Table E-2. Sampling protocols, including treatment, storage, and analyses, shall follow those described in the MRP QAPP and Laboratory Quality Manual. Sediment samples for benthic infauna community analyses shall be washed and screened (1.0 mm mesh) from an entire 0.1 m^2 Van Veen grab sample and fixed and preserved for sorting. All retained organisms from the Quarterly, Annual, and 1/5-year stations shall be counted and identified to as low a taxon as possible.

Table E-8. Benthic Infauna Community Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Number of species, per grab sample	--	grab	See Table E-2.	[1]
Number of individuals per species, per grab sample	--	grab		[1]
Benthic response index (BRI)	--	grab		[1]
Shannon-Weiner's diversity index (H')	--	grab		[1]
Swartz's 75% dominance index (SDI)	--	grab		[1]
[1] As specified in the MRP QAPP and Laboratory Quality Manual.				

3. Monitoring Locations – Quarterly Benthic Monitoring Stations (n=11)

   Whole Sediment Toxicity. Sediment samples collected for whole sediment toxicity testing shall be separate from those collected for chemistry analyses or benthic infauna community analyses. The Discharger shall annually monitor whole sediment toxicity at the eleven (11) Quarterly Benthic Monitoring Stations specified in Table E-2. Sampling protocols and analyses shall follow those described in the MRP QAPP and Laboratory Quality Manual. Sediment samples for sediment toxicity testing shall be collected from the top 2 cm of undisturbed surface material in a 0.1 m^2 Van Veen grab sample.

   If a station sample result is statistically significant using a standard t-test of no difference and the magnitude of difference compared to the control is greater than 20 %, the station shall be re-sampled and re-tested in the following quarter to determine if the observed toxicity is persistent. If toxicity is persistent (i.e., the second test also tests significantly toxic), then the Discharger shall report the toxicity test results to the Santa Ana Water Board and USEPA and investigate the causes and report the investigation results and mitigation efforts in the annual monitoring report.

Table E-9. Whole Sediment Toxicity Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Whole sediment acute toxicity	% of home	grab	See Table E-2.	[1]
[1] USEPA 10-day static amphipod (*Eohaustorius estuarius*) survival test: *Methods for Assessing the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Amphipods* (EPA/600/R- 94/025, 1994).				

D. Demersal Fish and Epibenthic Macroinvertebrate Monitoring

1. Monitoring Locations – Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=6) and Annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=8)

   Demersal Fish and Epibenthic Macroinvertebrate Communities. Trawl samples collected for demersal fish and epibenthic macroinvertebrate community structure analyses may be the same as those collected for demersal fish tissue chemistry analyses. The Discharger shall monitor demersal fish and epibenthic macroinvertebrates at the Semi-Annual and Annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations specified in Table E-2. Sampling and analysis protocols shall follow those described in the MRP QAPP and Laboratory Quality Manual. At each station, a single trawl sample shall be collected using one standard semi-balloon otter trawl towed for at least 10 minutes along the respective isobath. Samples shall be processed, with all demersal fish and epibenthic macroinvertebrates, identified to species, counted, measured (fish only), and weighed.

Table E-10. Demersal Fish and Epibenthic Macroinvertebrate Community Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Number of species, per trawl sample	--	trawl	See Table E-2.	[1]
Number of individuals per species, per trawl sample	--	trawl		[1]
Wet weight of macroinvertebrate species, per trawl sample	kg	trawl		[1]
Wet weight of fish species, per trawl sample	kg	trawl		[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Size classes of fish species, per trawl sample	cm	trawl		[1]
Shannon-Weiner's diversity index (H')	--	trawl		[1]
Swartz's 75% dominance index (SDI)	--	trawl		[1]
Fish response index (FRI)	--	trawl		[1]
Abnormalities and disease symptoms	--	trawl		[1]
[1] As specified in the MRP QAPP and Laboratory Quality Manual.				

2. Monitoring Locations – Semi-annual Trawl Fish Monitoring Stations (n=2)

   Demersal Fish Liver Tissue Chemistry. The trawl samples collected for demersal fish liver tissue chemistry analyses may be the same as those collected for demersal fish and epibenthic macroinvertebrate community structure analyses. The Discharger shall annually monitor flatfish (e.g., Pacific Sanddab, Hornyhead Turbot, and English Sole) at the two Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations specified in Table E-2. Sampling and analysis protocols (including reporting limits) shall follow those described in the MRP QAPP and Laboratory Quality Manual. At each station, a single trawl sample shall be collected using one standard semi-balloon otter trawl towed for at least 10 minutes along the specified isobath. A reasonable level of effort (i.e., five (5) trawls per station) shall be used to collect a maximum twenty (20) individuals of flatfish between 15-20 cm standard length at each station. Target fish will be identified to species, counted, measured to the nearest millimeter, weighed, bagged, and transported on wet ice to the Discharger's laboratory for chemical analyses on liver tissue contaminants. Fish will be sorted into two composite samples per station, with a maximum of ten (10) individuals in each composite.

Table E-11. Demersal Fish Liver Tissue Chemistry Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Length of each fish sample, per trawl sample	cm	trawl	See Table E-2.	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Wet weight of each fish sample, per trawl sample	kg	trawl		[1]
Percent lipid	%, wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Arsenic	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Mercury (methylmercury)	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Selenium	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Sum of individual PCB congeners[2]	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Individual PCB congeners[2]	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Sum of individual DDT derivatives[3]	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]
Sum of individual Chlordane derivatives[4]	ng/wet g	composite of liver tissue, maximum of 20 individuals of flatfish per station		[1]

[1] As specified in the MRP QAPP and Laboratory Quality Manual.

[2] Individual PCB congeners: Individual PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110,

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
114, 118, 119, 123, 126, 128, 138, 149, 151, 153/168, 156, 157, 158, 167, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified and reported. The analytical report for individual PCB congeners shall be submitted electronically into the State Water Board's California Integrated Water Quality System (CIWQS) in a tabular format as an attachment.				
[3] Individual DDT derivatives: 2,4'- and 4,4'-isomers of DDT, DDE, and DDD, plus 4,4'-DDMU.				
[4] Individual Chlordane derivatives: Cis- and trans-chlordane, cis- and trans-chlordene, heptachlor, heptachlor epoxide, cis- and trans-nonachlor, and oxychlordane. The Discharger may temporarily suspend the monitoring requirements for cis- and trans-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.				

3. Monitoring Locations – Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations (n=2)

   Demersal Fish Liver Histopathology. Histopathological analyses shall be performed annually on liver tissues of flatfish from two Semi-annual Trawl Fish and Epibenthic Macroinvertebrate Monitoring Stations specified in Table E-2. A reasonable level of effort (i.e., five (5) trawls per location) shall be used to collect twenty (20) individuals of flatfish at each station. Fish species are the same as those targeted for liver tissue chemistry analyses (e.g., Pacific Sanddab, Hornyhead Turbot, and English Sole).

   The increased frequency of histopathological analyses in this Order/Permit cycle (i.e., annual) is different from that of the previous Order/Permit in order to capture potential environmental effects associated with the Discharger's increased water reclamation efforts.

4. Monitoring Locations – Annual Rig Fishing Monitoring Zones (n=2)

   Sport Fish Muscle Chemistry. The Discharger shall collect ten (10) sexually mature rockfish (e.g., Vermilion Rockfish, Copper Rockfish, and California Scorpionfish) at each Rig Fishing Monitoring Zone specified in Table E-2. Sampling and analysis protocols (including reporting limits) shall follow those described in the MRP QAPP and Laboratory Quality Manual. Target fish will be identified to species, counted, measured to the nearest millimeter, weighed, bagged, and transported on wet ice to the Discharger's laboratory for chemical analyses on muscle tissue contaminants. Fish will be sorted into two composite samples per zone, with a maximum of five (5) individuals in each composite.

Table E-12. Sport Fish Muscle Chemistry Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Length of each fish sample	cm	hook and line	See Table E-2.	[1]
Wet weight of each fish sample	kg	hook and line		[1]
Percent lipid	%, wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Arsenic, total	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Mercury (methylmercury)	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Selenium, total	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Sum of individual PCB congeners[2]	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Individual PCB congeners[2]	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Sum of individual DDT derivatives[3]	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]
Sum of individual Chlordane derivatives[4]	ng/wet g	composite of muscle tissue, maximum of 10 individuals of rockfish per zone		[1]

[1] As specified in the MRP QAPP and Laboratory Quality Manual.

[2] Individual PCB congeners. Individual PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153/168, 156, 157, 158, 167, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified and reported. The analytical report

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
for individual PCB congeners shall be submitted electronically in the State Water Board's California Integrated Water Quality System (CIWQS) in a tabular format as an attachment.				
[3] Individual DDT derivatives. 2,4'- and 4,4'-isomers of DDT, DDE, and DDD, plus 4,4'-DDMU.				
[4] Individual Chlordane derivatives. Cis- and trans-chlordane, cis- and trans-chlordene, heptachlor, heptachlor epoxide, cis- and trans-nonachlor, and oxychlordane. The Discharger may temporarily suspend the monitoring requirements for cis- and trans-chlordene, if analytical standards for these compounds are not available. However, the Discharger is required to resume detection and quantification practices as soon as standards become available.				

IX. RECEIVING WATER REGIONAL MONITORING REQUIREMENTS

Discharger participation in regional monitoring programs is a required condition of this Order/Permit. The Discharger shall participate in regional monitoring activities coordinated by the Southern California Coastal Water Research Project (SCCWRP), County of Orange Health Care Agency (HCA), the Southern California Coastal Ocean Observation System (SCCOOS), and other appropriate agencies once approved by the Santa Ana Water Board and USEPA.

The regional monitoring programs which must be conducted under this Order/Permit include:

A. Southern California Bight Regional Monitoring Program

The Discharger shall continue to participate in Southern California Bight Regional Monitoring Program studies, including water quality, benthic infauna, sediment chemistry, fish communities, fish predator risk, and ocean acidification, which are coordinated through the Southern California Coastal Water Research Project (SCCWRP) (e.g., the 1994 Southern California Bight Pilot Project, Bight'98, Bight'03, Bight'08, Bight'13, and Bight'18).

Participation in the Southern California Bight Regional Monitoring Program shall include aspects of the program relevant to understanding regional trends and answering regional questions related to public health (i.e., bacterial contamination), water quality, sediment geochemistry, biological communities, and seafood safety (e.g., fish tissue contamination) in the receiving waters environment. For sediment chemistry and benthic infauna communities, this level of effort shall be similar to the 35 one-off (i.e., 1/5-year) summer samples. For trawls, participation shall be equivalent to the 8 annual summer samples. In both cases (i.e., the benthic and trawl programs), 22 quarterly/annual benthic stations and 6 semi-annual trawl stations identified in the monitoring program should continue to be sampled, even during regional monitoring program events, to assess compliance and trends near the discharge.

The Discharger shall complete collection, analysis, and reporting of samples in accordance with the schedules established by the next Bight regional program

development committee(s). Previous participation included method development, research, and monitoring activities involving microbiology, water quality data, marine sediments, fish/macrobenthic assemblages, fish tissue contamination, and harmful algal blooms related to point and nonpoint discharges to the marine environment. Levels of participation and areas of study are dependent upon the final study plans established by Bight regional program development committees, but will be equivalent to that provided by the Discharger in previous regional surveys conducted in 1994, 1998, 2003, 2008, 2013, and 2018. For Bight'18, this involved:

1. Participation in regional microbiological studies testing rapid methods and developing rapid methods for detection of fecal indicator bacteria in beach sands at 2 beach stations.
2. Collection and analysis of water quality samples for analyzing the relationship between nutrients discharged through POTW outfalls, upwelling, and harmful algal blooms. Note that this study was deferred to Bight'23 due to logistical sample deployment issues.
3. Collection and analysis of water quality samples for ocean acidification and hypoxia (OAH), including bongo net towing to collect pteropods, at 4 bongo net tow stations.
4. Collection and analysis of sediment grab samples for geochemistry and benthic infauna at 44 benthic stations .
5. Collection and analyses of fish and macroinvertebrate community structure at 21 trawl stations.
6. Collection and analysis of fish tissue from approximately two zones or the equivalent of 40 tissue samples for chemical contaminants (organics and metals), and analysis of selected biomarkers at a subset of these stations.

B. Southern California Bight Regional Water Quality Program

The Southern California Bight Regional Water Quality Program (SCBRWQP; previously known as the Central Bight Water Quality Cooperative Program or the Central Bight Regional Water Quality Monitoring Program) is a coordinated quarterly receiving water quality monitoring program conducted by OC San, the County Sanitation Districts of Los Angeles, the City of Los Angeles, the City of San Diego, and the City of Oxnard.

1. Monitoring Locations – Quarterly Southern California Bight Regional Water Quality Monitoring Stations (n=60)

   The Discharger shall monitor the receiving water at the Quarterly Southern California Bight Regional Water Quality Monitoring Stations specified in Table E-2 The Discharger shall complete collection and analysis of samples. Results shall be reported in the annual receiving water monitoring report and uploaded, as available, to www.sccoos.org. The Discharger's level of participation shall be consistent with that provided in previous quarterly regional surveys.

Table E-13. Southern California Bight Receiving Water Quality Monitoring

Parameter	Units	Sample Type	Sample Depth	Minimum Sampling Frequency	Required Analytical Test Method
Surface Observations[1]	--	visual	surface	1/quarter	--
Salinity (calculated)	psu	profile	CTD sampling depths in Table E-2	1/quarter	[2]
Conductivity	S/m	profile		1/quarter	[2]
Temperature	°C	profile		1/quarter	[2]
Dissolved oxygen (DO)	mg/L	profile		1/quarter	[2]
Transmissivity	%	profile		1/quarter	[2]
Photosynthetically active radiation (PAR)	µEinsteins sec^{-1} cm^{-2}	profile		1/quarter	[2]
Chlorophyll-*a* fluorescence	µg/L	profile		1/quarter	[2]
pH	pH units	profile		1/quarter	[2]

[1] Wind direction and speed, weather, and sea and tidal condition shall be recorded, with the source(s) of the data documented. Observations of unusual water color, turbidity, odor, oil and grease, trash, or other physical evidence of waste discharge and trash in the water shall be noted on the log sheet prepared at the time of sample collection. These observations shall be recorded whenever a station is sampled.

[2] As specified in 40 CFR § 136, or in the MRP QAPP and Laboratory Quality Manual.

C. Central Regional Kelp Survey

This regional survey is designed to determine if the extent of kelp beds in the Southern California Bight are changing over time and if the rate of change differs between kelp beds. A group of private and public agencies cooperatively monitors the health and standing crop of kelp beds using quarterly aerial imaging of kelp bed canopy cover within the central Bight. The data collected in this regional survey will be used to assess status and trends in kelp bed health and spatial extent. The regional nature of the survey will allow the status of kelp beds near to the discharge to be compared to regional trends.

The Discharger shall continue its current level of participation in the Central Region Kelp Survey Consortium (CRKSC) Monitoring Program to conduct regional kelp bed monitoring in Southern California coastal waters. The Discharger shall participate in the regional management and technical committees responsible for the development of the

survey design and the assessment of kelp bed resources in the Bight.

D. Orange County Regional Shoreline REC-1 Cooperative Monitoring Program

This regional program is a coordinated shoreline REC-1 water quality monitoring effort conducted by the Discharger, the Orange County Health Care Agency (OCHCA), the South Orange County Wastewater Authority, and the Orange County Public Works (OC Watersheds) in the Ocean Water Protection Program, along Orange County's coastal shoreline (from Seal Beach to San Clemente State Beach). OCHCA reviews collected bacteriological data to determine whether a station meets Ocean Water-Contact Sports Standard (i.e., Assembly Bill 411; AB411), and uses these results as the basis for health advisories, postings, or beach closures. This Order/Permit requires a minimum level of participation in microbiological regional monitoring.

1. Monitoring Locations – Orange County Regional Shoreline REC-1 Cooperative Monitoring Stations (Nearshore Zone) (n=36)

   The Discharger shall monitor the receiving water at least once per week at the Orange County Regional Shoreline REC-1 Cooperative Monitoring Stations (Nearshore Zone or Surfzone) specified in Table E-2. The Discharger shall complete collection, analysis, and reporting of the regional samples required under this Order/Permit. Results shall be reported in the annual receiving water monitoring report, except that microbiological results shall continue to be reported on a timely basis (approximately daily) to the OCHCA, Environmental Health and placed on the Internet each month.

Table E-14. Orange County Regional Shoreline REC-1 Cooperative Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method
Surface Observations[2]	--	visual	See Table E-2.	[3]
Total coliform density	CFU/100 mL[4]	grab		[3,5]
Fecal coliform density	CFU/100 mL[4]	grab		[3,5]
Enterococcus density	CFU/100 mL[4]	grab		[3,5]

[1] In the event of stormy weather which makes sampling hazardous at certain surfzone stations, collection of samples at such stations can be omitted, provided that such omissions do not occur more than 5 days in any calendar year or occur at consecutive sampling times. The observations shall still be recorded and reported to the Santa Ana Water Board and USEPA for these stations at the time the sample was attempted to be collected.

[2] Wind direction and speed, weather, and sea and tidal condition shall be recorded, with the source(s) of the data documented. Observations of unusual water color, turbidity, odor, oil and grease, trash, or other physical evidence of waste discharge and trash in the water

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method
shall be noted on the log sheet prepared at the time of sample collection. These observations shall be recorded whenever a station is sampled.				
[3] As specified in 40 CFR § 136, or in the MRP QAPP and Laboratory Quality Manual.				
[4] Results may be reported as either MPN/100 mL if the laboratory method used provides results in MPN/100 mL or CFU/100 mL if the laboratory method used provides results in CFU/100 mL.				
[5] Test methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR § 136, unless alternate methods have been approved in advance by USEPA pursuant to 40 CFR § 136, or improved methods have been determined by the Executive Officer and/or USEPA.				

E. Ocean Acidification and Hypoxia (OAH) Mooring

The Discharger shall monitor ocean acidification and hypoxia at a single location. An automated data quality control system shall be established for telemetered data (i.e., real-time, online ocean acidification data) based on the Integrated Ocean Observation System (IOOS) protocols.

X. STRATEGIC PROCESS STUDIES

The Discharger shall conduct Strategic Process Studies (SPS) to document the effectiveness of its source control and wastewater treatment operations in protecting the coastal ocean. SPS are designed to address unanswered questions raised by the Core monitoring program results and/or focus on issues of interest to the Discharger, the Santa Ana Water Board, and/or USEPA. SPS shall be proposed and be approved by the Santa Ana Water Board and USEPA to ensure appropriate focus and level of effort. Five studies below must be conducted under this Order/Permit using previously approved work plans as these studies have been approved during the term of the 2012 Order/Permit and are not yet completed:

A. ROMS-BEC Ocean Outfall Modeling: The Discharger works with SCCWRP and their collaborators to model and assess the spatial and temporal extent of its discharged effluent before and after the implementation of the GWRS Final Expansion.

B. Microplastics Characterization: This SPS characterizes the quantity and types of microplastics throughout the Discharger's treatment system. This study will also develop methods and analyses to help inform the transport, fate and impacts of microplastics through the Discharger's wastewater treatment process to the receiving environment.

C. In-vitro Cell Bioassay Monitoring Assessment: This study will provide a preliminary assessment of contaminants of emerging concern (CEC) in the receiving water using *in-vitro* cell bioassay techniques. Cell bioassays can be used as a screening tool to evaluate potential impacts resulting from changes in the effluent and receiving environment water quality associated with the GWRS Final Expansion.

D. Sediment Linear Alkylbenzenes: Linear Alkylbenzenes (LABs) were previously used to investigate whether other contaminants present in the sediment were associated with the effluent discharge. This SPS will provide updated data within the Discharger's monitoring area for evaluating future changes due to GWRS Final Expansion.

E. Meiofauna Baseline: The Discharger will investigate the impacts of increased RO concentrate flows from the GWRS Final Expansion on marine biota in the receiving water using meiofauna (animals ranging from 63 to 500 µm in size) which are known to be more sensitive to anthropogenic impacts than macrofauna. This SPS will characterize the meiofauna communities in the receiving environment and evaluate the suitability of using meiofauna for a before-after control-impact study of the GWRS Final Expansion.

XI. OTHER MONITORING REQUIREMENTS

A. Contaminants of Emerging Concern (CEC) Monitoring Study

The Discharger shall continue to investigate CEC in the discharge and/or receiving waters, following its approved CEC study workplan. Within six (6) months of the effective date of this Order/Permit, the Discharger shall submit for Executive Officer/Director approval an updated CEC study workplan and submit the special study final report with the application for permit reissuance. The workplan shall include, but is not limited to:

1. Updates of CEC identification for discharge monitoring (e.g., CEC concentrations and mass loadings, sample type, minimum sampling frequency, and analytical test method considering sensitivity, accuracy, availability, and cost). The parameters in Table E-15 may be re-evaluated and modified by the Executive officer/Director. The workplan may also propose surrogate or indicator CEC that may better characterized discharged CEC.

Table E-15. CEC Discharge Monitoring

Parameter	CAS #	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Hormones					
17α-Ethynyl estradiol	57-63-6	ng/L & lb/d	24-hr composite	1/year	[1]
17α-Estradiol	57-91-0	ng/L & lb/d	24-hr composite	1/year	[1]
17β-Estradiol	50-28-2	ng/L & lb/d	24-hr composite	1/year	[1]
Estriol	50-27-1	ng/L & lb/d	24-hr composite	1/year	[1]
Estrone	53-16-7	ng/L & lb/d	24-hr composite	1/year	[1]
Progesterone	57-83-0	ng/L & lb/d	24-hr composite	1/year	[1]

Parameter	CAS #	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Testosterone	58-22-0	ng/L & lb/d	24-hr composite	1/year	[1]
Industrial Endocrine Disrupting Compounds (IEDCs)					
Bisphenol A	80-05-7	ng/L & lb/d	24-hr composite	1/year	[1]
4-para-Nonylphenol	84852-15-3	ng/L & lb/d	24-hr composite	1/year	[1]
Nonylphenol diethoxylate	Not available	ng/L & lb/d	24-hr composite	1/year	[1]
Nonylphenol monoethoxylate	68412-54-4	ng/L & lb/d	24-hr composite	1/year	[1]
Octylphenol	27193-28-8	ng/L & lb/d	24-hr composite	1/year	[1]
4-n-Octylphenol diethoxylate	51437-90-2	ng/L & lb/d	24-hr composite	1/year	[1]
Octylphenol monoethoxylate	5143-89-9	ng/L & lb/d	24-hr composite	1/year	[1]
Pharmaceuticals and Personal Care Products (PPCPs)					
Acetaminophen	298-46-4	ng/L & lb/d	24-hr composite	1/year	[1]
Caffeine	58-08-2	ng/L & lb/d	24-hr composite	1/year	[1]
Carbamazepine	298-46-4	ng/L & lb/d	24-hr composite	1/year	[1]
DEET (N,N-Diethyl-m-toluamide)	134-62-3	ng/L & lb/d	24-hr composite	1/year	[1]
Diclofenac	15307-86-5	ng/L & lb/d	24-hr composite	1/year	[1]
Erythromycin	114-07-8	ng/L & lb/d	24-hr composite	1/year	[1]
Fluoxetine hydrochloride	56296-78-7	ng/L & lb/d	24-hr composite	1/year	[1]
Galaxolide (HHCB)	1222-05-5	ng/L & lb/d	24-hr composite	1/year	[1]
Gemfibrozil	25812-30-0	ng/L & lb/d	24-hr composite	1/year	[1]
Ibuprofen	15687-27-1	ng/L & lb/d	24-hr composite	1/year	[1]
Oxybenzone	131-57-7	ng/L & lb/d	24-hr composite	1/year	[1]
Primidone	125-33-7	ng/L & lb/d	24-hr composite	1/year	[1]
Sulfamethoxazole	723-46-6	ng/L & lb/d	24-hr composite	1/year	[1]
Triclosan	3380-34-5	ng/L & lb/d	24-hr composite	1/year	[1]

Parameter	CAS #	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Pesticides and Insecticides					
Fipronil	120068-37-3	ng/L & lb/d	24-hr composite	1/year	[1]
Fipronil Sulfone	120068-36-2	ng/L & lb/d	24-hr composite	1/year	[1]
Bifenthrin	82657-04-3	ng/L & lb/d	24-hr composite	1/year	[1]
Total Permethrin	52645-53-1	ng/L & lb/d	24-hr composite	1/year	[1]
Chlorpyrifos	2921-88-2	ng/L & lb/d	24-hr composite	1/year	[1]
Diazinon	333-41-5	ng/L & lb/d	24-hr composite	1/year	[1]
Flame Retardants					
BDE 47	Not available	ng/L & lb/d	24-hr composite	1/year	[1,2]
BDE 99	Not available	ng/L & lb/d	24-hr composite	1/year	[1,2]
BDE 100	Not available	ng/L & lb/d	24-hr composite	1/year	[1,2]
BDE 183	Not available	ng/L & lb/d	24-hr composite	1/year	[1,2]
TDCPP; tris(1,3-dichloro-2-propyl)phosphate	13674-87-8	ng/L & lb/d	24-hr composite	1/year	[1]
TCEP; tris(2-chloroethyl)phosphate	115-96-8	ng/L & lb/d	24-hr composite	1/year	[1]
TCPP; tris(1-chloro-2-propyl)phosphate	13674-84-5	ng/L & lb/d	24-hr composite	1/year	[1]
PFAS (per-and polyfluoroalkyl substances) compounds					
PFDA (Perfluorodecanoic acid)	335-76-2	ng/L & lb/d	24-hr composite	1/year	[3]
PFDoA (Perfluorododecanoic acid)	307-55-1	ng/L & lb/d	24-hr composite	1/year	[3]
PFHxA (Perfluorohexanoic acid)	307-24-4	ng/L & lb/d	24-hr composite	1/year	[3]
PFHpA (Perfluoroheptanoic acid)	375-85-9	ng/L & lb/d	24-hr composite	1/year	[3]
PFNA (Perfluorononanoic acid)	375-95-1	ng/L & lb/d	24-hr composite	1/year	[3]

Parameter	CAS #	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
PFOA (Perfluorooctanoic acid)	335-67-1	ng/L & lb/d	24-hr composite	1/year	[3]
PFTeDA (Perfluorotetradecanoic acid)	376-06-7	ng/L & lb/d	24-hr composite	1/year	[3]
PFTrDA (Perfluorotridecanoic acid)	72629-94-8	ng/L & lb/d	24-hr composite	1/year	[3]
PFUnDA (Perfluoroundecanoic acid)	2058-94-8	ng/L & lb/d	24-hr composite	1/year	[3]
PFBS (Perfluorobutane sulfonic acid)	375-73-5	ng/L & lb/d	24-hr composite	1/year	[3]
PFHxS (Perfluorohexane sulfonic acid)	355-46-4	ng/L & lb/d	24-hr composite	1/year	[3]
PFOS (Perfluorooctane sulfonic acid)	1763-23-1	ng/L & lb/d	24-hr composite	1/year	[3]

[1] USEPA Methods 1694 Modified or 1698 Modified; ASTM Methods D7065 or D7485; or other methodologies utilized by the U.S. Geological Survey, California Department of Public Health, or other federal or State agencies.

[2] USEPA Methods 1614A Modified using GC/MS SIM or other methodologies utilized by the U.S. Geological Survey, California Department of Public Health, or other federal or State agencies.

[3] USEPA Method 537.1 Modified with isotope dilution using LC/MS/MS or other methodologies to meet the required reporting limit of 50 ng/L.

2. Characterization of CEC monitoring data for the final effluent and receiving water including sediments, using previously collected monitoring data and monitoring data collected for this study. At minimum, this characterization shall include: identification of all monitored CECs, monitoring dates, frequency and duration; QA/QC information; reporting limits, minimum levels, and minimum detection limits achieved for each methodology; and an analysis of trends.
3. A preliminary workplan for collaborative studies: (1) CECs identification in reclaimed wastewater with the Orange County Water District, and (2) methods development for measuring CECs in marine sediments with the Los Angeles County Sanitation Districts.

B. Outfall and Diffuser System Inspection

The Discharger shall externally inspect each ocean outfall (i.e., 120" and 78" outfalls) every 2.5 years to ensure that the outfall structures are in serviceable condition and that they can continue to be operated safely. Inspections shall include general observations including any collection of debris within the diversion structure surge chamber, and photographic/videographic records of the external outfall pipes and adjacent ballasting system. The inspections may be conducted by remotely operated vehicle, diver, or manned submarine. Within 60 days of the completion of the outfall and diffuser system inspection, a summary report of the inspection findings, including videographic and/or photographic images shall be submitted to the Santa Ana Water Board and USEPA.

XII. 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. If there is no discharge during any reporting period, the report shall so state.
3. Each monitoring report shall contain a separate section titled "Summary of Non-compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with discharge requirements as well as all excursions of effluent limitations.
4. The Discharger shall inform the Santa Ana Water Board and USEPA well in advance of any proposed construction or maintenance activity, or modification to the POTW that could potentially affect compliance with applicable requirements.
5. The date and time of sampling (as appropriate) shall be reported with the analytical values determined.
6. The laboratory conducting analyses shall be certified by the State Water Resources Control Board, Environmental Laboratory Accreditation Program (ELAP), in accordance with CWC section 13176, and must include quality assurance/quality control (QA/QC) data in their reports.
7. The Discharger shall have and implement an acceptable written NPDES monitoring and reporting program QAPP for all monitoring and analyses required under this Order/Permit. For each target analyte, required quality control samples shall be analyzed as described in the laboratory Quality Manual. A summary report of the QA/QC findings for all monitoring and analysis for the previous fiscal year (July 1 through June 30) shall be provided in the annual receiving water monitoring report.
8. QA/QC data associated with a sample must be reported when requested by the Santa Ana Water Board or USEPA. The Santa Ana Water Board and USEPA will reject laboratory data if quality control data is unavailable or unacceptable.

9. When requested by the Santa Ana Water Board or USEPA, the Discharger shall participate in the NPDES DMR QA performance study.
10. Dischargers are to instruct their laboratories to establish calibration standards so that the ML (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. In accordance with Ocean Plan Chapter III.C.5.b, the Discharger's laboratory may employ a calibration standard lower than the ML in Appendix II of the Ocean Plan.
11. Upon request by the Discharger, the Santa Ana Water Board, in consultation with the State Water Board's Quality Assurance Program and/or USEPA, may establish an ML that is not contained in Appendix II of the 2019 Ocean Plan, to be included in the Discharger's NPDES permit, in any of the following situations:
    a. When the pollutant under consideration is not included in Appendix II;
    b. When the Discharger agrees to use a test method that is more sensitive than those specified in 40 CFR § 136 (most recent revision);
    c. When the Discharger agrees to use an ML lower than those listed in Appendix II;
    d. When the Discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Appendix II and proposes an appropriate ML for their matrix; or
    e. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML. In such cases, the Discharger, Santa Ana Water Board, State Water Board and USEPA shall agree on a lowest quantifiable limit, and that limit will substitute for the ML for reporting and compliance determination purposes.
12. Records and reports of receiving water monitoring surveys conducted to meet receiving water monitoring requirements shall include, at a minimum, the following information:
    a. A description of climatic and receiving water characteristics at the time of sampling (weather observations, unusual or abnormal amounts of floating debris, trash, discoloration, odor, oil and grease, wind speed and direction, swell or wave action, sea and tidal condition, time of sampling or measurements, etc.).
    b. The date, exact place and description of sampling stations, including differences unique to each station (e.g., date, time, station location, depth, and sample type).
    c. A list of the individuals participating in field collection of samples or data and description of the sample collection and preservation procedures used in the various surveys.

d. A description of the specific method used for laboratory analysis, the date(s) the analyses were performed and the individuals participating in these analyses.

e. An in-depth discussion of the results of the surveys. All tabulations and computations shall be explained.

13. The results of all monitoring data for this Order/Permit shall be reported in a tabulated format, acceptable by the Santa Ana Water Board and USEPA, that allows direct comparison with the limitations and conditions of this Order/Permit and clearly illustrates whether the facility is operating in compliance with this Order/Permit.

    All receiving water monitoring raw data files should be stored onsite and must be submitted to the Santa Ana Water Board and USEPA upon request.

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 at <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.

2. The Discharger shall report in the SMR the results for all monitoring specified in this Order/Permit. The Discharger shall submit monthly 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.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the schedule in Table E-16. Monitoring and reporting due dates are specified elsewhere in this Order/Permit for: biosolids program annual report; pretreatment program annual reports; pollutant minimization program annual report; spill preventative and contingency plans update report; storm water management plan update; Initial Investigation TRE Workplan update; dilution model update; ocean outfall condition assessment reports; NPDES monitoring data availability via Internet update report; annual receiving water monitoring report (including a chapter for annotated QA/QC findings, chapters summarizing monitored activities for regional monitoring and strategic process studies, and a chapter for the annual mass emission); and outfall and diffuser systems inspection report.

Table E-16. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR/DMR Due Date
Continuous	Effective date	All	Submit with monthly report
Hourly	Effective date	Hourly	Submit with monthly report
Daily (1/day)	Effective date	Midnight through 11:59 pm, or any 24-hr period that reasonably represents a calendar day for sampling purposes	Submit with monthly report
Weekly (1/week)	Sunday following effective date, or on effective date if Sunday	Sunday through Saturday	Submit with monthly report
Monthly (1/month)	First day of calendar month following effective date, or on effective date if first day of month	1st day of calendar month through last day of calendar month	15th day of 2nd month following the monitoring period, submit as monthly report
Quarterly (1/quarter)	Closest of January 1, April 1, July 1, or October 1 following (or on) effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 15, August 15, November 15, February 15, submit with monthly report
Semi-annually (2/year)	Closest of January 1 or July 1 following (or on) effective date	January 1 through June 30 July 1 through December 31	August 15, February 15, submit with monthly report
Annually (1/year)	January 1 following (or on) effective date	January 1 through December 31	February 15, submit with monthly report
Other	On date specified in Order/Permit	As specified in Order/Permit	Submit with monthly report

4. **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 § 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 reported 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.

5. **Compliance Determination.** Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined above and Attachment A of this Order/Permit. For purposes of reporting and administrative enforcement by the Santa Ana Water Board, State Water Board, and USEPA, 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 corresponding effluent limitation and greater than or equal to the reported Minimum Level (ML).

6. **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).

   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 of the 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.

7. 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 (e.g., annual receiving water monitoring report).

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; 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. SMRs must be signed and certified as required by the Standard Provisions (Attachment D).

SMRs submitted to the State that are not DMRs shall also be submitted to USEPA at the following address, unless another USEPA address is specified in this Order/Permit. Signed and certified written reports and receiving water monitoring data may be submitted on a CD-ROM, with a signed cover letter.

U.S. EPA, Region 9
ATTN: NPDES Data Team (ENF 2-3)
Data Solution Section ECAD
75 Hawthorne Street
San Francisco, CA 94105-3901

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: <http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring>.

D. Other Reports

1. **Pretreatment Report**. By October 31st of each year, the Discharger shall submit annual pretreatment reports to the Santa Ana Water Board, the State Water Board, and USEPA, describing the Discharger's pretreatment activities over the previous OCSD fiscal year (July 1 through June 30). The annual reports shall contain, but not be limited to, the information required in the attached *Pretreatment Reporting Requirements* (Attachment H), or an approved revised version thereof. If the Discharger is not in compliance with any conditions or requirements of this Order/Permit, the Discharger shall include the reasons for noncompliance and shall state how and when the Discharger will comply with such conditions and

requirements. Prior to the completion of the GWRS Final Expansion Project, the Discharger shall conduct annual technical review of local limits under 40 CFR § 403.5(c)(1) and submit the results as part of the annual pretreatment report. Within two (2) years of the completion of the GWRS Final Expansion Project, the Discharger shall provide a written technical evaluation of the need to revise local limits under 40 CFR § 403.5(c)(1).

2. **Biosolids Report.** By February 19th of each year, the Discharger shall submit an annual biosolids report into USEPA's CDX electronic reporting system, with an electronic copy to the Santa Ana Water Board by email at santaana@waterboards.ca.gov, for the period covering the previous calendar year (January 1 through December 31). The annual reports shall contain, but not be limited to, the information required in the attached *Biosolids Reporting Requirements* (Attachment G), or an approved revised version thereof. If the Discharger is not in compliance with any conditions or requirements of this Order/Permit, the Discharger shall include the reasons for noncompliance and shall state how and when the Discharger will comply with such conditions and requirements.

3. **Receiving Water Monitoring Report**. By March 15th of each year, the Discharger shall submit an annual receiving water monitoring report for monitored activities during the previous fiscal year (July 1 through June 30), to the Santa Ana Water Board and USEPA. The report shall contain both tabular and graphical summaries of receiving water monitoring data and discuss the compliance record and actions undertaken or proposed which will bring the discharge into full compliance with receiving water monitoring requirements at the earliest time, and an estimate of the date when the Discharger will be in compliance. Receiving water core monitoring results, including annotated QA/QC findings, shall be described and summarized. Separate report chapters for receiving water regional monitoring and strategic process studies shall provide summaries of monitored activities during the previous fiscal year. A separate report chapter for effluent monitoring shall also provide summaries of effluent monitoring including the annual mass emission during the previous fiscal year.

4. **Strategic Process Study Proposal.** In the spring, beginning in 2022 and continuing every-other year during the term of this Order/Permit, the Discharger, Santa Ana Water Board, and USEPA shall consult to determine the need for strategic process studies. By October 1st, the Discharger shall submit proposals to the Santa Ana Water Board and USEPA for the following fiscal year's (July 1 through June 30) monitoring effort, or a letter explaining why no special studies are proposed. Upon approval by the Santa Ana Water Board and USEPA, the Discharger shall implement its strategic process studies. Final scopes of work, including reporting schedules, shall be presented by the Discharger at a spring meeting with Santa Ana Water Board and USEPA staffs to obtain Santa Ana Water Board and USEPA approval.

5. **Other Workplans and Reports.** The Discharger shall report the results of any special studies (e.g., TRE work plan, dilution model update and ocean outfall condition assessment), Pollutant Minimization Program (PMP), updated Storm Water Management Plan, Spill Preventive and Contingency Plan (SPCP), Asset Management Plan (AMP), and Monitoring Data Accessibility Plan required by Special Provisions – Section VII.C of this Order/Permit. The Discharger shall also submit the workplans and report the results of special monitoring studies (e.g., CEC monitoring study and outfall and diffuser system inspection) required by Other Monitoring Requirements – Section XI of Attachment E. The Discharger shall submit workplans and/or reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date in compliance with SMR reporting requirements described in subsection XII.B above.

ATTACHMENT F – FACT SHEET

CONTENTS

I. Permit Information 4
II. Facility Description 5
A. Description of Wastewater and Biosolids Treatment and Controls 5
B. Discharge Points and Receiving Waters 7
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data 8
D. Compliance Summary 11
E. Planned Changes 13
III. Applicable Plans, Policies, and Regulations 14
A. Legal Authorities 14
B. California Environmental Quality Act (CEQA) 15
C. State and Federal Laws, Regulations, Policies, and Plans 15
D. Impaired Water Bodies on the CWA section 303(d) List 18
E. Other Plans, Polices and Regulations 18
IV. Rationale for Effluent Limitations and Discharge Specifications 20
A. Discharge Prohibitions 20
B. Technology-Based Effluent Limitations (TBELs) 21
1. Scope and Authority 21
2. Applicable Technology-Based Effluent Limitations 24
C. Water Quality-Based Effluent Limitations (WQBELs) 24
1. Scope and Authority 24
2. Applicable Beneficial Uses and Water Quality Criteria and Objectives 25
3. Determining the Need for WQBELs 25
4. WQBEL Calculations 38
5. Whole Effluent Toxicity (WET) 41
D. Final Effluent Limitation Considerations 43
1. Anti-Backsliding Requirements 43
2. Antidegradation Policies 43
3. Stringency of Requirements for Individual Pollutants 45
E. Final Effluent Limitations for Discharge Points 001 and 002 46
F. Interim Effluent Limitations – Not Applicable 50
G. Land Discharge Specifications – Not Applicable 50
H. Recycling Specifications – Not Applicable 50
V. Performance Goal and Mass Emission Benchmarks 50
A. Performance Goal 50
B. Mass Emission Benchmarks 52
VI. Rationale for Receiving Water Limitations 53
A. Surface Water 53
B. Groundwater – Not Applicable 54
VII. Rationale for Provisions 54
A. Standard Provisions 54
B. Special Provisions 54

1. Reopener Provisions 54
2. Southern California Bight Monitoring Exchange 55
3. Special Studies, Technical Reports, and Additional Monitoring Requirements... 55
4. Best Management Practices and Pollution Prevention 56
5. Construction, Operation, and Maintenance Specifications 56
6. Special Provisions for Publicly-Owned Treatment Works (POTWs) 57
7. Other Special Provisions 58
8. Compliance Schedules – Not Applicable 59
VIII. Rationale for Monitoring and Reporting Requirements 59
A. Influent Monitoring 60
B. Effluent Monitoring 60
C. Whole Effluent Toxicity Testing Requirements 60
D. Receiving Water Core Monitoring 61
1. Water Quality Monitoring 61
2. REC-1 Water Quality Monitoring (Offshore Zone) 61
3. Sediment Monitoring 62
4. Demersal Fish and Epibenthic Macroinvertebrate Monitoring 63
E. Receiving Water Regional Monitoring 65
F. Strategic Process Studies 66
G. Other Monitoring Requirements 66
1. Contaminants of Emerging Concern (CEC) Monitoring Study 66
2. Outfall and Diffuser System Inspection 67
3. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program 67
IX. Public Participation 67
A. Notification of Interested Parties 68
B. Written Comments 68
C. Public Hearing 68
D. Reconsideration of Waste Discharge Requirements 68
E. Federal NPDES Permit Appeals 69
F. Information and Copying 69
G. Register of Interested Persons 69
H. Additional Information 70

TABLES

Table F-1. Facility Information 4
Table F-2. Discharge Location 8
Table F-3. Historic TBELs and Monitoring Data at EFF-001 9
Table F-4. Historic WQBELs and Monitoring Data at EFF-001 10
Table F-5. Basin Plan Beneficial Uses 15
Table F-6. Ocean Plan Beneficial Uses 16
Table F-7. Federal Secondary Treatment Standards 23
Table F-8. Ocean Plan Table 4 Effluent Limitations 23
Table F-9. Reasonable Potential Analysis for Discharge Point No. 001 (120” Outfall) 29

Table F-10. Reasonable Potential Analysis for Discharge Point No. 002 (78” Outfall) 33
Table F-11. Pollutants with Background Seawater Concentrations (Cs) 38
Table F-12. Example – Ocean Plan Table 3 Water Quality Objectives (Co) 38
Table F-13. Bacteria Water Quality Objectives (Co) in the Ocean Plan 40
Table F-14. Summary of Effluent Limitations – Discharge Point 001 (120” outfall)..... 46
Table F-15. Summary of Effluent Limitations – Discharge Point 002 (78” outfall)..... 48

FIGURE

Figure F-1. Previous and current Southern California Bight Regional Water Quality Program Station transects. 66

ATTACHMENT F – FACT SHEET

As described in section II.B of this Order/Permit, the California Regional Water Quality Control Board, Santa Ana Region (hereinafter Santa Ana Water Board) and USEPA incorporates this Fact Sheet as findings of the Santa Ana Water Board and USEPA supporting the issuance of this Order/Permit. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order/Permit.

This Order/Permit 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/Permit that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order/Permit 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	8 300110002	
Discharger	Orange County Sanitation District	
Name of Facility (and POTW)	Reclamation Plant No. 1 (Fountain Valley), collection system and outfalls Treatment Plant No. 2 (Huntington Beach), collection system and outfalls	
Facility Address	Reclamation Plant No. 1	Treatment Plant No. 2
	10844 Ellis Avenue Fountain Valley, CA 92708	22212 Brookhurst Street Huntington Beach, CA 92646
	Orange County	
Facility Contact, Title and Phone	James Herberg, General Manager (714) 962-2411	
Authorized Person to Sign and Submit Reports	James Herberg, General Manager (714) 962-2411	
Mailing Address	10844 Ellis Avenue, Fountain Valley, CA 92708-7018	
Billing Address	Same	
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	State Water Board Order WQ 2016-0068-DDW	
Facility Permitted Flow	332 MGD (dry weather)	
Facility Design Flow	Reclamation Plant No. 1	Treatment Plant No. 2
	182 MGD (dry weather) 345 MGD (peak wet weather)	150 MGD (dry weather) 317 MGD (peak wet weather)
Watershed	Santa Ana River Watershed	
Receiving Water	Pacific Ocean (Discharge Point Nos.001 and 002) Santa Ana River (Discharge Point No. 003)	
Receiving Water Type	Ocean and inland (tidal prism) waters	

A. Orange County Sanitation District (hereinafter OC San, Permittee or Discharger) is the owner and operator of Reclamation Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in Huntington Beach (hereinafter treatment facilities), a Publicly-Owned Treatment Work (POTW).

For the purposes of this Order/Permit, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater to the Pacific Ocean, a water of the United States. The Discharger was previously regulated by Order No. R8-2012-0035 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0110604 adopted on June 15, 2012 and expired on July 19, 2017. The Discharger filed a report of waste discharge and submitted an application for reissuance of its waste discharge requirements (WDRs) and NPDES permit on January 3, 2017, and the previous order was administratively extended by operation of law. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. Regulations at 40 CFR § 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order/Permit limits the duration of the discharge authorization. However, pursuant to California Code of Regulations, 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. (See also 40 CFR § 122.6(d)).

II. FACILITY DESCRIPTION

A. Description of Wastewater and Biosolids Treatment and Controls

The Discharger's POTW serves approximately 480 square miles of central and northern Orange County, California. Currently, the POTW consists of approximately

388 miles of trunk sewer systems and force mains, 15 offsite pump stations, two wastewater treatment plants, and three outfalls. In addition to the domestic, commercial, and industrial wastewater received from this service area, through interagency agreements, influent flows are contributed by the Santa Ana Watershed Project Authority (SAWPA) including Stringfellow Superfund Site (EPA ID #CAT080012826), Irvine Ranch Water District, and the Sanitation District of Los Angeles County. During dry weather conditions, the Discharger also accepts small volumes (average daily amount up to 10 MGD) of dry weather urban runoff from within the service area. During 2018-2019, the Discharger's wastewater treatment plants received and processed influent volumes averaging 191 MGD.

Raw wastewater entering either Reclamation Plant No. 1 or Treatment Plant No. 2 passes through metering and diversion structures and continues to headworks facilities for preliminary treatment. Note that influent flow from SAWPA is tributary to Reclamation Plant No. 1 via the Santa Ana River Interceptor (SARI). Because the California Department of Health does not permit SARI flow for the Groundwater Replenishment System (GWRS) reclamation, all SARI flow is diverted to Treatment Plant No. 2 through the Interplant Interceptor for treatment and ocean discharge. Preliminary treatment includes grit and screenings removal. Caustic soda shock, ferrous chloride, calcium nitrate, magnesium hydroxide and polymer can be added to reduce corrosion and odor and provide enhanced primary treatment. The wastewater then receives primary treatment in primary sedimentation facilities. The primary effluent is routed to either trickling filters or activated sludge facilities for secondary treatment. Secondary treated trickling filter and activated sludge effluents from Reclamation Plant No. 1 are delivered to the Orange County Water District (OCWD) for further tertiary treatment and reclamation. The OC San discharges secondary treated effluent from Treatment Plant No. 2 through Discharge Point 001 (primary 120" ocean outfall) to the Pacific Ocean, a water of the United States, except under emergency circumstances. In 2023, when the Final Expansion of the GWRS is complete, Treatment Plant No. 2 effluents will also be reclaimed at the GWRS. SARI flow will be separated from other domestic wastewater at Plant No. 2, where it will be secondary treated before being discharged to the ocean. The use of continuous disinfection prior to discharge through Discharge Point No. 001 (120" outfall) has been ceased since May 2015. Effluent disinfection with chlorine bleach followed by de-chlorination with sodium bisulfite occurs at the other two discharge points 002 and 003. Dewatered biosolids are shipped offsite to land application, composting, thermal conversion, or landfill facilities. Attachment B provides a map of the area around the treatment facilities. Attachment C provides flow schematics of the full secondary treatment facilities.

OCWD receives two streams of OC San secondary treated wastewater, one for the Green Acres Project (GAP, out of service in winter) and the second one for the GWRS. Both GAP and GWRS are major regional wastewater reclamation projects owned and operated by OCWD and located adjacent to Reclamation Plant No. 1. Advanced treatment for the GWRS includes microfiltration, reverse osmosis, and advance oxidation (ultraviolet/peroxide). The Discharger provides approximately 100 % of secondary treated effluent from Plant No.1 to GWRS for advanced treatment and

reuse. In Fiscal Year 2018-19, the average effluent flow to OCWD was 117 MGD. The GWRS Final Expansion has been under construction since November 2019, which supports the Discharger's strategic goal of maximizing water recycling up to 175 MGD at both plants, and OCWD's goal to produce up to 130 MGD of purified recycled water by 2023. GAP can divert up to 7.5 MGD of the Discharger's secondary treated wastewater for tertiary treatment, disinfection, and reuse for landscaped irrigation and industrial uses. In Fiscal Year 2018-19 summer months, average flow to GAP was 4 MGD. The GAP and part of the GWRS generates waste streams (e.g., microfiltration backwash, sump waste, and lime waste) are recycled back into the OC San's primary treatment facility, except for RO reject (or concentrate) which are returned to OC San, blended with other secondary treated waste streams and discharged via ocean outfalls.

In 2019, average daily total influent flow to both plants was 192 MGD, but because of water recycling efforts, the average daily ocean discharge was 100 MGD. Based on 2017 OCSD Facilities Master Plan, the average daily influent flow projected for 2025 is 188~206 MGD during the dry weather season and 478~523 MGD during the peak wet weather season. Note that lower and upper bound flows are based on the current trend and a conservative approach, respectively. The projected 2025 average daily ocean discharges are 55~73 MGD for dry weather and 344~389 MGD for peak wet weather, of which RO concentrate flow is 23 MGD.

B. Discharge Points and Receiving Waters

Secondary treated effluents from Plant No. 1 and 2 are discharged to the Pacific Ocean through the Discharger's ocean outfall system. There are two booster pump stations (i.e., the Ocean Outfall Booster Station (OOBS) and the Effluent Pump Station Annex (EPSA)) that pump secondary effluent to two ocean outfalls: Discharge Point 001 via the 120" pipelines and Discharge Point 002 via the 78" pipelines. In addition to these two ocean outfalls, there are two overflow weirs at Plant No. 2 that discharge into the Santa Ana River.

1. **Discharge Point 001 (120" outfall)**. Discharge Point 001 (120" outfall) is the primary discharge point (activated ocean outfall, with a rated capacity of 480 MGD) to the Pacific Ocean terminating in a diffuser with 503 ports, at a depth of about 197 feet (60 meters) below mean sea level. Discharge Point 001 (120" outfall) is approximately 4.5 miles (3.9 nautical miles) offshore in federal waters as the territorial waters of the State end 3 nautical miles from shore. The Ocean Plan (Appendix 1, Ocean Waters) states, "If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters." This Order/Permit contains discharge prohibitions, effluent limitations, receiving water limitations, and other provisions to ensure that discharges from Discharge Point 001 do not affect State waters. The Ocean Plan minimum probable initial dilution (D_m = 180) for this outfall is 181:1.
2. **Discharge Point 002 (78" outfall).** Discharge Point 002 (78" outfall) is an emergency discharge point (deactivated ocean outfall, with a rated capacity of 230

MGD) to the Pacific Ocean terminating in a 130 ports diffuser, approximately 1.5 mile offshore from the mouth of the Santa Ana River, at a depth of about 65 feet (20 meters) below mean sea level. This outfall is used only during an emergency or planned essential maintenance or capital improvement projects to assure efficient operation of the 120" outfall under 40 CFR § 122.41(m)(2) since the 120" outfall was put into service in 1971. The Ocean Plan minimum probable initial dilution (Dm = 36) for this outfall is 37:1.

3. **Discharge Point 003 (Santa Ana River Overflow Weirs).** Discharge Point 003 (i.e., the Santa Ana River Overflow Weirs) is comprised of two extreme emergency discharge points (overflow) to the tidal prism in the Santa Ana River, which eventually flows to the Pacific Ocean. One of the overflow points is located at the termination structure upstream of the EPSA facility and other one is at the OOBS facility. The structure consists of a 50' long overflow weir with two 72" pipes. The total capacity is approximately 605 MGD (i.e., 130 MGD from EPSA and 475 MGD from OOBS), but the actual capacity depends on the water level at the river. This outfall has never discharged over the past 10 years; however, it remains available for extreme emergency uses (e.g., tsunami, earthquake, flood, and acts of war or terrorism).

Table F-2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001 (120" outfall)	Secondary treated effluent and reverse osmosis concentrate	33° 34' 36" N	118° 00' 36" W	Pacific Ocean (4.5 miles offshore)
002 (78" outfall)	Secondary treated effluent and reverse osmosis concentrate	33° 36' 56" N	117° 58' 13" W	Pacific Ocean (1.5 miles offshore)
003 (Santa Ana River overflow weirs)	Secondary treated effluent and reverse osmosis concentrate	33° 38' 06" N	117° 57' 20" W	Santa Ana River Tidal Prism

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the existing Order/Permit for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data for the period from May 2015 to December 2019 are as follows:

Table F-3. Historic Technology Based Effluent Limitations and Monitoring Data at EFF-001

Parameter	Units	Order No. R8-2012-0035 NPDES Permit No. CA0110604 Effluent Limitation			Discharge Monitoring Data (May 2015 – December 2019)		
		Average Monthly	Average Weekly	Instantaneous Maximum	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Instantaneous Maximum Discharge
Secondary Treatment Standards and/or Ocean Plan Table 4 Effluent Limitations							
Carbonaceous Biochemical Oxygen Demand, 5-day @ 20°C ($CBOD_5$)	mg/L	25	40	--	6.5	8.8	--
	lbs/day	57,129	91,406	--	6,072	8,580	--
Total Suspended Solids (TSS)	mg/L	30	45	--	7.4	9.6	--
	lbs/day	68,555	102,832	--	7,167	11,451	--
pH	standard units	6.0 to 9.0 (instantaneous minimum/maximum)			7.06 to 8.41		
Oil and grease	mg/L	25	40	75	1.39	1.39	1.39
	lbs/day	57,129	91,406	171,387	1,106	1,106	--
Settleable Solids	ml/L	1.0	1.5	3.0	--	--	2.5
Turbidity	NTU	75	100	225	6.73	6.73	6.73

Table F-4. Historic Water Quality Based Effluent Limitations and Monitoring Data at EFF-001

Parameter	Units	Order No. R8-2012-0035 NPDES Permit No. CA0110604 Effluent Limitation			Monitoring Data (May 2015 – December 2019)		
		Average Monthly (or 6-Month Median*)	Maximum Daily	Instantaneous Maximum	Highest Average Monthly (or 6-Month Median*)	Highest Maximum Daily Discharge	Highest Instantaneous Maximum Discharge
Ocean Plan Table 3 Water Quality Objectives for Protection of Marine Aquatic Life							
Total chlorine residual	mg/L	0.36*	1.45	10.86	0.09*	0.3	1.2
	lbs/day	823*	3,313	24,817	68*	359	--
Acute toxicity, TST	P or F	--	P	--	Pass		
Chronic toxicity, TST	P or F	--	P	--	Pass		
Radioactivity Gross Alpha Gross Beta Radium-226 & 228	pCi/L	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			36 70 1.14	36 70 1.14	--
Ocean Plan Table 3 Water Quality Objectives for Protection of Human Health - Carcinogens							
Benzidine	µg/L	0.01249	--	--	ND	--	--
	lbs/day	0.0285	--	--	ND	--	--
Hexachloro-benzene	µg/L	0.0380	--	--	ND	--	--
	lbs/day	0.0868	--	--	ND	--	--
PCBs[1]	µg/L	0.0034	--	--	ND	--	--
	lbs/day	0.0078	--	--	ND	--	--
TCDD equivalents[1]	pg/L	0.706	--	--	ND	--	--
	lbs/day	0.000001613	--	--	ND	--	--

Parameter	Units	Order No. R8-2012-0035 NPDES Permit No. CA0110604 Effluent Limitation			Monitoring Data (May 2015 – December 2019)		
		Average Monthly (or 6-Month Median*)	Maximum Daily	Instantaneous Maximum	Highest Average Monthly (or 6-Month Median*)	Highest Maximum Daily Discharge	Highest Instantaneous Maximum Discharge
Toxaphene	µg/L	0.03801	--	--	ND	--	--
	lbs/day	0.0869	--	--	ND	--	--

[1] See Attachment A for definitions.
ND: Not detected

D. Compliance Summary

Completion of Secondary Treatment Projects

Since the construction of the facilities that was required to achieve secondary treatment standards were not completed at the time the previous permit was issued, OC San entered into a consent decree mandating OC San to meet secondary treatment limits by December 31, 2012. After extensive process improvement and Capital Improvement Projects (CIP) including completion of the following:

- Trickling filter project at Reclamation Plant No. 1, completed in Spring 2006;
- Secondary treatment rehabilitation project at Treatment Plant No. 2, completed in Spring 2008;
- New trickling filters and solid contact basins at Treatment Plant No. 2, completed in Summer 2011. The project added 60 MGD of secondary treatment capacity; and
- New activated sludge system at Reclamation Plant No. 1, completed in Fall 2012. The project added 60 MGD of secondary treatment capacity.

The Discharger has officially declared the POTW at full secondary treatment on December 28, 2012 and continue operating at and meeting full secondary requirements.

Cessation of Continuous Disinfection Practices at Discharge Point 001 (120" outfall)

The disinfection program initiated in 2002 was based on using sodium hypochlorite (bleach) for disinfection and sodium bisulfite for dechlorination. Beginning in 2006, the Discharger started to note negative changes in the structure and health of benthic communities within the zone of initial dilution (ZID) around the diffuser to the 120-inch

outfall (the primary discharge point). To determine the causes of these changes to the marine environment, the Discharger conducted detailed studies divided into two phases: Phase I (2009-2010) for an analysis of historical data to identify any potential causes and Phase II (2011-2012) for investigation of operational changes and process improvements that occurred at the treatment facilities and the facility's dry-weather urban runoff diversion program. Based on the results of these investigations, the discharge of chlorinated effluent prior to 2012 resulted in a decline in benthic communities near the ZID. The benthic environment has been improved since 2012 due to reduction of the use of chlorine after achieving full secondary treatment.

After long-term beach water quality studies and oceanographic data evaluation by an Independent Advisory Panel (IAP) of experts hosted by the National Water Research Institute (NWRI), it was concluded that continuing to chlorinate full secondary treated effluent provides little to no public health benefit to local beaches. The Discharger has also achieved continuous compliance with the secondary treatment requirements of the Clean Water Act. On March 17, 2015, based on the observations and recommendations of the IAP and with public support, OC San received approval from the Santa Ana Regional Water Quality Control Board and USEPA to cease disinfection at Discharge Point 001 (120" outfall). OC San has ceased continuous chlorination/dechlorination since May 2015. The disinfection system would remain available for later use, if determined necessary. Use of disinfection remains at the other two discharge points (Discharge Points 002 and 003) to protect human health.

Planned 6-Week Diversion to Discharge Point 002 (78" outfall)

From September 11, 2012 through October 4, 2012, the Discharger temporarily diverted disinfected effluent from Discharge Point 001 (120" outfall) to Discharge Point 002 (78" outfall) as part of an infrastructure rehabilitation project (refer to as Capital Improvement Project J-112) to inspect, assess, and rehabilitate the Outfall Land Section and Ocean Outfall Booster Pump Station Piping. To minimize impacts to public health, the treated wastewater received enhanced disinfection so that state bacterial water contact standards were met prior to discharge and subsequent dilution. The Discharger conducted the J-112 environmental monitoring program including modeling to track the discharged plume, measure the effectiveness of the enhanced disinfection program, and determine environmental impacts to the receiving water during the diversion to the nearshore outfall. The lessons learned report and a more comprehensive report (i.e., 2012 OCSD Outfall Diversion Summary Report) were submitted to the Santa Ana Water Board and USEPA on March 25, 2014, which summarize the sampling methodology during the diversion and provide recommendations for improving monitoring during any future diversions to Discharge Point 002 (78" outfall).

Unintentional Bypass of primary effluent from Plant No. 2 to Discharge Point 001 (120" outfall)

The unintentional bypass of primary effluent into Discharge Point 001 (120" outfall) occurred on July 5, 2020 from 4:28 am to 5:02 am, a duration of 34 minutes, due to a power loss after an Edison transformer failed. The power loss affected equipment

throughout Treatment Plant No. 2 including the trickling filter influent pumps. The trickling filter weir overflowed with primary treated wastewater, approximately 0.94 million gallons of which discharged directly to the 120" outfall.

Another unanticipated bypass of primary effluent into the 120" outfall occurred at the same location due to failure of two of three lead pumps serving the trickling filters pump station (TFPS) during a wet weather event on December 28, 2020 at 7:09 pm for approximately 9 minutes. The estimated flow over the TFPS weir is total 78,500 gallons.

After discovering each incident, the Discharger notified the Santa Ana Water Board and USEPA and investigated the incident to determine the cause and duration of the incident, the volume discharged, and to evaluate and implement appropriate corrective actions to prevent this incident from reoccurring. As part of corrective actions, the TFPS lead pumps were disassembled, and their internal fans replaced. As a key sustainable action, OC San is currently in construction installing an upgraded power monitoring/power management control system to improve the power system response speed to prevent short term power loss event that can lock out equipment. This project is scheduled to be complete by 2023.

E. Planned Changes

GWRS Final Expansion Project

The GWRS is a regional water reclamation program that was initiated jointly by OC San and OCWD and began operation in January 2008. The GWRS Initial Expansion was completed in 2015, which allowed OCWD to take up to 135 MGD of secondary effluent from Plant No. 1 to produce 100 MGD of GWRS product water. Currently, the Discharger sends approximately 100% of secondary effluent from Plant No. 1 to GWRS to provide a drought-proof water supply for Orange County. Also, it delivers up to 4 MGD of secondary effluent from Plant No. 1 to GAP during the summer months to provide recycled water for landscaped irrigation and industrial uses.

The layout of the OCWD facilities has been designed to provide GWRS with an ultimate production capacity of 130 MGD. The GWRS ultimate production capacity of 130 MGD is referred to as the GWRS Final Expansion project. Based on the SP-173 Effluent Reuse Study for the evaluation of reclamation of Plant No. 2 effluent, the following projects are identified by the implementation plan for the GWRS Final Expansion and anticipated to be completed by 2023.

- Modify Plant 2 Headworks Facility to create a reclaimable and non-reclaimable treatment train. Reclaimable flows will go through existing preliminary, primary, and secondary (trickling filter solids contact) treatment before being pumped to GWRS.
- Build a Plant 2 effluent pump station that will convey approximately 50-85 MGD of secondary effluent from Plant No. 2 trickling filter solids contact process to the GWRS Facility.

- Build a 6 MG equalization storage tank at Plant No. 2 to store secondary effluent during peak day flows and be returned to the system during low flow periods to maintain a constant flow to the GWRS.
- Relocate the existing plant water pump station to a location more suitable for receiving the trickling filter solids contact treatment processes. After the GWRS Final Expansion, the activated sludge treatment process will treat only SARI and side-stream flows.
- Convert the unused 66-inch gravity reinforced concrete pipeline into a pressure pipeline using a trenchless pipe repair method, to convey the effluent pump station discharge.

This expansion would require a total flow from OC San plants of approximately 175 MGD to produce 130 MGD of indirect potable reuse water. The Final Expansion of the GWRS will enable the Discharger to recycle the majority of the wastewater generated in its service area and treated at its two wastewater treatment plants.

Organic Waste Co-Digestion Project

Construction and operation of an organic waste co-digestion facility is anticipated to be completed in 2022. An organic waste receiving facility will be constructed to receive, store, and feed approximately 150 tons of pre-processed food waste slurry to the digester complex at Plant No. 2 (by Digester M) to generate additional digester gas per recommendations of the Biosolids Master Plan. This facility will be replaced with a permanent receiving station following completion of a proposed program to replace existing digesters at Plant No. 2. Food waste will be fed into OC San's digesters, creating more gas and electricity, while producing a few extra truckloads of solids per week.

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 (CWC) (commencing with section 13260). This Order/Permit is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the USEPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). This Order shall serve as an NPDES permit for point source discharges from this POTW to waters of the United States. The Order/Permit are consolidated pursuant to 40 CFR. § 124.4(c)(2). Although Discharge Point 001 is beyond the limit of State-regulated ocean waters, effluent plume migration into State waters warrants joint regulation of the discharge by USEPA and the Santa Ana Water Board.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, 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.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The Santa Ana Regional Water Quality Control Board adopted a Water Quality Control Plan for the Santa Ana River Basin (hereinafter Basin Plan) in 1995, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for the Offshore Zone and Nearshore Zone of the Pacific Ocean and the tidal prism of the Santa Ana River. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63 which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Requirements in this Order/Permit implement the Basin Plan. Basin Plan beneficial uses applicable to the Pacific Ocean and/or the Santa Ana River tidal prism are as follows:

Table F-5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 (120” outfall)	Pacific Ocean, Beyond the limit of State waters	**Offshore Zone:** Industrial service supply; navigation; water contact recreation; non-contact water recreation; commercial and sportfishing; wildlife habitat; rare, threatened, or endangered species; spawning, reproduction, and development; and marine habitat. **Nearshore Zone:** Industrial service supply; navigation; water contact recreation; non-contact water recreation; commercial and sportfishing; wildlife habitat; rare, threatened, or endangered species; spawning, reproduction, and development; marine habitat; and shellfish harvesting. **Santa Ana River, Reach 1:** Water contact recreation (access prohibited); non-contact water recreation; warm freshwater habitat; and wildlife habitat.
002 (78” outfall)	Pacific Ocean, Offshore Zone	
003 (Santa Ana River overflow weirs)	Santa Ana River Tidal Prism, Reach 1	

2. **California Ocean Plan.** The State Water Board adopted the Water Quality Control Plan for Ocean Waters of California, California Ocean Plan (hereinafter Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, 2012, 2015, 2018, and 2019. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies

beneficial uses of ocean waters of the state to be protected as summarized below:

Table F-6. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
001 and 002	Pacific Ocean	Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish spawning and shellfish harvesting

In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order/Permit implement the Ocean Plan.

3. **California Thermal Plan.** The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (hereinafter Thermal Plan) on January 7, 1971, and amended this plan on September 18, 1975. This plan contains temperature objectives for coastal and inland surface waters. Requirements of this Order/Permit implement the Thermal Plan.

4. **Antidegradation Policy.** Federal regulation 40 CFR § 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 Santa Ana Regional Water Quality Control 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 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 § 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued Order/Permit must be as stringent as those in the previous Order/Permit, with some exceptions in which limitations may be relaxed.

6. **Alaska Rule.** USEPA has revised its regulation that specifies when new and revised State and tribal water quality standards become effective for CWA purposes. (40 CFR § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska Rule), new and revised standards

submitted to USEPA after May 30, 2000 must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

7. **Section 403(c) of the Clean Water Act (CWA):** Discharges to marine waters are subject to Section 403 of the CWA, which sets forth criteria to prevent unreasonable degradation of the marine environment and authorized imposition of any additional effluent limits necessary to protect the marine environment. Pursuant to 40 CFR § 125.122, unreasonable degradation of the marine environment is evaluated based on ten factors or based on the application of a state's water quality standards. Specifically, 40 CFR § 125.122(b) states that discharges in compliance with State water quality standards "shall be presumed not to cause unreasonable degradation of the marine environment, for any specific pollutants or conditions specified in the variance or the standard." USEPA and the Santa Ana Water Board are applying the Basin Plan and the Ocean Plan as specified in section III.C.1 and 2 of this Fact Sheet, except for evaluating acute/chronic toxicity for Discharge Points 001 and 002 using the TST statistical approach. USEPA has reviewed the previous studies to examine the comparison of toxicity test results using the TST and NOEC statistical approaches and has determined that use of the TST statistical approach is consistent with the Ocean Plan and CWA § 403(c) in that it provides protection of the designated beneficial uses of ocean waters. TST statistical approach is also used in other NPDES permits for large publicly owned treatment works, including City of Los Angeles. Given the available dilution (i.e. 180), the receiving water monitoring requirements, the Discharger's analysis of the ocean discharge criteria as part of its application (See Appendix E.1 Ocean Discharge Criteria Response to CWA 403(c)), and USEPA's additional 403(c) analysis, USEPA makes a determination that the discharges authorized in this permit will not cause unreasonable degradation of the marine environment.

8. **Federal Permit Renewal Contingency.** The renewal of the Discharger's federal permit by USEPA is contingent upon determination by the U.S. Fish and Wildlife Service (USFWS) and NOAA National Marine Fisheries Service (NMFS) that the proposed discharge is consistent with the: (1) federal Endangered Species Act (ESA); (2) the Magnuson-Stevens Fishery Conservation and Management Act (MSA); and (3) the Santa Ana Water Board's certification/concurrence that the discharge will comply with applicable State water quality standards.

   USEPA's reissuance of NPDES No. CA0110604 to OC San is subject to requirements of the ESA and MSA. USEPA may decide that changes to this permit are warranted based on the results of the completed consultation and a reopener provision to this effect has been included in the Order/Permit. Issuance of this NPDES permit which incorporates both federal requirements and State waste discharge requirements will serve as the State's concurrence that the discharge complied with State water quality standards. The California Coastal Commission has indicated that it is not necessary to obtain a consistency

certification pursuant to the Coastal Zone Management Act for the issuance of a federal NPDES permit containing secondary treatment standards.

9. **Endangered Species Act Requirements.** This Order/Permit 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). In July 2020, USEPA requested updated information related to: (1) essential fish habitat and managed and associated species, and (2) threatened and endangered species and their designated critical habitats, in the vicinity of the OC San's outfalls from NMFS. Subsequently, EPA and NMFS exchanged information about the facility, discharge characteristics, action area, OC San's monitoring program, and past consultations in Southern California. USEPA determined that the draft permit would have no effect on listed bird species; may affect but is not likely to adversely affect listed fish and abalone species; and is likely to adversely affect listed sea turtle, seal, and whale species. These effect determinations are explained in the biological evaluation. USEPA is consulting with the United States Fish and Wildlife Service and the National Marine Fisheries Service. This Order/Permit requires compliance with effluent limits, receiving water limits, and other requirements to protect beneficial uses, including protecting threatened and endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on the CWA section 303(d) List

On April 6, 2018, USEPA issued a final decision regarding California's 2014- 2016 CWA Section 303(d) List of Impaired Waters. The list (hereinafter 303(d) list) identifies water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limits by point sources. Huntington Beach State Park is included on the 303(d) list for PCBs (polychlorinated biphenyls). The offshore and nearshore zones off Huntington Beach State Park are the immediately affected receiving waters of discharges from the Facility. A total maximum daily load (TMDL) for PCBs is required but has not been established yet. As such, effluent limitations for PCBs have been established for the Facility until applicable waste load allocations are assigned in a TMDL. A TMDL to address the impairment is not currently scheduled for development.

E. Other Plans, Polices and Regulations

1. **Stringency of Requirements for Individual Pollutants.** This Order/Permit contains technology-based effluent limitations and WQBELs for individual pollutants. Technology-based effluent limitations consist of restrictions on carbonaceous biochemical oxygen demand (5-day), total suspended solids, and pH which implement the minimum, applicable federal technology-based requirements for POTWs. Also, effluent limitations consisting of restrictions on oil and grease, settleable solids, and turbidity are necessary to implement State treatment standards in Ocean Plan Table 4. Discharge Point 001 WQBELs

consisting of restrictions on total chlorine residual, acute toxicity, chronic toxicity, radioactivity, benzidine, hexachlorobenzene, PCBs, TCDD equivalents, and toxaphene more stringent than federal technology-based limitations are necessary to meet State water quality standards in the Ocean Plan Table 3. Discharge Point 002 WQBELs consisting of restrictions on fecal coliform density, *Enterococcus* density, total chlorine residual, ammonia (as nitrogen), chronic toxicity, radioactivity, and TCDD equivalents more stringent than federal technology-based limitations are necessary to meet State water quality standards in the Ocean Plan Table 3. All effluent limitations are discussed in Attachment F-Fact Sheet. Collectively, the restrictions on individual pollutants in this Order/Permit are no more stringent than required by the CWA.

2. **Federal Secondary Treatment Regulations.** The OC San achieved full secondary treatment on December 28, 2012 and continues discharging secondary treated flow. 40 CFR § 133 establishes the minimum levels of effluent quality to be achieved by secondary treatment. These limitations, established by USEPA, are incorporated into this Order/Permit, except where more stringent limitations are required by other applicable plans, policies, or regulations or to prevent backsliding.

3. **Industrial Storm Water Requirements.** The Discharger is not required to be covered under the statewide NPDES general permit for storm water discharges associated with industrial activities (NPDES General Permit No. CAS000001) because all stormwater at the plants is collected by various drains and conveyed downstream of both plants' headworks for treatment. No storm water is diverted untreated to the outfalls. The Discharger has provided certification to the Santa Ana Water Board and USEPA that industrial storm water is managed by internal drainage systems at Reclamation Plant No. 1 and Treatment Plant No. 2, where storm water is captured, treated, and discharged with the treated wastewater regulated under this Order/Permit. This Order/Permit requires the Discharger to submit and implement a Storm Water Management Plan to address onsite storm water quality.

4. **Sanitary Sewer Overflows.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on May 2, 2006, which contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows (SSOs). The Monitoring and Reporting Program for the General Order was amended through the State Water Board's Order WQ 2013-0058-EXEC on August 6, 2013. This General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order also requires agencies to develop sanitary sewer management plans and report all SSOs, among other requirements and prohibitions. The Discharger's collection system is part of the POTW that is subject to this Order/Permit. The Discharger must comply with both the General Order and this Order/Permit.

5. **Pretreatment Requirements.** In compliance with 40 CFR § 403, OC San has developed an approved Pretreatment Program for the POTW that it owns and operates. This Order/Permit includes the Discharger's approved Pretreatment Program and requires the Discharger to continue implementation and control of the Program throughout the service area of its POTW, including contributing jurisdictions.
   The POTW, as Control Authority, may exercise its authority over the entire service area directly, as provided by State law, or may elect to enter into contracts or other multi-jurisdictional agreements with contributing jurisdictions. In case the POTW elects to enter into inter-jurisdictional agreements, the POTW must ensure that discharges received from entities outside of its political boundaries are regulated to the same extent as are discharges within its political boundaries. OC San applies one set of local limits to all discharges to its treatment facilities.

6. **Sewage Sludge/Biosolids Requirements.** Section 405 of the CWA and implementing regulations at 40 CFR § 503 require that producers of sewage sludge/biosolids meet certain reporting, handling, and use or disposal requirements. The State has not been delegated the authority to implement this program; therefore, USEPA is the implementing agency. This Order/Permit contains sewage sludge/biosolids requirements pursuant to 40 CFR § 503 that are applicable to the Discharger.

7. **Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR § 122.41, and additional conditions applicable to POTWs in accordance with 40 CFR § 122.42, are provided in Attachment D. The Santa Ana Water Board and USEPA have also included in this Order/Permit Special Provisions applicable to the Discharger. The rationale for the Special Provisions contained in this Order/Permit is provided in this Fact Sheet.

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 Code of Federal Regulations: 40 CFR § 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR § 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

Discharge Prohibitions in this Order/Permit are based on Ocean Plan discharge prohibitions, Basin Plan discharge prohibitions, and discharge prohibitions in the existing Order/Permit.

1. California Ocean Plan Discharge Prohibitions

a. Prohibition III.B, III.C, III.D, III.E, and III.F: This permit/order implements discharge prohibitions that are applicable under sections III.I.1.a, III.I.2.a, III.I.3.a, III.I.4.a, and III.I.6 of the 2019 California Ocean Plan, respectively.

b. Prohibition III.G (Discharge at Discharge Point 001 without minimum initial dilution of at least 181:1): This prohibition is necessary to ensure that the assumption used to derive the dilution credits established through this Order/Permit remains substantially the same so that the effluent limitations are protective of water quality. This Order considered a dilution credit of 180 (D_m = 180) based on the Discharger's *GWRS Final Expansion Final Implementation Plan, Project No. SP-173, Effluent Reuse Study (October 2016)* to conduct the reasonable potential analysis described in Section IV.C.3 of this Fact Sheet. Moreover, the instream waste concentration (IWC) for the chronic toxicity effluent limitation is based on this dilution credit. When future discharge flows drop below 32 MGD, as a result of GWRS final expansion project, the outfall will likely need to be retrofitted to ensure adequate dilution and to prevent seawater intrusion and potential diffuser plugging. The initial dilution of 181:1 assumes that all 503 outfall ports are operational.

2. Santa Ana River Basin Plan Discharge Prohibitions

a. **Prohibition III.H, III.I, and III.J:** This permit/order implements discharge prohibitions that are applicable under Chapter 5, Waste Discharge Prohibitions A, B.1, and B.2 of the 2019 Basin Plan, respectively.

3. Prohibition III.K (Discharge from any locations other than Discharge Point 001): This prohibition clarifies that any discharges other than those to Discharge Point 001 are unauthorized, except those to Discharge Point Nos. 002 and 003 as explicitly authorized during essential maintenance or an emergency.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR § 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/Permit must meet minimum federal technology-based effluent limitations (TBELs) based on secondary treatment standards for POTWs at 40 CFR § 133.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

a. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial

category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

b. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly-owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.

d. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR § 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the Santa Ana Water Board and USEPA must consider specific factors outlined in 40 CFR § 125.3.

Regulations promulgated in 40 CFR § 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act 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 § 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.

Table F-7. Federal Secondary Treatment Standards

Parameter	Units	30-day Average	7-day Average
BOD_5	mg/L	30	45
	influent % removal	not less than 85	--
$CBOD_5$ (if substituted)	mg/L	25	40
	influent % removal	not less than 85	--
TSS	mg/L	30	45
	influent % removal	not less than 85	--
pH	standard units	6.0 – 9.0 at all times	

On May 13, 2004, the Discharger requested the inclusion of effluent limitations for five-day carbonaceous biochemical oxygen demand ($CBOD_5$), as allowed by 40 CFR § 133.102(a)(4), for the period following completion of expanded secondary treatment facilities. In the 2004 Order/Permit, $CBOD_5$ effluent limitations were applied to the final effluent during partial or full nitrification at the Discharger's secondary treatment facilities, where effluent nitrification is used to reduce ammonia toxicity associated with wastewater treatment and RO concentrate flow from the Groundwater Replenishment System. As nitrifying bacteria use oxygen to degrade nitrogenous compounds otherwise not significantly removed in the secondary treatment process, higher oxygen demand values for the final effluent result. Consequently, the use of $CBOD_5$ effluent limits have been found to ensure that federal secondary treatment standards for POTWs are achieved while allowing the Discharger to use the treatment process of nitrification to reduce ammonia toxicity in the discharged effluent and comply with Ocean Plan requirements for acute and chronic toxicity. $CBOD_5$ effluent limitations have been carried over to this Order/Permit and are applied in lieu of BOD_5 effluent limitations.

The effluent limitations consisting of restrictions on grease and oil, settleable solids, and turbidity are necessary to implement State treatment standards in Ocean Plan Table 4, which are summarized as follows.

Table F-8. Ocean Plan Table 4 Effluent Limitations

Parameter	Units	30-day Average	7-day Average	Instantaneous Maximum
Grease and Oil	mg/L	25	40	75
Suspended Solids	mg/L	--	--	--
	influent % removal	not less than 75	--	--

Parameter	Units	30-day Average	7-day Average	Instantaneous Maximum
Settleable Solids	ml/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	standard units	6.0 – 9.0 at all times		

Compliance with mass emission effluent limitations for TBELs must be met end-of-pipe after Reclamation Plant No. 1 and Treatment Plant No. 2 effluents have commingled. The 2012 Order/Permit established mass emission effluent limitations based on the average daily influent flow projected for 2017 (i.e., 274 MGD). For Discharge Point 001, this Order/Permit establishes mass emission effluent limitations for TBELs based on the average daily upper bound influent flow of 206 MGD projected for 2025, taken from the Discharger's 2017 Master Plan. For Discharge Point 002, mass emission effluent limitations for TBELs continue to be based on the Discharger's conservative estimate for hydraulic flow capacity of the 78-inch outfall of 230 MGD.

2. Applicable Technology-Based Effluent Limitations

A summary of the applicable technology-based effluent limitations is shown in Tables F-14 and F-15, in section IV.E of this Fact Sheet.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA Section 301(b) and 40 CFR § 122.44(d) require that NPDES permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards and State requirements.

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. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) 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). USEPA has applied CWA section 403(c) and 40 CFR § 125, Subpart M, following 40 CFR § 122.

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, and achieve applicable water quality objectives and

criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the Ocean Plan.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan and Ocean Plan designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters of the State. Applicable beneficial uses designated within the Basin Plan and Ocean Plan are listed in Tables F-5 and F-6, in section III.C of this fact sheet. The Basin Plan contains Water Quality Objectives for bacteria for water bodies designated for water contact recreation. The Ocean Plan establishes applicable water quality objectives for the protection of marine aquatic life and human health. The Ocean Plan also includes water quality objectives for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. The water quality objectives from the Ocean Plan and Basin Plan were incorporated into this Order/Permit as either final effluent limitations (based on reasonable potential) or receiving water limitations.

3. Determining the Need for WQBELs

a. RPA Methodology

The 2012 Order/Permit (Order No. R8-2012-0035) contains WQBELs for pollutant parameters based on Table B of the 2009 Ocean Plan. For this Order/Permit, the need for WQBELs based on water quality objectives in Table 3 of the 2019 Ocean Plan was statistically reevaluated in accordance with the Reasonable Potential Analysis (RPA) procedures contained in Appendix VI of the 2019 Ocean Plan.

The statistical RPA method accounts for the averaging period of the water quality objective, accounts for and captures the long-term variability of the pollutant in the effluent, accounts for limitations associated with sparse data sets, accounts for uncertainty associated with censored data sets, and assumes a lognormal distribution of the facility-specific effluent data. The program calculates the upper confidence bound (UCB) of an effluent population percentile after complete mixing. In the evaluation employed in this Order/Permit, the UCB is calculated as the one-sided, upper 95 percent confidence bound for the 95^{th} percentile of the effluent distribution after complete mixing. The calculated $UCB_{95/95}$ is then compared to the appropriate water quality objective to determine the potential for an exceedance of that objective and the need for a WQBEL. For constituents that have an insufficient number of monitoring data or a substantial number of non-detected data with a reporting limit higher than the respective water quality objective, the RPA result is likely to be inconclusive.

According to the Ocean Plan RPA procedure, the RPA can yield three endpoints:

Endpoint 1: An effluent limitation must be developed, and effluent monitoring for the pollutant is required;

Endpoint 2: An effluent limitation is not required, but the Santa Ana Water Board and/or USEPA may require monitoring for the pollutant or for the whole effluent toxicity (WET) as appropriate; or

Endpoint 3: The RPA is inconclusive, and monitoring for the pollutant or WET testing is required. An existing effluent limitation shall remain in the permit, otherwise a permit reopener clause shall be included to allow for subsequent modification of the permit to include an effluent limitation if the monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above the appropriate water quality objective.

b. Minimum Initial Dilution or Dilution Credits

The Discharger updated its dilution analysis as part of the planning process for the GWRS final expansion project (GWRS Final Expansion Final Implementation Plan, Project No. SP-173, Effluent Reuse Study, October 2016). The updated modeling included calibrating current conditions with the modeling completed in 2002 and 2008. The updated modeling continued to use NRFIELD in Visual Plumes, consistent with the past modeling.

The analysis included various scenarios for flow rates, including low effluent flows as the result of the GWRS final expansion project, densities (i.e. temperature and salinity changes based on low effluent flows), and critical stratification conditions (i.e. August to October 2014). The analysis shows that dilution is unlikely to be impacted by the increase in RO concentrate discharged because the total discharge flow will be decreased. As to be expected, model results were the most sensitive to discharge flow rate and stratification and ranged from 151:1 to 363:1 for the various scenarios. Based on the updated modeling, the Santa Ana Water Board and USEPA is carrying over the dilution ratio of 181:1, as this dilution (D_m = 180) is a representative of reasonable worst-case scenario (i.e. high discharge flow rate under strong stratified conditions) and is consistent with antidegradation and anti-backsliding requirements. With exception of radioactivity, the dilution ratio of 181:1 (D_m = 180) has been applied to the final effluent limitations for Discharge Point No. 001. The dilution ratio of 37:1 (D_m = 36) also has retained for Discharge Point No. 002 in this Order/Permit. Based on the Ocean Plan, water quality objectives for radioactivity shall apply directly to the undiluted waste effluent (i.e., D_m = 0 for radioactivity).

c. RPA for Pollutants in Table 3 of the Ocean Plan

RPAs were conducted using the State Water Board's RPcalc 2.0 software tool and minimum probable initial dilution values for Discharge Point 001 (i.e., D_m = 180) and Discharge Point 002 (i.e., D_m = 36), except for radioactivity.

Effluent data provided in the Discharger's monitoring reports from May 2015 to December 2019, after the Discharger achieved full secondary treatment and ceased disinfection, were used in the analyses in order to be representative of current performance. The results of these RPAs are summarized in Table F-9 for Discharge Point 001 (120" outfall) and Table F-10 for Discharge Point 002 (78" outfall).

Based on the RPA for Discharge Point 001, Endpoint 1 is established for total chlorine residual. Consequently, WQBELs for total chlorine residual are included in the Order/Permit and periodic effluent monitoring is also required. The Discharger ceased continuous effluent disinfection using chlorination/dechlorination at Discharge Point 001 (120" outfall). However, sodium hypochlorite has been used as oxidant chemical to treat foul air (i.e., H_2S control) in scrubbers at primary treatment process and to control the bulking from filamentous organisms in the return activated sludge (RAS), which probably causes RP for total chlorine residual. Endpoint 2 is established for the majority of detected Table 3 pollutants. Consequently, WQBELs for these pollutants are not included in the Order/Permit, but periodic effluent monitoring for all Endpoint 2 pollutants is required. Endpoint 3 with inconclusive results was reported for benzidine, hexachlorobenzene, PCBs, TCDD equivalents, and toxaphene. Consequently, existing WQBELs for these five pollutants are retained in this Order/Permit and periodic effluent monitoring is also required. This Order/Permit does not include effluent limitations for other pollutants displaying Endpoint 3; instead, monitoring requirements for those pollutants were included.

Based on the RPA for Discharge Point 002, Endpoint 1 is established for ammonia (as nitrogen), and total chlorine residual. Consequently, WQBELs for ammonia and total chlorine residual are included in the Order/Permit and periodic effluent monitoring is also required. Endpoint 2 is established for the majority of detected Table 3 pollutants. Consequently, WQBELs for these pollutants are not included in the Order/Permit, but periodic effluent monitoring for all Endpoint 2 pollutants is required. Endpoint 3 with inconclusive results was reported for TCDD equivalents and thus, existing WQBELs and quarterly effluent monitoring for TCDD equivalents are retained in this Order/Permit. This Order/Permit does not include effluent limitations for other pollutants displaying Endpoint 3; instead, monitoring requirements for those pollutants were included.

Step 13 of the RPA procedures in the Ocean Plan authorizes RPA based on best professional judgment (BPJ). Information may include the facility type, discharge type, solids loading analysis, lack of dilution, history of compliance problems, potential toxic impact of discharge, fish tissue residue data, water quality and beneficial uses of the receiving water, CWA 303(d) listing for the pollutant, the presence of endangered or threatened species or critical habitat, and other information. Based on Step 13 of the Ocean Plan (i.e., BPJ), reasonable potential for acute and chronic toxicity has been established

for Discharge Point 001 and chronic toxicity for Discharge Point 002 because toxicity levels at POTWs can exceed applicable water quality standards, and numerical water quality objectives/criteria for the majority of chemical pollutants have not been established. In addition, reasonable potential for radioactivity has been established for Discharge Points 001 and 002 because POTWs accept waste from various facilities, including hospitals that could potentially discharge radioactivity into the sewershed, and the Discharger's wastewater treatment plants are not typically designed to remove radioactivity from the effluent. The discharge also had detectable concentrations of radioactivity (i.e., maximum effluent concentration (MEC) for gross alpha of 36 pCi/L and MEC for gross beta of 70 pCi/L). Thus, WQBELs for acute/chronic toxicity and radioactivity at Discharge Point 001 and a WQBLEL for chronic toxicity and radioactivity at Discharge Point 002 are included in this Order/Permit.

Table F-9. Reasonable Potential Analysis for Discharge Point No. 001 (120" Outfall)

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Objectives for Protection of Marine Aquatic Life							
Ammonia (as N)	600	1,699	0	46,000	254	203	Endpoint 2
Arsenic	8	56	0	6.91	3.02	3.02	Endpoint 2
Cadmium	1	56	53	0.240	0.0013	---	Endpoint 2
Chlorinated Phenols	1	55	54	0.54	0.0030	---	Endpoint 2
Chromium (VI)[2]	2	56	6	1.55[2]	0.0086[2]	0.0095[2]	Endpoint 2
Acute Toxicity	PASS	26	0	NA	PASS	NA	Endpoint 1; BPJ
Chronic Toxicity	PASS	71	0	NA	PASS	NA	Endpoint 1; BPJ
Copper	3	56	0	25.2	2.1282	2.0901	Endpoint 2
Cyanide	1	52	1	5.88	0.0325	0.0372	Endpoint 2
Endosulfan	0.009	10	10	<0.0050	$<2.8\times10^{-5}$	---	Endpoint 3
Endrin	0.002	10	10	<0.0028	$<1.5\times10^{-5}$	---	Endpoint 3
HCH	0.004	10	10	<0.0050	$<2.8\times10^{-5}$	---	Endpoint 3
Lead	2	56	47	0.62	0.0034	---	Endpoint 2
Mercury	0.04	55	0	0.0071	5.4×10^{-4}	5.4×10^{-4}	Endpoint 2
Nickel	5	56	0	23.5	0.1298	0.1338	Endpoint 2
Non-chlorinated Phenols	30	55	53	1.56	0.008715	---	Endpoint 2
Radioactivity (Gross Alpha)	[3]	48	8	36 pCi/L	36 pCi/L	54.4435 pCi/L	Endpoint 1; BPJ
Radioactivity (Gross Beta)	[3]	56	0	70 pCi/L	70 pCi/L	76.3882 pCi/L	Endpoint 1; BPJ
Radioactivity (Radium, combined)	[3]	11	0	1.14 pCi/L	1.14 pCi/L	7.5682 pCi/L	Endpoint 1; BPJ
Selenium	15	56	0	21.9	0.1210	0.1509	Endpoint 2

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Silver	0.7	55	46	0.16	0.16	---	Endpoint 2
Total Chlorine Residual[4]	2	5,100	358	1,200	6.63	0.7395	Endpoint 1
Zinc	20	56	0	64.7	8.31	8.21	Endpoint 2
Objectives for Protection of Human Health – Noncarcinogens							
1,1,1-Trichloroethane	540,000	54	54	<1.43	<0.0079	---	Endpoint 3
2,4-Dinitrophenol	4.0	55	55	<3.5	<0.0193	---	Endpoint 3
2-Methyl-4,6-Dinitrophenol	220	55	55	<1.7	<0.0094	---	Endpoint 3
Acrolein	220	54	54	<4.48	<0.0248	---	Endpoint 3
Antimony	1,200	56	0	2.54	0.0140	0.0146	Endpoint 2
Bis(2-Chloroethoxy)Methane	4.4	55	55	<1.1	<0.0061	---	Endpoint 3
Bis(2-Chloroisopropyl)Ether	1,200	55	55	<0.73	<0.0040	---	Endpoint 3
Chlorobenzene	570	54	54	<0.9	<0.0050	---	Endpoint 3
Chromium (III)[2]	190,000	56	6	1.55[2]	0.0086[2]	0.0095[2]	Endpoint 2
Dichlorobenzenes	5,100	55	55	<2	<0.0111	---	Endpoint 3
Diethyl Phthalate	33,000	55	54	0.76	0.0042	---	Endpoint 2
Dimethyl Phthalate	820,000	55	55	<1.64	<0.0091	---	Endpoint 3
Di-n-Butyl Phthalate	3,500	55	54	1.8	0.0099	---	Endpoint 2
Ethylbenzene	4,100	47	47	<1.8	<0.0099	---	Endpoint 3
Fluoranthene	15	55	55	<0.49	<0.0027	---	Endpoint 3
Hexachlorocyclopentadiene	58	55	55	<1.6	<0.0088	---	Endpoint 3
Nitrobenzene	4.9	55	54	0.38	0.0021	---	Endpoint 2
Thallium	2	56	48	0.20	0.0011	---	Endpoint 2
Toluene	85,000	54	50	0.19	0.0010	---	Endpoint 2
Tributyltin	0.0014	[5]	[5]	[5]	[5]	---	[5]
Objectives for Protection of Human Health – Carcinogens							
1,1,2,2-Tetrachloroethane	2.3	54	54	<0.53	<0.0029	---	Endpoint 3

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
1,1,2-Trichloroethane	9.4	54	54	<0.1	<0.0006	---	Endpoint 3
1,1-Dichloroethylene	0.9	54	54	<1.44	<0.0005	---	Endpoint 3
1,2-Dichloroethane	28	54	54	<0.98	<0.0055	---	Endpoint 3
1,2-Diphenylhydrazine	0.16	54	54	<0.60	<0.0033	---	Endpoint 3
1,3-Dichloropropylene	8.9	54	54	<1.56	<0.0087	---	Endpoint 3
1,4-Dichlorobenzene	18	109	109	<0.95	<0.0053	---	Endpoint 3
TCDD Equivalents	3.9×10^{-9}	18	18	$<7.0\times10^{-7}$	$<3.9\times10^{-9}$	---	Endpoint 3; WQBEL carry over
2,4,6-Trichlorophenol	0.29	54	53	0.54	0.0030	---	Endpoint 2
2,4-Dinitrotoluene	2.6	55	55	<2.2	<0.0123	---	Endpoint 3
3,3'-Dichlorobenzidine	0.0081	55	55	<2.58	<0.0144	---	Endpoint 3
Acrylonitrile	0.10	54	54	<1.51	<0.0084	---	Endpoint 3
Aldrin	2.2×10^{-5}	10	10	<0.01	<0.00006	---	Endpoint 3
Benzene	5.9	54	54	<1.37	<0.0077	---	Endpoint 3
Benzidine	6.9×10^{-5}	54	54	<8.27	<0.0462	---	Endpoint 3; WQBEL carry over
Beryllium	0.033	55	55	<0.185	<0.0010	---	Endpoint 3
Bis(2-Chloroethyl)Ether	0.045	55	55	<0.96	<0.0053	---	Endpoint 3
Bis(2-Ethylhexyl)Phthalate	3.5	55	50	3.9	0.0215	---	Endpoint 2
Carbon Tetrachloride	0.90	54	54	<1.79	<0.01	---	Endpoint 3
Chlordane	2.3×10^{-5}	10	10	<0.05	$<2.8\times10^{-4}$	---	Endpoint 3
Chlorodibromomethane	8.6	54	9	4.86	0.0269	0.0235	Endpoint 2
Chloroform	130	54	1	16.6	0.0917	3.285	Endpoint 2
DDT (total)	0.00017	10	10	<0.0031	$<1.7\times10^{-5}$	---	Endpoint 3
Dichlorobromomethane	6.2	54	2	8.98	0.05	0.0534	Endpoint 2
Dichloromethane	450	54	47	8.9	0.0492	---	Endpoint 2

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Dieldrin	4.0×10^{-5}	10	10	<0.01	$<5.587\times10^{-5}$	---	Endpoint 3
Halomethanes	130	54	49	1.37	0.0076	---	Endpoint 2
Heptachlor	5×10^{-5}	10	10	<0.01	$<5.587\times10^{-5}$	---	Endpoint 3
Heptachlor Epoxide	2×10^{-5}	10	10	<0.01	$<5.587\times10^{-5}$	---	Endpoint 3
Hexachlorobenzene	0.00021	55	55	<0.77	<0.0043	---	Endpoint 3; WQBEL carry over
Hexachlorobutadiene	14	55	55	<0.77	<0.0043	---	Endpoint 3
Hexachloroethane	2.5	55	55	<0.63	<0.0035	---	Endpoint 3
Isophorone	730	55	55	<0.77	<0.0043	---	Endpoint 3
N-Nitrosodimethylamine	7.3	55	55	<2.7	<0.0151	---	Endpoint 3
N-Nitrosodi-n-Propylamine	0.38	55	55	<1.36	<0.0076	---	Endpoint 3
N-Nitrosodiphenylamine	2.5	55	55	<1.47	<0.0082	---	Endpoint 3
PAHs (total)	0.0088	55	55	<1.5	<0.0083	---	Endpoint 3
PCBs	1.9×10^{-5}	10	10	<0.50	<0.0028	---	Endpoint 3; WQBEL carry over
Tetrachloroethylene	2.0	54	52	1.58	0.0087	---	Endpoint 2
Toxaphene	0.00021	10	10	<1.2	<0.0067	---	Endpoint 3; WQBEL carry over
Trichloroethylene	27	54	47	<1.49	<0.0083	---	Endpoint 3
Vinyl Chloride	36	54	54	<1.73	<0.0097	---	Endpoint 3

Abbreviations:

Max = maximum
WQO = water quality objective
µg/L = micrograms per liter
pCi/L = pico-curies per liter
NA = not applicable

Footnotes:

[1] Concentrations after mixing include a dilution factor of 180 (D_m), with exception of radioactivity (D_m=0), and applicable background seawater concentrations (C_s) for arsenic, copper, mercury, silver, and zinc.
[2] The Discharger monitored for total chromium, in lieu of chromium (III) and chromium (VI). The maximum detected concentration of total chromium (1.55 µg/L) is less than the water quality objective for chromium (III) and chromium (VI) (i.e., 190,000 µg/L and 2 µg/L, respectively).
[3] Not to exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR.
[4] While the discharger ceased chlorine disinfection of the effluent in May 2015, chlorine is still used at the facility for odor control and in-house water use.
[5] The discharger did not monitor for Tributylin.

Table F-10. Reasonable Potential Analysis for Discharge Point No. 002 (78" Outfall)

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Objectives for Protection of Marine Aquatic Life							
Ammonia (as nitrogen)	600	1,699	0	46,000	1,243	993	Endpoint 1
Arsenic	8	56	0	6.91	3.02	3.1	Endpoint 2
Cadmium	1	56	53	0.240	0.0065	---	Endpoint 2
Chlorinated Phenolics	1	55	54	0.54	0.0146	---	Endpoint 2
Chromium (VI)[2]	2	56	6	1.55[2]	0.0419[2]	0.0464[2]	Endpoint 2
Chronic Toxicity	1.0 TU_c	0	0	NA	NA	NA	Endpoint 1; BPJ

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Copper	3	56	0	25.2	2.627	2.446	Endpoint 2
Cyanide	1	52	1	5.88	0.1589	0.1819	Endpoint 2
Endosulfan (total)	0.009	10	10	<0.0050	<0.0001	---	Endpoint 3
Endrin	0.002	10	10	<0.0028	$<7.6\times10^{-5}$	---	Endpoint 3
HCH	0.004	10	10	<0.0050	<0.0001	---	Endpoint 3
Lead	2	56	47	0.62	0.0168	---	Endpoint 2
Mercury	0.04	55	0	0.0071	0.0007	0.0007	Endpoint 2
Nickel	5	56	0	23.5	0.6351	0.6545	Endpoint 2
Non-chlorinated Phenolics	30	55	53	1.56	0.0422	---	Endpoint 2
Radioactivity (Gross Alpha)	[3]	48	8	36 pCi/L	36 pCi/L	54.4435 pCi/L	Endpoint 1; BPJ
Radioactivity (Gross Beta)	[3]	56	0	70 pCi/L	70 pCi/L	76.3882 pCi/L	Endpoint 1; BPJ
Radioactivity (Radium, combined)	[3]	11	0	1.14 pCi/L	1.14 pCi/L	7.5682 pCi/L	Endpoint 1; BPJ
Selenium	15	3461	3380	21.9	0.5919	0.7383	Endpoint 2
Silver	0.7	55	46	0.16	0.16	---	Endpoint 2
Total Chlorine Residual[4]	2	5100	358	1,200	32.4	9.73	Endpoint 1
Zinc	20	56	0	64.7	9.53	9.03	Endpoint 2
Objectives for Protection of Human Health – Noncarcinogens							
1,1,1-Trichloroethane	540,000	54	54	<1.43	<0.0386	---	Endpoint 3
2,4-Dinitrophenol	4.0	55	55	<3.5	<0.0946	---	Endpoint 3
2-Methyl-4,6-Dinitrophenol	220	55	55	<1.7	<0.0459	---	Endpoint 3
Acrolein	220	54	54	<4.48	<0.01211	---	Endpoint 3
Antimony	1,200	56	0	2.54	0.0686	0.0712	Endpoint 2
Bis(2-Chloroethoxy)Methane	4.4	55	55	<1.1	<0.0297	---	Endpoint 3

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
Bis(2-Chloroisopropyl)Ether	1,200	55	55	<0.73	<0.0197	---	Endpoint 3
Chlorobenzene	570	54	54	<0.9	<0.0243	---	Endpoint 3
Chromium (III)[2]	190,000	56	6	1.55[2]	0.0419[2]	0.0464[2]	Endpoint 2
Dichlorobenzenes	5,100	55	55	<2	<0.0556	---	Endpoint 3
Diethyl Phthalate	33,000	55	54	0.76	0.0205	---	Endpoint 2
Dimethyl Phthalate	820,000	55	55	<1.64	<0.0443	---	Endpoint 3
Di-n-Butyl Phthalate	3,500	55	54	1.8	0.0486	---	Endpoint 2
Ethylbenzene	4,100	47	47	<1.8	<0.04866	---	Endpoint 3
Fluoranthene	15	55	55	<0.49	<0.0132	---	Endpoint 3
Hexachlorocyclopentadiene	58	55	55	<1.6	<0.0432	---	Endpoint 3
Nitrobenzene	4.9	55	54	0.38	0.0103	---	Endpoint 2
Thallium	2	56	48	0.20	0.0054	---	Endpoint 2
Toluene	85,000	54	50	0.19	0.0051	---	Endpoint 2
Tributyltin	0.0014	[5]	[5]	[5]	[5]	---	[5]
Objectives for Protection of Human Health – Carcinogens							
1,1,2,2-Tetrachloroethane	2.3	54	54	<0.53	<0.0143	---	Endpoint 3
1,1,2-Trichloroethane	9.4	54	54	<0.1	<0.0027	---	Endpoint 3
1,1-Dichloroethylene	0.9	54	54	<1.44	<0.0389	---	Endpoint 3
1,2-Dichloroethane	28	54	54	<0.98	<0.0265	---	Endpoint 3
1,2-Diphenylhydrazine	0.16	54	54	<0.60	<0.0162	---	Endpoint 3
1,3-Dichloropropylene	8.9	54	54	<1.56	<0.0422	---	Endpoint 3
1,4-Dichlorobenzene	18	109	109	<0.95	<0.0257	---	Endpoint 3
TCDD Equivalents	3.9×10^{-9}	18	18	$<7.0\times10^{-7}$	$<1.9\times10^{-8}$	----	Endpoint 3; WQBEL carry over
2,4,6-Trichlorophenol	0.29	54	53	0.54	0.0146	---	Endpoint 2
2,4-Dinitrotoluene	2.6	55	55	<2.2	<0.0595	---	Endpoint 3

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
3,3'-Dichlorobenzidine	0.0081	55	55	<2.58	<0.0697	---	Endpoint 3
Acrylonitrile	0.10	54	54	<1.51	<0.0408	---	Endpoint 3
Aldrin	2.2×10^{-5}	10	10	<0.01	<0.0003	---	Endpoint 3
Benzene	5.9	54	54	<1.37	<0.0370	---	Endpoint 3
Benzidine	6.9×10^{-5}	54	54	<8.27	<0.2235	---	Endpoint 3
Beryllium	0.033	55	55	<0.185	<0.0051	---	Endpoint 3
Bis(2-Chloroethyl)Ether	0.045	55	55	<0.96	<0.0259	---	Endpoint 3
Bis(2-Ethylhexyl)Phthalate	3.5	55	50	3.9	0.1054	---	Endpoint 2
Carbon Tetrachloride	0.90	54	54	<1.79	<0.484	---	Endpoint 3
Chlordane	2.3×10^{-5}	10	10	<0.05	<0.0014	---	Endpoint 3
Chlorodibromomethane	8.6	54	9	4.86	0.1314	0.1152	Endpoint 2
Chloroform	130	54	1	16.6	0.4486	2.467	Endpoint 2
DDT (total)	0.00017	10	10	<0.0031	<0.0001	---	Endpoint 3
Dichlorobromomethane	6.2	54	2	8.98	0.2427	0.2611	Endpoint 2
Dichloromethane	450	54	47	8.9	0.2405	---	Endpoint 2
Dieldrin	4.0×10^{-5}	10	10	<0.01	<0.0003	---	Endpoint 3
Halomethanes	130	54	49	1.37	0.0370	---	Endpoint 2
Heptachlor	5×10^{-5}	10	10	<0.01	<0.0003	---	Endpoint 3
Heptachlor Epoxide	2×10^{-5}	10	10	<0.01	<0.0003	---	Endpoint 3
Hexachlorobenzene	0.00021	55	55	<0.77	<0.0208	---	Endpoint 3
Hexachlorobutadiene	14	55	55	<0.77	<0.0208	---	Endpoint 3
Hexachloroethane	2.5	55	55	<0.63	<0.017	---	Endpoint 3
Isophorone	730	55	55	<0.77	<0.0208	---	Endpoint 3
N-Nitrosodimethylamine	7.3	55	55	<2.7	<0.0730	---	Endpoint 3
N-Nitrosodi-n-Propylamine	0.38	55	55	<1.36	<0.0368	---	Endpoint 3
N-Nitrosodiphenylamine	2.5	55	55	<1.47	<0.0397	---	Endpoint 3
PAHs (total)	0.0088	55	55	<1.5	<0.0417	---	Endpoint 3

Table 3 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing[1] (µg/L)	Projected 95th Percentile (µg/L)	Result
PCBs	1.9×10^{-5}	10	10	<0.05	<0.0014	---	Endpoint 3
Tetrachloroethylene	2.0	54	52	1.58	0.0427	---	Endpoint 2
Toxaphene	0.00021	10	10	<1.2	<0.0324	---	Endpoint 3
Trichloroethylene	27	54	47	<1.49	<0.0403	---	Endpoint 3
Vinyl Chloride	36	54	54	<1.73	<0.0468	---	Endpoint 3

Abbreviations:

Max = maximum
WQO = water quality objective
µg/L = micrograms per liter
pCi/L = pico-curies per liter
NA = not applicable

Footnotes:

[1] Concentrations after mixing include a dilution factor of 36 (D_m), with exception of radioactivity (D_m=0), and applicable background seawater concentrations (C_s) for arsenic, copper, mercury, silver, and zinc.
[2] Discharger monitored for total chromium, in lieu of chromium (III) and chromium (VI). The maximum detected concentration of total chromium (1.55 µg/L) is less than the water quality objective for chromium (III) and chromium (VI) (i.e., 190,000 µg/L and 2 µg/L, respectively).
[3] Not to exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR.
[4] While the discharger ceased chlorine disinfection of the effluent in May 2015, chlorine is still used at the facility for odor control and in-house water use.
[5] The discharger did not monitor for Tributylin.

4. WQBEL Calculations

a. Concentration-based WQBEL Calculations

From the Table 3 water quality objectives in the 2019 Ocean Plan, concentration-based WQBELs are calculated according to the following equation for all pollutants, except for acute and chronic toxicity (if applicable):

$C_e = C_o + D_m(C_o - C_s)$

Where,

C_e = the effluent limitation

C_o = the water quality objective to be met at the completion of initial dilution

C_s = background seawater concentration (see Table F-11 below)

D_m = minimum probable initial dilution expressed as parts seawater per part wastewater (i.e., 180 for Discharge Point 001 and 36 for Discharge Point 002)

Background seawater concentration for all Table 3 pollutants is assumed to be zero ($C_s = 0$), except for the following five pollutants:

Table F-11. Pollutants with Background Seawater Concentrations (C_s)

Constituents	Background Seawater Concentration
Arsenic	3 μg/L
Copper	2 μg/L
Mercury	0.0005 μg/L
Silver	0.16 μg/L
Zinc	8 μg/L

The calculation of WQBELs for copper, total chlorine residual, ammonia, and TCDDs are demonstrated below for Discharge Point 002, as examples:

Table F-12. Example – Ocean Plan Table 3 Water Quality Objectives (C_o)

Constituents	6-Month Median	Daily Maximum	Instantaneous Maximum	30 Day Average
Copper	3 μg/L	12 μg/L	30 μg/L	--
Total Chlorine Residual	2 μg/L	8 μg/L	60 μg/L	--
Ammonia	0.60 mg/L	2.4 mg/L	6 mg/L	--
TCDD equivalents	--	--	--	3.9×10^{-9} μg/L

Using the equation, $C_e=C_o+D_m(C_o-C_s)$, effluent limitations are calculated as follows. All calculations are based on discharge through Discharge Point 002 and, therefore, a dilution ratio (D_m) of 36 is applied.

Example - Copper

C_e = 3 + 36 (3 – 2) = 39 μg/L (6-month Median)

C_e = 12 + 36 (12 – 2) = 372 μg/L (Maximum Daily)

C_e = 30 + 36 (30 – 2) = 1,038 μg/L (Instantaneous Maximum)

Total Chlorine Residual

C_e = 2 + 36 (2 – 0) = 74 μg/L (6-month Median)

C_e = 8 + 36 (8 – 0) = 296 μg/L (Maximum Daily)

C_e = 60 + 36 (60 – 0) = 2,220 μg/L (Instantaneous Maximum)

Ammonia

C_e = 0.6 + 36 (0.6 – 0) = 22.2 mg/L (6-month Median)

C_e = 2.4 + 36 (2.4 – 0) = 88.8 mg/L (Maximum Daily)

C_e = 6 + 36 (6 – 0) = 222 mg/L (Instantaneous Maximum)

TCDD equivalents

$C_e = 3.9\times10^{-9} + 36 (3.9\times10^{-9} – 0) = 144.3\times10^{-9}$ μg/L = 0.144 pg/L (Average Monthly)

b. Mass-based WQBEL Calculations

The following equation from the 2019 Ocean Plan Chapter III.C.4.j is used to calculate all mass-based WQBELs.

Mass (in lbs/day) = 0.00834 x C_e x Q

where:

C_e = the effluent concentration limitation (μg/L)

Q = flow rate (MGD)

For example, in the case of PCBs where Q = 206 MGD for Discharge Point 001, the average monthly mass-based WQBEL is:

C_e = 0.00834 x 0.0034 μg/L x 206 MGD = 0.0058 lbs/day

For Discharge Point 001 (120” outfall), the previous Order/Permit established mass emission effluent limitations based on the average daily influent flow (Q) of 274 MGD projected for 2017. This Order/Permit establishes mass emission effluent limitations based on the average daily upper bound influent flow of 206 MGD projected for 2025, which was taken from the Discharger’s 2017 Master Plan. For Discharger Point

002 (78" outfall), consistent with the previous permit, mass emission effluent limitations are based on the Discharger's conservative estimate for the hydraulic flow capacity of the 78" outfall (Q) of 230 MGD. Since Discharge Point 002 is authorized for emergency situations, it is anticipated to use its maximum hydraulic flow capacity of 230 MGD during emergency discharges.

C. Bacteria WQBEL Calculations

Bacteria effluent limitations for Discharge Point 002 remain in the Order/Permit to ensure protection of human health and receiving water quality for REC-1 beneficial uses and compliance with REC-1 water quality objectives for bacteria in the Pacific Ocean.

The Ocean Plan was amended in 2018 to revise the bacterial objectives for ocean waters used for water contact recreation, which includes removal of the previously established total coliform objectives and the revised enterococci objectives based on the EPA 2012 Recreational Criteria for marine waters. This Order/Permit has established bacteria effluent limitations at Discharge Point 002 (78" outfall) based on the amended water quality objectives in Table 1 and 2 of the 2019 Ocean Plan. Fecal coliform and enterococcus WQBELs for Discharge Point 002 are determined using the equation, $C_e=C_o+D_m(C_o-C_s)$ and an Initial dilution of 37:1 (D_m=36). The background conditions for fecal coliform and enterococcus are assumed to be zero.

Table F-13. Bacteria Water Quality Objectives (C_o) in the Ocean Plan

Indicator	Magnitude	WQO
Fecal coliform density	30-day geometric mean	200 /100 mL
	Single sample maximum	400 /100 mL
Enterococci	6-week rolling geometric mean	30 CFU /100 mL
	Statistical threshold value	110 CFU /100 mL

Fecal Coliform

C_e = 200 + 36 (200 – 0) = 7,400 MPN/100 mL (30-day Geometric Mean)

C_e = 400 + 36 (400 – 0) = 14,800 MPN/100 mL (Single Sample Maximum)

Enterococcus

C_e = 30 + 36 (30 – 0) = 1,110 CFU/100 mL (6-Week Rolling Geometric Mean)

C_e = 110 + 36 (110 – 0) = 4,070 CFU/100 mL (Statistical Threshold Value)

Based on the implementing procedures described above, WQBELs have been calculated for bacteria and all Table 3 pollutants (excluding acute and chronic toxicity) from the 2019 Ocean Plan and incorporated into this Order/Permit when applicable. A summary of the applicable WQBELs are shown in Tables F-14 and F-15 in section IV.E of this Fact Sheet.

5. Whole Effluent Toxicity (WET)

Whole Effluent Toxicity (WET) testing protects receiving waters from the aggregate toxic effect of a mixture of pollutants in the effluent or pollutants that are not typically monitored. 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 period of time and measures a sublethal endpoint such as reproduction or growth, and sometimes mortality. Because of the nature of industrial discharges and contaminants of emerging concern (CEC) used in households such as PPCPs, pesticides and PFAS which may be released into the POTW sewershed, toxic constituents in and of itself or in combination may be present in the effluent.

A total of 71 chronic and 26 acute WET tests was conducted on the effluent discharged to Discharge Point 001 (120" outfall) between May 2015 and December 2019. None of the testing results was reported as "Fail" for both acute and chronic toxicity. However, based on Step 13 of the RPA procedures in the Ocean Plan (i.e., best professional judgement), reasonable potential for acute and chronic toxicity has been established for Discharge Point 001 and chronic toxicity for Discharge Point 002 due to potentially toxic chemicals exceeding water quality standards and numerous chemicals having no specific water quality standard. Therefore, the protection of aquatic life through the evaluation of toxicity monitoring is necessary to examine the potential for the individual and/or combination of toxic chemicals that pass through the POTW.

The Ocean Plan addresses the application of chronic and acute toxicity requirements based on minimum probable initial dilutions (D_m) for ocean discharges. Following the Ocean Plan, dischargers are required to conduct chronic toxicity monitoring for ocean discharges with D_m factors ranging from 99 to 349; also, Santa Ana Water Boards or USEPA may require acute toxicity monitoring in addition to chronic toxicity monitoring. Dischargers with D_m factors below 99 are required to conduct only chronic toxicity testing. Since the D_m for Discharge Point 001 is 180, both acute and chronic toxicity final effluent limitations have been assigned to Discharge Point 001. Since the D_m for Discharge Point 002 (i.e., D_m = 36) is less than 99, only chronic toxicity monitoring is specified for Discharge Point 002. No acute toxicity final effluent limitations have been assigned to Discharge Point 002 consistent with 40 CFR § 122.44(d)(1)(v), and because the chronic toxicity final effluent limitation is protective of both chronic and acute toxicity.

The Ocean Plan establishes a daily maximum chronic toxicity objective of 1.0 TU_c = 100/NOEC and a daily maximum acute toxicity objective of 0.3 TU_a = 100/LC_{50}. In 2010, USEPA published a guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), in which they recommend the following: "Permitting authorities should consider adding the Test of Significant Toxicity (TST) statistical approach to their implementation procedures for analyzing valid WET data for their current NPDES WET Program." The TST hypothesis testing

approach more reliably identifies toxicity—in relation to the chronic (equal to or greater than 0.25) and acute (equal to or greater than 0.20) mean responses of regulatory management decision—than the NOEC hypothesis-testing approach used in the Ocean Plan. The TST statistical approach is the improved approach for addressing statistical uncertainty when used in combination with USEPA's toxicity test methods and is implemented in federal permits issued by USEPA Region 9. Therefore, this Order/Permit includes final effluent limitations for both Discharge Point 001 (120"outfall) and Discharge Point 002 (78" outfall) using the TST hypothesis testing approach. This statistical approach is consistent with the Ocean Plan in that it provides maximum protection to the environment since it more reliably identifies acute and chronic toxicity than the NOEC hypothesis-testing approach (See Chapter III.F and Appendix I of the 2019 California Ocean Plan).

The discharge is subject to determination of "Pass" or "Fail" from acute and/or chronic toxicity tests using the TST statistical t-test approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (USEPA 833-R-10-003, 2010), Appendix A, Figure A-1, Table A-1, and Appendix B, Table B-1.

The TST's null hypothesis (H_0) for chronic toxicity is:

H_0: Mean discharge In-stream Waste Concentration (IWC) response ≤0.75 × Mean control response.

The TST's null hypothesis (H_0) for acute toxicity is:

H_0: Mean discharge In-stream Waste Concentration (IWC) response ≤0.80 × 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."

WQBEL Calculation for Chronic Toxicity (Discharge Points 001 and 002)

The chronic toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_0) and regulatory management decision (b value) of 0.75 for the chronic toxicity methods in Attachment E – Monitoring and Reporting Program. The chronic toxicity In-stream Waste Concentration (IWC) is $100/D_m$ = 100/180 = 0.556% for Discharge Point 001 (120" outfall) and IWC = 100/36 = 2.78% for Discharge Point 002 (78" outfall).

The null hypothesis for chronic toxicity at Discharge Point 001 is:

H_0: Mean response (0.556% effluent) ≤ 0.75 mean response (Control)

The null hypothesis for chronic toxicity at Discharge Point 002 is:

H_0: Mean response (2.78% effluent) ≤ 0.75 mean response (Control)

WQBEL Calculation for Acute Toxicity (Discharge Point 001)

The acute toxicity WQBEL for Discharge Point 001 is expressed as a null hypothesis (H_0) and regulatory management decision (b value) of 0.80 for the acute toxicity methods in Attachment E – Monitoring and Reporting Program. The acute toxicity In-stream Waste Concentration (in % effluent) for Discharge Point 001 is $100/(0.1*D_m) = 100/(0.1*180) = 5.56\%$.

The null hypothesis for acute toxicity at Discharge Point 001 is:

H_0: Mean response (5.56% effluent) ≤ 0.80 mean response (Control).

Results obtained from evaluating statistically the IWC compared to the control shall be analyzed using the TST hypothesis testing approach in Attachment E – Monitoring and Reporting Program. Compliance with these acute and chronic toxicity WQBELs is demonstrated by rejecting the null hypothesis and reporting "Pass" or "P". The Maximum Daily Effluent Limitation (MDEL) for acute or chronic toxicity is exceeded and a violation will be flagged when WET test, analyzed using the TST statistical approach, results in "Fail".

D. Final Effluent Limitation Considerations

1. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR § 122.44(l) prohibit backsliding in NPDES permits. 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. All effluent limitations and conditions in this Order/Permit are at least as stringent as those in the previous Order/Permit.

This Order/Permit implements different bacteria indicators and water quality objectives based on Chapter II.B.1 of the 2019 Ocean Plan (i.e., State Water Board Water-Contact Objectives for Bacteria). The California Ocean Plan was amended in 2018 to revise the bacterial objectives for ocean waters used for water contact recreation, which includes removal of the previously established total coliform objectives and the revised enterococci objectives based on the EPA 2012 Recreational Criteria for marine waters. This Order/Permit has established bacteria effluent limitations at Discharge Point 002 (78" outfall) based on the amended objectives in the 2019 Ocean Plan. The new effluent limitations are expressed using different averaging periods than the previous limits and are therefore not directly comparable.

2. Antidegradation Policies

Pursuant to 40 CFR 131.12, the state water quality standards must include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. This resolution incorporates the federal antidegradation policy, where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless it is demonstrated that any degradation is consistent with the maximum benefit to

the people of the State, will not unreasonably affect current or possible beneficial uses, and will not result in water quality less than prescribed in applicable policies.

A complete antidegradation analysis is required if the proposed activity results in a substantial increase in mass emissions of pollutants or if the activity results in significant impact to aquatic life. It is not necessary to do a complete antidegradation analysis if the reduction in water quality will be spatially localized or limited with respect to the waterbody. In such cases, a simple antidegradation analysis will suffice. The Santa Ana Water Board and USEPA believe that the simple antidegradation analysis presented herein is consistent with California and Federal antidegradation policies because effects from effluent discharges are spatially and temporally limited and not expected to have a significant impact on receiving water quality.

This Order/Permit includes both narrative and numeric final effluent limitations, receiving water limitations, performance goals, and mass emission benchmarks to maintain the chemical, physical, and biological characteristics, and to protect the beneficial uses, of the receiving water. These requirements ensure that all water quality objectives are being met outside the zone of initial dilution, thereby maintaining the beneficial uses. The Ocean Plan allows for minimal degradation within the zone of initial dilution as long as the water quality objectives are maintained just outside the zone of initial dilution. The minimal degradation permitted by the Ocean Plan is consistent with the antidegradation policy because it maintains maximum benefit to the people of the State, it will not unreasonably affect the present and anticipated beneficial uses, and it will not result in water quality less than that prescribed in the policies.

The final effluent limitations from the previous Order/Permit have been retained. Bacteria limits at Discharge Point 002 (78” outfall) were updated to implement new State water quality objectives for bacteria in the 2019 Ocean Plan. The new effluent limitations for fecal coliform and enterococcus are consistent with the State’s antidegradation policy because the discharge is in compliance with new State Water Board water-contact objectives for bacteria in the Pacific Ocean. In addition, receiving water limitations for bacteria are included to further limit bacteria and to ensure that any increase in the bacteria levels due to cessation of disinfection at Discharge Point 001 (120” outfall) will be maintained below the applicable bacteria water quality standards. Full secondary treatment and these bacteria limitations will ensure that undisinfected effluent discharges will not adversely impact human health and receiving water quality for REC-1 beneficial uses.

The performance goal and mass emission benchmarks are additional incentives for the Discharger to maintain the current treatment quality since they set final effluent targets for the Discharger to meet based on current performance. Most mass emission benchmarks in this Order/Permit are more stringent due to improved performance by full secondary treatment and a basis of lower flow rate (i.e., the average daily influent flow of 206 MGD projected for 2025); however, the

mass emission benchmarks for some constituents (e.g., selenium) have increased due to increased concentrations in the influent and/or more sensitive analysis methods. Since the mass emission benchmarks are based on actual performance and do not exceed the water quality objectives for the receiving water, the increase of any mass emission benchmarks is not expected to result in additional degradation.

Compliance with all permit-specified concentration-based and mass emission-based limits, performance goals, mass emission benchmarks, and the secondary treatment requirements for final effluent discharges in the Order/Permit will result in the use of best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and that the highest water quality consistent with the maximum benefit to the people of the state will be maintained. Additionally, the secondary treatment facilities would support the Groundwater Replenishment System, reduce the effluent discharge volumes to the ocean, and reduce the need for emergency use of Discharge Point 002 (78" short outfall). Therefore, it is believed that these changes would represent socioeconomic and public benefits, and the Discharger meets the goals of the antidegradation policy. Based on these considerations, this Order/Permit is consistent with state and federal antidegradation requirements.

3. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on biochemical oxygen demand (5-day), carbonaceous biochemical oxygen demand (5-day), total suspended solids, and pH which implement the minimum, applicable federal technology-based requirements for POTWs. Also, effluent limitations consisting of restrictions on oil and grease, settleable solids, and turbidity more stringent than federal technology-based limitations are necessary to implement State treatment standards in Ocean Plan Table 4.

Water quality-based effluent limitations (WQBELs) have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. The procedures for calculating the individual WQBELs are based on the Ocean Plan, which was approved by USEPA on February 14, 2006 and has since been further amended. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives 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 § 131.21(c)(1).

Discharge Point 001 WQBELs consisting of restrictions on total chlorine residual, acute toxicity, chronic toxicity, radioactivity, benzidine, hexachlorobenzene,

PCBs, TCDD equivalents, and toxaphene more stringent than federal technology-based limitations are necessary to meet State water quality standards in the Ocean Plan. Discharge Point 002 WQBELs consisting of restrictions on ammonia (as N), total chlorine residual, fecal coliform density, *Enterococcus* density, chronic toxicity, radioactivity, and TCDD equivalents more stringent than federal technology-based limitations are necessary to meet State water quality standards in the Ocean Plan. All effluent limitations are discussed in Attachment F-Fact Sheet. Collectively, the restrictions on individual pollutants in this Order/Permit are no more stringent than required to implement the requirements of the CWA.

E. Final Effluent Limitations for Discharge Points 001 and 002

Table F-14. Summary of Effluent Limitations – Discharge Point 001 (120" outfall)

Parameter	Units	Effluent Limitations[1],[2]					Basis
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]	
Carbonaceous Biochemical Oxygen Demand, 5-day @ 20°C ($CBOD_5$)[5]	mg/L	25	40	–	–	–	Existing/ Secondary treatment standard
	lbs/day	42,951	68,722	–	–	–	
	% removal[6]	≥ 85	–	–	–	–	
Total Suspended Solids (TSS)	mg/L	30	45	–	–	–	Existing/ Secondary treatment standard
	lbs/day	51,541	77,312	–	–	–	
	% removal[6]	≥ 85	–	–	–	–	
pH	standard units	6.0 (instantaneous minimum) – 9.0 (instantaneous maximum)					Existing/ Secondary treatment standard/ Ocean plan
Oil and Grease	mg/L	25	40	–	75	–	Existing/ Ocean Plan
	lbs/day	42,951	68,722	–	128,853	–	
Settleable Solids	ml/L	1.0	1.5	–	3.0	–	Existing/ Ocean Plan
Turbidity	NTU	75	100	–	225	–	Existing/ Ocean Plan
Total chlorine residual	mg/L	–	–	1.45	10.86	0.36	RP
	lbs/day	–	–	2,491	18,658	618	

Parameter	Units	Effluent Limitations[1],[2]					Basis
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]	
Acute toxicity[7]	Pass or Fail	–	–	Pass	–	–	RP/BPJ
Chronic toxicity[7]	Pass or Fail	–	–	Pass	–	–	RP/BPJ
Radioactivity	pCi/L	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.					RP/BPJ Ocean Plan
Benzidine	µg/L	0.0125	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.0215	–	–	–	–	
Hexachloro-benzene	µg/L	0.0380	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.0653	–	–	–	–	
Toxaphene	µg/L	0.0380	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.0653	–	–	–	–	
PCBs[3]	µg/L	0.0034	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.0058	–	–	–	–	
TCDD Equivalents[3]	pg/L	0.7059	–	–	–	–	Inconclusive/ Carry-over
	lbs/day	0.0000012	–	–	–	–	

[1] Mass emission effluent limitations (in lbs/day) are based on the average daily influent flow of 206 MGD projected for 2025, taken from the Discharger's 2017 Master Plan.

[2] The minimum probable initial dilution used to calculate WQBELs for Ocean Plan Table 3 pollutants is 181:1 (D_m = 180).

[3] See Attachment A – Definitions.

[4] The maximum daily effluent limitations shall apply to flow weighted 24-hour composite samples. The instantaneous maximum effluent limitations shall apply to grab samples.

[5] In lieu of the parameter BOD_5 and the BOD_5 levels specified for effluent quality in 40 CFR § 133.102(a)(1), (2), and (3), the parameter $CBOD_5$ and the $CBOD_5$ levels specified for effluent quality in 40 CFR § 133.102(a)(4) are substituted and reported by the Discharger.

[6] In each calendar month, the arithmetic mean of $CBOD_5$ and TSS, by mass, of effluent samples collected at Monitoring Location EFF-001 as described in the MRP, shall not exceed 15 percent of the arithmetic mean of $CBOD_5$ and TSS, by mass, of influent samples

collected at Monitoring Locations INF-001 and INF-002 as described in the MRP, at approximately the same times during the same periods.

[7] The maximum daily effluent limitation shall be reported as "Pass" or "Fail", and "% Effect". See section V of Attachment E.

Table F-15. Summary of Effluent Limitations – Discharge Point 002 (78" outfall)

Parameter	Units	Effluent Limitations[1],[2]					Basis
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]	
Carbonaceous Biochemical Oxygen Demand 5-day @ 20°C ($CBOD_5$)[5]	mg/L	25	40	–	–	–	Existing/ Secondary treatment standard
	lbs/day	47,955	76,728	–	–	–	
	% removal[6]	≥ 85	–	–	–	–	
Total Suspended Solids (TSS)	mg/L	30	45	–	–	–	Existing/ Secondary treatment standard
	lbs/day	57,546	86,319	–	–	–	
	% removal[6]	≥ 85	–	–	–	–	
pH	standard units	6.0 (instantaneous minimum) – 9.0 (instantaneous maximum)					Existing/ Secondary treatment standard/ Ocean plan
Oil and Grease	mg/L	25	40	–	75	–	Existing/ Carry-over; Ocean Plan
	lbs/day	47,955	76,728	–	143,865	–	
Settleable Solids	ml/L	1.0	1.5	–	3.0	–	Existing/ Carry-over; Ocean Plan
Turbidity	NTU	75	100	–	225	–	Existing/ Carry-over; Ocean Plan
Total chlorine residual	mg/L	–	–	0.296	2.22	0.074	RP
	lbs/day	–	–	568	4,258	142	
Ammonia as N	mg/L	–	–	88.8	222	22.2	RP
	lbs/day	–	–	170,336	425,840	42,584	

Parameter	Units	Effluent Limitations[1],[2]					Basis
		Average Monthly[3]	Average Weekly[3]	Maximum Daily[3],[4]	Instantaneous Maximum[3],[4]	Six-Month Median[3]	
Fecal coliform density	MPN /100 mL[7]	A 30-day geometric mean of fecal coliform density not to exceed 7,400 MPN/100 mL; and a single sample maximum not to exceed 14,800 MPN/100 mL.					RP/BPJ Ocean Plan
Enterococcus density	CFU /100 mL[7]	A six-week rolling geometric mean of enterococcus not to exceed 1,110 CFU/100 mL; and a statistical threshold value (STV), corresponding to the 90th percentile of all enterococcus samples collected in a calendar month, not to exceed of 4,070 CFU/100mL.					RP/BPJ Ocean Plan
Chronic toxicity[8]	Pass or Fail	–	–	Pass	–	–	RP/BPJ
Radioactivity	pCi/L	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.					RP/BPJ Ocean Plan
TCDD Equivalents[3]	pg/L	0.14430	–	–	–	–	Inconclusive/ Carry-over;
	lbs/day	0.00000028	–	–	–	–	

[1] Mass emission effluent limitations (in lbs/day) are based on the Discharger's conservative estimate for hydraulic flow capacity of the outfall of 230 MGD.

[2] The minimum probable initial dilution used to calculate WQBELs for Ocean Plan Table 3 pollutants and bacteria is 37:1 (D_m = 36).

[3] See Attachment A – Definitions.

[4] The maximum daily effluent limitations shall apply to flow weighted 24-hour composite samples. The instantaneous maximum effluent limitations shall apply to grab samples.

[5] In lieu of the parameter BOD_5 and the BOD_5 levels specified for effluent quality in 40 CFR § 133.102(a)(1), (2), and (3), the parameter $CBOD_5$ and the $CBOD_5$ levels specified for effluent quality in 40 CFR § 133.102(a)(4) are substituted and reported by the Discharger.

[6] In each calendar month, the arithmetic mean of $CBOD_5$ and TSS, by mass, of effluent samples collected at Monitoring Location EFF-002 or EMG-001 as described in the MRP, shall not exceed 15 percent of the arithmetic mean of $CBOD_5$ and TSS, by mass, of influent samples collected at Monitoring Locations INF-001 and INF-002 as described in the MRP, at approximately the same times during the same periods.

[7] Results may be reported as either MPN/100 mL if the laboratory method used provides results in MPN/100 mL or CFU/100 mL if the laboratory method used provides results in CFU/100 mL.

[8] The maximum daily effluent limitation shall be reported as “Pass” or “Fail”, and “% Effect”. See section V of Attachment E.

F. Interim Effluent Limitations – Not Applicable

G. Land Discharge Specifications – Not Applicable

H. Recycling Specifications – Not Applicable

V. PERFORMANCE GOAL AND MASS EMISSION BENCHMARKS

A. Performance Goal

Section III.F.1, of the 2019 Ocean Plan allows the Santa Ana Water Board to establish more restrictive water quality objectives and effluent limitations than those set forth in the Ocean Plan as necessary for the protection of the beneficial uses of ocean waters.

Pursuant to this provision, performance goals that are more stringent than those based on Ocean Plan objectives are prescribed in this Order/Permit. This approach is consistent with the antidegradation policy in that it requires the Discharger to maintain its treatment level and effluent quality, recognizing normal variations in treatment efficiency and sampling and analytical techniques. However, this approach does not address substantial changes in treatment plant operations that could significantly affect the quality of the treated effluent.

While performance goals were previously placed in many State-issued NPDES permits for POTWs, they have been discontinued for inland surface water discharges. For inland surface waters, the California Toxics Rule (40 CFR § 131.38) has resulted in effluent limitations as stringent as many performance goals. However, the Ocean Plan allows for significant dilution, and the continued use of performance goals serves to maintain existing treatment levels and effluent quality and supports State and federal antidegradation policies.

The performance goals are based upon the last 5-year actual performance of the OC San’s treatment plants and are specified only as an indication of the treatment efficiency of the Facility. The performance goals are not considered enforceable effluent limitations or standards for the regulation of discharge from the treatment facility. They are intended to minimize pollutant loading (primarily for toxics), while maintaining the incentive for future voluntary improvement of water quality whenever feasible, without the imposition of more stringent limits based on improved performance.

The Discharger shall maintain existing treatment levels and the effluent quality at or below the performance goal concentrations. Any two consecutive exceedances of the performance goals shall trigger an investigation into the cause of the exceedance. If the exceedance persists in three successive monitoring periods, the Discharger shall submit a written report to the Santa Ana Water Board and USEPA on the nature of the exceedance and the results of the investigation including the cause of the exceedance.

The Santa Ana Water Board and USEPA recognize that OC San is going through upgrades of treatment plant operations including the GWRS final expansion and

participating in collaborative studies and activities with regional partnerships. This Order/Permit may be reopened to modify any of the performance goals if the Discharger requests and has demonstrated that the change is warranted, including results of completion of the GWRS final expansion.

Procedures for the Determination of Performance Goals

1. For constituents that have been routinely detected in the effluent (at least 20 percent detectable data), performance goals are based on the one-sided, upper 95 percent confidence bound for the 95th percentile of the effluent performance data ($UCB_{95/95}$) from May 2015 through December 2019 using the RPA protocol contained in the 2019 Ocean Plan. Effluent data are assumed log normally distributed. Performance goals are calculated according to the equation $C_{PG} = C_o+D_m(C_o-C_s)$ and setting $C_o = UCB_{95/95}$.

   a. If the maximum detected effluent concentration (MEC) is greater than the calculated performance goal (C_{PG}), then the calculated performance goal (C_{PG}) is used as the performance goal; or

   b. If the MEC is less than the calculated performance goal (C_{PG}), then the MEC is used as the performance goal.

   c. If the performance goal determined in part a or b above is greater than the Water Quality Objective (WQO) in the 2019 Ocean Plan after considering dilution, then the WQO is used as the performance goal.

      For example, the performance goals for arsenic and chloroform at Discharge Point 001 (120" outfall) are calculated as follows:

      Arsenic

      $C_o = UCB_{95/95}$ = 3.02 µg/L ; D_m = 180; C_s = background seawater concentration = 3 µg/L; MEC = 6.91 µg/L; C_{PG} = Performance Goal = (3.02 µg/L) + 180*(3.02 µg/L - 3 µg/L) = 6.62 µg/L.

      Since the MEC of 6.91 µg/L is greater than the calculated PG of 6.62 µg/L, the prescribed performance goal for arsenic is 6.62 µg/L.

      Chloroform

      $C_o = UCB_{95/95}$ = 3.285 µg/L ; D_m = 180; C_s = background seawater concentration = 0 µg/L; MEC = 16.6 µg/L; C_{PG} = Performance Goal = (3.285 µg/L) + 180*(3.285 µg/L - 0 µg/L) = 594.6 µg/L.

      Since the MEC of 16.6 µg/L is less than the calculated PG of 594.6 µg/L, the prescribed performance goal for chloroform is 16.6 µg/L.

2. For constituents where monitoring data have consistently shown nondetectable levels (less than 20 percent detectable data), performance goals are set at the multiplying factor of 2.13 times the Minimum Levels (ML) used for analysis, which is based on statistical procedures outlined in USEPA manual, the *Technical Support Document for Water Quality-Based Toxics Control* (TSD, 1991). These performance goals are estimated assuming a coefficient of variation of 0.6 and the

95 percent confidence interval of the 95th percentile based on an assumed lognormal distribution of daily efficient values (see Table 5-2 of USEPA's TSD)

a. If the MEC is greater than the calculated performance goal based on ML (i.e., 2.13*ML), then the calculated performance goal (i.e., 2.13*ML) is used as the performance goal; or

d. If the MEC is less than the calculated performance goal based on ML (i.e., 2.13*ML), then the MEC is used as the performance goal.

e. If the performance goal determined in part a or b above is greater than the Water Quality Objective (WQO) in the 2019 Ocean Plan after considering dilution, then the WQO is used as the performance goal.

For example, the performance goals for halomethanes and heptachlor at Discharge Point 001 (120" outfall) are calculated as follows:

Halomethanes (5 detected out of 54 samples)

MEC = 1.37 µg/L; ML = 0.2 µg/L; C_{PG} = Performance Goal = 2.13*0.2 = 0.43 µg/L.

Since the MEC of 1.37 µg/L is greater than the calculated PG of 0.43 µg/L, the prescribed performance goal for halomethanes is 0.43 µg/L

Heptachlor (all nondetected)

MEC = NA (all ND); ML = 0.01 µg/L; C_{PG} = Performance Goal = 2.13*0.01 = 0.012 µg/L.

C_o = WQO = 0.00005 µg/L; D_m = 180; C_s = background seawater concentration = 0 µg/L; C_{PG} = Performance Goal = (0.00005 µg/L) + 180*(0.00005 µg/L - 0 µg/L) = 0.009 µg/L.

Since the performance goal based on ML of 0.012 µg/L is greater than the calculated WQO-based performance goal of 0.009 µg/L, so the prescribed performance goal for heptachlor is 0.009 µg/L.

3. For constituents with effluent limitations, if the performance goal derived from the steps, above, exceeds respective effluent limitation, then a performance goal is not prescribed for that constituent.

B. Mass Emission Benchmarks

To address the uncertainty due to potential increases in toxic pollutant loadings from the discharge to the marine environment during the five-year Order/Permit term, and to establish a framework for evaluating the need for an antidegradation analysis to determine compliance with State and federal antidegradation requirements at the time of Order/Permit reissuance, 12-month average mass emission benchmarks have been established for effluent discharged through Discharge Point 001 (120" outfall). These mass emission benchmarks are not enforceable water quality-based effluent limitations. They may be re-evaluated and revised during the five-year Order/Permit term.

The mass emission benchmarks (in metric tons per year; MT/yr) for the discharge were re-evaluated using the same procedures as described above in Section V.A of this Fact Sheet for the calculation of the Performance Goals. The concentration-based Performance Goals were calculated using effluent monitoring data from May 2015 through December 2019 and were converted to mass-based Benchmarks using the Discharger's annual average influent flow of 206 MGD projected for 2025. The following equation was used for the calculation of the Mass Emission Benchmarks:

Mass Emission Benchmark (MT/yr) = (C_{PG} µg/L) x (Q gal/day) x (3.785 L/gal) x (365 days/yr) x (1 MT/10^{12} µg)

where,

C_{PG}: Final performance goal calculated from Section V.A of the fact sheet (µg/L)

Q: Annual average influent flow projected for 2025 = 206×10^{6} gal/day

Most mass emission benchmarks in this Order/Permit are more stringent due to improved performance by completion of full secondary treatment facilities, the use of more sensitive analytical method with lower minimum levels, implementation of an extensive source control pretreatment program, and decreased discharge flowrate (i.e., the projected average daily influent flow reduced from 274 MGD to 206 MGD).

VI. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

The Ocean Plan and Basin Plan contain numeric and narrative water quality standards applicable to surface waters of California. Water quality objectives include a policy to maintain the high-quality waters pursuant to federal regulations (40 CFR § 131.12) and State Water Board Resolution No. 68-16. Receiving water limitations in the Order/Permit are based on the water quality objectives contained in the Ocean Plan chapters II.B, II.C, II.D, II.E, and II.F.

The Ocean Plan was amended in 2018 to revise the bacterial water quality objectives for ocean waters used for water contact recreation, which includes removal of the previously established total coliform objectives and the revised enterococci objectives based on the EPA 2012 Recreational Criteria for marine waters. The previously established fecal coliform objective has been retained as recent epidemiological studies conducted at southern California beaches showed that fecal coliform may be a better indicator of gastrointestinal illness than enterococci during certain types of exposures and environmental conditions. This Order/Permit has established receiving water limitations for bacteria based on these amended objectives in the 2019 Ocean Plan. Bacteria receiving water limitations are necessary to protect human health and the water contact recreation uses of the receiving water.

The Santa Ana Water Board and USEPA has determined that bacterial indicator standards for water contact recreation are applied throughout the water column of the Nearshore Zone (i.e., designated REC-1). Based on Chapter II.B.1 of the Ocean Plan, bacterial indicator standards shall also be maintained throughout the water

column in the Offshore Zone used for water contact sports, as determined by the Santa Ana Water Board and/or USEPA (i.e., waters designated as REC-1), to assure that the discharge does not pose a threat to water contact recreation. Receiving water limitations for enterococcus density in ocean waters beyond the outer limit of the State of California territorial marine waters are based on CWA section 304(a) water quality criteria (i.e., Recreational Water Quality Criteria). These criteria must be achieved beyond the zone of initial dilution in areas where primary contact recreation, as defined in USEPA guidance, occurs. USEPA describes the "primary contact recreation" use as protective when the potential for ingestion of, or immersion in, water is likely. Activities usually include swimming, water-skiing, skin-diving, surfing, and other activities likely to result in immersion (Water Quality Standards Handbook, EPA-823-B-94-005a, 1994, p. 2-2). The nature and extent of primary contact recreational use in federal waters is recorded and reported during water quality monitoring conducted under the receiving water core monitoring program.

B. Groundwater – Not Applicable

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR § 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR § 122.42, are provided in Attachment D of this Order/Permit.

40 CFR § 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. The Order/Permit also incorporates federal conditions that address enforcement authority specified in 40 CFR § 122.41(a)(2) and (3). 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/Permit.

40 CFR § 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR § 123.25, this Order/Permit omits federal conditions that address enforcement authority specified in 40 CFR § 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/Permit incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

The reopener provisions are based on 40 CFR 122.44(c) and 40 CFR § 123.25. The Santa Ana Water Board and USEPA may reopen the Order/Permit to modify conditions and requirements for cause. Causes for modification can include, but are not limited to, the promulgation of new regulations, modification in sludge use or disposal practices, or adoption of new regulations by the State Water Board,

Santa Ana Water Board, or USEPA including revisions to the Ocean Plan and Basin Plan.

2. Southern California Bight Monitoring Exchange

The MRP (Attachment E) may be modified by the Santa Ana Water Board and USEPA to enable the Discharger to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of this permit. The intent of regional monitoring activities is to maximize the efforts of all monitoring partners using a cost-effective monitoring design and to best utilize the pooled scientific resources of the region. During these coordinated monitoring efforts, the Discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of wastewater discharges to the Southern California Bight; however, certain core elements (i.e., monthly water quality monitoring, quarterly REC-1 water quality monitoring, quarterly benthic monitoring, semi-annual trawl fish monitoring, and weekly Orange County Regional Shoreline REC-1 cooperative monitoring) shall remain unchanged. Anticipated modifications to the monitoring program will be coordinated so as to provide a comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollutant sources. If predictable relationships among the biological, water quality and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the Discharger's monitoring effort. Conversely, the monitoring program may be intensified if it appears that the objectives cannot be achieved through the Discharger's existing monitoring program. These changes will improve the overall effectiveness of monitoring in the Southern California Bight. Minor changes may be made without further public notice.

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

a. Toxicity Reduction Requirements

This Order/Permit requires the Discharger to develop procedures to conduct Toxicity Identification and Reduction Evaluations. This provision is based on Chapter III.C.10 of the Ocean Plan. If the discharge consistently exceeds an effluent limitation for toxicity as specified in this Order/Permit, the Discharger shall conduct a Toxicity Reduction Evaluation (TRE) as detailed in section VII.C.3.a of the Order/Permit. The TRE will help the Discharger identify the possible source(s) of toxicity. Once the source(s) of toxicity is identified, the Discharger shall take all reasonable steps to reduce toxicity to the required level.

b. Dilution Model Update

This Permit/Order requires the Discharger to complete an updated dilution analysis for all outfalls as part of its permit application for the next permit reissuance. The Discharger shall update its dilution modeling that is reflective of the future operations upon completion of the GWRS final expansion

project, which includes, but not limited to the increase in RO concentrate and density and lower discharge flow rate. The updated dilution analysis must continue to use near-field modeling to consider how the effluent plumes behave in the zone of initial dilution (ZID) and demonstrate the impacts of final GWRS expansion to dilution under a "reasonable worst-case scenario" (e.g., critical stratification condition).

c. Ocean Outfall Condition Assessment and Scoping Study

As the 120-inch outfall approaches the end of life in 2021, the Discharger is undertaking a condition assessment of the 120-inch ocean outfall (referred to as PS18-09). The project includes removal of accumulated biofouling (i.e., barnacle collar) surrounding the 504 diffuser ports, removal/replacement of manhole covers, the full-length underwater interior inspection of the 120-inch outfall pipe, 3-D scanning and modeling, and analysis of low flow impacts on the diffuser functionality. The first field activity for the 120" inch outfall assessment project (i.e., removal of the barnacles from the outfall ports) was started on July 20, 2020 after the receipt of the Army Corp. of Engineers' permit. OC San also plans to conduct a similar study for Discharge Point 002 (78" outfall) using lessons learned from this 120" outfall condition assessment and scoping study.

Upon completion of each outfall condition assessment project, a summary report of the field work findings, including videographic and/or photographic record of the interior of the outfall, 3-D mapping, and any environmental impacts caused during the field works shall be submitted to the Santa Ana Water Board and USEPA. In addition, a separate analysis report of the impacts of low flows on diffuser hydraulics and plugging shall be provided.

4. Best Management Practices and Pollution Prevention

a. Pollution Minimization Program

This provision is based on the requirements of Chapter III.C.9 of the 2019 Ocean Plan. The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

b. Storm Water Management Plan

This Order/Permit requires the Discharger to update its Storm Water Management Plan to implement the 2015 trash amendments of the Ocean Plan.

5. Construction, Operation, and Maintenance Specifications

This provision is based on the requirements of 40 CFR §122.41(e) and the previous Order/Permit.

a. Roster of Personnel

The Discharger shall update and report annually a roster of personnel who supervises and operates the wastewater treatment plants.

b. Operation and Maintenance Manual

This Order/Permit requires the Discharger to update an Operation and Maintenance Manual prior to start of operations and specifies its periodic updates.

c. Spill Preventive and Contingency Plan (SPCP)

Since spills or overflows are a common event at the POTW, this Order/Permit requires the Discharger to review and update, if necessary, its SPCP whenever there is a change which materially affects the potential for spills or after each incident. The Discharger shall ensure that the up-to-date SPCP is readily available to the sewage system personnel at all times and that the sewage personnel are familiar with it.

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

a. **Biosolids**

To implement CWA section 405(d), on February 19, 1993, USEPA promulgated 40 CFR § 503 to regulate the use and disposal of municipal sewage sludge. This regulation was amended on September 3, 1999. The regulation requires that producers of sewage sludge meet certain reporting, handling, and disposal requirements. It is the responsibility of the Discharger to comply with said regulations that are enforceable by USEPA, because California has not been delegated the authority to implement this biosolid program.

b. **Pretreatment**

This Order/Permit contains pretreatment requirements consistent with applicable effluent limitations, national standards of performance, and toxic and performance effluent standards established pursuant to Sections 208(b), 301, 302, 303(d), 304, 306, 307, 403, 404, 405, and 501 of the CWA, and amendments thereto. This permit contains requirements for the implementation of an effective pretreatment program pursuant to Section 307 of the CWA; 40 CFR § 35 and 403; and/or Section 2233, Title 23, California Code of Regulations.

c. **Collection System**

The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on May 2, 2006. The State Water Board amended the Monitoring and Reporting Program for the General Order through Order WQ 2013-0058-EXEC on August 6, 2013. The General Order requires public agencies that own or operate sanitary sewer systems with sewer lines one mile of pipe or greater to enroll for coverage and comply with the General Order. The General Order requires agencies to develop sanitary sewer management

plans and report all sanitary sewer overflows, among other requirements and prohibitions.

The General Order contains requirements for operation and maintenance 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 General Order by December 1, 2006.

d. **Resource Recovery from Anaerobically Digestible Material**.

Some POTWs choose to accept organic material such as food waste, fats, oils, and grease into their anaerobic digesters for co-digestion to increase production of methane and other biogases for energy production and to prevent such materials from being discharged into the collection system, which could cause sanitary sewer overflows. The California Department of Resources Recycling and Recovery has proposed an exemption from requiring Process Facility/Transfer Station permits where this activity is regulated under waste discharge requirements or NPDES permits. The proposed exemption is restricted to anaerobically digestible material that has been prescreened, slurried, and processed/conveyed in a closed system to be co-digested with regular POTW sludge. The proposed exemption requires that a POTW develop Standard Operating Procedures for the proper handling, processing, tracking, and management of the anaerobically digestible material before it is received by the POTW.

Standard Operating Procedures are required for POTWs that accept hauled food waste, fats, oil, and grease for injection into anaerobic digesters. The development and implementation of Standard Operating Procedures for management of these materials is intended to allow the California Department of Resources Recycling and Recovery to exempt this activity from separate and redundant permitting programs. If the POTW does not accept food waste, fats, oil, or grease for resource recovery purposes, it is not required to develop and implement Standard Operating Procedures.

e. **Ensuring Adequate Treatment Capacity**

The Discharger shall submit a written report to the Santa Ana Water Board and USEPA within 90 days after the monthly average influent flow rate equals or exceeds 75 percent of the secondary design capacity of the POTW to prevent the waste flow exceeding the capacity of the POTW.

f. **Asset Management**

This Order/Permit requires the Discharger to develop an asset management program to cover the POTW.

7. Other Special Provisions

a. **Monitoring Data Accessibility**

This Order/Permit requires the Discharge to make monitoring data accessible to the public via the internet.

8. Compliance Schedules – Not Applicable

VIII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 CFR § 122.41(h), (j)-(*l*), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. California Water Code sections 13267 and 13383 also authorize the Santa Ana Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order 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 for this facility.

The MRP is guided, in part, by the principals, framework, and recommended design for discharge and receiving water monitoring presented in the Ocean Plan and *Model Monitoring Program for Large Ocean Dischargers in Southern California* (SCCWRP Tech. Rep. #357. Southern California Coastal Water Research Project, Westminster, CA. 2002). The conceptual framework for the MRP has three components that comprise a range of spatial and temporal scales: (1) core monitoring, (2) regional monitoring, and (3) strategic process studies.

Core Monitoring. Core monitoring is local in nature and focuses on monitoring trends in quality and effects of the point source discharge. This includes effluent monitoring, as well as many aspects of receiving water monitoring.

Regional Monitoring. Regional monitoring is focused on questions best answered by a region-wide approach that incorporates coordinated survey design and sampling techniques. Key components of regional monitoring include elements to address pollutant mass emission estimates, public health concerns, monitoring trends in natural resources, assessment of regional impacts from all contaminant sources, and beneficial use protection. The final designs of regional monitoring programs are developed by means of steering and technical committees comprised of participating agencies and organizations. For each component of regional monitoring, the MRP specifies the required degree and nature of participation by the Discharger, based upon its past participation in regional monitoring programs.

Strategic Process Studies. Strategic process studies are focused on refined questions regarding specific effects or development of monitoring techniques and are anticipated to be of short duration and/or small scale, although multi-year studies also may be needed. Questions regarding discharge or receiving water quality, discharge impacts, ocean processes in the area of the discharge, or development of techniques for monitoring the same, arising out of the results of core or regional monitoring, may be pursued through strategic process studies. These studies are by nature ad hoc and, typically, cannot be typically anticipated in advance of the five-year permit cycle.

A. Influent Monitoring

Influent monitoring is required to determine compliance with effluent limitations and permit conditions, assess the performance of treatment facilities and evaluate the effectiveness of pretreatment and nonindustrial source control programs.

Influent monitoring in this Order/Permit follows the influent monitoring requirements in the previous Order/Permit with minor changes. The sample type and monitoring frequencies for halomethanes and 1,4-Dichlorobenzene were changed to grab and 1/quarter, respectively, to be consistent with other volatiles constituents. The monitoring frequency for ammonia nitrogen has been changed to weekly for proper self-monitoring as scheduled in Table E-16. The monitoring requirements for tributyltin and TCDD equivalents have been included.

B. Effluent Monitoring

Effluent monitoring is required to determine compliance with effluent limitations and permit conditions, and to identify operational problems and improve treatment facility performance. Effluent monitoring also provides information on discharge characteristics and flows for use in interpreting receiving water monitoring data.

Effluent monitoring requirements also addresses the three management questions for effluent monitoring in *Model Monitoring Program for Large Ocean Discharges in Southern California* (SCCWRP, 2002; Model Monitoring Program):

Is the effluent concentration of selected constituents below levels that will protect human health and aquatic life?

What is the mass of selected constituents that are discharged annually?

Is the effluent concentration or mass changing over time?

Noteworthy changes for this Order/Permit include removal of total coliform monitoring at Discharge Point 002 (78” outfall) due to new bacteria water quality objectives in the 2019 Ocean Plan, more frequent monitoring for nutrient parameters, addition of annual monitoring for total nitrogen and quarterly monitoring for tributyltin, changes in monitoring frequencies for ammonia nitrogen for proper self-monitoring as scheduled in Table E-16, and changes in the sample type and/or monitoring frequencies for halomethanes and 1,4-Dichlorobenzene to be consistent with other volatile constituents.

In addition, effluent monitoring stations have been defined separately, for the effluent discharged to Discharge Point 001 during normal operations as EFF-001 and to Discharge Point 002 during planned essential maintenance or capital improvement projects as EFF-002, in order to determine compliance with each permit limitation and requirement.

C. Whole Effluent Toxicity Testing Requirements

The rationale for WET has been discussed extensively in Section IV.C.5. of this Fact Sheet. Noteworthy WET changes for this Order/Permit include WET testing for Discharge Point 002 (78” outfall) using the TST hypothesis testing approach instead of

NOEC statistical approach. This TST statistical approach is consistent with the Ocean Plan in that it provides maximum protection to the environment since it more reliably identifies chronic toxicity than the previous NOEC hypothesis-testing approach.

D. Receiving Water Core Monitoring

To evaluate potential environmental and human health impacts from its discharge of final effluent into the Pacific Ocean, the Discharger conducts extensive water quality, sediment quality, fish and invertebrate community, and fish health monitoring off the coastal cities of Newport Beach and Huntington Beach, California.

1. Water Quality Monitoring

Offshore water quality monitoring data are used to determine compliance with receiving water limitations and Ocean Plan objectives for physical and chemical parameters, and assist in the interpretation of biological data. Water quality data collected provide the information necessary to demonstrate compliance with the water quality standards.

Water quality monitoring requirements also addresses the two management questions for water quality monitoring in the Model Monitoring Program:

Are water column physical and chemical parameters within ranges that ensure protection of the ecosystem?

What is the fate of the discharge plume?

Monthly water quality monitoring will be carried out over a large grid of 28 stations centered on Discharge Point 001 (120” outfall). The station grid covers from the coastline of Huntington Beach to Newport Beach.

Noteworthy changes for this Order/Permit include the addition of monthly monitoring for nitrate nitrogen to further investigate nutrients driving ocean acidification and the relationship between nutrients discharged through Discharge Point 001 (120” outfall) and harmful algal blooms.

2. REC-1 Water Quality Monitoring (Offshore Zone)

This REC-1 water quality monitoring is designed to determine if Ocean Plan water quality objectives for physical and chemical parameters and bacteria are being met. Data collected at these REC-1 monitoring stations provide the means to determine whether water quality standard and bacteriological objectives for water contact are being met.

REC-1 monitoring requirements also addresses the two management questions for REC-1 monitoring in the Model Monitoring Program:

Does sewage effluent reach water contact zones?

Are densities of bacteria in water contact zones below levels that will ensure public safety?

Quarterly (5-days/30-day period), REC-1 monitoring will be carried out over a picket-line of the 8 stations centered inshore of Discharge Point 001 (120”

outfall), in State waters. The south-to-north station alignment is adjacent to the coastline of Huntington Beach and Newport Beach.

3. Sediment Monitoring

The purpose of sediment monitoring is to map the area of impact and detect spatial and temporal trends in sediment pollutants and benthic infauna in the area of the discharge, and to assess compliance with State water quality standards and federal criteria. The data collected are used for regular assessment of trends in sediment contamination and biological response along a fixed grid of sites within the influence of the discharge.

Sediment monitoring requirements also addresses the two management questions for sediment monitoring in the Model Monitoring Program:

> Are sediments in the vicinity of the discharge impaired? If so, what is the spatial extent of impairment?
>
> Are sediment conditions changing over time?

The previous benthic sampling grid consisted of 29 semi-annual monitoring stations and 39 annual monitoring stations. The previous semi-annual station array is based on a sediment mapping study conducted by the Southern California Coastal Water Research Project (SCCWRP) from 2009 to 2012. This study recommended the design to best capture changes in sediment quality resulting from the effluent discharge.

The investigation into changes in benthic community health as a result of the District's effluent disinfection with chlorine bleach (*Changes in Biological Communities near the OCSD Outfall*, OCSD Marine Monitoring, 2013) revealed that impacts to benthic communities were localized to stations at and near (< 1 km) the 120" outfall diffuser. Impacts were seen at Stations 0, 1, 3, 4, 9, 84, 85, 86, 87, and ZB. All other stations were unaffected even though the degree of impact was severe at near outfall stations. Based on these results and over three decades of monitoring data, a more effective and efficient sediment monitoring station design has been constructed in this Order/Permit as below:

a. Quarterly sampling for sediment chemistry and benthic infauna at 11 stations immediately surrounding the 120" outfall diffuser along the 60-meter contour line, including 3 stations within the ZID boundaries. (Note that these quarterly monitoring stations were the first and the most severely impacted stations by effluent chlorination.)

b. Annual whole sediment toxicity sampling at the 11 quarterly monitoring stations.

c. Annual (summer) sampling for sediment chemistry and benthic infauna at 11 stations located near the outfall and extending northward and southward along the 60-meter contour line.

d. Once per 5 year (1/5-year) sampling for sediment chemistry and benthic infauna at an additional 35 stations centered on Discharge Point 001 (120" outfall) from Huntington Beach to Newport Beach coastlines.

Stations 68, 69, 70,71, 72, 79, 80, 81, and 82 were eliminated as they are redundant to the station design. Downcoast Station C2 and farfield upcoast Station C were also removed as the sediment quality and biological community at these stations have been consistently different from those of other 60 m stations including control station, considering outliers. Therefore, total number of stations is reduced from 68 stations to 57 stations. The reduction in taxonomic and sediment geochemical analyses would enable the Discharger to redirect its efforts toward SPS and special studies to evaluate potential environmental impacts related to increased wastewater reclamation efforts and investigate CEC identification and characterization in effluent and sediments and toward the regional monitoring programs including Bight 18.

With the new sediment monitoring design, the number of stations sampled annually in summer is reduced from 68 to 22, which can reduce the turn-around time for summer data from approximately 9 to 12 months to 3 months, especially for the 11 quarterly stations in all seasons. This will provide a rapid assessment of sediment conditions and a more rapid response to changes in sediment quality and/or benthic infauna community within the monitoring area.

Noteworthy changes for this Order/Permit also include the change in sampling frequency for 35 monitoring stations that previously sampled annually to one-off (i.e., once per 5 years) since these stations are either not directly or not significantly impacted by the effluent discharge. Three (3) stations (i.e., Stations 10, 13, and 37) at the 60-m contour line remains as annual monitoring stations. Sampling these 1/5-year monitoring stations allows long-term trend analysis to continue in these areas where change occurs much more slowly in response to changes in effluent quality than at the outfall diffuser.

4. Demersal Fish and Epibenthic Macroinvertebrate Monitoring

The purpose of demersal fish and epibenthic macroinvertebrate monitoring is to detect spatial and temporal trends in demersal fish and epibenthic community structure, demersal fish liver tissue chemistry and liver histopathology, and sport fish muscle tissue chemistry in the area of the discharge, and to assess compliance with State water quality standards and federal criteria. The demersal fish and epibenthic macroinvertebrate monitoring data collected are used for regular assessment of temporal trends in community structure along an array of sites within the influence of the discharge. The sport fish monitoring data collected are used to provide information necessary for the management of local seafood consumption advisories.

Demersal fish and epibenthic invertebrate monitoring requirements also address the four management questions for fish and epibenthic invertebrate monitoring and seafood safety monitoring in the Model Monitoring Program:

Is the health of fish populations and communities impaired? Are fish populations and communities changing over time? Is fish tissue contamination changing over time?

Are seafood tissue concentrations below levels that will ensure public safety?

Annual demersal fish and epibenthic community monitoring continues to be carried out over a grid of 14 stations upcoast of Discharge Point 001 (120" outfall); of these 14 stations, the 6 stations at the outfall depth (60 meters) are monitored semi-annually. The monitoring area covers approximately 27 square kilometers adjacent to the coastline of Huntington Beach and Newport Beach. Annual demersal fish tissue chemistry monitoring is carried out over two stations upcoast of Discharge Point 001 at the outfall depth. Annual sport fish muscle tissue chemistry monitoring is also conducted in summer at two zones. Noteworthy changes for this Order/Permit are listed below:

a. **Target fish species.** For demersal fish and epibenthic community monitoring, the previous Order/Permit required at least 10 individuals of each target species (i.e., Hornyhead Turbot and English Sole) per station. This Order/Permit allows the Discharger to collect 20 individuals total of flat fish (e.g., Pacific Sanddab, Hornyhead Turbot and English Sole) per station. For sport fish monitoring, the Discharger can collect 10 individuals total of rockfish (e.g., Vermilion Rockfish, Copper Rockfish, and California Scorpionfish) at each rig fish monitoring zone. Kelp bass and Sandbass are removed from the target species list in this Order/Permit because none of these fishes was caught by the Discharger at any of the three rig fishing zones in the past three monitoring periods (2014 – 2016).

b. **Demersal fish tissue chemistry monitoring - Target tissue.** The previous Order/Permit required sampling and analysis of both fish liver and muscle tissues in Hornyhead Turbot and English Sole for the assessment of predator wildlife risk by consuming these two target fish species. Noteworthy change in demersal fish tissue chemistry monitoring for this Order/Permit includes removal of muscle tissue and analysis of contaminants in fish liver tissue only. The concentration of contaminants in demersal fish muscle tissue were relatively negligible for two permit cycles compared with liver tissues, given that liver tissue has higher lipid content than muscle tissue and therefore can bioaccumulate higher concentrations of lipid-soluble contaminants such as PCBs and DDT. It stands to reason that when this demersal fish is consumed whole by a fish predator, it is likely that the predator will acquire considerably higher contaminant loads from liver tissue as compared to muscle tissue, rendering the muscle tissue analysis dispensable.

c. **Chemical analysis changes – Composite sampling**. To monitor bioaccumulation of organic contaminants (i.e., PCBs, DDT, and Chlordane) and metals (i.e., Arsenic, Selenium, and Mercury) in either demersal fish liver tissue or sport fish muscle tissue, composite samples of target fish will be

analyzed instead of individual sample analysis. This composite tissue analysis can minimize the variation between contaminant measurements, increase the ability to detect target compounds that are present in low concentrations, and improve the representativeness of the contaminant measurements at each sampling site, which is also consistent with fish tissue analysis protocols of other POTW ocean monitoring programs within the Southern California Bight.

d. **Monitoring frequency of demersal fish liver histopathology.** Liver histopathology will be conducted on an annual basis instead of once every permit cycle to facilitate rapid detection of potential adverse effects on fish health by the anticipated changes in effluent quality and characteristics with GWRS final expansion (e.g., increased RO concentrate flow). Fish liver histopathology was used in the investigation of effluent chlorination effects and was found to be a useful biomarker of impact and the only significant effect on fish health.

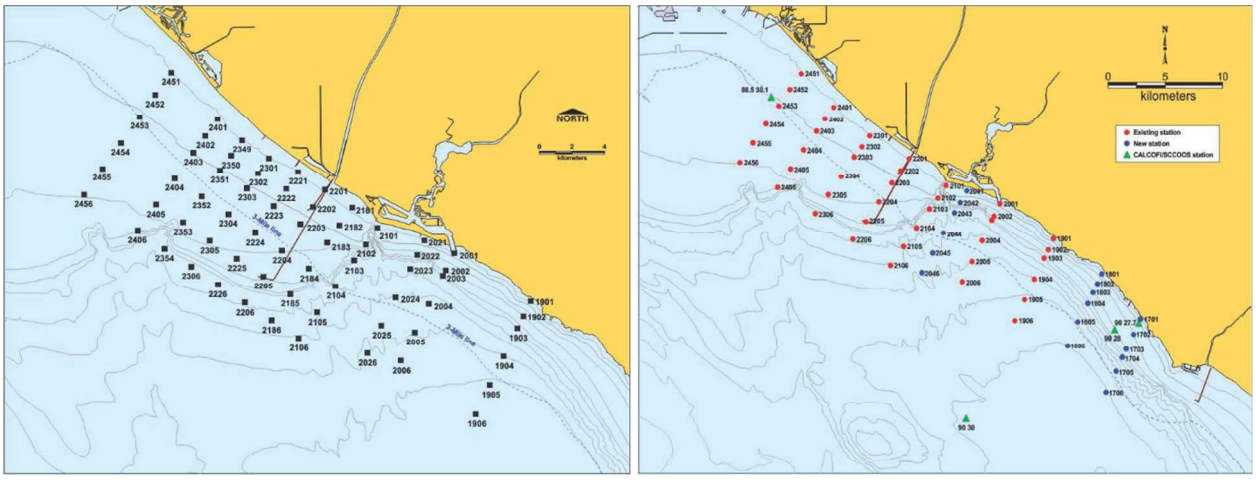
e. **Sport fish monitoring - Farfield reference zone.** The Discharger was not able to catch the number of fish samples required by the previous Order/Permit at the farfield reference zone (Zone 2) in two consecutive years (2014 – 2015) after the issuance of the previous 2012 Order/Permit. After consulting with scientists from the California Department of Fish and Wildlife, the reference zone was relocated to an area near the Huntington Beach oil rigs (Zone 3) as this site only met the species and number of fish requirements among several candidate sites. In this Order/Permit, Zone 2 was replaced with Zone 3 as a farfield reference zone.

E. Receiving Water Regional Monitoring

Discharger participation in regional monitoring programs continues to be a required condition of the Order/Permit. Regional monitoring programs which must be conducted under the Order/Permit include: Southern California Bight Regional Monitoring Program, Southern California Bight Regional Water Quality Program, Central Regional Kelp Survey, Orange County Regional Shoreline REC-1 Cooperative Monitoring Program, and Ocean Acidification and Hypoxia (OAH) Mooring. The Discharger currently participates in all five programs. For the regional monitoring program, collaboration with other water sectors (e.g., water supply, wastewater, groundwater, and stormwater) is encouraged to evaluate implementation of integrated water resource projects that helps achieve sustainable integrated water resources management.

Noteworthy changes for the Southern California Bight Regional Water Quality Program under this Order/Permit include the addition of four field sampling surveys per year, removal of stations transects 2021, 2181, 2221, and 2349 for more equal spacing of transects, and creation of transect lines 1701, 1801, and 2041 to extend sampling downcoast to Dana Point.

Figure F-1. Previous and Current Southern California Bight Regional Water Quality Program Station Transects.



Overall, the number of Southern California Bight Regional Water Quality Program stations were reduced from 66 to 60. The number of Orange County Regional Shoreline REC-1 Cooperative Monitoring Program stations has been changed from 38 to 36 due to removal of two Stations (i.e., OSB02 and ELMORO) at the request of the Orange County Health Care Agency.

F. Strategic Process Studies

Discharger investigations conducted through strategic process studies continues to be a required condition of the Order/Permit. Strategic process studies which must be conducted under the Order/Permit include: ROMS-BEC Ocean Outfall Modeling, Microplastics Characterization, Contaminants of Emerging Concern Monitoring, Sediment Linear Alkylbenzenes, and Meiofauna Baseline. These studies have been approved by the Santa Ana Water Board and USEPA during the term of the 2012 Order/Permit but not yet completed by the Discharger. Additional studies will be proposed over the next permit cycle to ascertain if GWRS final expansion, which will result in lower outfall flows and higher concentration of the final effluent due to RO reject flow, will result in deleterious environmental impacts.

G. Other Monitoring Requirements

1. Contaminants of Emerging Concern (CEC) Monitoring Study

The Discharger shall continue to investigate CECs identification and characterization in the final effluent, listed in Table E-15 of the MRP (Attachment E). The Discharger has annually screened for 15 pharmaceuticals and personal care products (PPCPs), 7 hormones, 7 industrial endocrine disrupting compounds (IEDCs), and 9 flame retardants in the final effluent in the previous permit. In addition, this Order/Permit requires the Discharger to conduct monitoring for new CECs of 6 pesticides and insecticides (i.e., Fipronil, Fipronil Sulfone, Bifenthrin, Total Permethrin, Chlorpyrifos, and Diazinon), 3 flame

retardants (i.e., TDCPP, TCEP, and TCPP) and 12 per- and polyfluoroalkyl substances (PFAS) compounds.

With regard to PFAS compounds, POTWs are potentially significant receivers of PFAS from various sources, including disposal of landfill leachate and firefighting foam, results in PFAS in the influent to POTWs. Typical POTW treatment systems are not designed to remove PFAS, and therefore, the discharge from POTWs, especially those with industrial inputs, are possible contributors of PFAS to the surface waters. Based on the State Water Board's PFAS analytical data obtained from PFAS Investigative Orders, 12 PFAS compounds (i.e., PFDA, PFDoA, PFNA, PFHxA, PFHpA, PFOA, PFTA, PFTrDA, PFUnA, PFBS, PFHxS, and PFOS) are included in this Order/Permit to identify and understand PFAS in wastewater.

2. Outfall and Diffuser System Inspection

This survey investigates the condition of the outfall structures to determine if the structures are in serviceable condition to ensure their continued safe operation. The inspection frequency has been increased to twice per permit term as the 120-inch outfall approaches the end of life in 2021. The data collected will be used for a periodic assessment of the integrity of the outfall pipes and diffuser system.

3. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program

Under the authority of section 308 of the CWA (33 U.S.C. § 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) Per 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.

IX. PUBLIC PARTICIPATION

The Santa Ana Water Board and USEPA have considered the issuance of WDRs and an NPDES permit for OC San. As a step in this process, the Santa Ana Water Board and

USEPA staff have developed a tentative WDRs and draft permit and have encouraged public participation in the reissuance process.

A. Notification of Interested Parties

The Santa Ana Water Board and USEPA have notified the Discharger and interested agencies and persons of their intent to reissue the Order/Permit for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the posting of the Notice and tentative Order/Permit on the Santa Ana Water Board's and USEPA's websites.

The public had access to the agenda and any changes in dates and locations through the Santa Ana Water Board's website at http://www.waterboards.ca.gov/santaana/ and USEPA's website at https://www.epa.gov/npdes-permits/npdes-permits-epas-pacific-southwest-region-region-9.

B. Written Comments

Interested persons were invited to submit written comments concerning the tentative WDRs and NPDES Order/Permit as provided through the notification process. Comments should be submitted either in person or by mail to the Executive Office at the Santa Ana Water Board at the address on the cover page of this Order/Permit, or by email to Ryan.Harris@waterboards.ca.gov or Song.Julie@epa.gov.

To be fully responded to by staff and considered by the Santa Ana Water Board and USEPA, the written comments were due by 5:00 p.m. on March 4, 2021.

C. Public Hearing

The Santa Ana 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:	June 18, 2021
Time:	9 am
Location:	Meeting was remote, due to COVID-19 restrictions.

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

D. Reconsideration of Waste Discharge Requirements

Any aggrieved person by the adoption of the WDRs and Order/Permit may petition the State Water Board to review the decision of the Santa Ana Water Board and USEPA regarding the final WDRs and Order/Permit in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this 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:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition for review, see the Water Quality Petitions Website:
(htttps://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

E. Federal NPDES Permit Appeals

When a final NPDES permit is issued by USEPA, it will become effective 33 days following the date it is mailed to the Discharger, unless a request for review is filed. If a request for review is filed, only those permit conditions which are uncontested will go into effect pending disposition of the request for review. Requests for review must be filed within 33 days following the date the final permit is mailed and must meet the requirements of 40 CFR 124.19. All requests for review should be addressed to the Environmental Appeals Board (EAB) as follows. Requests sent through the U.S. Postal Service (except by Express Mail) must be addressed to the EAB's mailing address, which is:

U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board (MC 1103B) Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001

All filings delivered by hand or courier, including Federal Express, UPS, and U.S. Postal Express Mail, should be directed to the following address:

Environmental Appeals Board
U.S. Environmental Protection Agency Colorado Building
1341 G Street, N.W., Suite 600
Washington, D.C. 20460

Those persons filing a request for review must have filed written comments on the draft federal permit. Otherwise, any such request for review may be filed only to the extent of changes from the draft to the final permit decision.

F. Information and Copying

The Report of Waste Discharge (ROWD), other supporting documents, and comments received are on file and may be inspected by appointment at the Santa Ana Water Board and USEPA addresses on the cover page of this Order/Permit, at any time between 9:00 a.m. and 3:00 p.m., Monday through Friday. Copying of documents may be arranged through either the Santa Ana Water Board by calling (951) 782-4130 or USEPA by calling (415) 972-3035.

G. 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 Santa Ana Water Board, reference this facility, and provide a name, address, and phone number.

H. Additional Information

Requests for additional information or questions regarding this Order/Permit should be directed to the Santa Ana Water Board or USEPA staffs.

Santa Ana Water Board: Ryan Harris at (951) 320-2008 or Ryan.Harris@waterboards.ca.gov.

USEPA: Julie Song at (415) 972-3035 or Song.Julie@epa.gov.

ATTACHMENT G – BIOSOLIDS

As described in section VII.C.6.a of this Order/Permit, the Santa Ana Water Board and USEPA incorporates these biosolids conditions as requirements of this Order/Permit.

I. GENERAL REQUIREMENTS

A. All biosolids generated by the Discharger shall be used or disposed of biosolids generated by the Discharger shall be used or disposed of in compliance with the applicable portions of 40 CFR § 257, 258 and 503, and the applicable State regulations. The Discharger is responsible for assuring that all biosolids produced at the facility are used or disposed of in accordance with these rules, whether the Discharger uses or disposes of the biosolids itself or transfers them to another party for further treatment and use or disposal. The Discharger is responsible for informing subsequent preparers, appliers, and disposers of the requirements that they must meet under these rules, and any monitoring requirements, including required frequencies of monitoring and maximum hold times for pathogen and indicator organism samples.

B. Duty to mitigate. 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, and use or disposal shall not contaminate groundwater.

E. Biosolids treatment, storage, and use or disposal shall be performed in a manner as to minimize nuisances such as objectionable odors or flies.

F. The Discharger shall assure that haulers transporting biosolids off site for further treatment, storage, use, or disposal take all necessary measures to keep the biosolids contained. The Discharger shall maintain and have haulers adhere to a spill clean-up plan. Any spills shall be reported to USEPA and State agency in which the spill occurred. All trucks hauling biosolids that are not Class A, as defined at 40 CFR 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.

G. Trucks used to haul Class B biosolids shall not be used to haul animal feed or food on the return trip, unless approved by USEPA after a demonstration of the truck cleaning methods at the unloading site has been made.

H. If biosolids are stored for over two years from the time they are generated by the Discharger or their contractor, the Discharger must submit a written notification to USEPA with the information in 40 CFR § 503.20(b), demonstrating the need for longer temporary storage.

I. 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 in the site to

escape from the site. Adequate protection is defined as protection from at least a 100-year storm and from the highest tidal stage that may occur.

II. REQUIREMENTS FOR BIOSOLIDS LAND APPLICATION

"Land application" is the placement of biosolids on the land for the specific purpose of growing a crop or other vegetation. Land application requirements are addressed in 40 CFR § 503 subpart B.

A. A representative sample shall be representative sample shall be collected and analyzed for the pollutants required under 40 CFR § 503.13 and for total nitrogen, organic nitrogen, and ammonia nitrogen, at the following frequency, based on the tonnage of biosolids produced per year (as expressed on a 100% solids basis). All results shall be reported on a 100% dry weight basis:

   Less than 290 dry metric tons (dmt)/year: once/year.

   290 to 1,500 dmt/year: once/quarter or 4 samples of accumulated biosolids

   1,500 to 15,000 dmt/year: once/two months or 6 samples of accumulated biosolids.

   Over 15,000 dmt/year: monthly or 12 samples of accumulated biosolids.

B. The Discharger shall demonstrate that the biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed in 40 CFR § 503.32.

C. If Class B is demonstrated by testing fecal coliform, during each sampling event, 7 grab samples must be collected and analyzed, and the geometric mean of these samples calculated to determine the fecal coliform level for the sampling period.

D. When using fecal coliforms to demonstrate Class A, in conjunction with operational parameters or in conjunction with testing of enteric viruses and helminth ova, four grab samples of fecal coliform shall be collected and analyzed each sampling period. Each of these samples must have levels of <1,000 MPN/gram, dry weight basis.

E. If Class A or B pathogen requirements are met by monitoring pathogens and/or indicator organisms, samples must be collected in sterile containers, immediately cooled, and analysis started within the USEPA-specified holding times for these analyses: 8 hours for fecal coliform (24 hours for fecal coliform if the biosolids have been digested or composted), 24 hours for salmonella, 2 weeks for enteric viruses when frozen, 1 month for helminth ova when cooled to 4 degrees C).

F. If pathogen reduction is demonstrated using a Process to Significantly/Further Reduce Pathogens, the Discharger shall maintain daily records of the operating parameters used to achieve this reduction.

G. The Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction (VAR) requirements in 40 CFR § 503.33(b). If VAR is met at the application site by incorporation or covering, the Discharger must obtain certification that these requirements have been met from the land applier or surface disposal site operator, and maintain these with their records.

III. REQUIREMENTS FOR SURFACE DISPOSAL

"Surface disposal" is the placement of biosolids on the land in a sludge-only dedicated land disposal site or monofill for the purpose of disposal. Surface disposal requirements are addressed in 40 CFR § 503 subpart C.

A. If the surface disposal site is unlined, a representative sample shall be collected and analyzed for the pollutants required under 40 CFR § 503.23, at the following frequency, based on the tonnage of biosolids produced per year (as expressed on a 100% solids basis). All results shall be reported on a 100% dry weight basis:

   Less than 290 dry metric tons (dmt)/year: once/year.

   290 to 1,500 dmt/year: once/quarter or 4 samples of accumulated biosolids

   1,500 to 15,000 dmt/year: once/two months or 6 samples of accumulated biosolids.

   Over 15,000 dmt/year: monthly or 12 samples of accumulated biosolids

B. The Discharger shall demonstrate that the biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed in 40 CFR § 503.32, or cover the site at the end of each operating day.

C. If Class B is demonstrated by testing fecal coliform, during each sampling event, 7 grab samples must be collected and analyzed, and the geometric mean of these samples calculated to determine the fecal coliform level for the sampling period.

D. If Class A or B pathogen requirements are met by monitoring pathogens and/or indicator organisms, samples must be collected in sterile containers, immediately cooled, and analysis started within the USEPA-specified holding times for these analyses: 8 hours for fecal coliform (24 hours for fecal coliform if the biosolids have been digested or composted), 24 hours for salmonella, 2 weeks for enteric viruses when frozen, 1 month for helminth ova when cooled to 4 degrees C).

E. If pathogen reduction is demonstrated using a Process to Significantly/Further Reduce Pathogens, the Discharger shall maintain daily records of the operating parameters used to achieve this reduction.

F. The Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction (VAR) requirements in 40 CFR § 503.33(b). If VAR is met at the surface disposal site by incorporation or covering, the Discharger must obtain certification that these requirements have been met from the land applier or surface disposal site operator, and maintain these with their records.

IV. REQUIREMENTS FOR DISPOSAL IN MUNICIPAL LANDFILL

"Disposal in a municipal landfill" is the placement of biosolids in a landfill subject to the requirements in 40 CFR § 258 where it is mixed with other materials being placed in the landfill, or used as alternative daily or final cover at the landfill.

A. The Discharger shall ensure that the landfill used is in compliance with 40 CFR § 258 requirements and applicable State or Tribal requirements.

B. If the biosolids are less than 15% solids, the Discharger shall run a paint filter test on an as-needed basis to demonstrate that the biosolids does not contain free liquids.

V. NOTIFICATION REQUIREMENTS

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

A. Notification of non-compliance: The Discharger shall notify USEPA and the applicable Santa Ana Water Board or State agency of any non-compliance within 24 hours by phone or e-mail if the non-compliance may seriously endanger public health or the environment. A written report shall also be submitted within 5 working days of knowing the non-compliance. For other instances of non-compliance, the Discharger shall notify USEPA and the Santa Ana Water Board of the non-compliance in writing within 5 working days of becoming aware of the non-compliance. The Discharger shall require their biosolids management contractors to notify USEPA and the Santa Ana Water Board of any non-compliance within the same time-frames.

B. If biosolids are shipped to another State or to Tribal Lands, the Discharger shall send 30 days prior notice of the shipment to the USEPA and permitting authorities in the receiving State/Tribal authority.

C. The Discharger shall notify USEPA and the Santa Ana Water Board at least 60 days prior to starting a new biosolids use or disposal practice.

VI. REPORTING REQUIREMENTS

A. The Discharger shall submit an annual biosolids report into USEPA's CDX electronic reporting system, with an electronic copy to the Santa Ana Water Board by email at santaana@waterboards.ca.gov, by February 19 of each year for the period covering the previous calendar year. The report shall include the tonnages of biosolids (reported in dry metric tons, 100% dry weight), that were land applied (without further treatment by another party), land applied after further treatment by another preparer, disposed in a sludge-only surface disposal site, sent to a landfill for alternative cover or fill, stored on site or off site, or used for another purpose. The report shall include the following attachments:

1. Monitoring results from laboratories (results only, QA/QC pages not required). Copies of original lab reports must be available upon request and confirm the results are on a 100% dry weight basis. Lab reports for fecal coliforms must show the time the samples were collected and the time analysis was started.

2. If operational parameters were used to demonstrate compliance with pathogen reduction and vector attraction reduction, the minimum mean of these parameters for each sampling period (i.e., minimum mean cell residence times (MCRTs) and minimum temperatures).

3. If biosolids are stored on-site or off-site for more than 2 years, the information required in 40 CFR § 503.20(b) to demonstrate that the storage is temporary.

B. If biosolids were land applied, the Discharger shall have the person applying the biosolids submit a pdf report to USEPA and State agency showing the name of each field; location, ownership, size in acres; the dates of applications, seedings, harvesting; the tonnage applied to field, in actual and dry weight; the calculated Plant Available Nitrogen; and copies of applier's certifications of management practices and site restrictions.

ATTACHMENT H – PRETREATMENT

As described in section VII.C.6.b of this Order/Permit, the Santa Ana Water Board and USEPA incorporates these pretreatment conditions as requirements of this Order/Permit.

I. GENERAL PRETREATMENT REQUIREMENTS

A. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR § 403, including any subsequent regulatory revisions to Part 403. Where Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within one (1) year from the issuance date of this permit or the effective date of the Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines and other remedies by the USEPA or other appropriate parties, as provided in the Act. USEPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the Act.

B. Prior to the completion of GWRS Final Expansion project, the Discharger shall conduct annual Technical Review of local limits under 40 CFR § 403.5(c)(1) and submit the results as part of the annual pretreatment report. Within two (2) years of the completion of the GWRS Final Expansion project, the Discharger shall provide a written technical evaluation of the need to revise local limits under 40 CFR § 403.5(c)(1), as required in 40 CFR § 122.44(j)(2)(ii).

C. The Discharger shall enforce the requirements promulgated under CWA sections 307(b), 307(c), 307(d) and 402(b) with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic 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 nondomestic user, upon commencement of the discharge.

D. The Discharger shall perform the pretreatment functions as required in 40 CFR § 403 including, but not limited to:

1. Implement the necessary legal authorities as provided in 40 CFR § 403.8(f)(1);
2. Enforce the pretreatment requirements under 40 CFR § 403.5 and 403.6;
3. Implement the programmatic functions as provided in 40 CFR § 403.8(f)(2); and
4. Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR § 403.8(f)(3).

E. The Discharger shall submit annually a report to USEPA and the Santa Ana Water Board describing its pretreatment activities over the previous year. In the event the Discharger is not in compliance with any conditions or requirements of this Order/Permit, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements. This annual report shall cover operations from July 1 through June 30

and is due on October 31st of each year. The report shall contain, but not be limited to, the following information:

1. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under CWA section 307(a) which are known or suspected to be discharged by nondomestic users. This will consist of an annual full priority pollutant scan, with quarterly samples analyzed only for those pollutants detected in the full scan. The Discharger is not required to sample and analyze for asbestos. Sludge sampling and analysis are covered in the sludge section of this Order/Permit. The Discharger shall also provide any influent or effluent monitoring data for nonpriority pollutants which the Discharger believes may be causing or contributing to interference or pass through. Sampling and analysis shall be performed with the techniques prescribed in 40 CFR § 136.
2. A discussion of Upset, Interference or Pass Through incidents, if any, at the treatment plant 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, the corrective actions taken and, if known, the name and address of the nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent pass through or interference.
3. An updated list of the Discharger's significant industrial users (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 limitations.
4. The Discharger shall characterize the compliance status of each SIU by providing a list or table which includes the following information: Name of the SIU; category, if subject to federal categorical standards; type of wastewater treatment or control processes in place; number of samples taken by the POTW during the year; number of samples taken by the SIU during the year; for an SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided; a list of the standards violated during the year, where categorical standards and/or local limits violations are identified; whether the facility is in significant noncompliance (SNC) as defined at 40 CFR § 403.8(f)(2)(viii) at any time during the year; and a summary of enforcement or other actions taken during the year to return the SIU to compliance, where the type of action, final compliance date, and the amount of fines and penalties collected, if any, are described, including any proposed actions for bringing the SIU into compliance.
5. A brief description of any programs the POTW implements to reduce pollutants from nondomestic users that are not classified as SIUs.

6. A brief description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning the program's administrative structure, local limits, monitoring program or monitoring frequencies, legal authority, enforcement policy, funding levels, or staffing levels;
7. A summary of the annual mass emission, and the effluent concentrations and flows used to calculate the annual mass emission (see section V.B of the Order/Permit);
8. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases;
9. A summary of activities to involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 CFR § 403.8(f)(2)(viii); and
10. Results from annual Technical Review of local limits which is conducted under 40 CFR § 403.5(c)(1). See Section I.B of Attachment H.

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1708 **Agenda Date:** 8/25/2021 **Agenda Item No:** 7.

FROM: James D. Herberg, General Manager
Originator: Lorenzo Tyner, Assistant General Manager

SUBJECT:

COLLECTION OF SEWER SERVICE CHARGES VIA THE TAX ROLL

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

A. Conduct a public hearing to receive input on a report filed with the Clerk of the Board entitled: "Sewer Service Charges for Collection on Tax Rolls for Fiscal Year 2021-22":

1. Open the Public Hearing
2. Receive staff report and recommendations
3. Report of written communications by Clerk of the Board
4. Public Comment
5. Close Public Hearing
6. Discussion by Board of Directors;

B. Unless there is a majority protest, adopt the report, which has the assessor's parcel numbers and amount of charges for collection on the tax rolls;

C. Adopt Resolution No. OC SAN 21-13 entitled "A Resolution of the Board of Directors of the Orange County Sanitation District adopting the Report proposing to collect Sewer Service Fees on the Tax Roll for Fiscal Year 2021/2022";

D. Authorize execution of the "Certification of Assessment";

E. Direct staff to file a certified copy of the adopted Resolution, Report, and the Certification of Assessment with the County Auditor-Controller; and

F. Direct staff to coordinate collection of sanitary sewer service charges on the general Orange County tax rolls with the County Auditor-Controller, Assessor, and Tax Collector.

BACKGROUND

Sections 5473 and 5473.1 of the State Health and Safety Codes allow the Orange County Sanitation District (OC San) to collect the Sanitary Sewer Service Charges on the County's Property Tax Roll.

OC San has exercised this option in the past because it has proven to be a cost-effective method of collection. To collect the charges on the tax roll it is necessary annually to:

1. File a report with the Clerk of the Board identifying each parcel of real property receiving OC San's services and the amount of the charge; and
2. Provide notice and conduct a public hearing on the report.

RELEVANT STANDARDS

- Maintain a culture of improving efficiency to reduce the cost to provide the current service level or standard

PROBLEM

The California Health and Safety Code requires a public hearing on the annual report of charges and mechanism to collect sewer fees.

PROPOSED SOLUTION

Provide notice of and hold a public hearing on annual charges and adopt a Resolution directing the County Tax Collector-Treasurer to include local and regional sanitary sewer service charges on the tax roll.

TIMING CONCERNS

Special Assessments are due to the County Auditor-Controller in August to be included on the tax roll.

RAMIFICATIONS OF NOT TAKING ACTION

Approximately $318 million of sanitary sewer service charges would not be collected on the County tax roll.

PRIOR COMMITTEE/BOARD ACTIONS

Similar hearings are conducted annually to enable OC San to collect local and regional sanitary sewer service charges via special assessments on the tax roll.

June 2020 - Board of Directors reduced the approved Single Family Residential (SFR) rates, Multi-Family Residential (MFR) rates, and Industrial Discharges Charge for Fiscal Year 2020-21.

March 2018 - Board of Directors approved the Multi-Year Regional Sewer Service Charge Schedule.

FINANCIAL CONSIDERATIONS

Collecting sanitary sewer service charges on the County tax roll is the most efficient and cost-effective way of collecting these charges from property owners.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Resolution No. OC SAN 21-13
- Proposition 218 Certification of Assessment
- "Sewer Service Charges for Collection on Tax Rolls for Fiscal Year 2021-22" *filed electronically in the Clerk of the Board's office*

RESOLUTION NO. OC SAN 21-13

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE ORANGE COUNTY SANITATION DISTRICT ADOPTING THE REPORT PROPOSING TO COLLECT SEWER SERVICE FEES ON THE TAX ROLL FOR FISCAL YEAR 2021/2022

WHEREAS, California Health and Safety Code sections 5473 *et seq*. authorize the Orange County Sanitation District to adopt an ordinance by a two-thirds vote of the Board of Directors of the Orange County Sanitation District to collect sewer service fees on the tax roll, in the same manner and at the same time as the general taxes; and

WHEREAS, on March 28, 2018, the Board of Directors adopted Ordinance No. OCSD-49, an ordinance establishing sanitary sewer service charges and allowing for the collection of such sanitary sewer service charges ("Regional Sewer Fees") on the tax roll, in the same manner, by the same persons, and at the same time as, together with, and not separate from, its general taxes; and

WHEREAS, on May 22, 2013, the Board of Directors adopted Ordinance No. OCSD-43, an ordinance establishing local sanitary sewer service charges for customers receiving local sanitary sewer service in former revenue area 7 and allowing for the collection of such local sanitary sewer service charges ("Local Sewer Fees") on the tax roll, in the same manner, by the same persons, and at the same time as, together with, and not separate from, its general taxes; and

WHEREAS, pursuant to California Health and Safety Code sections 5473 *et seq*., a written report (the "Report"), a copy of which is filed electronically with the Clerk of the Board of Directors of the Sanitation District and by this reference incorporated herein, describing each parcel of real property subject to said Regional Sewer Fees and Local Sewer Fees, including the amount of said charges to be imposed thereon for Fiscal Year 2021-2022; and

WHEREAS, the Orange County Sanitation District has caused notice of the filing of the Report to be published and has given notice of the hearing to consider such Report in accordance with California Health and Safety Code section 5473.1; and

WHEREAS, the Board of Directors have heard and considered all objections and protests to the Report and has determined and hereby finds that protests have not been made by the owner of a majority of the separate parcels of property described in the Report; and

WHEREAS, the Board of Directors have determined to adopt the Report and collect the Regional Sewer Fees and the Local Sewer Fees on the tax roll, which fees shall constitute a lien against the parcels or parcels of land described in the Report in accordance with California Health and Safety Code sections 5473 *et. seq*.

NOW, THEREFORE, the Board of Directors of the Orange County Sanitation District, DOES HEREBY RESOLVE, DETERMINE, AND ORDER:

Section 1: The above recitals are true and correct.

Section 2: The Report as presented is hereby adopted.

Section 3: The Clerk of the Board, or the designee, is hereby directed to file a copy of the Report with the Orange County Auditor's Office, together with a statement endorsed thereon over his/her signature that the Report has been adopted by the Board of Directors of the Sanitation District and shall request that said Regional Sewer Fees and Local Sewer Fees be entered against the respective parcels of land as they appear on the current assessment roll pursuant to California Health and Safety Code sections 5473 *et seq*.

Section 4: That pursuant to California Health & Safety Code Section 5473, this Resolution shall remain in full force and effect until amended or repealed, or until such time as the rates of sanitary sewer service charges, as established by Ordinance Nos. OCSD-49 and OCSD-43, are changed by increasing the annual rate.

Section 5: That the General Manager, or his designee, is hereby authorized and directed to execute any necessary documents or agreements to affect the order set forth in Section 3 herein.

PASSED AND ADOPTED at a regular meeting of the Board of Directors held August 25, 2021.

_____
John B. Withers
Chairman of the Board of Directors

ATTEST:

_____
Kelly A. Lore, MMC
Clerk of the Board

STATE OF CALIFORNIA)
) ss
COUNTY OF ORANGE)

I, Kelly A. Lore, Clerk of the Board of Directors of the Orange County Sanitation District, do hereby certify that the foregoing Resolution No. OC SAN 21-13 was passed and adopted at a regular meeting of said Board on the 25th day of August 2021, by the following vote, to wit:

AYES:
NOES:
ABSTENTIONS:
ABSENT:

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of Orange County Sanitation District this 25th day of August 2021.

Kelly A. Lore, MMC
Clerk of the Board of Directors
Orange County Sanitation District

CERTIFICATION OF ASSESSMENT

The Orange County Sanitation District hereby certifies that the special assessment(s) (see below) to be placed on the 2021-22 Secured Property Tax bill by the Orange County Sanitation District meets the requirements of Proposition 218 that added Articles XIIIC and XIIID to the State Constitution.

The Orange County Sanitation District agrees to defend, indemnify and hold harmless the County of Orange, the Board of Supervisors, the Auditor-Controller, its officers and employees, from litigation over whether the requirements of Proposition 218 were met with respect to such assessment(s).

If any judgment is entered against any indemnified party as a result of not meeting the requirements of Proposition 218 for such assessment(s), the Orange County Sanitation District agrees that County may offset the amount of any judgment paid by an indemnified party from any monies collected by County on Orange County Sanitation District behalf, including property taxes, special taxes, fees, or assessments.

_____ _____

James D. Herberg Date
General Manager

2021-22 Special Assessments and/or Direct Charges are listed below:

	County Type of Tax/ City/District Code	Description
1.	UA/090	Local Sewer Service Fee
2.	U1/090	OCSD Sewer User Fee District 1
3.	U2/090	OCSD Sewer User Fee District 2
4.	U3/090	OCSD Sewer User Fee District 3
5.	U4/090	OCSD Sewer User Fee District 5
6.	U5/090	OCSD Sewer User Fee District 6
7.	U6/090	OCSD Sewer User Fee District 7
8.	U7/090	OCSD Sewer User Fee District 11
9.	U8/090	OCSD Sewer User Fee District 13

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1816 **Agenda Date:** 8/25/2021 **Agenda Item No:** 8.

FROM: James D. Herberg, General Manager
Originator: James D. Herberg, General Manager

SUBJECT:

GENERAL MANAGER'S FISCAL YEAR 2021-22 WORK PLAN

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

Approve the General Manager's Fiscal Year 2021-22 Work Plan.

BACKGROUND

Each year, the General Manager prepares a work plan of activities supporting the Orange County Sanitation District's strategic goals and initiatives to be accomplished during the fiscal year. The proposed work plan was submitted to the Steering Committee for review and input from the Directors in July. The final work plan is being submitted to the Steering Committee and Board of Directors for approval.

RELEVANT STANDARDS

- Sustain 1, 5, 20-year planning horizons
- 24/7/365 treatment plant reliability
- Negotiate fair and equitable labor agreements
- Commitment to safety & reducing risk in all operations
- Meet volume and water quality needs for the GWRS
- Maintain a culture of improving efficiency to reduce the cost to provide the current service level or standard

PRIOR COMMITTEE/BOARD ACTIONS

July 2021 - Received and filed the General Manager's Fiscal Year 2021-22 Proposed Work Plan.

ADDITIONAL INFORMATION

The General Manager's work plan includes goals for the 2021-2022 fiscal year. The work plan has four areas of focus, which follows the structure of the 2019 Strategic Plan adopted by the Board of Directors on November 20, 2019, that include: Business Principles, Environmental Stewardship,

Wastewater Management, and Workplace Environment. This final work plan includes feedback received from the Board on the draft that was included in the July Steering Committee and Board agenda packages.

FINANCIAL CONSIDERATIONS

All items included in the General Manager's work plan are budgeted in the 2021-2022 Budget and are in alignment with the policy set forth by the Board of Directors in the 2019 Strategic Plan.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- General Manager's Fiscal Year 2021-2022 Work Plan
- 2019 Strategic Plan

ORANGE COUNTY SANITATION DISTRICT

MEMORANDUM

August 25, 2021

TO: Chairman and Members of the Board of Directors

FROM: James D. Herberg, General Manager

SUBJECT: **General Manager's Fiscal Year 2021-2022 Work Plan**

I am pleased to present my work plan for Fiscal Year 2020-2021. This Work Plan has 23 individual goals organized under the four Strategic Planning categories: Business Principles, Environmental Stewardship, Wastewater Management, and Workplace Environment. These goals support our efforts to ensure that our operations are safe; we continue to attract, develop, and retain a capable workforce; and, that we enhance our sustainability by maximizing water recycling and implement sound financial practices. This forward-looking work plan is designed to position our agency to continue providing our customers with a high level of service while seizing opportunities and meeting future challenges.

1. **Business Principles**
   - **Paperless Office** - Incorporate the trusted system and implement a fully digital process to reduce the use of paper by June 30, 2022.
   - **Cyber Security Policy** - Complete the Cyber Security Incident Response Program playbooks and incorporate the playbooks into the OC San Integrated Emergency Response Plan by June 30, 2022.
   - **Warehouse Modernization** – Implement remote warehousing at Plant No. 2 to allow for the demolition of the current warehouse facility for construction of new digesters. Present an implementation plan and budget for review and approval in June 2022.
   - **Property Management** (Continued from FY 2020/21) – Complete action plans for OC San's real property, easement, and rights-of-way for encroachments and encumbrances which limit access or impede proper use of OC San's rights by December 31, 2021, that will restore long-term use for identified encroachments or encumbrances.
   - **Permit and Reporting Management System** (Continued from FY 2020/21) – Implement the business process mapping for source control permit management, compliance data management, and Environmental Protection Agency compliance reporting system by June 30, 2022.

- **Organizational Advocacy and Outreach** - Develop a new Organizational Advocacy & Outreach policy consistent with the Strategic Plan as adopted by the Board of Directors by November 30, 2021.

2. Environmental Stewardship

- **Energy Independence** (Continued from FY 2020/21) – Overhaul one Central Generation Engine and complete a study to verify the feasibility of a 20-year asset extension for the Central Generation Facilities by June 30, 2022.

- **Climate and Catastrophic Event Resilience Policy** - Complete the preliminary design for perimeter wall along the southwest portion of Plant No. 2 as part of the TPAD Digester Facility at Plant No. 2, Project No. P2-128 by June 30, 2022.

- **Food Waste Treatment Policy** - Establish a feedstock agreement and initiate the bid process within three months of agreement finalization to accept up to 150 tons per day of food waste slurry for co-digestion. Provide an information update to the Board of Directors by December 31, 2021.

- **Interagency Regional Wastewater Capacity and Water Quality Solutions** - Develop the scope and objectives for interagency study among OC San, Orange County Water District and Orange County Watersheds on feasibility of accepting additional dry weather urban runoff and potential stormwater harvesting and present to the Board of Directors by December 31, 2021.

- **Wastewater Surveillance** - Collaborate with CDC/CDPH to continue developing a Wastewater Surveillance program for COVID-19 and beyond. Provide an information update to the Board of Directors by June 30, 2022.

3. Wastewater Management

- **Chemical Sustainability Policy** - Create a plan to optimize chemical usage in the treatment plants and create a plan to guide operations in the event of a sudden loss of chemical supply. Complete plans by June 30, 2022.

- **Biosolids Management Policy - Super critical oxygenation** - Work with 374 Water to initiate a research project to scale up a super critical water oxidation system to six tons per day production levels. Investigate the treatment of raw sludge, biosolids, food waste, and other organic waste stream. If practical, seek Board approval for a research project by October 31, 2021. If approved, start processing waste streams by June 30, 2022.

- **Constituents of Emerging Concern Policy** - Formalize a CEC Management Framework that emphasizes controlling PFAS and other CECs at the source. Continue to work with industry partners to explore technologies that measure,

reduce, sequester, or destroy PFAS. Provide a report with recommendations to the Board of Directors by June 30, 2022.

- **Interagency Emergency Preparedness and Contingency Coordination** - Review contracting agencies' (e.g., SAWPA and IRWD) emergency preparedness and continency plans to ensure compatibility with OC San's operational and regulatory constraints. Provide an information update to the Board of Directors by June 30, 2022.

- **Supplemental Engineering Services Contracts** – Procure new agreements for Supplemental Engineering Services to replace the existing Supplemental Engineering Services and Staff Support Services. Advertise the Request for Proposals by October 31, 2021

4. Workplace Environment

- **Safety and Physical Security** - Conduct security assessment for Plant No. 2 to determine layout and design of entry/exit points via siting study (i.e. cameras, traffic flow, reject lane, security zones) and install access cards readers in all occupied buildings by June 30, 2022.

- **Voluntary Protection Program** - Continue to assess and maintain all programs and training relative to VPP. Implement a Wildfire Smoke Exposure Management Program by December 31, 2021 and conduct an annual third-party review of the safety program by June 30, 2022.

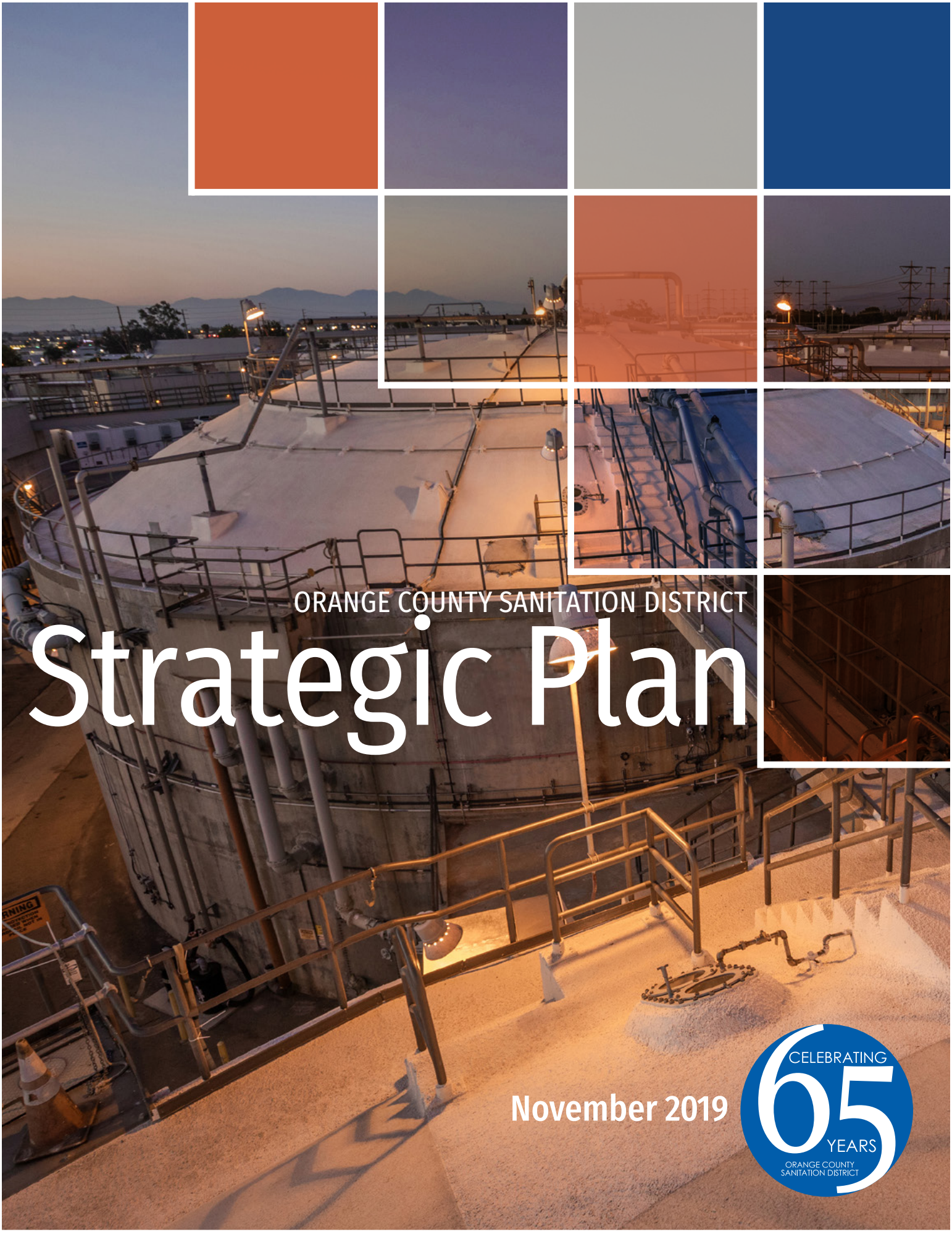
- **Emergency Response** - Conduct an annual exercise on Tsunami response by June 30, 2022.

- **OC San U** – Expand OC San U offerings to outside agencies by June 30, 2022 and continue to offer one employee training session per month that pertain to organizational awareness, leadership, communications, technology, or partnerships for the future.

- **Centralized Training Program** - Evaluate and determine agency needs for a centralized training program with defined budget, and goals with management housed under one division by December 31, 2021, in time for budget consideration for Fiscal Year 2021/2022.

- **Labor Negotiations** - Facilitate Board and Board Chairman in hiring Chief Negotiator prior to December 31, 2021 and engage in contract negotiations with all unions prior to the expiration of current contracts on June 30, 2022.

- **Classification & Compensation Study** - Conduct an agencywide Classification and Compensation study complete analysis and Board presentations by March 31, 2022.



ORANGE COUNTY SANITATION DISTRICT

Strategic Plan

November 2019

CELEBRATING 65 YEARS
ORANGE COUNTY SANITATION DISTRICT

Table of Contents

Board of Directors	4
Message from the General Manager	5
Executive Summary	6
Mission Statement and Vision Statement	9
Core Values	10
Policy Statements and Initiatives	11
Appendix: Policy Papers	17

Board of Directors

Anaheim
Lucille Kring

Brea
Glenn Parker

Buena Park
Fred Smith

Cypress
Mariellen Yarc

Fountain Valley
Steve Nagel

Fullerton
Jesus J. Silva

Garden Grove
Steve Jones

Huntington Beach
Erik Peterson

Irvine
Christina Shea

La Habra
Tim Shaw

La Palma
Peter Kim

Los Alamitos
Richard Murphy

Newport Beach
Brad Avery

Orange
Mark Murphy

Placentia
Chad Wanke

Santa Ana
Cecilia Iglesias

Seal Beach
Sandra Massa-Lavitt

Stanton
David Shawver
(Chairman)

Tustin
Allan Bernstein

Villa Park
Robert Collacott

Costa Mesa Sanitation District
James M. Ferryman

Midway City Sanitary District
Andrew Nguyen

Irvine Ranch Water District
John Withers
(Vice-Chairman)

Yorba Linda Water District
Phil Hawkins

Orange County Board of Supervisors
Doug Chaffee

Strategic Plan Message from the GM

The Orange County Sanitation District is celebrating 65 years of service to the public this year. Over those years the Sanitation District has been adapting itself to the changing requirements and needs of the communities it serves. We have moved from an organization exclusively focused on preservation of public health to a world class resource recovery facility which protects the public health and the environment in ways our founders could never imagine.

This on-going evolution is the intentional outcome of a very deliberate strategic planning process that has been in place at the Sanitation District from the very beginning. From the "Waste Water Disposal and Reclamation for the County of Orange" in 1947 to the Master Plans of the 1980s to the current Strategic Plan, the Sanitation District has always taken the long view to craft a progressive vision and build the necessary infrastructure and staffing to deliver world class service.

This forward-thinking vision of the Sanitation District begins with the Board of Directors. The Board of Directors of the Sanitation District have a long history of mapping out bold, clear visions for the staff to deliver including energy recovery facilities, water reclamation facilities and partnerships, innovative odor control facilities, full secondary treatment levels, urban runoff beach protection partnerships, and the world's largest indirect potable water reuse facility.

I would like to thank the current Board of Directors for continuing the legacy of leadership in strategic planning and innovation. Your commitment and leadership drive the Sanitation District to continue to innovate and meet the challenges facing our region. I look forward to working together to accomplish all the initiatives in this Strategic Plan.

Sincerely,

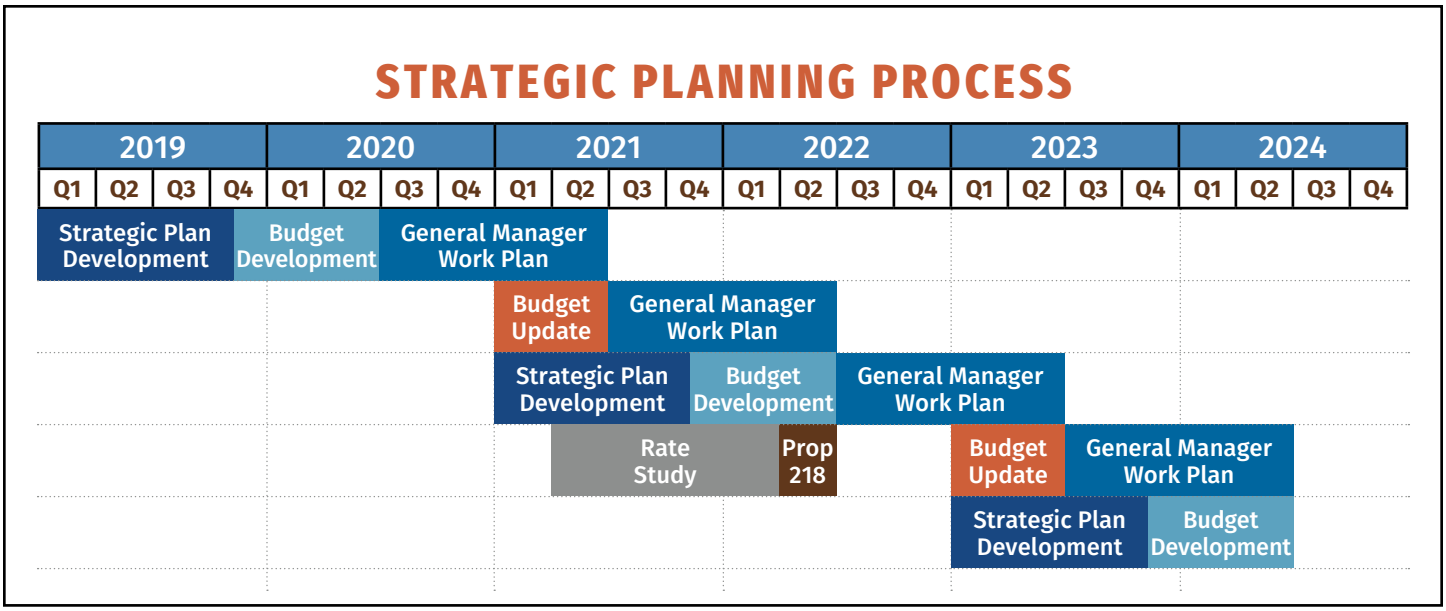
James Herberg

James D. Herberg
General Manager

Strategic Plan Executive Summary

The Orange County Sanitation District (Sanitation District) is a regional wastewater collection and resource recovery agency utilizing extensive public works assets to deliver its vital public services. The Strategic Plan developed by the Board of Directors and staff defines the strategic initiatives to be pursued by the Sanitation District and provides a basis for long-term financial, capital, and operational planning. In addition, it provides for long-term continuity of vision as Board and staff members change over the many years it takes to deliver public works infrastructure.

The Sanitation District has developed a two-year, four-step management process that creates and maintains vision alignment between the Board of Directors, the staff, and the public we serve. Strategic planning is the first step to define the Sanitation District's ability to have people and assets in place to meet its agreed upon mission as defined by the Board. The second step is capital and operational planning based on the adopted strategic plan. The third step is budget development to execute the plan and define the tactical goals to work toward the strategic goals. The final step is execution of the budget plan and tactical goal attainment. These four steps are repeated every two years to maintain alignment and make course corrections based on new Board member input, legal and regulatory changes, and the needs of the communities we serve.



The Strategic Plan is broken down into four broad categories with fourteen topic areas that define our responsibilities and the services we provide. These areas are:

- **Business Principles**
  - o Budget Control and Fiscal Discipline
  - o Asset Management
  - o Cybersecurity
  - o Property Management
- **Environmental Stewardship**
  - o Energy Independence
  - o Climate and Catastrophic Event Resiliency
  - o Food Waste Treatment
  - o Water Reuse
  - o Environmental Water Quality, Stormwater Management and Urban Runoff
- **Wastewater Management**
  - o Chemical Sustainability
  - o Biosolids Management
  - o Constituents of Emerging Concern
- **Workplace Environment**
  - o Resilient Staffing
  - o Safety and Physical Security

Each topic was collaboratively developed between the Board of Directors and staff members. Initial topic lists were discussed with the Steering Committee. Initial policy statements and initiatives were developed which formed the basis for a survey instrument to the Board of Directors. Based on the survey input, individual draft topic papers were presented to the Board of Directors over three meetings in August and September. The topic papers were finalized based on the direction received at these three meetings and are included in this published plan.

The Strategic Plan policy papers break down each area. They begin with a policy statement, provide background, layout the current situation, layout a future policy statement, and finish with initiatives to support progress toward the policy goal.

The Strategic Plan presented in this document is not a radical departure from the current direction, but rather the well-defined iterative update to the direction of the Sanitation District. With the adoption of the Strategic Plan, staff will begin the effort of updating the Asset Management Plan, Capital Improvement Plan, and Financial Plan that are the basis of a two-year budget that will be adopted by the Board of Directors in June. The Budget goals and the General Manager's work plan are the accountability step that measures achievable progress toward the strategic initiatives listed in the Strategic Plan topic papers.

OUR MISSION

"To protect public health and the environment by providing effective wastewater collection, treatment, and recycling."

OUR VISION

ORANGE COUNTY SANITATION DISTRICT WILL BE A LEADER IN:

- Providing reliable, responsive and affordable services in line with customer needs and expectations.
- Protecting public health and the environment, utilizing all practical and effective means for wastewater, energy, and solids resource recovery.
- Continually seeking efficiencies to ensure that the public's money is wisely spent.
- Communicating our mission and strategies with those we serve and all other stakeholders.
- Partnering with others to benefit our customers, this region, and our industry.
- Creating the best possible workforce in terms of safety, productivity, customer service, and training.

OUR CORE VALUES

Our Core Values support the Mission and Vision Statements by expressing the values, beliefs, and philosophy that guides our daily actions. They help form the framework of our organization and reinforce our professional work ethic.

Honesty, Trust and Respect
We aspire to the highest degree of integrity, honesty, trust, and respect in our interaction with each other, our suppliers, our customers, and our community.

Teamwork and Problem Solving
We strive to reach OCSD goals through cooperative efforts and collaboration with each other and our constituencies. We work to solve problems in a creative, cost-effective and safe manner, and we acknowledge team and individual efforts.

Leadership and Commitment
We lead by example, acknowledging the value of our resources and using them wisely and safely to achieve our objectives and goals. We are committed to act in the best interest of our employees, our organization, and our community.

Learning/Teaching - Talents, Skills and Abilities
We continuously develop ourselves, enhancing our talents, skills, and abilities, knowing that only through personal growth and development will we continue to progress as an agency and as individuals.

Recognition/Rewards
We seek to recognize, acknowledge and reward contributions to OCSD by our many talented employees.

The Strategic Plan is broken down into four broad categories with 14 topic areas. Below are the policy statements and corresponding initiatives to achieve the goals of the plan. The complete policy papers can be found in the appendix.

BUSINESS PRINCIPLES

Budget Control and Fiscal Discipline Policy

Policy Statement

The Sanitation District will prudently manage the public funds that it collects. It will take a long-term planning approach to its facilities and rate setting that provides a stable setting program, prudent reserves, and pay-as-you-go philosophy for operating and replacing capital expenses.

Initiatives

- Maintain a rate setting program that keeps the Sanitation District in the lower third of our comparative agencies.
- Maintain a "Pay as You Go" approach to fund current operating expenditures.
- Maintain a portfolio management approach that focuses on safety, liquidity and performance in that order.
- Continually look for ways to reduce total debt payments without lengthening its term.
- Ensure that no new debt issuances are used to support currently programmed capital expenditures and that all existing debt is paid off by 2044.

Asset Management Policy

Policy Statement

The Sanitation District will assess and manage the collection system and treatment plant systems and assets to improve resilience and reliability while lowering lifecycle costs. This will be accomplished through adaptive operation, coordinated maintenance and condition assessment, and planned capital investment. Staff will balance maintenance, refurbishment, and replacement strategies to maximize useful life, system availability and efficiency.

Initiatives

- Create an annual Asset Management plan documenting the condition of the collection system and treatment plants, and upcoming maintenance or capital projects.
- Coordinate the efforts of operations, collections, mechanical maintenance, electrical maintenance, instrument maintenance and engineering through process teams to assure the Sanitation District's resources are focused on the high priority work functions.
- Maintain a 20-year forecast of all CIP projects needed to maintain or upgrade the Sanitation District's nearly $11 billion in assets on a prioritized risk basis to establish rate structures.

Cybersecurity Policy

Policy Statement

The Sanitation District must maintain adequate cybersecurity (information technology security) techniques that protect computer assets, networks, programs, data, and industrial control equipment from unauthorized access or attacks that are aimed for exploitation.

Initiatives

- Conduct various tabletop exercises to determine the organization's ability to respond to a targeted cyberattack and to improve the quality of the response should an attack occur.
- Evaluate, enhance and monitor network security including activities to protect the usability, reliability, integrity and safety of the network by developing Security Operations Center capabilities that support continuous monitoring and is responsible for the continuous threat protection process.
- Conduct a comprehensive third-party cybersecurity operations assessment (Red Team). A thorough Red Team engagement will expose vulnerabilities and risks regarding:
  - Technology — Networks, applications, routers, switches, appliances, etc.
  - People — Staff, independent contractors, departments, business partners, etc.
  - Physical — Offices, warehouses, substations, data centers, buildings, etc.

Property Management Policy

Policy Statement

The Sanitation District owns and operates assets throughout its service area located in property owned in fee, through easements and in the public right-of-way. The Sanitation District will identify and protect all of its property rights to assure that its assets are not encumbered or encroached upon so that the facilities may be properly operated, maintained, upgraded, and replaced.

Initiatives

- The Sanitation District will review its property rights to identify encroachments or encumbrances that restrict operation, maintenance, inspection or emergency repair access. Staff will work with identified parties to remove encroachments or encumbrances.
- Staff will consolidate real estate and property management activities to maximize its resources and effectiveness. With the completion of the property rights and real estate assessments, the Sanitation District will evaluate the various resources available and develop an appropriate resource management plan to assess and maintain its property assets.

ENVIRONMENTAL STEWARDSHIP

Energy Independence Policy

Policy Statement

The Sanitation District will strive to be a net energy exporter. Electrical, thermal, and methane gas generation will be maximized. Energy utilization will be minimized using sound engineering and financial principles.

Initiatives

- Maximize the anaerobic digestion conversion of organics to methane through receipt of food waste and operational techniques.
- Investigate and install energy storage and photovoltaic systems where practical to achieve energy independence/resilience.
- Continue to support the conversion of biomethane into electricity and heat for process use. Improve systems as necessary to comply with air regulations.

Climate and Catastrophic Event Resilience Policy

Policy Statement

The Sanitation District aims to design, maintain and operate valuable wastewater assets that withstand or adapt to adverse conditions in a reasonable manner that is both cost-effective and sustainable for present and future generations. These adverse conditions include heavy rains, flooding, sea level rise, earthquakes, tsunamis, extreme heat, wildfires, and electrical grid interruptions.

Initiatives

- Complete an engineering study of the seismic vulnerabilities of the treatment plants. Incorporate necessary upgrades into future capital improvement projects.
- Complete the biannual high flow exercise to assure readiness for a high flow event. Maintain a higher level of readiness October 15 through March 15 and in advance of predicted significant rain events.
- Study the potential impact of tsunami and changing climate conditions including flooding due to high tides and heavy rain events.

Food Waste Treatment Policy

Policy Statement

The State of California limits the volume of organic waste that may be diverted to landfills. The Sanitation District will collaborate with the County of Orange, other local agencies, and waste haulers to find ways to beneficially reuse food waste, a type of organic waste to assist cities in our service area in meeting their diversion requirements while increasing the Sanitation District's energy production.

Initiatives

- The Sanitation District will accept a preprocessed food waste slurry from contracted waste haulers that will be fed to existing anaerobic digesters. The Sanitation District will charge a tipping fee to offset its costs for capital construction, operations, handling, maintenance, and biosolids disposal.
- Design, build, and operate a food waste receiving station. Create a specification for food waste slurry and contract with solid waste haulers to receive and process food waste.

Water Reuse Policy

Policy Statement

The Sanitation District will seek to beneficially reuse all reclaimable water for potable, industrial, irrigation, and environmental uses.

Initiatives

- Support the completion of the final phase of the Groundwater Replenishment System and maximize reclaimable wastewater availability to the Orange County Water District.
- Support Green Acres project water production to provide reclaimed water for industrial and irrigation uses.

Environmental Water Quality, Stormwater Management and Urban Runoff Policy

Policy Statement

The Sanitation District will partner with storm water permittees to accept up to ten million gallons per day of dry weather urban runoff at no charge in order to improve water quality in streams, rivers, and beaches as long as the constituents within the flow do not adversely impact the Sanitation

District's worker safety, treatment processes, reuse initiatives, or permit compliance. The Sanitation District facilities are subject to significant flow increases during wet weather events and are not capable of accepting stormwater flow volumes.

Initiatives

In accordance with Resolution No. 13-09, the Sanitation District intends to continue accepting up to ten million gallons per day of pumped dry weather urban runoff diversion where existing conveyance capacity exists, and the constituents of the flow will not adversely impact the Sanitation District. The Sanitation District also intends to continue working with industries, agencies, and other facilities to offer alternatives to stormwater and runoff disposal through special purpose discharge permits or other written authorization in accordance with the Sanitation District's Ordinance, where doing so does not negatively affect the Sanitation District's operation or compliance with local, state, and federal regulations, and wastewater can be held for evaluation prior to discharge.

Additionally, to act as a regional partner in resolving issues associated with disposing of and reusing stormwater, the Sanitation District intends to work with local jurisdictions to determine the feasibility of regional wet weather runoff capture, storage, and use projects.

- Issue dry weather urban runoff connection permits up to a total of ten million gallons per day to other service area local agencies to accept pumped dry weather urban runoff flows where existing conveyance capacity exists, and the constituents of the flow will not adversely impact the Sanitation District.

- Continue working with industries, facilities, agencies, and local jurisdictions that have authority over stormwater or surface water runoff to determine the feasibility of regional wet weather runoff capture, storage, and use projects or offer alternatives to stormwater and runoff disposal through permits or other written authorization. The Sanitation District will promote responsible stormwater utilization and sewer protection, where doing so does not negatively affect the Sanitation District's operation or compliance with local, state, and federal regulations, and wastewater can be held for evaluation prior to discharge.

WASTEWATER MANAGEMENT

Chemical Sustainability Policy

Policy Statement

The Sanitation District has a need to use chemicals in its treatment process to improve plant performance, reduce odor and corrosion potential, and meet its regulatory requirements. These commodity chemicals are provided by outside vendors through the purchasing process. Some of these chemicals are subject to price swings due to market condition changes such as energy cost impacts, raw material cost changes, commercial competition changes, and transportation cost volatility. The Sanitation District will identify chemicals key to its operation, investigate the market risks for those chemicals and devise strategies to mitigate identified risks to availability and pricing.

Initiatives

- Reduce reliance on any particular chemical or vendor and establish flexibility to utilize other chemicals/processes to accomplish the same operational objectives.
- Update the Sanitation District's Chemical Sustainability Study and incorporate the results in future procurement recommendations.

Biosolids Management Policy

Policy Statement

The Sanitation District will remain committed to a sustainable biosolids program and will beneficially reuse biosolids in accordance with Resolution No. OCSD 13-03 and the 2017 Biosolids Master Plan.

Initiatives

- Educate and advocate with the local, state, and federal agencies to assure biosolids will continue to be safely and legally used as a soil amendment and monitor and research the development of initiatives of constituents of emerging concerns such as polyfluoroalkyl substances (PFAS) and microplastics that may impact biosolids.
- Stay abreast of new technology options to convert organics to energy and other regional biosolids recycling and renewable energy partnerships within Southern California.
- Proceed with mesophilic and thermophilic biosolids facility at Plant No. 2 to enhance biosolids quality and marketability while improving the Sanitation District's operational resiliency against seismic events.

Constituents of Emerging Concern Policy

Policy Statement

The Sanitation District will partner with other agencies, associations, and institutions to support the use of sound science to inform policy and regulatory decisions on constituents of emerging concern (CECs) at the federal, state, and regional levels. Staff will obtain and maintain current knowledge on CECs under regulatory consideration, including occurrence, analytical methods, regulations, and treatment to support the Sanitation District's mission.

Initiatives

- The Sanitation District will continue to actively engage water and wastewater stakeholders to stay abreast of the scientific progress and any potential operational and financial impacts of CECs and provide timely briefings to the Sanitation District's Management Team and Board to facilitate informed decision making.
- The Sanitation District will continue to develop capacity to detect, quantify, and characterize CECs throughout the service area and treatment process in order to promote treatment effectiveness and the communication of credible risks.
- The Sanitation District will actively research laboratory techniques and other scientific research to understand the real and potential impact of CECs, like polyfluoroalkyl substances (PFAS) and perfluorooctanoic acid (PFOA), on the reuse of water and biosolids. The Sanitation District will use science-based knowledge to help shape legislation and regulation to protect the public health and environment.

WORKPLACE ENVIRONMENT

Resilient Staffing Policy

Policy Statement

The Sanitation District will attract and retain high-quality talent to support its mission and continue to be an industry leader. It will safeguard leadership continuity and support effective performance of the organization by proactively monitoring the changing work environment and requirements to ensure development programs are relevant and build a skilled bench of readily available successors for key leadership and mission-critical positions.

Initiatives

- Maintain and enhance current effective development programs that are in place to provide the direction to identify, develop and select the next generation of prepared, capable and engaged leaders, which include:
  - Vocational/Professional Student Internship Programs
  - Employee Development Program
  - Workforce Vulnerability Assessments
  - Talent Readiness Assessments
  - Building Leaders and Skills for Tomorrow (BLAST) Program
  - Strengthening Operator Training Programs
- Continue cyclical Classification and Compensation studies to ensure job classifications accurately depict the work being performed, to set compensation levels accordingly, and stay abreast of market benefit and salary data.
- Prior to the next scheduled Classification & Compensation study, Human Resources will work with the Board of Directors and meet and confer with the unions to review selected survey agencies based on recognized classification and compensation standards and the job market in which we compete.

Safety and Physical Security

Policy Statement

The Sanitation District will ensure the safety and security of employees, contractors, and visitors through standard practices, policies, and procedures that support a safe and secure environment, provide an appropriate level of security, and safeguard OCSD's property and physical assets.

Initiatives

Safety

- Complete outstanding safety projects, improvements, and corrective actions to apply and obtain Cal/OSHA Voluntary Protection Program (VPP) status; and continue to foster a culture where employees are accountable for their safety as well as the safety of others.

Emergency Management

- Support facility and countywide emergency preparedness, response, and recovery efforts by partnering with entities, such as, the Water Emergency Response Organization of Orange County (WEROC), Orange County Sherriff Department, and local fire departments to plan and continue to conduct disaster preparedness training and exercises.

Security

- Continually identify and assess vulnerabilities and implement solutions through the Security Committee and third-party assessments. Prevent/mitigate security breaches using physical security systems such as video monitoring, access control, and armed security patrols.

Appendix: Policy Papers

Business Principles

Budget Control and Fiscal Discipline Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will prudently manage the public funds that it collects. It will take a long-term planning approach to its facilities and rate setting that provides a stable setting program, prudent reserves, and pay-as-you-go philosophy for operating and replacing capital expenses.

Background

The Sanitation District manages nearly $500 million annually. These funds support the Sanitation District's operating, capital, and debt expenditures. The Sanitation District focuses its fiscal policy around three distinct areas: Revenues, Portfolio Management, and Debt Management. These areas are described in the Budget, Investment Policy, and Debt policy all of which are updated annually.

Current Situation

Revenues

The majority of the Sanitation District's revenue is generated by user fees and charges. Currently, the Sanitation District fees are in the lower third of its comparison agencies'.

The Sanitation District's revenues come from three general areas: Fees and Charges (74%), Property Taxes (21%) and other smaller revenue sources (5%).

- Fees and Charges: User fees are ongoing fees for services paid by Single Family and Multifamily customers connected to the sewer system. Also included in this category are Permit Fees (User fees paid by large industrial and commercial business owners connected to the sewer system and Capital Facility Capacity Charges (CFCC) (a one-time charge imposed at the time a newly constructed building or structure is connected to the Sanitation District system). The Sanitation District policy has been to focus on cost recovery while keeping fees as low as possible.
- Property Taxes: The Sanitation District receives a share of the basic property tax levy proportionate to what was received in the 1976 to 1978 period less $3.5 million allocated to school districts. These funds are dedicated to the payment of debt service.
- Other Revenue: Other Revenue includes Interest Earnings, Intra-District Transfers and small revenue sources.

Portfolio Management

The Sanitation District Investment Policy is governed by three tenets:

- Safety: The safety and preservation of principal is the foremost objective of the investment program. Investments shall be selected in a manner that seeks to ensure the preservation of capital in the overall portfolio. This will be accomplished through a program of diversification and maturity limitations.
- Liquidity: The investment program will be administered in a manner that will ensure that sufficient funds are available for the Sanitation District to meet its reasonably anticipated operating expenditure needs.
- Return on Investments: The Sanitation District's investment portfolio will be structured and managed with the objective of achieving a rate of return throughout budgetary and economic cycles, commensurate with legal, safety, and liquidity considerations.

The Sanitation District's investments are separated into two distinct portfolios, Long-term and Short-term, with a primary focus on the Long-term portfolio.

The Long-Term portfolio always focuses on four elements, duration, sector allocation, term structure, and security selection.

Duration

- Typically, the Sanitation District keeps the duration of a portfolio 'close' to the benchmark duration as we feel the benchmark duration is consistent with the risk tolerance of the strategy.
- The investment policy of the Sanitation District stipulates the average duration must not exceed 60 months and be within 80-120% of the benchmark.
- Historically the deviation of the long-term portfolio versus the benchmark is close to 5%. Large deviations in the duration of the portfolio compared to the benchmark are an anomaly.

Sector Allocation

- The Sanitation District takes an active approach to asset allocation, differentiating our holdings versus the benchmark, with typically a modestly higher risk exposure compared to the benchmark.
- Some of the asset classes we find more attractive in the current investing environment include Corporate notes, Asset Backed Securities, and Treasury notes relative to the Agency and Supranational sectors.
- The sector allocation of the portfolio will evolve over time as our outlook for the various eligible investment options changes.

Term Structure

- The Sanitation District manages the term structure of the portfolio by focusing on either a bullet, ladder or barbell structure, relative to the benchmark.
- For most of 2018 the structure was gravitating towards more of a bullet structure in light of the change in the sharp of the yield curve, with short term interest rates moving higher at a greater velocity than longer maturity securities.
- Currently, with the yield curve very flat, we are migrating back towards more of a barbell structure, with new purchases focused at the short and long end of the eligible maturity distribution. We also find the middle to the maturity distribution, near the three-year maturity point, to be the most expensive from an absolute and relative value perspective, further supporting the barbell structure.

Security Selection

Within the Corporate and Asset Backed sector, the Chandler team focuses on adding stability to improve credits to be consistent with the overall investment objective of safety, liquidity, and return.

- As a Corporate holding becomes more seasoned, with a short maturity, it is often utilized as a 'source of funds' to facilitate new holdings in the portfolio.
- Typically, Asset Backed securities are held to maturity, but in the event of a liquidity need and/or a deteriorating credit situation we would look to reduce the exposure.

The Sanitation District allocates to the Agency and Supranational asset classes when we find the spread over a like maturity Treasury notes to be attractive.

- Considering the lack of issuance in the Agency sector since the financial crisis, the relative value of the sector has become more challenging.
- The Sanitation District has a core view that the Supranational Asset class should offer a modest spread concession to the Agency sector, and the team is typically active in the sector when the additional spread pick-up is compelling.

Across all asset classes, the Sanitation District will remove exposure to a security that is faced with a deteriorating credit situation and/or trading at an irrational valuation where a swap into an alternative security will be beneficial to the portfolio over a reasonable investment time horizon.

Debt Management

Due to the magnitude of the capital improvement program, the Sanitation District has utilized a combination of user fees, property taxes and debt to meet its total obligations and maintain generational equity.

It is the Sanitation District's policy not to issue any new additional debt for any existing obligations. However, the Sanitation District will actively review opportunities to refinance existing debt where possible provided the new refinancing results in a lower total cost and/or shortens the length of the obligations.

The primary debt financing mechanism used is Certificates of Participation (COP). COPs are a repayment obligation based on lease or installment sale agreements. As of July 1, 2019, the total outstanding COP indebtedness was $973 million with a blended interest rate of 3.05%. It is anticipated that the debt will be paid off by 2044.

Future Policy Statement

The Sanitation District will effectively manage its revenues and expenses to support all OCSD operating and capital activities while maintaining a fair and reasonable rate structure. The Sanitation District will maintain reserves and available resources to ensure the access to funds as needed and guarantee payment of all outstanding debt issuances. The Sanitation District will manage its investment by focusing on safety, liquidity and return on investment, in that order of priority.

Initiatives to Support Progress Toward the Policy Goal

- Maintain a rate setting program that keeps OCSD in the lower third of our comparative agencies.
- Maintain a "Pay as You Go" approach to fund current operating expenditures.
- Maintain a portfolio management approach that focuses on safety, liquidity and performance in that order.
- Continually look for ways to reduce total debt payments without lengthening its term.
- Ensure that no new debt issuances are used to support the currently programmed capital expenditures and that all existing debt is paid off by 2044.

Asset Management Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will assess and manage the collection system and treatment plant systems and assets to improve resilience and reliability while lowering lifecycle costs. This will be accomplished through adaptive operation, coordinated maintenance and condition assessment, and planned capital investment. Staff will balance maintenance, refurbishment, and replacement strategies to maximize useful life, system availability and efficiency.

Background

The Sanitation District is a regional governmental agency principally chartered to protect the public health through collection and treatment of wastewater. The governing Board of Directors has defined this role to include the recovery and utilization of resources from wastewater for the public good as a part of that mission. The environmental impact mitigation of the human activity of 2.6 million people and the natural drainage of the 471 square miles the Sanitation District serves is our principal concern.

The Sanitation District owns and operates extensive facilities to achieve its mission. The Sanitation District estimates the replacement value of the civil, mechanical, and electrical assets in its collection system, Plant No 1 in Fountain Valley, and Plant No. 2 in Huntington Beach to be nearly $11 billion. The Sanitation District has been building the piping, pumping, and treatment infrastructure it utilizes for more than sixty-five years. It is necessary to expand, renew, replace, demolish, and rebuild components of the system to deal with wear and tear and meet new challenges.

The early years for the Sanitation District were characterized mostly by capacity expansion to meet the challenges of increased flows as the county grew. The late 1970s to the 2000s were more defined by improved levels of treatment. The last ten years have been focused on increasing the level of resource reuse. One of the key success factors for the Sanitation District has been the ability to upgrade and repurpose its operating facilities to accomplish high levels of treatment and reuse.

Current Situation

The Sanitation District is a highly planned, forward-looking organization. The collection system and each of the treatment plants are broken down into granular functional parts. Each part is well defined and future requirements are estimated. The Sanitation District has a detailed understanding of what is owned, what condition it is in, and how it is capable of performing.

The collection system is made up of independent pipe networks that were installed by the former independent sanitation districts to deliver flow to the joint treatment works. Generally speaking, the natural watershed drainages in the service area are served by major trunk sewer systems. The Sanitation District has worked with member city and agency staff to understand future development plans, flow estimates, and has collected historical inflow and infiltration rates during wet weather events to assure adequate flow carrying capability exists in each trunk sewer system. The Sanitation District also factors in the effects of drought and lower domestic water usage rates to make sure the sewers operate properly at low-flow rates.

The treatment plants are broken down into the discrete process units that make up the whole. Each plant has a headworks unit that brings in flow and does preliminary treatment, a primary treatment unit which does gravity settling, multiple biological secondary treatment systems, solids handling and dewatering, power generation and distribution utilities, water and air system utilities, and an outfall system to release treated water to the ocean. Each plant can treat 320 million gallons per day of wet weather flow, but only 185 million gallons total on average is treated. The Sanitation District must always maintain the ability to treat both the average flow and peak wet weather flow.

The Sanitation District understands that every asset has an expected life. Electrical systems are generally limited by component obsolescence to 20 years of life. Mechanical and coating systems are also generally limited by erosion, corrosion, and wear to 20 years of life. Civil structures and pipes are generally limited to 60 to 80 years of life if maintained on a regular basis.

With this in mind, the Sanitation District has created a facilities master plan that plans to renew or replace facilities on this regular basis. Collection system projects are driven by growth projections or condition findings. Pipes are upsized or renewed based on flow projections, corrosion observation, coating system failure, or the ability to increase reclamation. The 15 regional pump stations are renewed on a more frequent basis due to the mechanical wear and tear and electrical component obsolescence needs, about every 25 years.

The master plan for the treatment plants is much more dynamic. In addition to the electrical, mechanical, and civil asset considerations, there is also the need to meet new requirements. The new requirements are driven by regulatory agencies or by the Board of Directors to change a discretionary level of service. Examples include: capacity demands (more water, more solids), lower discharge requirements (lower BOD/TSS to the outfall, lower nutrients to the ocean), more water for reclamation, better energy conversion of solids, and many more. The 2017 Facilities Master Plan took a snapshot in time looking at the anticipated needs and levels of service to lay out a detailed project plan to morph the Sanitation District infrastructure over time to meet the expectation. Renewal or replacement projects with costs and schedules were laid out for each individual unit of the treatment plants to address capacity, condition, level of service, and anticipated new regulatory drivers.

Future Policy Statement

The Sanitation District will continue to invest in the infrastructure necessary to meet its mission. The Sanitation District will seek to provide its required level of service at the minimum lifecycle cost for its collection and treatment systems. The 2017 Master Plan was the snapshot basis of the Capital Improvement Plan, but the Asset Management Plan is the means to update and modify the Capital Improvement Plan to meet new requirements and conditions as time goes by.

The Sanitation District will understand in a transparent way: what it owns, the condition of those assets, the capacity of collections and treatment required, the level of service required by its regulators and Board of Directors and will anticipate new regulations that may require system improvement. This understanding will drive coherent operations, targeted maintenance, and capital investment strategies to assure resilient, lowest lifecycle cost compliance with the requirements.

Operations is committed to optimizing the operation of the systems to extend equipment life and minimize energy and chemical utilization, while meeting all regulatory and level-of-service requirements. Maintenance is committed to maintain the installed assets in a ready state for operations. Maintenance will seek to balance individual component preventive maintenance, repair, and renewal in harmony with the Capital Improvement Program (CIP). The CIP is based on the Master Plan, modified by the annual Asset Management Plan, and will execute the projects to install, renew, or replace trunk sewers or treatment plant units on a scheduled basis.

Asset Management at the Sanitation District is the living management of the operation strategies, maintenance plans, and implementation of the Capital Improvement Plan. The Sanitation District will find creative ways to maximize asset life or meet new capacity or level of service goals through operations and maintenance. The Sanitation District will annually reassess its condition, capacity, level of service, and regulatory conditions to drive operations and maintenance practices and modify the Capital Improvement Plan projects.

Initiatives to Support Progress Toward the Policy Goal

- Create an annual Asset Management plan documenting the condition of the collection system and treatment plants, and upcoming maintenance or capital projects.
- Coordinate the efforts of operations, collections, mechanical maintenance, electrical maintenance, instrument maintenance and engineering through process teams to assure the Sanitation District's resources are focused on the high priority work functions.
- Maintain a 20-year forecast of all CIP projects needed to maintain or upgrade the Sanitation District's nearly $11 billion in assets on a prioritized risk basis to establish rate structures.

Cybersecurity Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) must maintain adequate cybersecurity (information technology security) techniques that protect computer assets, networks, programs, data, and industrial control equipment from unauthorized access or attacks that are aimed for exploitation.

Background

Developing an effective, sustainable cybersecurity program is a pressing challenge for organizations of all sizes. The reasons behind the scope of the challenge are many. Cyber risk continues to grow at an exponential rate with routine attacks from nation states, criminal elements, hacktivists, and insider threats. The bottom line is cybercrime pays. The booming cybercrime economy is productizing malware and making cybercrime as easy as shopping at Amazon. With this easy access to cybercriminal tools and services, enterprises are experiencing rapid increases in the volume, scale, and sophistication of cyberattacks. Complex and dynamic information security disciplines are subject to continuous changes in the business, technology and threat environments. Many organizations will struggle to implement security programs that support continuous improvements in this challenging environment.

Current Situation

The Sanitation District has evolved over recent years from dedicating less than half of a position towards cybersecurity, to one position, to currently two full-time positions. The Sanitation District's cybersecurity portfolio consists of strategic policy management, defense in depth practices, periodic risk assessments, ongoing awareness communication and operational (e.g., security monitoring and incident response, threat and vulnerability management, user provisioning) processes. For example:

- Cybersecurity Awareness and Training Program - The Sanitation District understands that our employees are our best line of defense in protecting and defending our enterprise from attack. We have built a comprehensive security awareness program by focusing on four critical functions: phishing attack simulations and reporting, quarterly education requirements, targeted training for IT developers and SCADA engineers, and pervasive communications utilizing internal communication tools.

- Vulnerability Management — IT staff subscribe to and monitor security advisories and threat bulletins from Microsoft, US-CERT, ICS-CERT, KnowBe4, Cisco, and other vendors to understand and manage new vulnerabilities. All internet accessible servers and applications are scanned weekly for vulnerabilities and remediated as necessary. Microsoft operating system and application patches are deployed monthly while third party updates are deployed weekly. We use a vulnerability platform for continuous assessment of our security and compliance posture.

- Intrusion Detection and Response — We have implemented several security solutions to be able to detect, prevent and respond to malicious network activity. These include firewalls, intrusion prevent systems, web security gateway, and next-generation anti-malware. In addition, we also have user behavior analysis tools to identify insider threats and ransomware activity.

- Privileged Access Management Program — We use a privilege access management solution to remove and manage local administrative rights on workstations/servers to prevent lateral movement. The solution is also used to protect, control, and monitor privileged access across files and systems.

- Backup and Restore Capabilities — IT practices a 3-2-1 backup strategy:

  3 – Keep three copies of critical data
  2 – Have your data on two types of media
  1 – One copy must be offsite and offline

Restores are performed on at least a weekly basis in response to customer incidents. Disaster Recovery Testing is performed monthly by selecting a major system and testing restore capabilities of that system to our secondary treatment facility, as well as our remote site. We sandbox the restores and provide access to our application subject matter experts to conduct application-specific testing. These tests are logged and kept for auditing and management purposes.

- Security Incident Response — An incident response plan is an organized approach to handle a cyberattack. We have developed an incident response plan, playbooks and procedures for various attacks as well as trained IT security staff. In addition, there are external contacts we can call for assistance including the FBI, Department of Homeland Security and organizations that specialize in incident response like Mandiant, Cylance, and Microsoft.

- Security Assessments — The purpose of a security assessment is to identify the current security posture of a system, network, or organization. The assessment provides recommendations to improve the security posture by mitigating identified risks. Our goal is to do one or two a year. The two most recently conducted assessments are the Office 365 Security Assessment from Microsoft in April 2019 and the Center for Internet Security Control Gap Assessment in July 2018.

Future Policy Statement

The main objective of our information security program is the establishment of a continuous, iterative regimen of planning, building, running and governing security capabilities that are derived from business requirements. Our security program cannot be a static entity. It must be adapted and continuously refined to keep pace with the ever-changing threat environment and changes in how the Sanitation District adopts digital business practices. Cybersecurity incidents are inevitable. Mistakes and/or a lack of preparation in the response can have serious repercussions. The ability of an organization to respond effectively to a security incident is a direct result of the time spent preparing for such an eventuality. If you fail to prepare, then you effectively prepare to fail. The Sanitation District will be prepared. This will be accomplished by the following proposed initiatives.

Initiatives to Support Progress Toward the Policy Goal

- Conduct various tabletop exercises to determine the organization's ability to respond to a targeted cyberattack and to improve the quality of the response, should an attack occur.

- Evaluate, enhance and monitor network security including activities to protect the usability, reliability, integrity and safety of the network by developing Security Operations Center capabilities that support continuous monitoring and is responsible for the continuous threat protection process.

- Conduct a comprehensive third-party cybersecurity operations assessment (Red Team). A thorough Red Team engagement will expose vulnerabilities and risks regarding:

- Technology — Networks, applications, routers, switches, appliances, etc.

- People — Staff, independent contractors, departments, business partners, etc.

- Physical — Offices, warehouses, substations, data centers, buildings, etc.

Property Management Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) owns and operates assets throughout its service area located in property owned in fee, through easements and in the public right-of-way. The Sanitation District will identify and protect all of its property rights to assure that its assets are not encumbered or encroached upon so that the facilities may be properly operated, maintained, upgraded, and replaced.

Background

The Sanitation District owns and operates more than $10 billion in assets. A portion of those assets include buildings, easements, rights of way and other encroachments. OCSD has recently sold and purchased property to support its efforts. The Sanitation District does not maintain expertise in the real estate discipline. As these transactions are limited and not core to OCSD, it has been determined that it is more cost effective to augment the Sanitation District resources with contracted specialized real estate services.

Current Situation

The Sanitation District manages its physical property and property rights. Additionally, it manages landscaping, building maintenance, security and building maintenance. District staff primarily manages these activities.

Future Policy Statement

The Sanitation District will effectively manage its assets and proactively research and maintain all encroachments, encumbrances and easements. Many of these activities are not core to OCSD's mission. The Sanitation District will maintain sufficient resources using a combination of contracted specialized real estate and property management services and internal staffing. Although OCSD is not in the business of managing property as a revenue enhancement or core activity, it does own and operate millions in physical property and property rights.

Initiatives to Support Progress Toward the Policy Goal

- The Sanitation District will review its property rights to identify encroachments or encumbrances that restrict operation, maintenance, inspection or emergency repair access. Staff will work with identified parties to remove encroachments or encumbrances.
- Staff will consolidate real estate and property management activities to maximize its resources and effectiveness. With the completion of the property rights and real estate assessments, the Sanitation District will evaluate the various resources available and develop an appropriate resource management plan to assess and maintain its property assets

Environmental Stewardship

Energy Independence Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will strive to be a net energy exporter. Electrical, thermal, and methane gas generation will be maximized. Energy utilization will be minimized using sound engineering and financial principles.

Background

The Sanitation District must balance the impacts of its operation between land, air, and water. For example, as a water focused utility, the Sanitation District seeks to produce the cleanest water possible to minimize the impacts of human activity on the ocean, as well as to renew freshwater resources for further domestic and commercial use. A natural result of cleaning this water is the separation and concentration of constituent solid and gaseous materials. These solid and gaseous products can impact land and air. The balance of impact on land, air, and water are shifted by application or creation of energy through chemical, biological, or thermal conversion techniques.

The Sanitation District is also committed to be a good neighbor. As such, significant amounts of energy are spent capturing and converting odorous air and vapor streams. The Sanitation District has pursued a comprehensive program to cover and seal its liquid and solid processes. Air streams are ducted to large fans which move thousands of cubic feet of foul air per minute through chemical, biological, and activated carbon beds to scrub the air of odorants that are regulated or may be perceived as a nuisance by the community.

The Sanitation District has utilized an anaerobic digestion process that relies on biological conversion of solid organic material to methane and carbon dioxide gas. The methane is converted to electrical and heat energy in power plants for internal use. The Sanitation District's secondary treatment system is another example of using energy to convert water impacts to air emissions. Approximately 23% of the Sanitation District's energy usage within the treatment process is devoted to aerating water so biological agents can convert soluble organic material to nitrogen and carbon dioxide. The generation of energy itself creates an impact on the environment in air and thermal emissions.

Current Situation

The potential exists to further shift environmental impacts between land, air, and water through the utilization of energy. The Sanitation District is an environmental steward that seeks to balance and minimize overall impact by efficiently utilizing the energy inputs to its processes and maximizing the harvesting of energy available in the incoming wastewater.

On the energy use side of the ledger, the Sanitation District invests prudently in lifecycle energy efficiency to minimize the use of energy to achieve its mission. Pumping systems to lift water and move material for premium efficiency. Thermal energy is harvested from power production for use in the process and to heat and cool occupied buildings. Aeration compressors and diffusers are selected by overall efficiency. Lighting systems are upgraded over time to more efficient technologies and lighting levels are balanced between safety and security needs versus energy utilization and light pollution concerns. Facility designers and operators make careful choices regarding the utilization of every watt of electricity, BTU of heat, and therm of gas consumed.

On the energy generation side of the ledger, the Sanitation District seeks to maximize the internal creation of energy. The primary source of energy creation is in digester gas, also called biogas, which is mostly methane. Organic solids collected and concentrated in the water treatment processes are converted biologically to biogas composed of 65% methane, 34% carbon dioxide, and other trace constituents. The Sanitation District has been using this technology since the 1950s. Research has been ongoing since that time to maximize the production of digester gas. Some of the areas of research include improved mixing and heating; improved feeding; chemical addition to limit trace pollutant production; introduction of food waste; injection of fats, oils, and grease; and cell lysing.

The Sanitation District cleans the biogas and converts this biogas into electricity, heat, and exhaust gas. The exhaust gas is regulated ever more tightly for nitrogen compounds, carbon monoxide, particulates, and volatile organic compounds which require costly and performance degrading engine control technologies. This is another example of an air impact/energy trade off. These internal systems of energy harvesting provide roughly 66% of the Sanitation District's electrical demand and 92% of the Sanitation District's thermal demand in the treatment plants. The Sanitation District can shift the digester gas between treatment plants via an interplant pipeline and has roughly 8 MW of additional generation capacity if more gas is produced.

In addition, the Sanitation District is installing electrical battery storage capacity. This system is primarily in place to lower operating cost by importing electricity for charging during low-cost nighttime hours and discharging that energy for process use during peak-cost hours. The slight energy loss due to system inefficiencies is outweighed by the cost savings and benefit to the region by lowering the peak demand of the Sanitation District by up to five megawatts.

Future Policy Statement

The Sanitation District seeks to be energy independent by self-generating all the electrical and thermal energy necessary to sustain its operations. This will be accomplished by economically minimizing its utilization requirements and maximizing energy harvested from the wastewater it receives. The Sanitation District will also study and use photovoltaic cells in non-process areas where it makes economic sense. Energy independence will improve the Sanitation District's environmental impact and improve its operational reliability and resiliency.

When the Sanitation District has achieved energy independence, it will seek to make excess biogenic or green energy available to external users via gas sales, power grid exports, or transportation fuels. The State of California has set goals for renewable energy utilization for electrical production and hydrogen transportation fuels. The Sanitation District's biogas is viewed favorably in these industries to meet the State of California targets. The Sanitation District is working very diligently and creatively to maximize the production of gas and reduce its own energy needs, but energy independence is the first goal which has not yet been met.

Staff recommends that innovative research continue to maximize energy harvesting and to minimize energy inputs first to make the Sanitation District energy independent in the most basic mission of protecting the public health and the environment. Once this has been achieved, excess energy can be made available for meeting the State of California's goals for the electrical grid and transportation fuels.

Initiatives to Support Progress Toward the Policy Goal

- Maximize the anaerobic digestion conversion of organics to methane through receipt of food waste and operational techniques.
- Investigate and install energy storage and photovoltaic systems where practical to achieve energy independence/resilience.
- Continue to support the conversion of biomethane into electricity and heat for process use. Improve systems as necessary to comply with air regulations.

Climate and Catastrophic Event Resilience Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) aims to design, maintain and operate valuable wastewater assets that withstand or adapt to adverse conditions in a reasonable manner that is both cost-effective and sustainable for present and future generations. These adverse conditions include heavy rains, flooding, sea level rise, earthquakes, tsunamis, extreme heat, wildfires, and electrical grid interruptions.

Background

The Sanitation District owns and operates extensive wastewater collection and treatment facilities valued at nearly $11 billion. The Sanitation District service area faces special challenges because of the geographic location of its facilities. These challenges include: its position on and near seismic risk factors, its proximity to the Pacific Coast, adjacency of its treatment facilities to the Santa Ana River, and being served by increasingly fragile energy utilities.

The Sanitation District's facilities are situated on or near several seismic risk factors. Plant No. 2 is located directly on top of the Newport-Inglewood fault. Both plants and the collection system are influenced by many adjacent major and minor faults capable of delivering damaging energy. Both of our treatment plants and the majority of our collection system sit on top of silty, alluvial soils that can have the effect of amplifying the earth motion and risk liquefaction during a seismic event. The Sanitation District has invested significantly over the last 50 years to improve the soils, foundations, and structures to mitigate these seismic risks. As geotechnical and structural knowledge and building codes progress, upgrades and facility replacements will be necessary.

Another seismic risk associated with having a treatment plant and several pump stations located on the Pacific Coast, is the risk of tsunami inundation. The Sanitation District has been working with and reviewing the plans of the City of Huntington Beach and the City of Newport Beach to understand and quantify this risk. The American Society of Civil Engineers (ASCE) has created a new standard, ASCE 7-16, to layout design parameters for lateral forces and inundation zone associated with potential tsunamis.

The Sanitation District understands that climactic factors we face change widely over time. The Sanitation District's systems must perform in extreme wet weather situations (atmospheric rivers), extreme dry weather conditions (drought), extreme tidal conditions (king tides, rising sea levels), as well as high and low temperature extremes. The Sanitation District generally designs for historical and expected "average conditions" for optimal performance but must also assure operations for extreme weather events.

The Sanitation District serves a critical public health role. Its operations must be reliable 24 hours per day, 365 days a year. Electricity, and to a lesser extent natural gas, are necessary for pumping and treatment operations. Both electricity and natural gas supplies have become increasingly vulnerable to interruption. Electricity deliveries are more vulnerable due to wildfire outage criteria, loss of local generation assets, aging infrastructure and extreme weather events. Natural gas supplies are more vulnerable due to the loss of local storage capacity, aging infrastructure, line corrosion, and more stringent regulatory requirements. The Sanitation District has significant capacity to self-supply critical energy requirement for extended periods.

Current Situation

The Sanitation District has spent considerable effort quantifying its seismic, climate, and utility supply risks. Several key studies have been initiated and will be completed in the next two years. The most acute risk factor faced by the Sanitation District is seismic risk. Climate and utility supply risks are more accurately described as chronic risks.

Seismic risk factors include ground shaking, liquefaction, lateral spreading, and fault rupture. Both treatment plants are situated in historic riverbed with poor soil conditions. The collection system

is vulnerable to failures during seismic events. The state of the art for seismic design has changed greatly over the Sanitation District's history and will continue to do so. Many of our critical structures were designed or installed prior to the great learning that occurred in the earthquakes of the 1990s. Significant effort has been expended to better characterize the soil conditions under our treatment plants and pump stations. Projects to refurbish or replace existing unit processes are, or soon will be, scoped and budgeted to provide enhanced seismic resilience. These measures include soil mixing to stiffen the soil, various foundation designs and building structure improvements.

Tsunami resilience and flooding protection can go hand in hand. To a great extent, these two risk factors can be mitigated in the same way. The Tsunami guidelines for inundation in ASCE 7-16 are a reasonable peer reviewed standard. By complying with this standard for Huntington Beach and Newport Beach, the Sanitation District will be reasonably prepared for flooding caused by extreme storm events and conservative sea level rise estimates at Plant No. 2 and pump stations in the City of Newport Beach.

The Sanitation District has also expended significant effort to prepare for the effects of weather extremes on its operations. Extreme wet weather impacts operations. Inflow and infiltration during intense storm activity have multiplied average dry weather flow rate by up to three times in recent years. The Sanitation District has significant wet weather capacity and will continue to maintain a 640 million gallon per day influent and outfall capacity which is roughly 3.5 times our average dry weather flow. Historically high rains as seen in 1863 and 1938 will push our systems to the limit.

The Sanitation District has also adapted its systems to perform in extreme dry weather. The Sanitation District in cooperation with OCWD operates the largest potable water reuse system in the world. This is made possible by replumbing our treatment plants and adding new smaller pump stations to deal with extreme low outfall flow rates in the morning hours. The Sanitation District also has, and continues to grow, the ability to shift influent flow between its treatment plants which creates additional resilience for risk factors.

Finally, on the topic of utility supply, the Sanitation District built redundant supplies for its most critical needs: electricity, natural gas and water. The Sanitation District has maintained three sources of electricity supply for more than 25 years. The treatment plants can be supplied with power from Southern California Edison, the Sanitation District's Central Generation Plants or on-site diesel generation systems to maintain basic operation to protect public health. In terms of natural gas, the Sanitation District has been producing bio-methane through anaerobic digestion since the 1950s with enough capacity to provide electricity and necessary process heat.

Future Policy Statement

The Sanitation District will continue to build and improve its facilities to meet the seismic, climate and energy infrastructure risks that it faces with a long-term, planned approach. Acute life-safety risks that are identified or facilities that are damaged or fail in a catastrophic event will be addressed very quickly. However, it is not practical to update $11 billion in facilities every time a code is updated, or new climate change estimate is released. The Sanitation District will stay abreast of code and climate change estimates as they occur and will implement improvements or replacements to facilities on a long-term basis in line with its asset management practices. The Sanitation District generally plans to refurbish or replace its mechanical and electrical assets every 20 to 25 years with an average capital improvement investment of $250 million per year.

The Sanitation District facilities are designed to meet industry codes. As time goes on and codes are updated, it is not required to upgrade existing facilities to meet those latest codes unless there is a mandate to do so, or a risk in not doing so is recognized. The Sanitation District will accept some incremental risk in having some facilities that are not necessarily compliant with latest building codes or subject to increased greater risks until a project to rehabilitate or replace these facilities is developed. All of the Sanitation District's facilities have a planned life span with two to three refurbishment cycles. Identified seismic or flooding vulnerabilities may drive a replacement versus refurbishment decision in the normal capital planning process.

The Sanitation District will continue to aspire to energy independence which will help mitigate vulnerabilities to loss of electrical and gas utilities. In addition, the Sanitation District will continue to maintain third level, diesel generator, electrical supply capability for critical loads. On-site diesel storage will provide up to three days of power to run the plants. Pump stations diesel generation will be site specific in its design based on flow risks, hydraulic storage capacity, and site constraints. Either on-site generation or quickly deployable mobile generators will provide emergency power for up to days at a time.

Initiatives to Support Progress Toward the Policy Goal

- Complete an engineering study of the seismic vulnerabilities of the treatment plants. Incorporate necessary upgrades into future capital improvement projects.
- Complete the biannual high flow exercise to assure readiness for a high flow event. Maintain a higher level of readiness October 15 through March 15 and in advance of predicted significant rain events.
- Study the potential impact of tsunami and changing climate conditions including flooding due to high tides and heavy rain events.

Food Waste Treatment Policy

Summary Policy Statement

The State of California limits the volume of organic waste that may be diverted to landfills. The Orange County Sanitation District (Sanitation District) will collaborate with the County of Orange, other local agencies, and waste haulers to find ways to beneficially reuse food waste, a type of organic waste to assist cities in our service area in meeting their diversion requirements while increasing the Sanitation District's energy production.

Background

Whether supplying secondary treated wastewater for the Groundwater Replenishment System, creating renewable energy in the form of biogas from anaerobic digestion to produce electricity, or benefiting from the use of biosolids as a soil amendment, the Sanitation District is a resource recovery agency committed to providing resilient and reliable wastewater treatment service while protecting the public health and the environment.

In recent years, there has been a significant change in the regulatory landscape in California related to the diversion of organics such as food, green material, wood, paper, biosolids, digestate, and sludges from landfills. Currently, much of the state's diverted organics are being composted or used as alternative daily cover on landfills. With the phaseout of organics as alternative daily cover, the regulatory shift is creating an organics market for the wastewater sector to provide a solution to manage organics such as food waste by way of co-digestion. There is an opportunity for the Sanitation District to produce additional biogas, reducing the need to purchase electricity from the local utility.

Anaerobic digestion is currently at the nexus of important State of California mandates, namely: (1) organics diversion from landfills (AB 1826 and SB 1383), and (2) increased renewable energy and fuels generation (SB 32 and SB 100). The primary alternatives for organics management are anaerobic digestion and composting — of which anaerobic digestion is the only process offering energy recovery potential. Over the next few years, California's cities and counties, along with municipal solid waste haulers, material recovery facilities, and landfills will need to develop collection, processing, and energy recovery infrastructure to address new state legislation and goals. Existing wastewater treatment plants such as the Sanitation District are uniquely positioned to play a role in the new organics marketplace since solid waste management facilities do not typically have anaerobic digesters, the energy recovery infrastructure in place, or experience regarding the management of biosolids for beneficial use.

In 2017, the Sanitation District completed a comprehensive Biosolids Master Plan (Plan) that provides a roadmap and framework for sustainable and cost-effective biosolids management options and future capital facilities improvement over a 20-year planning horizon. Considering the timeliness of the regulatory mandates requiring organic diversion from landfills and increased renewable energy, the Plan evaluated the feasibility of implementing a high strength organic waste receiving program involving the co-digestion of preprocessed food waste.

While food waste digestion appears to be feasible, the Sanitation District's existing infrastructure isn't well suited for receiving, handling, or digesting green waste. Current digester feed, mixing, heating, dewatering and truck loading facilities aren't designed to deal with cellulosic products in green waste. The highly fibrous material doesn't readily break down and clogs the various systems optimized for sewage sludge treatment. In addition, there are legal hurdles specified in the California Health and Safety Code, Section 4700, that must be addressed before the Sanitation District could operate a refuse transfer facility.

Current Situation

Project Viability

The Sanitation District's Plan concluded that the costs to construct and operate a food waste receiving facility could be offset by tipping fees charged to food waste processors/haulers and by additional power

generated from the increased digester gas production. The Plan recommended that the Sanitation District build an interim food waste receiving station immediately to take advantage of existing digestion and power generation capacity of approximately 150-250 wet tons per day at Plant No. 2. The Sanitation District will construct a more permanent facility in the future to coincide with the planned construction of new digesters at Plant No. 2, allowing an additional capacity to co-digest approximately 500 wet tons per day of food waste. The Sanitation District also has at least 6 MW of installed electrical generation capacity that can convert the produced digester gas to electricity and heat.

Based on these recommendations, in 2018 the Sanitation District's Board approved a project (P2-124) to construct an interim (10-15 years) food waste facility to receive, store, and feed preprocessed food waste slurry to the digester complex at Plant No. 2 to generate additional digester gas. This project will be designed to accept approximately 150 wet tons per day of preprocessed food waste and will produce approximately 15 percent more methane gas for on-site energy production, resulting in a greenhouse gas reduction of approximately 10,800 metric tons of carbon dioxide equivalent annually which is equivalent to the annual greenhouse gases generated by approximately 2,000 passenger vehicles. This is consistent with the Sanitation District's Energy Independence Policy which is to strive to be energy independent by minimizing energy utilization and maximizing useful energy recovery from the sewage it receives. The interim receiving station is scheduled to be completed in 2022.

The final biosolids product currently produced by the Sanitation District is anticipated to be largely unaffected by the addition of food waste slurry. Pilot testing conducted by the Sanitation District indicates that there will be increased gas production due to mixing sewage sludge and food waste feed stock, but the final biosolids product will remain largely unchanged.

A draft Preliminary Design Report was issued in June 2019 for the interim receiving facility which included a viability evaluation concluding that the project is economically justifiable based on project costs and anticipated tipping fees. Final Design work has started and among other important items, the tipping fee and food slurry specifications will be further refined and validated.

There are three large municipal solid waste haulers that have expressed interest in collaborating with the Sanitation District to provide preprocessed food waste for digestion. Of these, two haulers are located within the county and one is located outside the county. Another important partner for the Sanitation District is Orange County Waste and Recycling (OCWR). The Sanitation District has met with OCWR and they have expressed interest in partnering with the Sanitation District to find local solutions to meet SB 1383's organics diversion mandate including in-county biosolids management, composting, food waste co-digestion, and biogas production.

Future Policy Statement

Food Waste Slurry

The Sanitation District will only accept a preprocessed food waste slurry. We do not have available land or air permits to handle, sort, and process solid or green wastes. The Sanitation District will work with other public agencies and waste haulers to develop an industry standard for food waste slurry that specifies water, organic, metal, plastic, and glass content requirements. A common specification for slurry will help all parties make investment decisions.

Food Waste Volume

The Sanitation District has identified available capacity within its infrastructure at Plant No. 2 to accommodate food waste conversion to energy. The processes impacted by food waste conversion are digestion, gas cleaning, gas compression, generation, process heating, biosolid dewatering and biosolids loading. These impacted systems have the capacity to accept 150 to 250 wet tons per day for the next ten years. Beyond ten years, the Sanitation District plans on upgrading its digestion, gas compression, and gas treatment systems. Based on the lessons learned from the interim system and the development of the food waste market, the Sanitation District plans to be able to accept up to 500 wet tons per day when the new digestion, gas compression, and gas treatment systems are completed.

The Sanitation District believes that the full implementation of the current regulations will create a food waste slurry market significantly greater than 500 wet tons per day in Southern California.

Tipping Fee Basis

The acceptance of food waste has the opportunity to more fully utilize the system capacity that already exists for the benefit of the Sanitation District's rate payers.

The Sanitation District staff will develop a base tipping fee rate schedule for Board of Directors' approval that meets the following criteria:

- Recover all capital costs to construct facilities within five years (this will allow the Sanitation District and waste haulers to properly invest in processing facilities);
- Recover all on-going costs including operating cost, maintenance cost, electricity usage, biosolids dewatering, and reuse costs;
- Food Waste will not be operated "for profit" but rather a cost recovered service with revenues offsetting rates and passed on to OCSD's rate payers.

Food waste generated and processed within the service area will be charged the base rate and will be prioritized over food waste from outside the service area. This is justified by the fact that the underlying infrastructure of the Sanitation District is already owned by service area rate payers. The Sanitation District contracts with service area waste haulers must provide for a pass-through savings to the Sanitation District rate payers. That means waste haulers may charge for collection and processing of food waste but must disclose to their City or Special District franchise partner the Sanitation District's tipping fees and negotiate pricing adjustments as necessary with City or Special District franchise partners.

If additional capacity exists, but isn't utilized by in service area users, then that capacity may be contracted by out of service area users at a premium to help offset the cost of the underlying infrastructure necessary to process the food waste.

The Sanitation District will pursue grant opportunities to the extent possible to reduce the overall capital and operating cost basis for the program to reduce the tipping fee base rate.

Initiatives to Support Progress Toward the Policy Goal

- The Sanitation District will accept a preprocessed food waste slurry from contracted waste haulers that will be fed to existing anaerobic digesters. The Sanitation District will charge a tipping fee to offset its costs for capital construction, operations, handling, maintenance, and biosolids disposal.
- Design, build, and operate a food waste receiving station. Create a specification for food waste slurry and contract with solid waste haulers to receive and process food waste.

Water Reuse Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will seek to beneficially reuse all reclaimable water for potable, industrial, irrigation and environmental uses.

Background

For over 40 years, the Sanitation District and the Orange County Water District (OCWD) have partnered to beneficially reuse treated wastewater from the Sanitation District. OCWD, which serves roughly the same service area as the Sanitation District, manages and replenishes the groundwater basin in northern and central Orange County, ensures water reliability and quality, prevents seawater intrusion, and protects Orange County's rights to Santa Ana River water.

Beginning in 1975, the Sanitation District contributed treated wastewater from its Plant No. 1 to OCWD for the operation of Water Factory 21, which reclaimed the treated wastewater and injected it along with deep well water into the groundwater basin to prevent seawater intrusion. In the mid-1990s, OCWD needed to expand Water Factory 21. At the same time, the Sanitation District faced the challenge of having to build a second ocean outfall pipe to discharge treated wastewater into the Pacific Ocean. Both agencies collaborated to build an advanced water purification facility to resolve these challenges. This state-of-the-art facility, known as the Groundwater Replenishment System (GWRS), took the place of Water Factory 21, and began operation in 2008. The GWRS treats secondary treated wastewater from the Sanitation District Plant No. 1 to drinking water standards and uses the purified water for both injection and percolation, through injection wells and recharge basins, as source water to replenish the groundwater basin's drinking water supplies. With approximately 75 percent of the water demand in northern and central Orange County cities coming from the groundwater basin, GWRS supplements existing water supplies by providing a new, reliable, high-quality source of water.

While the original GWRS facility was initially constructed to supply up to 70 million gallons per day (MGD) of purified water, the facility was designed for an ultimate treatment and conveyance capacity of 130 MGD. The original GWRS design intent was to expand the GWRS facility in two phases — an initial and a final expansion of an additional 30 MGD of treatment capacity with each expansion. The GWRS Initial Expansion Project was completed in June 2015 and has been producing up to 100 MGD of purified water for groundwater injection and recharge. The Final Expansion of GWRS is scheduled to be completed in 2023 and will produce the maximum capacity of 130 MGD.

In addition to providing treated wastewater to the GWRS, the Sanitation District also provides treated water to OCWD's Green Acres Project, which provides recycled water for landscape irrigation at parks, schools, and golf courses; and industrial uses, such as carpet dying; toilet flushing; and power generation cooling.

Current Situation

The GWRS currently produces 100 million gallons per day of purified water — enough water for about 850,000 people. All of the Sanitation District's Plant No. 1 secondary effluent, between 120-130 MGD, is sent to OCWD for the GWRS and Green Acres Project. However, secondary effluent from the Sanitation District's Plant No. 2 and other non-reclaimable flows, such as brine from inland desalters and GWRS's reverse osmosis process, and the Sanitation District's process sidestreams, continue to be released into the ocean.

In 2016, the Sanitation District and OCWD jointly conducted the Effluent Reuse Study, which evaluated the feasibility of recycling the Sanitation District's secondary effluent from Plant No. 2 and identified projects required to achieve the final expansion of the GWRS. The GWRS final expansion effort will include implementation of projects to construct new, modified or rehabilitated facilities at Plant No. 2 to separate reclaimable flows from non-reclaimable flows; to equalize, pump, and convey secondary effluent from the Sanitation District's Plant No. 2 to the GWRS facility; and to treat the additional source water to produce 130 MGD of purified water.

Reverse Osmosis brine generated at the GWRS Initial Expansion is currently discharged into the ocean. The 2016 Effluent Reuse Study identified alternative brine management strategies such as evaporation ponds, deep well injection, and engineered wetlands. Evaporation ponds are land intensive and are also energy intensive when combined with a brine crystallizer to remove solids from highly concentrated brine system using heat and pressure. While the areas around both the Sanitation District treatment plants have the appropriate geology for brine injection, there are concerns with contamination of drinking water aquifers, and seismic risks due to the Newport-Inglewood zones near Plant No. 2. At this time, it does not appear economically feasible to provide alternative management strategies for the brine discharge.

In November 2016, the Sanitation District Board of Directors adopted the Second Amended and Restated Joint Exercise of Powers Agreement for the Development, Operation and Maintenance of the Groundwater Replenishment System and Green Acres Project, which committed the agency to continue supporting the GWRS and the Green Acres Project, and specifically, the final expansion of the GWRS. The implementation of the final phase of the expansion will be executed by multiple projects, some executed by the Sanitation District while the others executed by OCWD. Project costs related to GWRS are funded by OCWD, including $50 million reimbursement to the Sanitation District for its costs incurred to execute related projects.

By supporting the GWRS Final Expansion, the Sanitation District will be able to recycle all reclaimable wastewater generated in its service area and treated at its two treatment plants, and OCWD will have sufficient water to run the GWRS facility to full capacity.

Future Policy Statement

The treated effluent produced from the Sanitation District's Plant Nos. 1 and 2 is a valuable resource that can help boost local water resources and reduce dependence on imported water, while reducing the effluent discharged to the ocean. The Sanitation District will continue to seek opportunities for beneficial reuse of all reclaimable wastewater collected and treated at its facilities.

The Sanitation District will continue to support the completion of the final expansion of the GWRS in accordance to the adopted Second Amended and Restated Joint Exercise of Powers Agreement for the Development, Operation and Maintenance of the Groundwater Replenishment System and Green Acres Project. This includes providing secondary effluent as source water for GWRS free of charge; allowing OCWD to discharge brine via the Sanitation District's ocean outfall free of charge; leasing approximately 10 acres of land to OCWD at $1 per year for the GWRS Final Expansion project; allowing OCWD to discharge North and South Basin extraction well flows to the Sanitation District sewers; managing the design and construction efforts of the Plant No. 2 Headworks Modifications Project and the Plant Water Pump Station Replacement Project (OCWD will reimburse up to $50 million of project cost); managing and financing the construction of the Ocean Outfall Low Flow Pump Station at Plant No. 2 and the construction of Plant No. 2 primary and secondary facilities to allow segregation of non-reclaimable flows.

The Sanitation District will continue to maximize the delivery of secondary effluent available to GWRS and the Green Acres Project in order to maximize full production of purified recycled water for indirect potable reuse, and industrial and irrigational uses. The Sanitation District has been operating the Steve Anderson Lift Station to divert more flows to Plant No. 1. The two agencies regularly communicate and coordinate the Sanitation District operations and construction projects that may have impacts on GWRS operation and will continue this collaboration effort.

The Sanitation District has adequate flow to maximize the production of the GWRS through final expansion. Diversion of additional non-wastewater into the sewer system is unnecessary. Non-wastewater diversions create high flow risks during wet weather conditions and can introduce constituents of concern to existing water and biosolid reuse programs.

Initiatives to Support Progress Toward the Policy Goal

- Support the completion of the final phase of the Groundwater Replenishment System and maximize reclaimable wastewater availability to the Orange County Water District.
- Support Green Acres project water production to provide reclaimed water for industrial and irrigation uses.

Environmental Water Quality, Stormwater Management and Urban Runoff Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will partner with storm water permittees to accept up to ten million gallons per day of dry weather urban runoff at no charge in order to improve water quality in streams, rivers and beaches as long as the constituents within the flow do not adversely impact the Sanitation District's worker safety, treatment processes, reuse initiatives, or permit compliance. The Sanitation District facilities are subject to significant flow increases during wet weather events and are not capable of accepting stormwater flow volumes.

Background

The Sanitation District's wastewater collection system is designed to be wholly separate from the region's stormwater systems, also referred to as storm sewers and/or storm drains. The Sanitation District implements a system-specific Sewer System Management Plan in compliance with the California Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ. In the Sanitation District's service area, most local sanitary sewer systems are owned by city municipalities and discharge into the Sanitation District -owned regional sewers. Similarly, many stormwater systems are also owned and maintained at the local level, referred to as municipal separate storm sewer systems or MS4. These publicly owned conveyances or a system of conveyances are designed to collect/convey stormwater, are not combined with sanitary sewers, and not part of the sewage treatment works. Stormwater runoff is water generated from precipitation events that flows over land or impervious surfaces including streets, parking lots, and building rooftops — this water does not return to groundwater basins, because it does not soak into the ground. This runoff accumulates pollutants from transportation, construction, industrial, and residential sources that can include trash or other solid waste, chemicals, oil, and other sediments. MS4 stormwater that is not captured for reuse, typically discharges into regional systems, most notably flood control channels (e.g. the Santa Ana River), that subsequently flow to the ocean and are regulated by the National Pollutant Discharge Elimination System (NPDES) that also regulates the Sanitation District's discharge to the ocean.

Due to the design and operation of local and regional sanitary sewers, there is not system capacity to allow 'wet weather' stormwater discharges to the sewer. Excessive flows into the sewer beyond its design capacity can lead to sanitary sewer overflows (also called SSOs), spills, and potential sewage backups. The Santa Ana River can provide massive storm-flow capacity at approximately 22,000 cubic feet per second (cfs) of water, and the Delhi Channel at 325 cfs, as compared to the peak wet weather flow for both the Sanitation District Plant Nos. 1 and 2 combine to less than 1,000 cfs — much of which is utilized for sanitary sewer service at all times. During 'dry weather', stormwater systems collect flow from 'dry weather urban runoff' activities, such as residential or industrial use, irrigation, water released from previous precipitation, among others. Most sanitary sewer systems are gravity draining, that is, most non-industrial facilities passively drain to the sewer and do not typically take action to commence discharge of wastewater. As a result, it's important that facilities are constructed in such a way that they will not drain active stormwater or urban runoff flow to the sewer, especially during rain. Additionally, stormwater best management practices (BMPs) typically dictate that the generation of contaminated stormwater should be mitigated through proper facility design including berms and grading.

The Sanitation District's Wastewater Discharge Regulations Ordinance, which sets quality standards and requirements for facilities discharging to the Sanitation District, includes language to prohibit sewer users from discharging groundwater, stormwater, surface runoff, or subsurface drainage to the sewer without written authorization or a permit issued for such a purpose. In addition to the concerns related to insufficient capacity in the Sanitation District's sewer collection system, there is a concern that uncontrolled discharge to the sewer from these types of systems can introduce pollutants that may cause issues in the Sanitation District's treatment and reclamation plants, discharge to the ocean, or affect the agency's ability to recycle water or reuse biosolids. The Sanitation District's Ordinance was recently revised

to clarify these restrictions and include a prohibition on drainage from non-domestic surface and floor drains to address these types of uncontrolled discharges.

However, given the public health and environmental protection issues that may arise from runoff-carried pollutants being transferred into the Sanitation District's coastal beaches and waters, in April 2000 the Sanitation District initiated a permitting program to assist in the economical and practical control of these pollutants during dry weather conditions.

Following the Sanitation District's sponsored legislation (AB 1892), the Sanitation District's charter was amended to authorize the Board of Directors to adopt Resolution No. 00-04 establishing a dry season urban runoff policy that allowed local agencies to obtain a Dry Weather Urban Runoff Permit to discharge to the Sanitation District. Agencies could apply for this permit type where there was not an economically or practically feasible alternative (i.e. discharge to storm drain, reclamation/reuse, etc.) to discharging dry weather urban runoff to the sewer, and the discharger met other conditions including complying with the Sanitation District's Wastewater Discharge Regulations Ordinance.

In September 2000, the Sanitation District modified the Dry Weather Urban Runoff Policy (Resolution No. 00-22) to cap discharges received to ten million gallons per day (MGD). Furthermore, the policy revision established the waiving of fees associated with the program until discharges exceeded four MGD, or until the policy underwent future revisions. There were a number of other modifications to the policy that added facility and compliance requirements for Dry Weather Urban Runoff permittees.

The Sanitation District Board Resolution No. 01-07, adopted in March 2001, added language to the policy clarifying conditions in which the Sanitation District would and would not be indemnified against liability associated with diversion systems. Indemnification is a critical component of Dry Weather Urban Runoff agreements necessary to address the risks posed to the Sanitation District associated with water quality, flooding, trash, infrastructure damage, and other concerns. In June 2013, the Sanitation District's current policy was established when Resolution No. 13-09 was adopted. This included a revision where upon reaching a dry weather urban runoff influent rate of nine MGD, the Sanitation District will take action to reevaluate the policy.

In addition to Dry Weather Urban Runoff Permits, the Sanitation District's Ordinance allows for normally prohibited wastes such as groundwater, stormwater, surface runoff, and subsurface drainage to be discharged to the Sanitation District as authorized through a Special Purpose Discharge Permit or written authorization from the Sanitation District; only when no alternate method of disposal is reasonably available or to mitigate an environmental risk or health hazard.

The Dry Weather Urban Runoff and Special Purpose Discharge permit programs are intended to assist in the protection of public health and the environment by routing contaminated discharges into the Sanitation District's treatment and reclamation plants. For example, the toxic amounts of selenium in the Upper Newport Bay Watershed have resulted in regulatory requirements to remove selenium loadings from upstream creeks and channels to protect downstream aquatic life. For dry weather urban runoff discharges, the Sanitation District is able to accommodate certain waste streams that mitigate these hazards. However, the Sanitation District treatment and reclamation plants also have limitations on the loading of pollutants that can be discharged to them — particularly because traditional sewage treatment plants are not designed to remove toxic pollutants, but are designed to remove the conventional pollutants typically found in wastewater generated from normal sanitary uses. The Sanitation District's Ordinance dictates that permitted users, such as Dry Weather Urban Runoff or Special Purpose Discharge users, must comply with numeric effluent limit standards for toxic pollutants. Continuing the example from above, discharges must meet a selenium effluent limit of 3.9 milligrams per liter (mg/L), a derived value based on the compliance standard, the Sanitation District is held accountable in order to reuse biosolids. In this example, the Sanitation District may choose to issue a permit to mitigate a public health or environmental concern, but must do so in such a way as to also address the potential impact on the Sanitation District's plants and its reuse initiatives — with permit numeric limits and conditions.

Current Situation

As of June 2019, the Sanitation District maintains 21 active Dry Weather Urban Runoff Permits for diversions owned and operated by the City of Huntington Beach, the City of Newport Beach, OC Public Works, Irvine Ranch Water District, and a LLC responsible for the areas in and around Pelican Point community. For the June to December 2018 reporting period, the Sanitation District received an average of 1.03 MGD from these facilities, well below the current ten MGD policy cap and nine MGD action threshold. Since the program's inception in 2000, the Dry Weather Urban Runoff Program has treated 9.4 billion gallons of dry weather urban runoff. The success of this program is captured succinctly in reviewing the Heal the Bay 2018-2019 Beach Report Card. Heal the Bay is an environmental non-profit organization focused on coastal water and watershed quality, and reported that 92 percent of beaches in Orange County received an 'A' rating during summer dry weather conditions — some the Sanitation District -service area beaches made the report card 'honor roll' with an A+ rating. It should be noted that this overall rating is negatively impacted by south Orange County beaches that are not in the Sanitation District's service area.

Both the permitted Dry Weather Urban Runoff users and the Sanitation District staff collect samples from Dry Weather Urban Runoff facilities (during dry season discharge) on a semi-annual basis to evaluate compliance with pollutant limits establish in the Sanitation District's Ordinance.

Periodically, the Sanitation District works with other organizations and industries that have intentionally or unintentionally captured stormwater or runoff on-site and seek guidance on disposing of the water. The Sanitation District may authorize such a discharge request where: there is adequate capacity, wastewater meets applicable effluent discharge standards, there is no practical alternative method of disposal, and the wastewater is captured and held until it can be released to the sewer apart from a high-capacity or storm event. The Sanitation District can utilize written authorizations, special conditions on an existing wastewater discharge permit, or a Special Purpose Discharge Permit — issued for planned short-or-long-term discharges. In other instances, the Sanitation District has observed unauthorized stormwater connections to the sewer during routine inspections of facilities and worked with the dischargers to mitigate these to prevent potential overflow conditions.

Special discharges described above, where acceptable through a Special Purpose Discharge Permit or written authorization, are not included in the ten MGD allowance under the Dry Weather Urban Runoff program.

Key Issues for the Future

Under the current policy, the Sanitation District has the capacity to accept additional dry weather urban runoff flows (up to ten MGD), however, this allotted capacity is not typically the limiting factor in increasing the volume of runoff diverted to the Sanitation District. As Dry Weather Urban Runoff diversion projects are initiated and funded at the local municipality level, capital support for such projects can be limited. Without funding and operational support from a public agency that has jurisdiction and authority over surface water runoff and wastewater, this water cannot be diverted.

Diversion systems must be pumped (not gravity-fed) into the Sanitation District's collection system to ensure the necessary level of control. Furthermore, diversions cannot be implemented just anywhere. In order for the Sanitation District to accept this dry weather runoff water, the supporting sewer hydraulic capacity and infrastructure must already be in place at the specific location where the gravity diversion exists. Otherwise constructing new Sanitation District facilities to convey diverted waters would require a significant capital investment from the Sanitation District and its rate-payers. In short, acceptance of dry weather runoff must be evaluated based on the site-specific capacity of the Sanitation District's collection system, i.e. the hydraulic capacity of a specific interceptor/sewer trunkline. In addition, where the intention is to also recycle this runoff water as well as divert it from the Sanitation District's coastal beaches and waters, it must be routed to the Sanitation District's Plant No. 1 facility in Fountain Valley where it can discharge to OCWD's Groundwater Replenishment System (GWRS). At present, the Sanitation District's Plant No. 2 facility does not discharge wastewater to GWRS for recycling, and the majority of existing dry weather urban runoff facilities discharge to Plant No. 2.

The Sanitation District is working to divert the majority of Plant No. 2 influent wastewater to GWRS, however, the expected completion date of this project is not until 2023. It should be noted that the recycling capacity of GWRS is not unlimited and the plan to divert wastewater from Plant No. 2 is expected to provide the near maximum level of influent to GWRS. Therefore, the Sanitation District is not in a position to accept additional wastewater for recycling, and the notion that stormwater is necessary to augment GWRS influent is not a valid assumption.

Given the above conditions, to expand the current programs to a larger-scale stormwater/rain-event capture and discharge program, means an investment for stormwater-authority agencies to build water storage systems in addition to existing or new diversion systems.

The regional benefit for such an initiative would be the increased capture and recycling of water that would otherwise be discharged to the ocean. The potential risk to the Sanitation District and its reuse initiatives from pollutants in stormwater and runoff would be directly impacted by our agency's future ability to control these wastes — that is permit, inspect, and monitor discharging facilities, and when warranted — enact enforcement to ensure compliance with the Sanitation District's Wastewater Discharge Regulations Ordinance. To protect the Sanitation District, this means issuing stringent requirements on discharges or suspending a discharge when an existing or potential sewer user does not meet a compliance obligation. Moreover, the Sanitation District will only be able to accept stormwater and runoff discharges that can be captured and held beyond storm events, and where that water can be adequately evaluated before being released for discharge into the Sanitation District's system.

The financial impact for the Sanitation District would translate to capital and operational costs where the Sanitation District is involved in the construction and maintenance of facilities to support these diversion systems. In addition, a larger-scale stormwater/rain-event capture and discharge program most certainly will require an investment in additional Sanitation District staff in the workgroup that oversees the current permitting programs.

The larger question, beyond the scope of this white paper, is to evaluate at a regional level whether stormwater capture from a rain event will provide an additional source of water significant enough to offset the costs to capture this water and temporarily store it until it can be reused, including the associated infrastructure, staff, and other public resources this would require; and considering the intrinsic restrictions of the current sewer system, GWRS limitations, and the potential risks posed to the Sanitation District's existing water and biosolid reuse initiatives.

Initiatives to Support Progress Toward the Policy Goal

In accordance with Resolution No. 13-09, the Sanitation District intends to continue accepting up to ten million gallons per day of pumped dry weather urban runoff diversion where existing conveyance capacity exists, and the constituents of the flow will not adversely impact the Sanitation District. The Sanitation District also intends to continue working with industries, agencies, and other facilities to offer alternatives to stormwater and runoff disposal through special purpose discharge permits or other written authorization in accordance with the Sanitation District's Ordinance, where doing so does not negatively affect the Sanitation District's operation or compliance with local, state, and federal regulations, and wastewater can be held for evaluation prior to discharge.

Additionally, to act as a regional partner in resolving issues associated with disposing of and reusing stormwater, the Sanitation District intends to work with local jurisdictions to determine the feasibility of regional wet weather runoff capture, storage, and use projects.

- Issue dry weather urban runoff connection permits up to a total of ten million gallons per day to other service area local agencies to accept pumped dry weather urban runoff flows where existing conveyance capacity exists, and the constituents of the flow will not adversely impact the Sanitation District.

- Continue working with industries, facilities, agencies, and local jurisdictions that have authority over stormwater or surface water runoff to determine the feasibility of regional wet weather runoff capture, storage, and use projects or offer alternatives to stormwater and runoff disposal through permits or other written authorization. The Sanitation District will promote responsible stormwater utilization and sewer protection, where doing so does not negatively affect the Sanitation District's operation or compliance with local, state, and federal regulations, and wastewater can be held for evaluation prior to discharge.

Wastewater Management

Chemical Sustainability Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) has a need to use chemicals in its treatment process to improve plant performance, reduce odor and corrosion potential, and meet its regulatory requirements. These commodity chemicals are provided by outside vendors through the purchasing process. Some of these chemicals are subject to price swings due to market condition changes such as energy cost impacts, raw material cost changes, commercial competition changes, and transportation cost volitility. The Sanitation District will identify chemicals key to its operation, investigate the market risks for those chemicals and devise strategies to mitigate identified risks to availability and pricing.

Background

The Orange County Sanitation District (Sanitation District) treatment plants and collection system use several bulk chemicals. A sustainable supply of these chemicals is critical to maintaining an acceptable level of treatment and for ensuring compliance with all regulatory requirements. The Sanitation District spends about $13 million annually on the procurement of eight key chemicals which generally can be broken down into four categories: coagulants, odor/corrosion control, disinfection, and boiler water treatment. Boiler water treatment chemicals are low volume and readily available and will not be considered here.

Coagulant Chemicals

Coagulant chemicals include ferric chloride, anionic polymer, and cationic polymer. These chemicals are the workhorses of the sewage treatment process. Coagulant chemicals work to clump together organic material so it can more readily be separated from water. Ferric chloride is the first chemical added in the treatment process. It is a powerful settling agent that causes organics to clump together and settle to the bottom of primary basins. It is a double-duty chemical in that it also controls the formation of hydrogen sulfide gas, which is a major odorant, by binding to suspended sulphur compounds and causing them to settle before they can be converted by natural bacterial processes to hydrogen sulfide.

Ferric chloride is an iron salt that is produced by reacting iron with hydrochloric acid. It is generally a byproduct of steel treatment, a leftover pickling agent. Ferric chloride is commonly used in the water and wastewater industries. Historically, this chemical has been the subject of a limited supplier base in Southern California. The Sanitation District has been actively splitting supply contracts to multiple vendors to ensure multiple vendors are available. On-site generation of the chemical is impractical due to the hazardous nature of the manufacturing process and acid handling, the bulk steel handing logistics, and waste products disposal.

Anionic polymer works with ferric chloride to further aid in the coagulation or settling of organic compounds in the primary treatment process. These long-chain molecules are designed to be negatively charged to attract or collect positively charged ferric chloride induced organic clumps or flocculant. The use of ferric chloride and anionic polymer is called Chemically Enhanced Primary Treatment or CEPT. The Sanitation District has been using CEPT for more than thirty years.

Anionic polymers are specially designed chains with many potential variants and multiple vendors. Part of the purchasing process for polymers involves polymer trials to document the efficacy of different products from different vendors to get the best cost-performance balance.

Cationic polymer is generally used to thicken sludge or biosolids in centrifuges or dissolved air floatation thickeners (DAFT). These long-chained, positively charged molecules are essential to the proper operation of centrifuges and DAFT units. Part of the purchasing process for these polymers also involves polymer trials to document the efficacy of different products from different vendors to get the best cost-performance balance. It is important to note that it is entirely possible that four different cationic polymers will be used to optimize the performance of Plant No. 1 dewatering centrifuges, Plant No. 1 thickening centrifuges, Plant No. 2 dewater centrifuges, and Plant No. 2 DAFTs, because the performance can vary greatly depending on the equipment or process. Each process will have its own polymer trial to determine the cost-performance balance for each application.

Odor Control Chemicals

The Sanitation District uses several chemicals in the collection system and the treatment plant to reduce the odors normally attributed to sewage and sewage treatment. These chemicals can either prevent the formation of odor causing compound, called odorants, or they can destroy odorants that already exist. Chemicals that prevent the formation of odorants include ferrous chloride, calcium nitrate, magnesium hydroxide, and caustic.

Chemicals used in the collection systems tend to be more benign than chemicals used in the treatment plants due to their proximity to the public. Ferrous chloride is closely related to Ferric chloride as described above. It is a powerful settling agent that prevents the formation of hydrogen sulfide by tying up and settling sulfide compounds in the collection system. It is a preferred chemical because of its dual role, but it isn't as benign as other choices.

Calcium nitrate is another choice for collection system odor control. It works in a different way. Calcium nitrate alters the biological equilibrium in sewage. Generally, bacteria that live by respirating oxygen are the most robust organisms, followed by nitrogen respirating bacteria, and finally sulfur respirating bacteria. Adding calcium nitrate to sewage creates an environment where sulfur loving bacteria don't thrive or create hydrogen sulfide.

Magnesium hydroxide is a third choice for collection system odor control. It works primarily by raising the pH of sewage to a point that is not conducive for odor causing bacteria to thrive. Magnesium hydroxide is the most benign of the chemical choices as it is the main ingredient in Milk of Magnesia.

All three of these chemicals are continuously fed into sewer systems at different points to consistently control the formation of odorants in the system. Where the Sanitation District doesn't have the ability to site a chemical dosing station and persistent odors are being experienced, there is the option to utilize caustic slug dosing. Caustic slug dosing involves using tanker trucks to discharge up to 6,000 gallons of sodium hydroxide into a sewer manhole structure. The very high pH has the effect of killing the bio-slime layer on sewer pipes that creates hydrogen sulfide. This treatment has an instant benefit that reduces hydrogen sulfide production for days to weeks depending on system conditions.

The final major odor fighting chemical is bleach. Bleach is used in treatment plant chemical scrubbers to oxidize odorants in air scrubber units. Bleach is an effective neutralizer of hydrogen sulfide, methyl mercaptan, methyl disulfide, dimethyl disulfide, and many others.

Disinfection

The Sanitation District successfully discontinued disinfection of its effluent to the long outfall. This means that thousands of gallons of bleach and sodium bisulfate are no longer required to be purchased or discharged to the ocean. However, in the event of a discharge to the short outfall or river overflow, disinfection by bleach will be required. Significant on-site storage of bleach and dechlorination chemical, sodium bisulfite, is necessary for this emergency contingency.

Bleach does have a shelf life of about six months. The Sanitation District rotates its disinfection supply to its odor control and plant water treatment systems to prevent product waste.

Process Specific Chemicals

The Sanitation District uses pure oxygen to support its activated sludge secondary treatment process for Plant No. 2. The Sanitation District previously self-generated pure oxygen using a cryogenic oxygen plant rated at 70 tons per day. This plant was removed because it was inefficient at the current average utilization of 35 tons per day and was at the end of its useful life. The Sanitation District contracts for delivery of liquid oxygen and uses a vaporization system to deliver pure gaseous oxygen to the activated sludge process.

Chemical Supply — Purchase vs. Make

The Sanitation District has relied on purchasing bulk commodity chemicals for its treatment plants and collection system. This has proven to be an effective strategy for operational flexibility and to allow concentration on core business. Operationally, the types and volume of chemicals change over time. Over time the types of polymers that are most efficient change. There is a need for more or less volume of chemicals based on sewage flow, sewage quantity, and flow splits between plants. Managing the generation of specialized chemicals using hazardous materials imposes a significant training burden on staff, increases the regulatory oversight and requirements, and increases overall risk to the organization.

The Sanitation District has maintained a policy to split the volume of orders between two vendors to assure competition exists in the marketplace for ferric chloride. While the Sanitation District generally cooperates with other public agencies to pool purchasing power to secure the lowest possible cost through high volume purchasing, some specialty chemicals like ferric chloride require split orders to maintain competitive market forces.

Current Situation

The Sanitation District is constantly changing and improving its facilities to meet new challenges. Each of the facility changes offer new opportunities to reconsider how the Sanitation District operates its processes and how chemicals are used. The best chemical stability outcome is to cost-effectively eliminate the use of the chemical. This is the strategy behind cessation of bleach disinfection of the outfall effluent.

Staff are in the process of studying the potential to operate the treatment plants differently to minimize or eliminate use of selected chemicals. Facilities like centrifuge sludge thickening provide new opportunities to adjust ferric chloride and anionic polymer usage. Opportunities for substitute chemicals will be explored to understand overall cost and efficiency savings potential. This includes iron vs. aluminum coagulant studies, anionic polymer trials, and cationic polymer trials. Staff will also reevaluate operating parameters such as in-basin sludge co-thickening, primary basin sludge blanket level parameters, as well as the greater loading of the secondary treatment systems.

When optimized chemical types and dosages are confirmed, staff will review the market conditions for each important chemical. This will serve as the basis for a procurement strategy for each chemical.

Future Policy Statement

The Sanitation District will thoroughly understand its treatment processes, the potential modes of operation, and the benefit and cost of chemicals to improve or stabilize its process. The Sanitation District will create a list of necessary chemicals for optimal treatment operations which will consider chemical cost, chemical availability, treatment stability, energy utilization, energy creation, nuisance odor control, biosolids generation/cost, and regulatory permit compliance risks.

Chemicals that are deemed most beneficial will be procured at the lowest overall cost from market providers to the extent possible. Where there are market stability concerns, the purchasing division will devise procurement strategies to mitigate procurement risks. Where procurement risk cannot be satisfactorily mitigated, technical staff will evaluate alternatives such as alternate operating methods, substitute chemical usage, or on-site generation of a chemical if feasible.

Initiatives to Support Progress Toward the Policy Goal

- Reduce reliance on any particular chemical or vendor and establish flexibility to utilize other chemicals/processes to accomplish the same operational objectives.
- Update the Sanitation District's Chemical Sustainability Study and incorporate the results in future procurement recommendations.

Biosolids Management Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will remain committed to a sustainable biosolids program and will beneficially reuse biosolids in accordance with Resolution No. OCSD 13-03 and the 2017 Biosolids Master Plan.

Background

Wastewater solids at both our treatment plants are separated, thickened, digested, and dewatered before being recycled offsite by contractors for composting and land application. Biogas created from the digesters is used to generate electricity to offset the need to purchase power from a local utility. The Sanitation District currently receives sewage sludge from the Irvine Ranch Water District at Plant No. 1, which is scheduled to cease by 2021 when Irvine Ranch Water District completes their own solids treatment facility.

Prior to 2019, the Sanitation District produced an average of 800 wet tons per day (~20% solids) of Class B biosolids dewatered by belt press units. Presently, with the construction and commissioning of co-thickening sludge and dewatering centrifuges, the Sanitation District has been producing approximately 500-600 wet tons per day (25%-29% solids) with biosolids hauling cost savings of approximately $200,000-400,000/month due to the reduction in volume.

The Sanitation District's biosolids program is shaped by federal, state, and local regulations and by the Sanitation District's biosolids policy (Board Resolution 13-03), our biosolids management system, and the 2017 Biosolids Master Plan (Plan). The Sanitation District manages a high quality biosolids program built on a solid policy that emphasizes the diversification of product markets for Class A and B biosolids utilized as a soil amendment for agriculture and horticulture uses. The policy also sets direction to seek opportunities in emerging markets such as biosolids-to-energy technologies to produce renewable energy in the form of biogas or used as a heating value source.

These marketing principles are aligned and supported by the Plan, which provides the Sanitation District a roadmap and framework for reliable and sustainable biosolids management options while minimizing cost. In addition, the Plan sets future capital facilities improvements over a 20-year planning horizon. The Sanitation District will be implementing the Plan to develop a capital improvement project for Plant No. 2 that will result in a major change to the Sanitation District's biosolids program; namely, the construction of new mesophilic and thermophilic digesters that will generate Class A biosolids beginning in 2030. These new digesters are needed for operational resiliency against seismic events. Plant No. 1 will continue to produce Class B biosolids.

The Plan evaluated end-use management alternatives for the Sanitation District's biosolids. This work supports the Sanitation District's biosolids policy and has taken into account the regulatory initiatives imposed on organic management in California as explained below. The Plan established a roadmap for the Sanitation District's commitment to beneficial use of its biosolids. The biosolids management portfolio for the Sanitation District is expected to remain similar to the overall current biosolids management end use options as it is today. Currently about half of the annual biosolids production is going to composting (CA and AZ) and half going to Class B land application in Arizona.

The significant shift will begin when the Sanitation District starts reliably generating Class A biosolids at Plant No. 2. Although this is more than 10 years away, the Plan has identified early planning efforts on future end uses which include:

- Emerging markets: This end use refers to either markets in which biosolids have not been tested in California at this time (e.g. land reclamation) or emerging-technology solutions (e.g. biosolids gasification, supercritical oxidation, fluidized bed combustion, cement kiln drying, pyrolysis etc.).
- Soil blending: This option involves working or partnering with local soil blenders to deliver and blend Class A biosolids with soil to produce a soil amendment.

- Arizona land application: Land application in Arizona will continue to be a part of the Sanitation District's overall biosolids program and serves as a large-capacity outlet for biosolids management.
- California land application: While Class A compost and granules are currently land-applied in California, land application of Class A cake is still restricted in most counties. However, it is anticipated that the implementation of California's organics diversion mandates will loosen local land applications restrictions.

This programmatic framework described above has led to a reliable and sustainable biosolids management program that is designed for the beneficial use of the Sanitation District's biosolids through the utilization of diverse biosolids management options using multiple biosolids contractors, markets, and merchant facilities, while maintaining a failsafe backup capacity of at least 100 percent of the Sanitation District's daily biosolids tonnage. This forethought is necessary due to the flux of regulatory, environmental, market, and financial factors that poses potential risks to the biosolids management in California.

Current Situation

The legislative and regulatory landscapes in California are changing regarding organic management. For the past 15 years, direct land application of Class B biosolids has been predominately prohibited due to strict local ordinances and conditional use requirements, which preempts state recycling laws. However, in recent years there has been a need for organics diversion from landfills, healthy soils, renewable energy, and reduction of Green House Gases (GHGs), which are reflected in several important bills (laws) and initiatives that have been adopted:

- AB 1826 (2014) - Mandatory Organics Recycling for Businesses.
- SB 1383 (2016) - 50% organics diversion from landfill by 2020 and 75% by 2025, which includes biosolids and mandatory organics procurement (compost and biogas) for impacted jurisdiction.
- SB 32 (2016) - 40% Reduction GHG below 1990 levels by 2030
- SB 100 (2018) - 50% renewable resources (i.e. anaerobic co-digestion of food waste) target by December 31, 2026, and to achieve a 60% target by December 31, 2030
- Increasing soil carbon and carbon sequestration under the Healthy Soils Initiative and Forest Carbon Plan.

These measures are expanding "organic waste markets," thereby stimulating interest in siting more composting facilities and organic waste-to-energy projects and encouraging soil blending and direct land application of biosolids, opening opportunities for wastewater treatment plants such as the Sanitation District to locally manage more biosolids. Regulatory agencies such as the State Water Resource Control Board, CalRecycle, California Department of Food and Agriculture, California Air Resources Board, and California Energy Commission are developing regulations to implement the new laws. During the rule making process, the Sanitation District has been actively involved through the California Association of Sanitation Agencies (CASA) and the Southern California Alliance of POTWs (SCAP), advocating regulators to open more biosolids management options in California. In particular, the proposed regulations for SB 1383 will require jurisdictions such as cities and counties to procure recycled organics such as compost and biogas for beneficial use. This organic market will provide opportunities for regional public and/or private partnerships for biosolids management options.

Although there is growing interest in California for organics management, there has also been a rising concern from the regulatory community regarding emerging contaminants such as polyfluoroalkyl substances (PFAS) and microplastics that may have some potential impact to the wastewater sector. Although to date there are no regulatory limits of these contaminants in biosolids or wastewater in California, the Sanitation District has been actively monitoring the development of the science and regulation concerning these emerging concerns.

Future Policy Statement

As the regulatory landscape shapes to stimulate organic waste markets in California, the Sanitation District seeks to leverage its memberships with various industry associations to advocate local, state, and federal agencies to assure biosolids proposed regulations encourage the beneficial use of biosolids as a soil amendment, renewable energy, and a healthy end-use market. The Sanitation District also leverages its memberships to monitor the development of initiatives related to constituents of emerging concern that may impact the beneficial use of biosolids. The Sanitation District's leadership role in these organizations enables us to have a greater influence in key regional, state, and national issues.

The Sanitation District seeks to stay abreast of developments in organic waste markets as they develop in California. The Sanitation District seeks both public and private partnerships with regional biosolids management opportunities including new innovative technology options that convert biosolids to energy and other biosolids recycling operations. This is consistent with the Sanitation District's biosolids policy and plan. To accomplish this, the Sanitation District will issue a request for information (RFI) to research and evaluate available emerging market such as biosolids-to-energy options or other biosolids recycling operations within a 200-mile radius of the Sanitation District to potentially develop a scope of work and minimum requirements for a future contract solicitation.

Consistent with the Sanitation District's Plan, staff will seek to collaborate with OC Waste and Recycling (OCWR) for regional biosolids management opportunities as well as partnering with OCWR to find local solutions to meet SB 1383's organics diversion mandates, including in-county biosolids utilization, composting, food waste co-digestion, and biogas production.

Initiatives to Support Progress Toward the Policy Goal

- Educate and advocate with the local, state, and federal agencies to assure biosolids will continue to be safely and legally used as a soil amendment and monitor and research constituents of emerging concern such as PFAS and microplastics that may impact biosolids.
- Stay abreast of new technology options to convert organics to energy and other regional biosolids recycling and renewable energy partnerships within Southern California.
- Proceed with implementation of new mesophilic and thermophilic biosolids facilities at Plant No. 2 to enhance biosolids quality and marketability while improving the Sanitation District's operational resiliency against seismic events.

Constituents of Emerging Concern Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will partner with other agencies, associations, and institutions to support the use of sound science to inform policy and regulatory decisions on constituents of emerging concern (CECs) at the federal, state, and regional levels. Staff will obtain and maintain current knowledge on CECs under regulatory consideration, including occurrence, analytical methods, regulations, and treatment to support the Sanitation District's mission.

Background

CECs also referred to as Constituents or Contaminants of Emerging Concern are pollutants that may or may not be subject to regulatory requirements or statutes yet pose a risk to public health and/or the environment. The Sanitation District is a recipient of CECs that are discharged along with domestic and residential wastewater; discharges from industrial, commercial, and other governmental facilities; and tributary discharging jurisdictions. The concept of CECs evolves over time and often the Sanitation District and other entities must acknowledge and understand their impacts to address the effects posed by each CEC.

For more than 50 years, the Sanitation District has adopted and enforced standards and requirements to protect the public health and safety, the environment, and the Sanitation District's workers and facilities, while collecting and treating wastewater. Initially the primary concern to the Sanitation District was conventional pollutants, those that originate from normal sanitary use and can be addressed by conventional wastewater treatment. With the 1972 amendment to the Clean Water Act, and as required by the Code of Federal Regulations, the Sanitation District implemented a mandated pretreatment program to control discharges containing toxic pollutants at their sources through permitting, enforcement, inspection, and sampling. The Sanitation District's Pretreatment Program promulgates the Sanitation District's Wastewater Discharge Regulations Ordinance (Wastewater Ordinance), which governs discharges to the sewer through various types of permits. The Wastewater Ordinance also includes numeric limits, referred to as Local Limits, that control the quality of non-domestic discharges to the sewer. These Local Limits are the result of a technical evaluation and comprehensive sampling and analysis effort, required under the Sanitation District's permit issued by the state to discharge to the ocean — the National Pollutant Discharge Elimination System (NPDES) Permit.

The Sanitation District's current NPDES Permit requires evaluation and monitoring of CECs. The Regional Water Quality Control Board (RWQCB) and EPA required the Sanitation District to study and report on certain newer CECs in the Sanitation District's effluent and the receiving waters. The CEC study had to include the following categories and specified a set of particular constituents in each category: Hormones (8), Industrial Endocrine Disrupting Compounds (7), Pharmaceuticals and Personal Care Products (13), and Flame Retardants (9). Since 2014, California's State Water Resource Control Board has been updating its Recycled Water Policy and has identified CECs under consideration for projects that conduct surface spreading of recycled water, including the Groundwater Replenishment System (GWRS). In addition, to meet the Sanitation District's obligations to provide a high level of service for biosolids reuse and water reclamation through GWRS, the Sanitation District must evaluate and monitor CECs that affect these initiatives.

Although the Sanitation District has been involved with water reclamation with the Orange County Water District (OCWD) since the mid-1970's, the Sanitation District's mission changed significantly in the years leading up to 2008 when the Groundwater Replenishment System (GWRS) was commissioned. GWRS compelled the Sanitation District to consider impacts to drinking water limits and Notification and Response Levels, which are typically much lower than the standards in place for a wastewater treatment plant. For several critical constituents, OCWD and the Sanitation District established a Level of Service commitments. The Sanitation District and OCWD established a response plan to follow when a constituent becomes a concern to either agency. Where the source can be identified, the plan organizes responsive actions from the Sanitation District and OCWD for industrial and commercial facilities. Domestic and residential sources are typically addressed by way of educational outreach to the public.

To determine the constituents that impact the Sanitation District's operations and reuse initiatives, the Sanitation District interacts with federal, state, and local agencies and monitors their regulatory and legislative efforts. Sometimes the job is straightforward, because the federal, state, or local agency focuses on a specific CEC chemical which yields a concentrated effort; however, sometimes, the effort can be interpretative. This requires a comprehensive, well-established program and experienced subject matter experts to identify the CECs that impact the Sanitation District. The Sanitation District must then evaluate the sources and decide what methods will be employed to control the discharges, if necessary.

Current Situation

With newer equipment and techniques, federal, state, and local government agencies are detecting constituents at very low concentrations in the drinking water. This has resulted in agencies studying more constituents and requesting NPDES Permit holders, such as the Sanitation District, to monitor and report CECs detected in the influent and effluent. However, wastewater is a much more complex matrix than drinking water, so reproducible low-level analytical methods are much more difficult to develop and implement for wastewater than drinking water.

The Sanitation District will also be required to develop new methods for addressing some of the CECs primarily discharged from residential communities or are present in the existing drinking water supply. The Sanitation District typically attempts to address such discharges through education and outreach while working with other agencies. Some CECs require the Sanitation District and other agencies to sponsor legislation and regulation development or to comment on a particular subject to protect the agency's interests. For example, the Sanitation District has advocated for minimizing or eliminating the use of specific CECs in manufacturing or consumer use to the California Department of Toxic Substances Control. To achieve its mission, the Sanitation District will need to continue supporting a variety of regulatory and legislative efforts.

Future Policy Statement

If source control, education and outreach, or legislative and regulatory efforts are not successful, the Sanitation District may be required to implement a technological or operational process change/ investment to address a CEC.

The Sanitation District must align its resources to continue managing CECs throughout the service area and treatment process in order to comply with the Sanitation District's existing regulatory requirements and sustain beneficial reuse of biosolids. The Sanitation District shall acquire and maintain a high level of subject matter expertise and engagement across the wastewater, water, water reuse, air quality, ocean monitoring, and biosolids sectors to monitor the threats posed by upstream sources to its system; to continue to work with other agencies and professional organizations to develop robust analytical methods; and to evaluate routinely the need to establish sound policies, local limits, or other regulations and standards based on new local, state, and federal regulations to protect public health and the environment. The Sanitation District is required to continue implementing its established response plan by promoting effective source control and treatment, while also preparing for newer CECs and regulatory obligations. The Sanitation District will continue to work to understand the operational and financial impacts of current and future CECs by monitoring developing regulations and legislation and actively engaging regulatory, environmental, academic, industry, and community stakeholders.

Two families of chemicals, PFAS and PFOA, have been identified as CEC's with a probability of impacting water and biosolids reuse. Attached is OCWD's August 2019 PFOA and PFAS Fact Sheet. This is an example of a CEC where the Sanitation District must be engaged helping to explore the science and shape future legislation and regulation to help create practical solutions to real world concerns.

Initiatives to Support Progress Toward the Policy Goal

- The Sanitation District will continue to actively engage water and wastewater stakeholders to stay abreast of the scientific progress and any potential operational and financial impacts of CECs and provide timely briefings to the Sanitation District's Management Team and Board to facilitate informed decision making.
- The Sanitation District will continue to develop capacity to detect, quantify, and characterize CECs throughout the service area and treatment process in order to promote treatment effectiveness and the communication of credible risks.
- The Sanitation District will proactively research laboratory techniques and other scientific research to understand the real and potential impact of CECs, like PFAS and PFOA, on the reuse of water and biosolids. The Sanitation District will use science-based knowledge to help shape legislation and regulation to protect the public health and environment.

Workplace Environment

Resilient Staffing Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will attract and retain high-quality talent to support its mission and continue to be an industry leader. It will safeguard leadership continuity and support effective performance of the organization by proactively monitoring the changing work environment and requirements to ensure development programs are relevant and build a skilled bench of readily available successors for key leadership and mission-critical positions.

Background

At the Sanitation District, employees are the organization's most valuable resource. With over 600 dedicated employees whose collective efforts make OCSD an industry leader, the Sanitation District continues to receive national awards and recognition. That is why, OCSD has committed to invest in its employees, resulting in a highly skilled and educated workforce carrying out the mission of protecting public health and the environment.

The Sanitation District has a diverse workforce and a wide range of expertise with approximately 70 percent of positions requiring a degree, certification, and/or license. Occupations on-site include scientists, engineers, environmental and regulatory specialists, operators, mechanics, construction inspectors, as well as professionals in public affairs, finance, IT, safety and human resources.

To cultivate a committed and engaged workforce in a competitive economy, OCSD must promote initiatives to attract and retain talent and prepare staff for successful careers. Strategic succession management initiatives have been developed and adopted that support the design and implementation of comprehensive workforce planning and development tools accompanied by activities that facilitate the improvement of workforce capability, adaptability, efficiency, and accountability. Strategic workforce planning empowers management to project the loss of knowledge and experience caused by retirement and attrition and utilizes a variety of methods to ensure that the Sanitation District has adequate access to talent internally and externally through the recruitment and selection process.

The Sanitation District has a competitive recruitment process that ensures we hire the best person for the job based on qualifications and merit. Human Resources utilizes an objective multi-hurdle approach to hiring which includes Human Resources review and recommendation, subject matter expert application screening, assessment centers, panel interviews (both for technical skills and fit), skills testing, background checks, and reference checks.

Programs that have proven effective in attracting, retaining and developing highly skilled staff for key positions, include:

- Vocational/Professional Student Internship Programs

  Students from the Water Utility Science Program at Santiago Canyon College, and Los Angeles Trade Technical College work 28 hours a week and rotate through five technical trades for 53 weeks in our Operations and Maintenance Department. We started the program in 2010 with four positions and have grown to offer ten positions for each fiscal year. Furthermore, 14 of the program participants have been hired full-time since the program inception. The Sanitation District is piloting the program with other technical colleges in Southern California, to include Cypress College. OCSD offers student and vocational internships, as well as job shadowing and externships.

  The Sanitation District's Professional Student Internship Program offers students an opportunity to work at the professional ranks while attending college full-time for a two-year maximum duration. OCSD partners with Cal State Fullerton, Long Beach, Cal Poly Pomona and UC Irvine, among others.

- Employee Development Program

  In addition to legally mandated training, the Sanitation District provides training and development opportunities for the purpose of increasing job knowledge and to maximize skill sets in employees' current positions and to prepare them for future mission-critical positions. Comprehensive training programs include technical training through industry-specific associations or groups, local schools, and professionals as well as informal on the job training. Employees are encouraged to obtain job-related training necessary to keep OCSD current with recent industry best practices and developments in their respective fields of expertise and can receive Development Pay in select categories that the Sanitation District deems mission-critical. As 70 percent of OCSD's positions require a degree, certificate and/or license, the Sanitation District also promotes professional development through its tuition and certification reimbursement programs for courses completed toward obtaining an associate's, bachelor's or master's degree at accredited colleges, universities, or other institutions or industry specific certifications that are applicable to the industry.

- Workforce Vulnerability Assessments

  Each year, the Sanitation District management conducts an evaluation of their respective departments and identifies key and vulnerable positions based on three criteria: criticality, retention, and difficulty to fill. Vulnerability assessments provide a broader view into the areas of the agency that could potentially be facing a high risk in turnover and are essential to operations. Management is tasked with identifying positions based on the criteria above, then making recommendations on the level of action that is required, complete with proposed action plans. Human Resources staff works closely with management to facilitate workforce vulnerability assessments to develop current and future staffing plans. It is essential that the Sanitation District continues to focus its efforts on prioritizing staffing needs.

- Talent Readiness Assessments

  The process includes departmental leadership evaluating staff and identifying key employee talent, as well as possible development efforts. Feeder positions are identified, and talent pools are developed between employees and management that align with agency goals and builds the talent pipeline.

- Building Leaders and Skills for Tomorrow (BLAST) Program

  In 2011, the Sanitation District began a comprehensive leadership development program to supplement the technical training courses, and includes job shadowing, mentoring, web-based and instructor-led training on soft skills and leadership development. The goal of this development program is to ensure OCSD is building leaders at all levels. Development opportunities are offered to address the potential loss of talent and feed into the Succession Management and Employee Development programs, primarily focusing on soft skills training. The leadership development components include a public sector leadership academy with Cal State Fullerton, and a supervisory training program through Brandman University.

  The Sanitation District partnered with University of California, Irvine, California State University, Long Beach, and California Polytechnic University at Pomona, which provided students an opportunity to job shadow Human Resources and Engineering staff to gain insight into the profession, employment in the public sector and the wastewater industry. The Sanitation District employees also serve on Advisory Councils that weigh in on course curriculum at various schools, both at the high school and college level, across Southern California.

  Throughout the agency, we have several employees who are active members of various professional associations, serve on a Board, or volunteer in various capacities within the industry. The Sanitation District staff is regularly asked to present and teach others about resource recovery. Recruiters attend job fairs, and work closely with universities, professional organizations, and serve on advisory committees.

Education and workforce investment programs represent the most important preparation we can accomplish today to safeguard the agency's future for tomorrow. Finding an adequate pool of applicants and retaining qualified workers is increasingly difficult, which we anticipate will continue on into the future. Retirements are disrupting employment within our industry and changes in technology have made work more complex.

Current Situation

Academics studying the labor force attribute labor shortages to workforce demographics. Depending on the source data, the timelines defining the start/end time of these groups may vary but generally — Baby Boomers are those born between 46-64, followed by Gen Xers 65-81, and lastly Millennials from 82-00. Close to half of staff or 49 percent fall into the "Gen Xers" category, followed by 32 percent made up of "Baby Boomers" and "Millennials" make up 19 percent of our employee population. The Sanitation District is currently facing a potential loss of close to half of its workforce — about 45 percent of employees, primarily from the Baby Boomers group, and some Gen Xers. This represents a potential loss of about 271 people to retirement alone and does not account for other forms of turnover. Hence the need to be proactive and strategic in OCSD's approach to maintain its staffing levels and ensure continuity of operations.

Currently, the majority of OCSD's executives are eligible for retirement. Managers, our next level of leadership, closely follow with 45 percent of them eligible to retire now, and that number increases to 90 percent in five years. The Sanitation District has a little more stability in the trades and professional occupations with retirement eligibility at 53 percent in the next five years. OCSD has a lot of long-term employees with vast knowledge in their respective areas of expertise. Some employees have been a part of the OCSD family for over 35 years; and at last count, ten years was the average years of service. Looking at OCSD's total attrition over the last five years, we have lost 3,025 years of knowledge and experience by 132 individuals leaving the agency since 2014.

In 2010, the Sanitation District proactively implemented a second retirement benefit formula ("classic open plan") ahead of the Public Employee Pension Reform Act, which offered candidates moving from other public sector agencies to OCSD with a retirement benefit of 2.43 percent at 65, with zero employer paid member contribution. Based on the Sanitation District's classic open retirement plan, OCSD is unable to compete for experienced talent from surrounding municipalities, who offer a retirement benefit of 2.5 percent or 2.7 percent at 55 and pay a portion of the employees' contribution. Since implementation of the classic open plan in 2010, only 22 percent of new hires come from other public sector agencies. The Sanitation District has had experience with public sector candidates withdrawing from the process or declining job offers once they learn of the impact to the retirement benefit formula. The vast majority of new hires are coming from private sector and have no public sector experience requiring additional training. Given the legal restrictions which bind the Sanitation District to the classic open formula, it is critical OCSD focus its efforts on retaining current staff, attracting qualified candidates, and investing heavily into developing and growing employees' knowledge, skills and abilities for the future, to address any potential talent shortages.

Future Policy Statement

Human Resources will continue to implement strategic initiatives that ensure workforce capabilities match the work required to meet the Sanitation District's mission and levels of service. Staff is dedicated to proactively monitoring the changing work environment and requirements to implement programs now that address future vulnerabilities. Assessments of changes in business needs, workforce composition, and legal requirements are necessary to ensure resilient staffing.

Initiatives to Support Progress Toward the Policy Goal

- Maintain and enhance current effective development programs that are in place to provide the direction to identify, develop and select the next generation of prepared, capable and engaged leaders, which include:

- Vocational/Professional Student Internship Programs

- Employee Development Program
- Workforce Vulnerability Assessments
- Talent Readiness Assessments
- Building Leaders and Skills for Tomorrow (BLAST) Program
- Strengthening Operator Training Programs
- Continue cyclical Classification & Compensation studies to ensure job classifications accurately depict the work being performed, to set compensation levels accordingly, and stay abreast of market benefit and salary data.

Prior to the next scheduled Classification & Compensation study, Human Resources will work with the Board of Directors and meet and confer with the unions to review selected survey agencies based on recognized classification and compensation standards and the job market in which we compete.

Safety and Physical Security Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will ensure the safety and security of employees, contractors and visitors through standard practices, policies, and procedures that support a safe and secure environment, provide an appropriate level of security and safeguard OCSD's property and physical assets.

Background

In California, employers must furnish employees with a place of employment free from recognized hazards that cause death or serious physical harm, that is compliant with all legal requirements and aligns with industry best practices. The safety and wellness of the public and employees is our number one priority. OCSD is committed to identifying all hazards through inspection and providing engineering controls, job specific safety training, and personal protective equipment.

Programs that have proved effective in ensuring the safety and wellness of OCSD's workforce, visitors and contractors include:

Safety Assessments and Engineering Controls

In 2014, OCSD conducted a Facility-Wide Safety Assessment Project (SP-145-1) to identify process equipment design and configuration issues that may impact worker safety, and compliance with regulations. The main purpose of this effort was to enhance worker safety and ensure compliance with safety codes. At the same time, safety improvements allow for reliable and efficient operation, so that our facilities can meet regulatory and process demands, while providing cost effective operation. All the Project SP-145-1 recommendations to be implemented by OCSD have either been addressed by Maintenance or have been incorporated into the Safety Improvement Project (J-126).

Emergency Management

The Sanitation District must be prepared to control risks to the organization, and routinely recognize, evaluate, and prepare for emergencies. An emergency can include a major explosion, fire, verified bomb threat, civil disorder, active shooter situation, or uncontrolled materials release which interrupts OCSD's ability to provide safe and environmentally responsible wastewater treatment. The Sanitations District's protocol to control and respond to emergencies is contained within the Integrated Emergency Response Plan (IERP).

The IERP identifies and assesses hazards regarding emergency events which OCSD may be confronted with and contains policies, plans, and procedures for preparing and responding to emergencies. The Sanitation District's emergency response organization, called the Incident Command System (ICS), is activated when an emergency condition cannot be effectively responded to under routine operations. Once the immediate emergency has been controlled, then OCSD must resume normal operations. In the event of a prolonged emergency state, the return to normal operations is guided by a Continuity of Operations Plan (COOP). In May 2018, a COOP was completed with all divisions contributing to its development. Business continuity planning is an ongoing process for OCSD with plans being updated as information changes.

The Sanitation District collaborates with local agencies to ensure available resources are identified and engaged in the event of an emergency. OCSD has partnered with local agencies in the areas of emergency response for evacuation drills and resource sharing.

- The Sanitation District participated in the 2019 Orange Crush Regional Emergency Preparedness and Training Exercise in January 2019. This county-wide exercise used a scenario of a magnitude 7.8 earthquake strike along the San Andreas Fault. A full Emergency Operations Center activation occurred for this functional exercise and gave the Sanitation District the opportunity to test the Integrated Emergency Response Plan.
- The Orange County Sheriff's Department and the Orange County Health Care Agency established a Joint Information Center at Plant No. 2 on May 13-14, 2019 to host an enforcement event in Talbert Park. In addition, the operation was overseen by three federal judges who were present to ensure the rights of all citizens were not violated by law enforcement or The Health Care Agency. Officials utilized Plant No. 2 contractor gates for points of entry.
- The Sanitation District is a member and funding agency of the Water Emergency Response of Orange County (WEROC), which is an organization that is administered by the Municipal Water District of Orange County (MWDOC). It supports and manages countywide emergency preparedness, planning, response and recovery efforts among Orange County water and wastewater utilities.

Security

The Department of Homeland Security has designated 16 critical infrastructure sectors, which includes water and wastewater systems. Wastewater systems are vulnerable to a variety of attacks, including acts of terrorism, contamination with deadly agents; physical attacks, such as the release of toxic gaseous chemicals, and cyberattacks. In addition, the Department of Homeland Security indicates that the average time it takes for a critical incident to take place is up to 12 minutes while the average police response time can be up to 11 minutes and that time could increase should there be a natural disaster.

Additional security concerns include physical violence, vandalism, theft, and trespassers. With approximately 100 acres at each site, 600 employees, contractors, and members of the public on site for tours and meetings, it is essential to maintain a security force that can respond to security threats promptly.

The Sanitation District contracts with a security firm that supplies four armed and five unarmed guards to provide round the clock security monitoring of over 80 cameras, monitoring gate access, and patrolling the perimeter at both plants.

Current Situation

The Risk Management division has been given the responsibility and an adequate budget to assess and control the safety, security, and health risks that employees, contractors, and guests may be exposed to from OCSD operations. Assessment and control of risks is achieved collaboratively between Risk Management staff and internal stakeholders. Risk Management, managers, and staff collaborate to develop written procedures (e.g., policies) that are used for controlling and eliminating hazards at OCSD; thus, ensuring compliance with occupational health and safety standards and laws.

Safety

As the health and safety of employees, contractors and visitors is the number one priority, the Sanitation District strives to achieve safety excellence. This is exemplified by our pursuit of the California Voluntary Protection Program (Cal/VPP). The Cal/VPP is a program created by Cal/OSHA to recognize organizations who have implemented safety and health programs that effectively prevent and control occupational hazards. A Cal/VPP workplace is expected to continually improve its safety program; which means a safe workplace for all. A reduction in injuries and illness has been documented at sites that have committed to the VPP approach. Cal/VPP is recognized as a higher level of protection for the workplace, for this reason, OCSD is pursuing this designation.

In preparation for application to the Cal/VPP program, the Sanitation District conducted a Cal/VPP readiness assessment in January 2019 and developed an implementation strategy. The assessment

included interviews with various OCSD subject matter experts and discussions with employees during facility tours. OCSD procedures and records were reviewed, and limited visual inspection of work locations and facilities was conducted. The assessment considered basic Cal/OSHA regulatory compliance and additional best management practices that are expected to be implemented in VPP certified workplaces. Based on the results of the VPP assessment, OCSD is working toward applying for VPP before the end of calendar year 2019. The timing coincides with the implementation of most of the Safety Improvement Project (J-126), which are critical for success in our VPP pursuit.

This Safety Improvement Project (J-126) is progressing on-schedule. Of the eleven J-126 projects, two have been completed, seven are in the construction phase, and two are pending contractor award. It is important to note that interim measures have been taken to ensure worker safety at the locations identified for safety improvements. Workers are not exposed to hazards while projects are completed.

Eliminating hazards through engineering projects is critical, along with a positive safety culture. In order to assess the safety culture at OCSD, a survey was conducted from February to April 2019. The results of this survey indicated employees believe the safety culture is improving, desired an increase in communication on safety issues, and wanted less online and more hands-on customized safety training.

Emergency Management

The Sanitation District partners with local agencies to ensure available resources are identified and engaged in the event of an emergency. Collaborations currently scheduled include:

- In conjunction with WEROC, OCSD participated in the development of the Orange County Water and Wastewater Hazard Mitigation Plan (Plan) which will be submitted for approval to the State. The Plan provides a framework for participating water and wastewater utilities to plan for natural and man-made hazards in Orange County. The Sanitation District is an active participant in the Plan, and developed a hazard mitigation plan, which is Annex C of the Plan. The resources and information within the Plan will allow OCSD, and participating jurisdictions to identify and prioritize future mitigation projects, meet the requirements of federal assistance programs and grant applications, and encourage coordination and collaboration in meeting mitigation goals.
- On July 27, 2019, the Sanitation District partnered with the Fountain Valley Police Department Explorers during OCSD's Open House event. The Police Explorers assisted Human Resources and Risk Management with crowd and traffic control. Their assistance was beneficial in the management of public during this important event.

Security

The designation of wastewater systems as critical infrastructure by the Department of Homeland Security requires OCSD to be diligent in protecting people and property from security breaches. OCSD seeks to continually improve the security program. On June 7, 2019, OCSD issued a Request for Proposal (RFP) for Security Services, which included a potential expansion of security services for OCSD's new Headquarters Complex. As part of the RFP evaluation, OCSD will review procedural and technical enhancements/innovations that may improve the existing program.

In addition, OCSD has established a Security Committee, which includes stakeholders from a cross-section of the organization, to collect input and assess physical and cybersecurity concerns and suggestions. Responsibilities of the committee include, but are not limited to, development of a physical and cybersecurity plan, reviewing orders and policies, reviewing incident reports, and planning drills. The first meeting of the committee was held on June 6, 2019.

Future Policy Statement

Risk Management has and will continue to implement strategic initiatives that will ensure the safety, health, and security of its workforce, and proactively plan for emergencies to ensure continuity of operations. Staff is dedicated to proactively monitoring the changing work environment and

requirements to implement programs now that address future vulnerabilities. Assessments of changes in business needs, plant processes and legal requirements are necessary to ensure a safe and secure work environment. The results of improvement will be measured using leading metric indicators and reported to the workforce to foster employee engagement.

Initiatives to Support Progress Toward the Policy Goal

Safety

- Complete outstanding safety projects, improvements, and corrective actions to apply and obtain Cal/OSHA Voluntary Protection Program (VPP) status; and continue to foster a culture where employees are accountable for their safety as well as the safety of others.

Emergency Management

- Support facility and countywide emergency preparedness, response, and recovery efforts by partnering with entities, such as, the Water Emergency Response Organization of Orange County (WEROC), Orange County Sherriff Department, and local fire departments to plan and continue to conduct disaster preparedness training and exercises.

Security

- Continually identify and assess vulnerabilities and implement solutions through the Security Committee and third-party assessments. Prevent/mitigate security breaches using physical security systems such as video monitoring, access control, and armed security patrols.

Reclamation Plant No. 1 (Administration Offices)
10844 Ellis Avenue • Fountain Valley, California 92708

Treatment Plant No. 2
22212 Brookhurst Street • Huntington Beach, California 92646

For more information
Email: forinformation@ocsd.com • Phone: 714.962.2411
www.ocsd.com

11/2019

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1819 **Agenda Date:** 8/25/2021 **Agenda Item No:** 9.

FROM: James D. Herberg, General Manager
Originator: Kathy Millea, Director of Engineering

SUBJECT:

BAY BRIDGE PUMP STATION FORCE MAIN ISOLATION VALVE REPLACEMENT, PROJECT NO. FRC-0013

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

A. Ratify Approval of an Emergency Repair Service Contract to Charles King Company for Bay Bridge Pump Station Force Main Isolation Valve Replacement, Project No. FRC-0013, for an amount not to exceed $289,585; and

B. Approve a contingency of $144,793 (50%).

BACKGROUND

The Orange County Sanitation District (OC San) owns and operates pump stations and a force main network along Pacific Coast Highway in Newport Beach. The Bay Bridge Pump Station, Rocky Point Pump Station, and the Lido Pump Station all pump into, and pressurize, this two-pipe force main system. Each pump station has an isolation valve to each force main pipe to allow separation of the internal pump station systems from the other pump stations. This is necessary to isolate suction and discharge headers and common flow elements to be maintained or repaired. These pump station force main isolation valves are also necessary to install temporary bypass pumping systems at the individual pump stations and to stop flow to either force main pipe if it were compromised in some way.

The Bay Bridge Pump Station was originally constructed in 1965 and is near the end of its useful life. Bay Bridge Pump Station Replacement, Project No. 5-67, is in design and is scheduled to replace the pump station by 2027.

The pump isolation valves at the Bay Bridge Pump Station are in urgent need of replacement. Replacement cannot wait until the new pump station is completed. In November 2020, the Board awarded a contract for Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, to replace the valves within the pump station. The work includes bypass pumping to take the pump station out of service which cannot proceed until working pump station force main isolation valves are installed.

RELEVANT STANDARDS

- Achieve less than 2.1 sewer spills per 100 miles
- Comply with OC San Policy (Ordinance No. OC SAN-56, Article 5 - Public Works Projects, Section 5.03A - Exceptions, Emergencies and Calamities)

PROBLEM

In the course of executing the Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, staff has become aware that the two pump station force main isolation valves at the Bay Bridge Pump Station cannot provide positive isolation between the pump station and the force mains. This means that OC San is unable to maintain or repair important equipment in the pump station and will also not be able to isolate flow to either force main in the event of a leak or damage to the pipe system.

Replacement of the force main isolation valves is complex and carries significant risk.

PROPOSED SOLUTION

Given the criticality of the pump station isolation valves, the failure of these valves poses a clear and imminent danger to essential public services, in this case, wastewater conveyance. On July 28, 2021, the General Manager declared an emergency to replace the force main isolation valves so that the force mains can be isolated and to allow completion of Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, before the coming wet weather season.

Staff recommended the approval of an Emergency Repair Service Contract to replace the pump station force main isolation valves. This work will involve pump station shutdowns and bypass pumping that involves a significant risk of a sewage spill without proper planning, contingency measures, and a contractor with a proven ability to perform such complex, time-sensitive work.

Following the July 28, 2021 emergency declaration, the General Manager issued a purchase order to Charles King Company (Charles King) to perform initial work under the emergency provisions in OC San's Purchasing Ordinance No. OC SAN-56. On August 5, 2021, the General Manager informed the Board Chair that the emergency repair by Charles King would exceed $100,000. The Chair concurred with proceeding with the emergency repairs. Since the emergency work exceeds $100,000, ratification of the Service Contract by the Board of Directors is required in accordance with OC San's Purchasing Ordinance.

The proposed upper limit is based on the initial work plan prepared by Charles King. As plans are prepared in more detail, the cost could change significantly. For this reason, staff is requesting an unusually high contingency to quickly address any needs that arise.

TIMING CONCERNS

Any delay in completing the pump station force main valve replacements will likely prevent the individual pump isolation valves from being replaced until after the wet weather season. Given the

poor condition of the interior pump station valves needed to isolate and service pumps, there is a significant risk that the pump station might not be able to handle peak wet weather flows.

RAMIFICATIONS OF NOT TAKING ACTION

Without this emergency repair, the contract for Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, would need to be cancelled, and the work combined with the pump station force main valve replacement into a new public works contract. With procurement and award timeframes, not being able to do the work during the wet season, and the City of Newport Beach not allowing lane closures during the busy summer season, the work would likely need to be delayed until September 2022.

PRIOR COMMITTEE/BOARD ACTIONS

N/A

ADDITIONAL INFORMATION

OC San contacted two firms with successful experience performing urgent, high-risk collection system projects: Jamison Engineering and Charles King. Jamison Engineering was not able to start work until September, so staff engaged Charles King to start work. The initial authorization included preparation of a detailed work plan and excavation of the piping near the force main isolation valves. They were also asked to find replacement valves that could be delivered in a short period of time.

CEQA

The project is exempt from CEQA under the Class 1 categorical exemptions set forth in California Code of Regulations sections 15301. A Notice of Exemption will be filed with the OC Clerk-Recorder after OC San's Board of Directors approval of the Emergency Repair Service Contract.

FINANCIAL CONSIDERATIONS

This request complies with the authority levels of OC San's Purchasing Ordinance. This recommendation would be funded under the Repairs and Maintenance line item for the Operations and Maintenance Department (Budget Update Fiscal Year 2021-2022, Page 45), and the available funding is sufficient for this action.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Service Contract
- Presentation

RD:dm:gc

SERVICE CONTRACT

Bay Bridge Pump Station Forcemain Isolation Valve Replacement

Project No. FRC-0013

THIS CONTRACT is made and entered into to be effective the 25th day of August, 2021 by and between Orange County Sanitation District, with a principal place of business at 10844 Ellis Avenue, Fountain Valley, CA 92708 (hereinafter referred to as "OC San") and Charles King Company with a principal place of business at 2841 Gardena Avenue, Signal Hill, CA 90755 (hereinafter referred to as "Contractor") collectively referred to as the “Parties”.

W I T N E S S E T H

WHEREAS, OC San desires to temporarily retain the services of Contractor for Bay Bridge Pump Station Forcemain Isolation Valve Replacement “Services” as described in Exhibit “A”; and

WHEREAS, OC San has chosen Contractor to conduct Services in accordance with Ordinance No. OC SAN-56; and

WHEREAS, as of the date fully executed below, the General Manager authorized execution of this Contract between OC San and Contractor; and

WHEREAS, Contractor is qualified by virtue of experience, training, and expertise to accomplish such Services,

NOW, THEREFORE, in consideration of the mutual promises and mutual benefits exchanged between the Parties, the Parties mutually agree as follows:

1. Introduction

1.1 This Contract and all exhibits hereto (called the "Contract") is made by OC San and the Contractor. The terms and conditions herein exclusively govern the purchase of Services as described in Exhibit “A”.

1.2 Exhibits to this Contract are incorporated by reference and made a part of this Contract as though fully set forth at length herein.

Exhibit “A” Scope of Work
Exhibit “B” Contractor Labor and Equipment Rates
Exhibit “C” Determined Insurance Requirement Form
Exhibit “D” Contractor Safety Standards
Exhibit “E” General Conditions
Exhibit “F” Performance and Payment Bonds

1.3 In the event of any conflict or inconsistency between the provisions of this Contract and any of the provisions of the exhibits hereto, the more stringent provisions shall in all respects govern and control.

1.4 The provisions of this Contract may be amended or waived only by a writing executed by authorized representatives of both Parties hereto.

1.5 The various headings in this Contract are inserted for convenience only and shall not affect the meaning or interpretation of this Contract or any paragraph or provision hereof.

1.6 The term “days”, when used in the Contract, shall mean calendar days, unless otherwise noted as business days.

1.7 OC San holidays (non-working days) are as follows: New Year’s Day, Lincoln’s Birthday, Presidents’ Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving, Christmas Eve, and Christmas Day.

1.8 The term “hours”, when used in this Contract, shall be as defined in Exhibit “A”.

1.9 Contractor shall provide OC San with all required premiums and/or overtime work at no charge beyond the price provided under “Compensation” below.

1.10 Except as expressly provided otherwise, OC San accepts no liability for any expenses, losses, or action incurred or undertaken by Contractor as a result of work performed in anticipation of purchases of said services by OC San.

2. Compensation Compensation to be paid by OC San to Contractor for the Services provided under this Contract shall be a total amount not exceed Two Hundred Eighty-Nine Thousand Five Hundred Eighty-Five Dollars ($289,585.00).

2.1 OC San shall direct Work on a time and materials basis.

2.2 Limitation of Costs

If, at any time, Contractor estimates the cost of performing the services described in Contractor’s Bid will exceed seventy-five percent (75%) of the not-to-exceed amount of the Contract, including approved additional compensation, Contractor shall notify OC San immediately, and in writing. This written notice shall indicate the additional amount necessary to complete the services. Any cost incurred in excess of the approved not-to-exceed amount, without the express written consent of OC San’s authorized representative shall be at Contractor’s own risk. This written notice shall be provided separately from, and in addition to any notification requirements contained in the Contractor’s invoice and monthly progress report. Failure to notify OC San that the services cannot be completed within the authorized not-to-exceed amount is a material breach of this Contract.

3. California Department of Industrial Relations (DIR) Registration and Record of Wages

3.1 To the extent Contractor’s employees and/or its subcontractors who will perform Work during the design and preconstruction phases of a construction contract or perform work under a maintenance contract for which Prevailing Wage Determinations have been issued by the DIR and as more specifically defined under Labor Code Section 1720 et seq, Contractor and its subcontractors shall comply with the registration requirements of Labor Code Section 1725.5. Pursuant to Labor Code Section 1771.4, the work is subject to compliance monitoring and enforcement by the DIR.

3.2 The Contractor and its subcontractors shall maintain accurate payroll records and shall comply with all the provisions of Labor Code Section 1776, and shall submit payroll records to the Labor Commissioner pursuant to Labor Code 1771.4(a)(3). Penalties for non-compliance with the requirements of Section 1776 may be deducted from progress payments per Section 1776.

3.3 Pursuant to Labor Code Section 1776, the Contractor and its subcontractors shall furnish a copy of all certified payroll records to OC San and/or general public upon request, provided the public request is made through OC San, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement of the Department of Industrial Relations.

3.4 The Contractor and its subcontractors shall comply with the job site notices posting requirements established by the Labor Commissioner per Title 8, California Code of Regulation Section 16461(e).

4. Payments and Invoicing

4.1 OC San shall pay, net thirty (30) days, upon receipt and approval, by OC San's Project Manager or designee, of itemized invoices submitted monthly for Services rendered in accordance with Exhibit "A". OC San, at its sole discretion, shall be the determining party as to whether the Services have been satisfactorily completed.

Contractor shall provide breakdown of all lump sum and labor and equipment rates must be clearly stated on the request for payment. OC San and Contractor shall utilize the rates in accordance with Exhibit "B". State of California, Department of Transportation rates for labor and equipment shall apply when applicable.

4.2 Invoices shall be emailed by Contractor to OC San Accounts Payable at APStaff@OCSan.gov and "INVOICE" with the Purchase Order Number and Project No. FRC-0013 shall be referenced in the subject line.

5. Audit Rights Contractor agrees that, during the term of this Contract and for a period of three (3) years after its termination, OC San shall have access to and the right to examine any directly pertinent books, documents, and records of Contractor relating to the invoices submitted by Contractor pursuant to this Contract.

6. Scope of Work Subject to the terms of this Contract, Contractor shall perform the Services identified in Exhibit "A". Contractor shall perform said Services in accordance with generally accepted industry and professional standards.

7. Modifications to Scope of Work Requests for modifications to the Scope of Work hereunder can be made by OC San at any time.

Verbal direction by OC San may be given to Contractor during Field Work, followed by written direction. Written direction will be binding. In the event of any conflict or inconsistency between the verbal and written direction provided by OC San, Contractor shall request clarification from OC San's Resident Engineer.

8. ***Contract Term*** The Services provided under this Contract shall be completed within forty-two (42) calendar days from the effective date of the Notice to Proceed.

9. ***Renewals (Not Used)***

10. ***Extensions*** The term of this Contract may be extended only by written instrument signed by both Parties.

11. ***Performance*** Time is of the essence in the performance of the provisions hereof.

12. ***Termination***

12.1 OC San reserves the right to terminate this Contract for its convenience, with or without cause, in whole or in part, at any time, by written notice from OC San of intent to terminate. Upon receipt of a termination notice, Contractor shall immediately discontinue all work under this Contract (unless the notice directs otherwise). OC San shall thereafter, within thirty (30) days, pay Contractor for work performed (cost and fee) to the date of termination. Contractor expressly waives any claim to receive anticipated profits to be earned during the uncompleted portion of this Contract. Such notice of termination shall terminate this Contract and release OC San from any further fee, cost or claim hereunder by Contractor other than for work performed to the date of termination.

12.2 OC San reserves the right to terminate this Contract immediately upon OC San's determination that Contractor is not complying with the Scope of Work requirements, if the level of service is inadequate, or any other default of this Contract.

12.3 OC San may also immediately cancel for default of this Contract in whole or in part by written notice to Contractor:

- if Contractor becomes insolvent or files a petition under the Bankruptcy Act; or
- if Contractor sells its business; or
- if Contractor breaches any of the terms of this Contract; or
- if total amount of compensation exceeds the amount authorized under this Contract.

12.4 All OC San property in the possession or control of Contractor shall be returned by Contractor to OC San upon demand, or at the termination of this Contract, whichever occurs first.

13. ***Insurance*** Contractor and all subcontractors shall purchase and maintain, throughout the life of this Contract and any periods of warranty or extensions, insurance in amounts equal to the requirements set forth in the signed Determined Insurance Requirement Form (attached hereto and incorporated herein as Exhibit "C"). Contractor shall not commence work under this Contract until all required insurance is obtained in a form acceptable to OC San, nor shall Contractor allow any subcontractor to commence service pursuant to a subcontract until all insurance required of the subcontractor has been obtained. Failure to maintain required insurance coverage shall result in termination of this Contract.

14. ***Bonds*** Contractor shall, before entering upon the performance of this Contract, furnish bonds (attached hereto in Exhibit "F") approved by OC San's General Counsel - one in the amount of one hundred percent (100%) of the total Contract price bid, to guarantee the

faithful performance of the work, and the other in the amount of one hundred percent (100%) of the total Contract price bid, to guarantee payment of all claims for labor and materials furnished. This Contract shall not become effective until such bonds are supplied to and accepted by OC San. Bonds must be issued by a California admitted surety and must be maintained throughout the life of the Contract and during the warranty period.

15. Indemnification and Hold Harmless Provision Contractor shall assume all responsibility for damages to property and/or injuries to persons, including accidental death, which may arise out of or be caused by Contractor's services under this Contract, or by its subcontractor(s) or by anyone directly or indirectly employed by Contractor, and whether such damage or injury shall accrue or be discovered before or after the termination of the Contract. Except as to the sole active negligence of or willful misconduct of OC San, Contractor shall indemnify, protect, defend and hold harmless OC San, its elected and appointed officials, officers, agents and employees, from and against any and all claims, liabilities, damages or expenses of any nature, including attorneys' fees: (a) for injury to or death of any person or damage to property or interference with the use of property, arising out of or in connection with Contractor's performance under the Contract, and/or (b) on account of use of any copyrighted or uncopyrighted material, composition, or process, or any patented or unpatented invention, article or appliance, furnished or used under the Contract, and/or (c) on account of any goods and services provided under this Contract. This indemnification provision shall apply to any acts or omissions, willful misconduct, or negligent misconduct, whether active or passive, on the part of Contractor of or anyone employed by or working under Contractor. To the maximum extent permitted by law, Contractor's duty to defend shall apply whether or not such claims, allegations, lawsuits, or proceedings have merit or are meritless, or which involve claims or allegations that any of the parties to be defended were actively, passively, or concurrently negligent, or which otherwise assert that the parties to be defended are responsible, in whole or in part, for any loss, damage, or injury. Contractor agrees to provide this defense immediately upon written notice from OC San, and with well qualified, adequately insured, and experienced legal counsel acceptable to OC San.

16. Contractor Safety Standards OC San requires Contractor and its subcontractor(s) to follow and ensure their employees follow all Federal, State, and local regulations as well as Contractor Safety Standards while working at OC San locations. If during the course of the Contract it is discovered that Contractor Safety Standards do not comply with Federal, State, or local regulations, then the Contractor is required to follow the most stringent regulatory requirement at no additional cost to OC San. Contractor and all of its employees and subcontractors, shall adhere to all applicable Contractor Safety Standards attached hereto in Exhibit “D”.

17. Warranties In addition to the warranties stated in Exhibit "A", the following shall apply:

17.1 Manufacturer's standard warranty shall apply. All manufacturer warranties shall commence on the date of acceptance by the OC San Project Manager or designee of the work as complete.

17.2 Contractor's Warranty (Guarantee): If within a one (1) year period of completion of all work as specified in Exhibit “A”, OC San informs Contractor that any portion of the Services provided fails to meet the standards required under this Contract, Contractor shall, within the time agreed to by OC San and Contractor, take all such actions as are necessary to correct or complete the noted deficiency(ies) at Contractor's sole expense.

18. Liquidated Damages (Not Used)

19. Force Majeure Neither party shall be liable for delays caused by accident, flood, acts of God, fire, labor trouble, war, acts of government or any other cause beyond its control, but said party shall use reasonable efforts to minimize the extent of the delay. Work affected by a Force Majeure condition may be rescheduled by mutual consent or may be eliminated from the Contract.

20. Freight (F.O.B. Destination) Contractor assumes full responsibility for all transportation, transportation scheduling, packing, handling, insurance, and other services associated with delivery of all products deemed necessary under this Contract.

21. Familiarity with Work By executing this Contract, Contractor warrants that: 1) it has investigated the work to be performed; 2) it has investigated the site of the work and is aware of all conditions there; and 3) it understands the facilities, difficulties and restrictions of the work under this Contract. Should Contractor discover any latent or unknown conditions materially differing from those inherent in the work or as represented by OC San, it shall immediately inform OC San of this and shall not proceed, except at Contractor's risk, until written instructions are received from OC San.

22. Regulatory Requirements Contractor shall perform all work under this Contract in strict conformance with applicable Federal, State, and local regulatory requirements including, but not limited to, 40 CFR 122, 123, 124, 257, 258, 260, 261, and 503, Title 22, 23, and California Water Codes Division 2.

23. Environmental Compliance Contractor shall, at its own cost and expense, comply with all Federal, State, and local environmental laws, regulations, and policies which apply to the Contractor, its subcontractors, and the Services, including, but not limited to, all applicable Federal, State, and local air pollution control laws and regulations.

24. Licenses, Permits, Ordinances and Regulations Contractor represents and warrants to OC San that it has obtained all licenses, permits, qualifications, and approvals of whatever nature that are legally required to engage in this work. Any and all fees required by Federal, State, County, City and/or municipal laws, codes and/or tariffs that pertain to the work performed under the terms of this Contract will be paid by Contractor.

25. Applicable Laws and Regulations Contractor shall comply with all applicable Federal, State, and local laws, rules, and regulations. Contractor also agrees to indemnify and hold harmless from any and all damages and liabilities assessed against OC San as a result of Contractor's noncompliance therewith. Any permission required by law to be included herein shall be deemed included as a part of this Contract whether or not specifically referenced.

26. Contractor's Employees Compensation

26.1 Davis-Bacon Act – Contractor will pay and will require all subcontractors to pay all employees on said project a salary or wage at least equal to the prevailing rate of per diem wages as determined by the Secretary of Labor in accordance with the Davis-Bacon Act for each craft or type of worker needed to perform the Contract. The provisions of the Davis-Bacon Act shall apply only if the Contract is in excess of two thousand dollars ($2,000.00)

and when twenty-five percent (25%) or more of the Contract is funded by Federal assistance. If the aforesaid conditions are met, a copy of the provisions of the Davis-Bacon Act to be complied with are incorporated herein as a part of this Contract and referred to by reference.

26.2 General Prevailing Rate – OC San has been advised by the State of California Director of Industrial Relations of its determination of the general prevailing rate of per diem wages and the general prevailing rate for legal holiday and overtime work in the locality in which the work is to be performed for each craft or type of work needed to execute this Contract, and copies of same are on file in the Engineering Department. The Contractor agrees that not less than said prevailing rates shall be paid to workers employed on this Contract as required by Labor Code Section 1774 of the State of California. Per California Labor Code 1773.2, OC San will have on file copies of the prevailing rate of per diem wages at its principal office and at each project site, which shall be made available to any interested party upon request.

26.3 Forfeiture For Violation – Contractor shall, as a penalty to OC San, forfeit fifty dollars ($50.00) for each calendar day or portion thereof for each worker paid (either by the Contractor or any subcontractor under it) less than the prevailing rate of per diem wages as set by the Director of Industrial Relations, in accordance with Sections 1770-1780 of the California Labor Code for the work provided for in this Contract, all in accordance with Section 1775 of the Labor Code of the State of California.

26.4 Apprentices – Sections 1777.5, 1777.6, 1777.7 of the Labor Code of the State of California, regarding the employment of apprentices are applicable to this Contract and the Contractor shall comply therewith if the prime contract involves thirty thousand dollars ($30,000.00) or more or twenty (20) working days or more; or if contracts of specialty contractors not bidding for work through the general or prime Contractor are two thousand dollars ($2,000.00) or more or five (5) working days or more.

26.5 Workday – In the performance of this Contract, not more than eight (8) hours shall constitute a day's work, and the Contractor shall not require more than eight (8) hours of labor in a day from any person employed by it hereunder. Contractor shall conform to Article 3, Chapter 1, Part 7 (Section 1810 et seq.) of the Labor Code of the State of California and shall forfeit to OC San as a penalty, the sum of twenty-five dollars ($25.00) for each worker employed in the execution of this Contract by Contractor or any subcontractor for each calendar day during which any worker is required or permitted to labor more than eight (8) hours in any one (1) calendar day and forty (40) hours in any one (1) week in violation of said Article. Contractor shall keep an accurate record showing the name and actual hours worked each calendar day and each calendar week by each worker employed by Contractor in connection with the project.

26.6 Record of Wages; Inspection – Contractor agrees to maintain accurate payroll records showing the name, address, social security number, work classification, straight-time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker or other employee employed by it in connection with the project and agrees to require that each of its subcontractors do the same. All payroll records shall be certified as accurate by the applicable Contractor or subcontractor or its agent having authority over such matters. Contractor further agrees that its payroll records and those of its subcontractors shall be available to the employee or employee's representative, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards and shall comply with all of the provisions of Labor Code Section 1776, in general. Penalties

for non-compliance with the requirements of Section 1776 may be deducted from project payments per the requirements of Section 1776.

27. ***South Coast Air Quality Management District's (SCAQMD) Requirements*** It is Contractor's responsibility that all equipment furnished and installed be in accordance with the latest rules and regulations of the South Coast Air Quality Management District (SCAQMD). All Contract work practices, which may have associated emissions such as sandblasting, open field spray painting or demolition of asbestos containing components or structures, shall comply with the appropriate rules and regulations of the SCAQMD.

28. ***Governing Law*** This Contract shall be governed by and interpreted under the laws of the State of California and the Parties submit to jurisdiction in the County of Orange, in the event any action is brought in connection with this Contract or the performance thereof.

29. ***Breach*** The waiver of either party of any breach or violation of, or default under, any provision of this Contract, shall not be deemed a continuing waiver by such party of any other provision or of any subsequent breach or violation of this Contract or default thereunder. Any breach by Contractor to which OC San does not object shall not operate as a waiver of OC San's rights to seek remedies available to it for any subsequent breach.

30. ***Remedies*** In addition to other remedies available in law or equity, if the Contractor fails to make delivery of the goods or Services or repudiates its obligations under this Contract, or if OC San rejects the goods or Services or revokes acceptance of the goods or Services, OC San may (1) cancel the Contract; (2) recover whatever amount of the purchase price OC San has paid, and/or (3) "cover" by purchasing, or contracting to purchase, substitute goods or Services for those due from Contractor. In the event OC San elects to "cover" as described in (3), OC San shall be entitled to recover from Contractor as damages the difference between the cost of the substitute goods or Services and the Contract price, together with any incidental or consequential damages.

31. ***Dispute Resolution***

31.1 In the event of a dispute as to the construction or interpretation of this Contract, or any rights or obligations hereunder, the Parties shall first attempt, in good faith, to resolve the dispute by mediation. The Parties shall mutually select a mediator to facilitate the resolution of the dispute. If the Parties are unable to agree on a mediator, the mediation shall be conducted in accordance with the Commercial Mediation Rules of the American Arbitration Agreement, through the alternate dispute resolution procedures of Judicial Arbitration through Mediation Services of Orange County ("JAMS"), or any similar organization or entity conducting an alternate dispute resolution process.

31.2 In the event the Parties are unable to timely resolve the dispute through mediation, the issues in dispute shall be submitted to arbitration pursuant to California Code of Civil Procedure, Part 3, Title 9, Sections 1280 et seq. For such purpose, an agreed arbitrator shall be selected, or in the absence of agreement, each party shall select an arbitrator, and those two (2) arbitrators shall select a third. Discovery may be conducted in connection with the arbitration proceeding pursuant to California Code of Civil Procedure Section 1283.05. The arbitrator, or three (3) arbitrators acting as a board, shall take such evidence and make such investigation as deemed appropriate and shall render a written decision on the matter in question. The arbitrator shall decide each and every dispute in accordance with the laws

of the State of California. The arbitrator's decision and award shall be subject to review for errors of fact or law in the Superior Court for the County of Orange, with a right of appeal from any judgment issued therein.

32. ***Attorney's Fees*** If any action at law or inequity or if any proceeding in the form of an Alternative Dispute Resolution (ADR) is necessary to enforce or interpret the terms of this Contract, the prevailing party shall be entitled to reasonable attorney's fees, costs and necessary disbursements in addition to any other relief to which he may be entitled.

33. ***Survival*** The provisions of this Contract dealing with Payment, Warranty, Indemnity, and Forum for Enforcement, shall survive termination or expiration of this Contract.

34. ***Severability*** If any section, subsection, or provision of this Contract, or any agreement or instrument contemplated hereby, or the application of such section, subsection, or provision is held invalid, the remainder of this Contract or instrument in the application of such section, subsection or provision to persons or circumstances other than those to which it is held invalid, shall not be affected thereby, unless the effect of such invalidity shall be to substantially frustrate the expectations of the Parties.

35. ***Damage to OC San's Property*** Any of OC San's property damaged by Contractor, any subcontractors or by the personnel of either will be subject to repair or replacement by Contractor at no cost to OC San.

36. ***Disclosure*** Contractor agrees not to disclose, to any third party, data or information generated from this project without the prior written consent from OC San.

37. ***Independent Contractor*** The legal relationship between the parties hereto is that of an independent contractor, and nothing herein shall be deemed to make Contractor an OC San employee. During the performance of this Contract, Contractor and its officers, employees, and agents shall act in an independent capacity and shall not act as OC San's officers, employees, or agents. Contractor and its officers, employees, and agents shall obtain no rights to any benefits which accrue to OC San's employees.

38. ***Limitations upon Subcontracting and Assignment*** Contractor shall not delegate any duties nor assign any rights under this Contract without the prior written consent of OC San. Any such attempted delegation or assignment shall be void.

39. ***Third Party Rights*** Nothing in this Contract shall be construed to give any rights or benefits to anyone other than OC San and Contractor.

40. ***Non-Liability of OC San Officers and Employees*** No officer or employee of OC San shall be personally liable to Contractor, or any successor-in-interest, in the event of any default or breach by OC San or for any amount which may become due to Contractor or to its successor, or for breach of any obligation for the terms of this Contract.

41. ***Read and Understood*** By signing this Contract, Contractor represents that he has read and understood the terms and conditions of the Contract.

42. ***Authority to Execute*** The persons executing this Contract on behalf of the Parties warrant that they are duly authorized to execute this Contract and that by executing this Contract, the Parties are formally bound.

43. ***Entire Agreement*** This Contract constitutes the entire agreement of the Parties and supersedes all prior written or oral and all contemporaneous oral agreements, understandings, and negotiations between the Parties with respect to the subject matter hereof.

44. ***Notices*** All notices under this Contract must be in writing. Written notice shall be delivered by personal service or sent by registered or certified mail, postage prepaid, return receipt requested, or by any other overnight delivery service which delivers to the noticed destination and provides proof of delivery to the sender. Rejection or other refusal to accept or the inability to deliver because of changed address for which no notice was given as provided hereunder shall be deemed to be receipt of the notice, demand or request sent. All notices shall be effective when first received at the following addresses:

OC San:	Wai Chan, Contracts Administrator Orange County Sanitation District 10844 Ellis Avenue Fountain Valley, CA 92708
Contractor:	Scott King, Area Manager Charles King Company 2841 Gardena Avenue Signal Hill, CA 90755

Each party shall provide the other party written notice of any change in address as soon as practicable.

[Intentionally left blank. Signatures follow on next page]

IN WITNESS WHEREOF, intending to be legally bound, the Parties hereto have caused this Contract to be signed by the duly authorized representatives.

Contractor: CHARLES KING COMPANY
2841 Gardena Avenue
Signal Hill, CA 90755

By _____

_____
Printed Name

Its _____

OC San: Orange County Sanitation District

By _____
John B. Withers
Board Chairman

By _____
Kelly A. Lore
Clerk of the Board

By _____
Ruth Zintzun
Purchasing & Contracts Manager

EXHIBIT A

SCOPE OF WORK

1. Submittals
   a. Shoring
   b. Safety
   c. Field Work Schedule
   d. Materials
   e. Equipment
   f. Work plan for shutdown (North and South FMs)
      1. Include initial task to verify duration to depressurize forcemains
      2. Include initial task to verify available station shutdown duration
   g. Contingency plan for shutdowns (North and South FMs)
   h. Work plan to install North FM bypass connection
   i. Work plan to install South FM bypass connection
2. Excavate and shore
   a. Shoring design: L x W x H = 12' x 7' x 10'
   b. Expose piping between valve and meter vault
   c. Protect utilities and BBPS block wall and footing
   d. Plate excavation at end of day
   e. Install security fence
3. Isolate North FM (**3 hour shutdown to be verified**)
   a. Close Dover valves (OC San)
   b. Shutdown BBPS (OC San)
   c. Pump North FM nuisance flow to wet well
   d. Remove 45 elbow
   e. Blind flange wye and pipe spool
   f. Open Dover isolation valves (OC San)
   g. Restore BBPS (OC San)
   h. Watch for leaks in blind flanges
   i. Cleanup
4. Demo North FM isolation valve and tee
5. Install new North FM bypass connection
   a. 24”x24”x16” Tee
   b. 24” Isolation valve: plug or knife gate valve
   c. 24” Flex coupling
   d. 16” Plug valve installed on tee riser
   e. 16” blind flange with bleed port
6. Restore North FM
   a. Replace 45 elbow and needed fittings
   b. Test for leaks
7. Isolate South FM (**3 hour shutdown to be verified**)
   a. Close Dover valves (OC San)

   b. Shutdown BBPS (OC San)
   c. Pump South FM nuisance flow to wet well
   d. Remove reducer
   e. Blind flange wye and pipe spool
   f. Open Dover isolation valves (OC San)
   g. Restore BBPS (OC San)
   h. Watch for leaks in blind flanges
   i. Cleanup
8. Demo South FM isolation valve and tee
9. Install new South FM bypass connection
   a. 24”x24”x16” Tee
   b. 24” Isolation valve: plug or knife gate valve
   c. 24” Flex coupling
   d. 16” Plug valve installed on tee riser
   e. 16” blind flange with bleed port
10. Restore South FM
   a. Replace reducer and needed fittings
   b. Test for leaks
11. Backfill and restore surface

Charles King Company

2841 Gardena Ave.
Signal Hill, CA 90755
562 426-2974
562 426-9714 FAX
Lic No. 738236 A (Exp. 7/31/17)
DIR # 1000001537

Date 8/16/21

Project:	**Bay Bridge PS Valve Replacement**
Owner:	**Orange County Sanitation District**
Contractor:	**Charles King Co.**
Bid Date:	**8/16/21** Bid Time: **2:00 PM**

Subject:

Includes the following:

1 Per Site Visit with Rudy Davila on 7/30/21
2 All Labor, Equipment, and Materials to replace (2) existing 24" GVs with (2) 24" Knife Gates
3 Surface restoration of excavation inside Pump Station Only
4 Temporary Bypass from Wet Well, Discharge to Tees inside onsite Valve Vault
5 Confined Space Entry Equipment & Procedures
6 Standard 5 Million Dollar Insurance including pollution
7 Prevailing wage and certified payroll.

Excludes the following:

1-1 Items not specifically listed above.
1-2 Permits or notifications.
1-3 Engineered traffic plan
1-4 Water meter for testing and flushing.
1-5 SWPPP plan or submittal.
1-6 Replacement of Vault Lids (Modifications only if required for rising stem/actuator on new valves)

Bl #	Description	Unit	Quan.	Unit Cost	Subtotal
1	**Mobilization/Breakout Asphalt**	**LS**	**1**	**7,010.00**	**7,010.00**
2	**Excavate Between Vaults/Take Measurements**	**LS**	**1**	**32,800.00**	**32,800.00**
3	**Test Shutdown**	**LS**	**1**	**4,510.00**	**4,510.00**
4	**Setup Bypass, Replace Valve #1 & Piping**	**LS**	**1**	**113,175.00**	**113,175.00**
5	**Switch Bypass, Replace Valve #2 & Piping**	**LS**	**1**	**105,600.00**	**105,600.00**
6	**Backfill Pit/Restorations**	**LS**	**1**	**14,900.00**	**14,900.00**
7	**Breakdown Bypass & Demobilize**	**LS**	**1**	**11,590.00**	**11,590.00**

Total **289,585.00**
Includes all sales taxes.

This proposal is based on the inclusions and exclusions above.
Thank you for the opportunity to submit this bid and please feel free to call the undersigned for further information.

Sincerely,

Scott King

Item 4

Bay Bridge Pump Station Force Main Isolation Valve Replacement

Project No. FRC-0013

Item 5

Bay Bridge Pump Station Valve Replacement

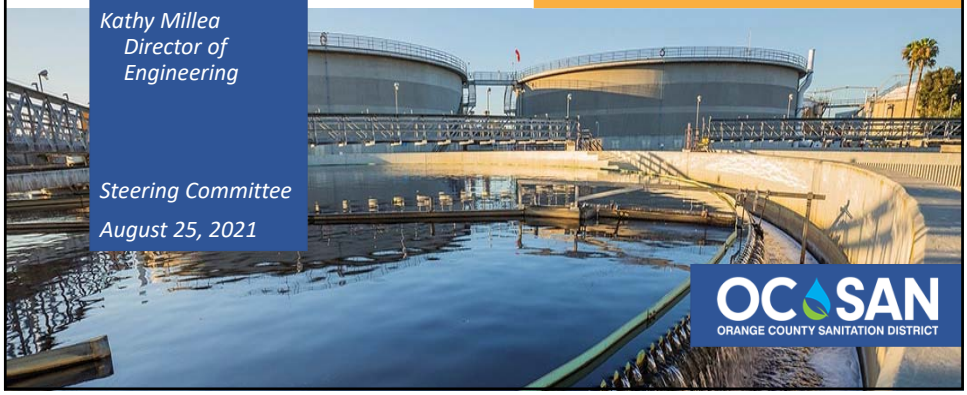
Project No. FRC-0002

Presented by:

Kathy Millea
Director of Engineering

Steering Committee

August 25, 2021



OC SAN
ORANGE COUNTY SANITATION DISTRICT

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Site Vicinity

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Bay Bridge Pump Station Location

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Coast Highway Street View

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Pumps Needing Repair

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Leaking Pump

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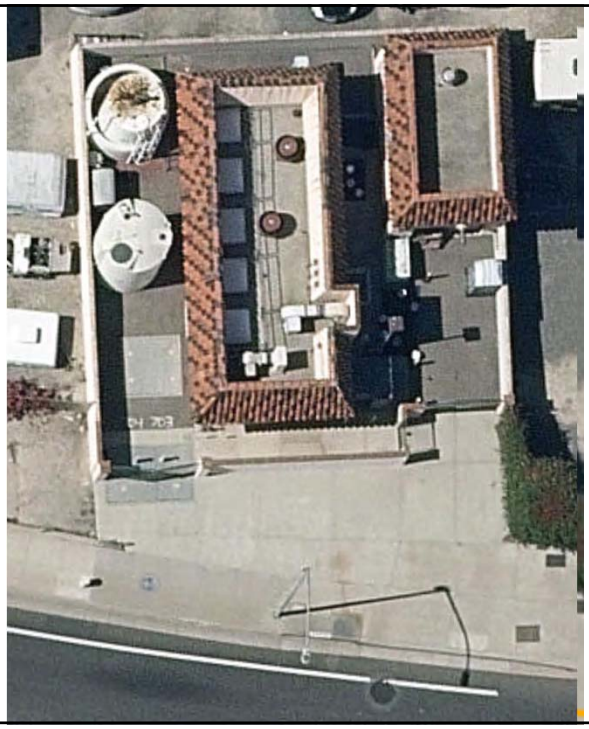
Pump Station



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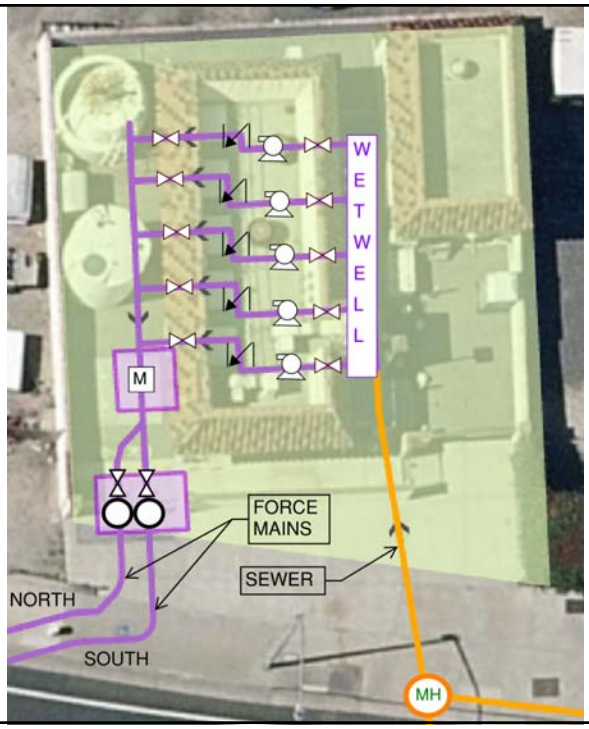
Pump Station Layout



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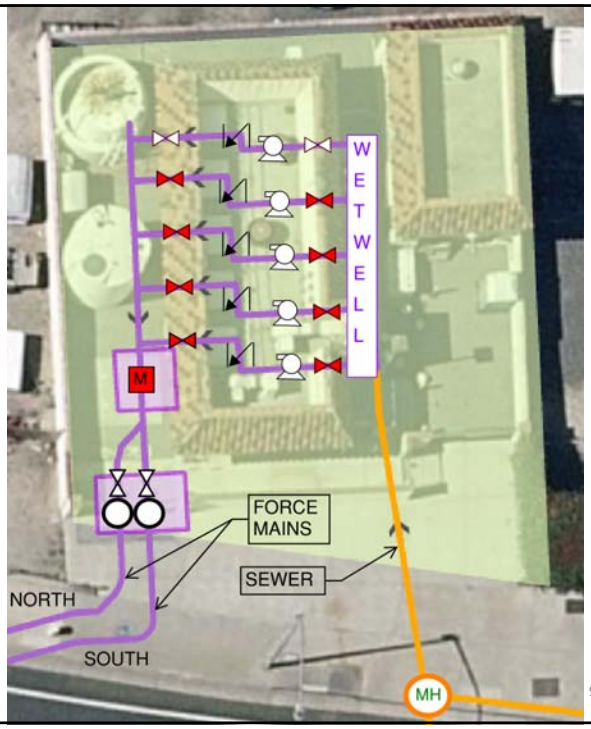
Pump Station FRC-0002 Work



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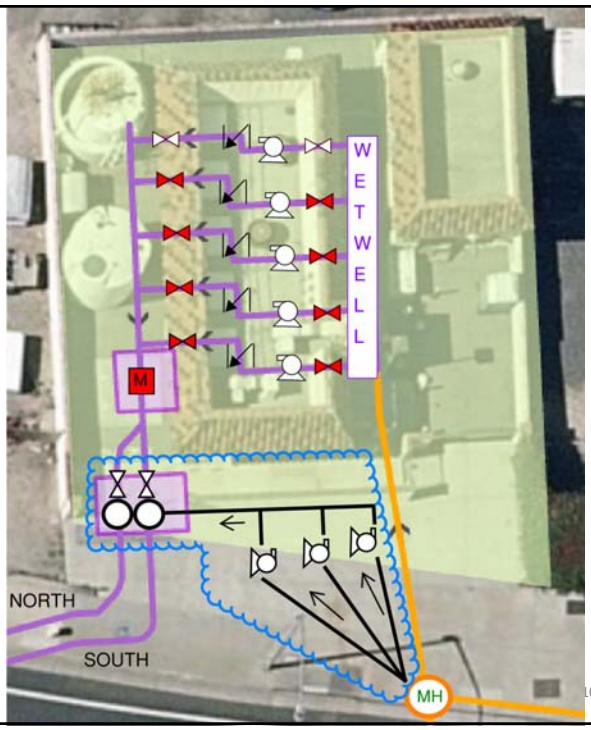
Pump Station with Bypass



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Bypass

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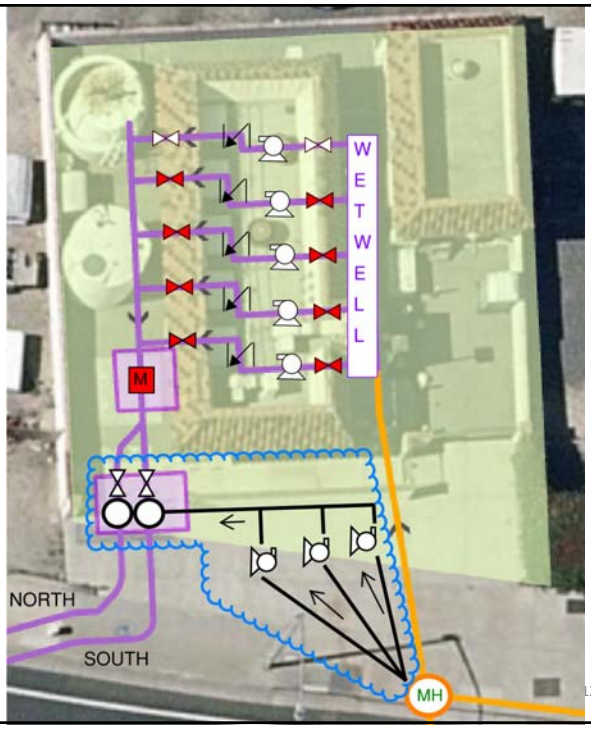
Pump Station with Bypass



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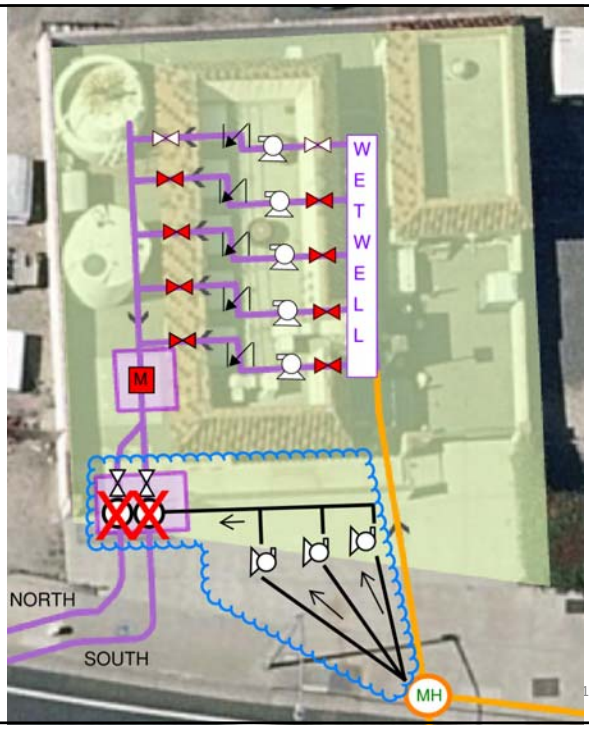
Pump Station Emergency Repairs



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Item 4 Recommendation

Force Main Isolation Valve Replacement

Recommend to the Board of Directors to:

A. Ratify Approval of an Emergency Repair Service Contract to Charles King Company for Bay Bridge Pump Station Force Main Isolation Valve Replacement, Project No. FRC-0013, for an amount not to exceed $289,585; and

B. Approve a contingency of $144,793 (50%).

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Item 5 Recommendation

Pump Station Valve Replacement

Recommend to the Board of Directors to:

Approve a contingency increase of $269,100 (45%) to the service contract with Innovative Construction Solutions for Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, Specification No. S-2020-1192BD, for a total contingency of $328,900 (55%).

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Questions

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Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1820 **Agenda Date:** 8/25/2021 **Agenda Item No:** 10.

FROM: James D. Herberg, General Manager
Originator: Kathy Millea, Director of Engineering

SUBJECT:

BAY BRIDGE PUMP STATION VALVE REPLACEMENT, PROJECT NO. FRC-0002

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

Approve a contingency increase of $269,100 (45%) to the service contract with Innovative Construction Solutions for Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, Specification No. S-2020-1192BD, for a total contingency of $328,900 (55%).

BACKGROUND

The Orange County Sanitation District (OC San) owns and operates pump stations and a force main network along Pacific Coast Highway in Newport Beach. The Bay Bridge Pump Station, Rocky Point Pump Station, and the Lido Pump Station all pump into, and pressurize, this two-pipe force main system. Each pump station has an isolation valve to each force main pipe to allow separation of the internal pump station systems from the other pump stations. This is necessary to be able to isolate the suction and discharge headers and common flow elements so they may be maintained or repaired. These pump station isolation valves are also necessary to install temporary bypass pumping systems around any individual pump station.

Within each pump station, each pump has its own suction and discharge isolation valves so individual pumps and check valves can be maintained or repaired while the rest of the station is in service. When a pump isolation valve fails, its associated pump can no longer be taken out of service for repair with the overall pump station in service.

The Bay Bridge Pump Station was originally constructed in 1965 and is near the end of its useful life. Bay Bridge Pump Station Replacement, Project No. 5-67, is in design and is scheduled to replace the pump station by 2027.

The pump isolation valves at the Bay Bridge Pump Station are in urgent need of replacement. The replacement on these pump isolation valves cannot wait until the new pump station is completed. In November 2020, Board awarded a $598,000 Contract to Innovative Construction Solutions for Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, to replace these valves. The work includes bypass pumping to take the pump station out of service to replace the individual pump isolation valves.

RELEVANT STANDARDS

- Ensure the public's money is wisely spent
- Maintain a proactive asset management program
- Achieve less than 2.1 sewer spills per 100 miles

PROBLEM

Replacement of the individual pump suction and discharge isolation valves depends on functioning pump station isolation valves to the force mains which cross under Newport Bay. When the contractor attempted to start the work, the force main isolation valves would not prevent back flow from the force mains to the pump station caused by the bypass pumps. The contractor was not able to begin the contract work within the pump station and was directed to demobilize until a solution could be found. On July 28, the General Manager declared an emergency to quickly replace the force main isolation valves so that this contract work can be restarted in the fall to be completed before the coming wet weather season.

Although the original contract scope of work has not been significantly changed, the contractor has incurred compensable costs to mobilize and demobilize. The mobilization and demobilization costs are much more significant than a typical construction contract and include significant traffic control measures (extended lane closure on Pacific Coast Highway), bypass pumping setup, and staging to perform the mechanical work. These costs will exceed the Board-authorized 10 percent contingency.

Necessary maintenance work on the individual pumps and flow control devices in the pump station is being deferred until these isolation valves are replaced.

PROPOSED SOLUTION

Increase the contingency to cover the costs for demobilization and remobilization, and to address other problems that may arise during the pump station valve replacement work.

TIMING CONCERNS

Without the additional contingency, the contractor will not be able to complete the valve replacements before this coming wet weather season. Without the new valves to isolate the pumps for necessary maintenance, there is a significant risk that the pump station might not be able to handle peak storm flows.

RAMIFICATIONS OF NOT TAKING ACTION

Without the additional contingency, staff would need to cancel the remaining work to cover the costs the contractor has already incurred. A new contract would have to be solicited, and that new contract would not be available in time for the wet season. Without the new valves, OC San staff would be unable to isolate and service the pumps if they become inoperable. As of mid-August, two pumps are leaking badly, but cannot be serviced because the isolation valves are not functional.

PRIOR COMMITTEE/BOARD ACTIONS

November 2020 - Awarded a construction contract to Innovative Construction Solutions for Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, for a total amount not to exceed $598,000, and approved a contingency of $59,800 (10%).

ADDITIONAL INFORMATION

N/A

CEQA

The project is exempt from CEQA under the Class 1 categorical exemptions set forth in California Code of Regulations Section 15301 because the project involves repairs, replacement, and or minor alteration of existing facilities involving no expansion of use or capacity. A Notice of Exemption was filed with the OC Clerk-Recorder on November 24, 2020.

FINANCIAL CONSIDERATIONS

This request complies with the authority levels of OC San's Purchasing Ordinance. This recommendation would be funded under the Repairs and Maintenance line item for the Operations and Maintenance Department (Budget Update Fiscal Year 2021-2022, Page 45), and the available funding is sufficient for this action.

Date of Approval	Contract Amount	Contingency
11/04/2020	$598,000	$ 59,800 (10%)
08/25/2021		$269,100 (45%)

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Presentation

RD:dm:gc

Item 4

Bay Bridge Pump Station Force Main Isolation Valve Replacement

Project No. FRC-0013

Item 5

Bay Bridge Pump Station Valve Replacement

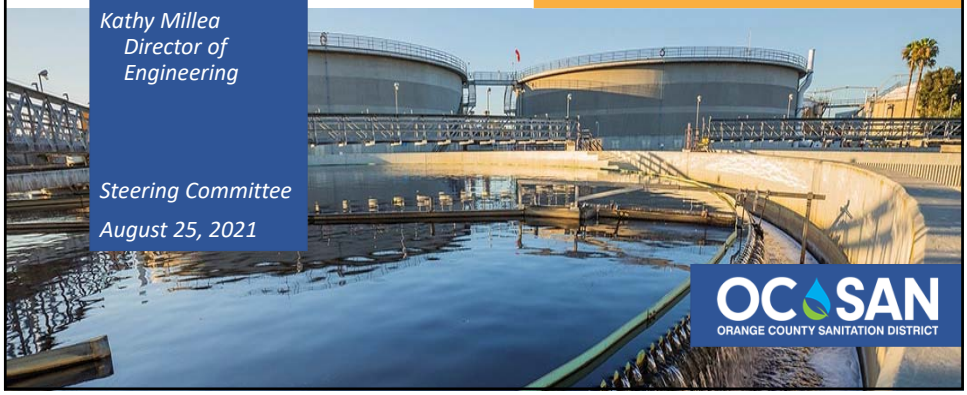
Project No. FRC-0002

Presented by:

Kathy Millea
Director of Engineering

Steering Committee

August 25, 2021



OC SAN
ORANGE COUNTY SANITATION DISTRICT

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Site Vicinity

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Bay Bridge Pump Station Location

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Coast Highway Street View

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Pumps Needing Repair

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Leaking Pump

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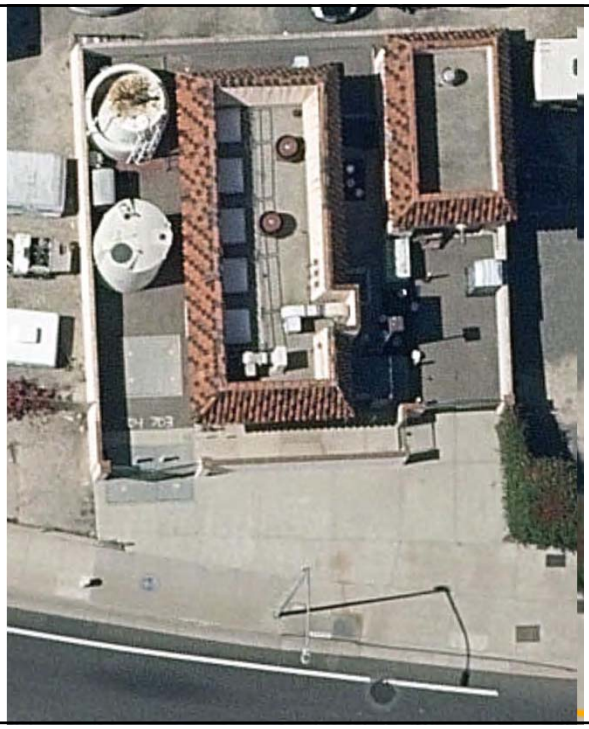
Pump Station



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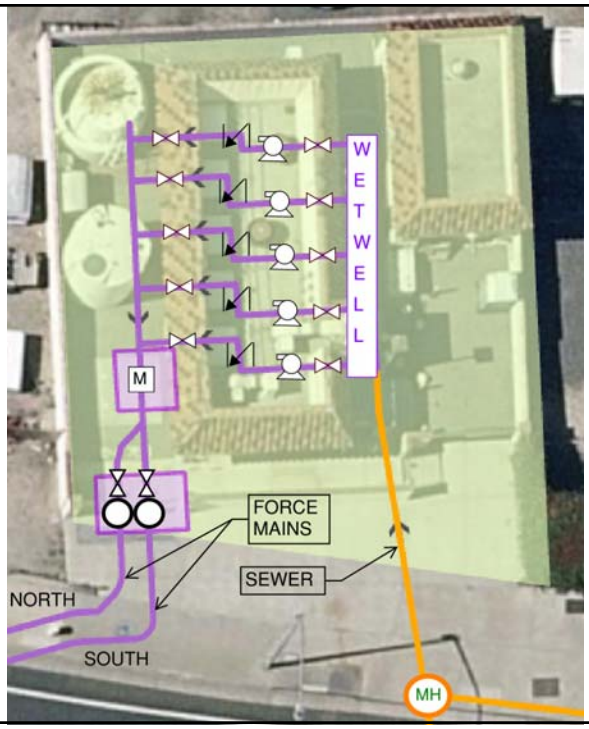
Pump Station Layout



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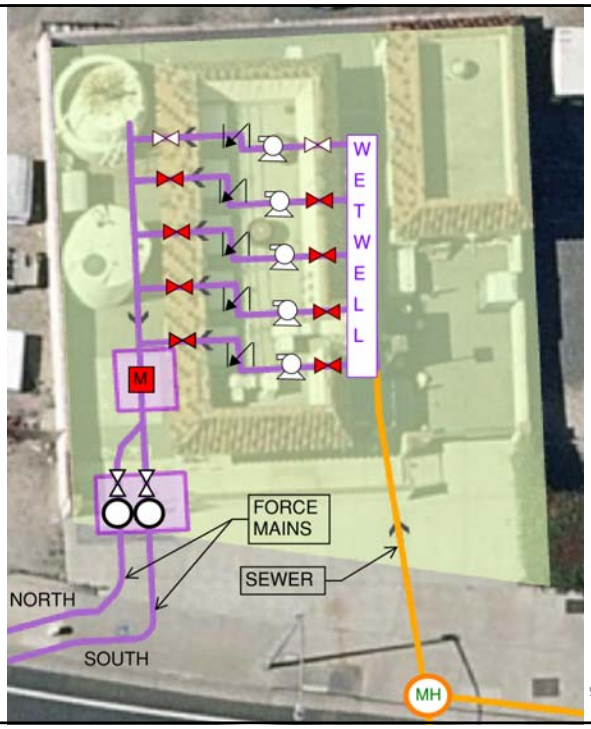
Pump Station FRC-0002 Work



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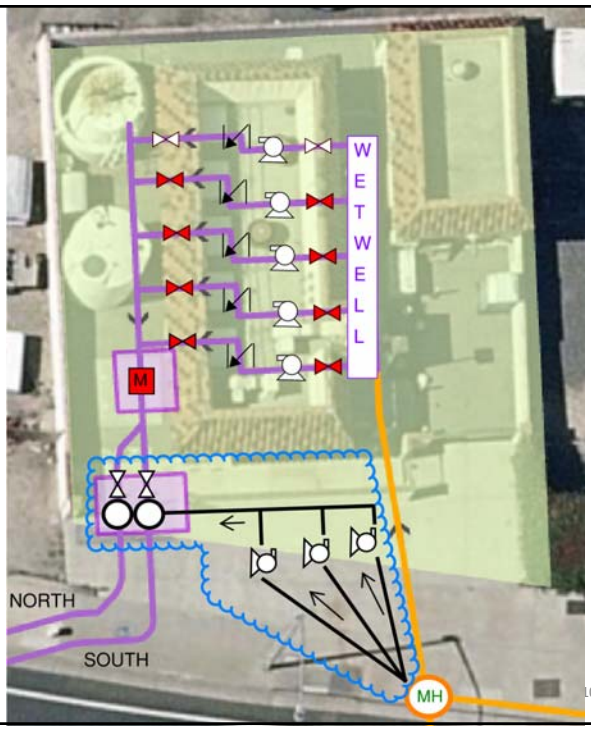
Pump Station with Bypass



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Bypass

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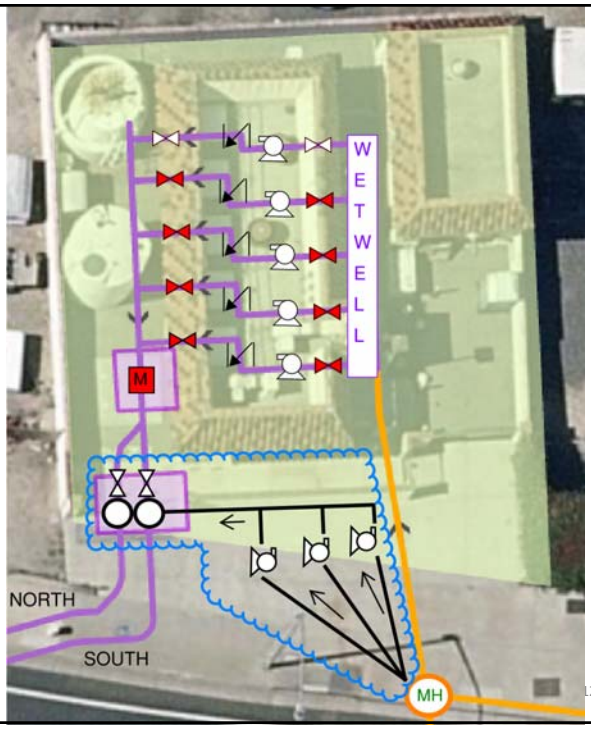
Pump Station with Bypass



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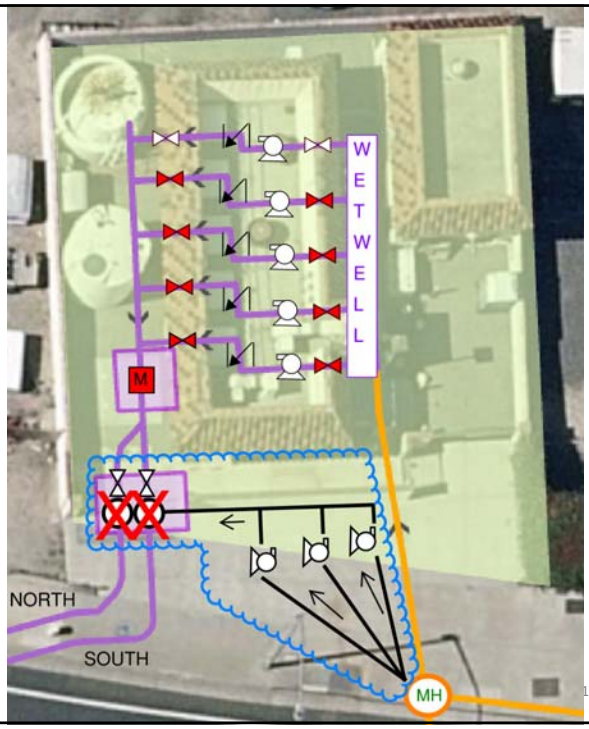
Pump Station Emergency Repairs



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Item 4 Recommendation

Force Main Isolation Valve Replacement

Recommend to the Board of Directors to:

A. Ratify Approval of an Emergency Repair Service Contract to Charles King Company for Bay Bridge Pump Station Force Main Isolation Valve Replacement, Project No. FRC-0013, for an amount not to exceed $289,585; and

B. Approve a contingency of $144,793 (50%).

14

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Item 5 Recommendation

Pump Station Valve Replacement

Recommend to the Board of Directors to:

Approve a contingency increase of $269,100 (45%) to the service contract with Innovative Construction Solutions for Bay Bridge Pump Station Valve Replacement, Project No. FRC-0002, Specification No. S-2020-1192BD, for a total contingency of $328,900 (55%).

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Questions

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Administration Building
10844 Ellis Avenue
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File #: 2021-1703 **Agenda Date:** 8/25/2021 **Agenda Item No:** 11.

FROM: James D. Herberg, General Manager
Originator: Lorenzo Tyner, Assistant General Manager

SUBJECT:

TREASURER'S REPORT FOR THE FOURTH QUARTER ENDED JUNE 30, 2021

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

Receive and file the Orange County Sanitation District Fourth Quarter Treasurer's Report for the period ended June 30, 2021.

BACKGROUND

The Quarterly Treasurer's Report contains financial portfolio performance with respect to the Orange County Sanitation District's (OC San) funds. Both Long-Term and Liquid Operating Monies Portfolios are summarized. A performance summary table can be found on page 2. The report also contains information on the U.S. and global economic outlook from OC San's investment manager, Chandler Asset Management.

RELEVANT STANDARDS

- Quarterly financial reporting

ADDITIONAL INFORMATION

The Quarterly Treasurer's Report for the Fourth Quarter Ended June 30, 2021 is being submitted in accordance with OC San's investment policy that requires the report be submitted to the governing body following the end of each quarter and includes the following information:

- Performance results in comparison with the ICE BAML 3-month treasury bill index for the liquid operating portfolio; and the ICE BAML Corp./Govt. 1-5 Year Bond index for the long-term portfolio as identified in the investment policy; and the time-weighted total rate of return for the portfolio for the prior three months, six months, nine months, twelve months, and since inception compared to the Benchmark returns for the same periods:

Portfolio Performance Summary
As of June 30, 2021

	Liquid Operating Monies (%)		Long-Term Operating Monies (%)	
	Total Rate of Return	Benchmark	Total Rate of Return	Benchmark
3 Months	0.01	0.00	0.19	0.20
6 Months	0.05	0,02	-0.31	-0.33
9 Months	0.09	0.06	-0.10	-0.18
12 Months	0.13	0.09	0.19	0.06
Annualized Since Inception 30 Nov 2014	1.04	0.92	2.04	2.00

- A listing of individual securities held at the end of each reporting period (see the detailed listings of each security contained within the report).

- Cost and market values of the portfolios:

	Liquid Operating	Long-Term
Cost	$207.7 M	$670.0 M
Market Value	$207.8 M	$686.0 M

- Modified duration of the portfolio compared to the Benchmark:

	Liquid Operating	Long-Term
District Policy	< 0.50	< 5.00
Benchmark	0.15	2.62
Portfolio	0.35	2.55

- Dollar change in value of the portfolio for a one percent (1%) change in interest rates:

  Liquid Operating - $732,574
  Long- Term - $17,461,155

- None of the portfolios are currently invested in reverse repurchase agreements.

- The percent of the Liquid Operating Monies portfolio maturing within 90 days: 55.0%

- Average portfolio credit quality:

  Liquid Operating - AA+/Aaa
  Long- Term - AA/Aa1

- Percent of portfolio with credit ratings below “A” by any rating agency and a description of such securities:

  Liquid Operating - no exceptions
  Long-Term - Percent of portfolio - 1.7%

	Cost	Maturity Date	Moody	S&P	Fitch
SLMA 2008-9 A	$10,077.59	4/25/2023	Baa3	B	B
AMRESCO Residential Securities 1999-1 A	$89,377.81	6/25/2029	NR	BBB	BBB
Morgan Stanley Note	$3,200,848.00	7/28/2021	A1	BBB+	A
Morgan Stanley Callable Note	$8,889,710.25	5/30/2025	A1	BBB+	A

- All investments are in compliance with this policy and the California Government Code, except for the following Lehman Brother holdings that OC San is pursuing collection through the bankruptcy court:

  Lehman Brothers Note-Defaulted $600,000 par value purchased 9/19/2008
  Lehman Brothers Note-Defaulted $2,000,000 par value purchased 9/18/2008

- Sufficient funds are available for OC San to meet its operating expenditure requirements for the next six months.

CEQA

N/A

FINANCIAL CONSIDERATIONS

N/A

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Fourth Quarter Treasurer's Report for the Period Ended June 30, 2021

July 31, 2021

STAFF REPORT

Quarterly Treasurer's Report
For the Period Ended June 30, 2021

SUMMARY

Section 17.0 of the Orange County Sanitation District's (OC San) Investment Policy includes quarterly reporting requirements for OC San's two investment portfolios. These two funds, the "Liquid Operating Monies," and the "Long-Term Operating Monies" are managed by Chandler Asset Management, OC San's external money manager.

The ongoing monitoring of OC San's investment program by staff and Callan Associates, OC San's independent investment advisor, indicates that OC San's investments are in compliance with OC San's adopted Investment Policy and the California Government Code, and that overall performance has tracked with benchmark indices. In addition, sufficient liquidity and anticipated revenues are available for OC San to meet budgeted expenditures for the next six months. OC San's portfolios do not include any reverse repurchase agreements or derivative securities.

ADDITIONAL INFORMATION

Performance Reports

The Quarterly Strategy Review, prepared by Chandler Asset Management, and the Investment Measurement Service Quarterly Review, prepared by Callan Associates, is attached for reference. Also attached are Long-Term and Liquid Operating Monies Summary of Performance Data and Portfolio Statistics charts that depict the performance results, estimated yield and duration, credit quality, and sector diversification of OC San's portfolios, as of June 30, 2021. The Liquid Operating Monies portfolio, with an average maturity of 128 days, consists entirely of high quality fixed income investments consistent with OC San's investment policy.

Portfolio Performance Summary

The following table presents a performance summary of OC San's portfolios as compared to their benchmarks as of June 30, 2021.

Portfolio Performance Summary As of June 30, 2021				
	Liquid Operating Monies (%)		Long-Term Operating Monies (%)	
	Total Rate of Return	Benchmark(1)	Total Rate of Return	Benchmark(1)
3 Months	0.01	0.00	0.19	0.20
6 Months	0.05	0.02	-0.31	-0.33
9 Months	0.09	0.06	-0.10	-0.18
12 Months	0.13	0.09	0.19	0.06
Annualized Since inception 30 Nov 2014	1.04	0.92	2.04	2.00
Market Value	$207.8 M		$686.0 M	
Average Quality	"AA+"/"Aaa"		"AA"/"Aa1"	
Current Yield (%)	1.0		1.6	
Estimated Yield to Maturity (%)	0.1		0.4	
Quarterly Deposits (Withdrawals)	$42.0 M		$30.0 M	
Estimated Annual Income	$0.2 M		$10.5 M	

(1) Benchmarks:
- Liquid Operating Portfolio: ICE BAML 3-Month Treasury Bill Index
- Long-Term Operating Portfolio: ICE BAML Corp/Govt. 1-5 Year Bond Index

Portfolio Market Values

Comparative marked-to-market quarter-end portfolio values are shown in the following table, and in the attached bar chart.

Quarter Ending	Liquid Operating Monies ($M)	Long-Term Operating Monies ($M)
30 Sep 20	128.7	625.2
31 Dec 20	225.7	657.6
31 Mar 21	165.8	654.4
30 Jun 21	207.8	686.0

Orange County Sanitation District Investment Account Balances as of June 30, 2021

Investment Accounts	Book Balances June 30, 2021	Estimated Yield (%)
State of California LAIF	$67,784,965	0.26
Banc of California – General	3,000,000	0.30
Banc of California – Sweep	1,591,604	0.05
Banc of California – Workers' Compensation	66,001	0.30
Banc of California – Property, Liability Claim, Exp	50,000	0.30
Union Bank – Mount Langley	213,682	0.40
Union Bank – Bandilier	553,505	0.40
Chandler/U.S. Bank – Short-Term Portfolio	207,817,043	0.09
Chandler/U.S. Bank – Long-Term Portfolio	685,922,367	0.43
Petty Cash	6,634	0.00
BNY Mellon OCIP Reserve	500,766	0.00
TOTAL	$967,506,567	0.34
Debt Service Reserves w/Trustees	$120	0.01

Orange County Sanitation District Cost of Funds on Debt Issues as of June 30, 2021

Cost of Funds Issue Description	Outstanding COP Balance	Annual Interest Rate (%)
2010A Fixed	80,000,000	3.68
2010C Fixed	157,000,000	4.11
2011A Fixed	75,370,000	2.61
2012A Fixed	100,645,000	3.54
2012B Fixed	8,170,000	1.50
2014A Fixed	56,080,000	2.34
2015A Fixed	127,510,000	3.30
2016A Fixed	136,830,000	3.02
2017A Fixed	65,815,000	2.55
2018A Fixed	102,200,000	2.02
TOTAL	$909,620,000	
Weighted Avg. Cost of Funds		3.13

ATTACHMENTS

1. Chandler Quarterly Report
2. Summary of Performance Data and Portfolio Statistics – Liquid Operating Monies
3. Summary of Performance Data and Portfolio Statistics – Long Term Operating Monies
4. Investment Transactions and Balances in LAIF
5. Asset Summary by Asset Type – Liquid Operating Portfolio
6. Asset Summary by Asset Type – Long Term Portfolio
7. Asset Summary by Asset Type – Owner Controlled Insurance Program Escrow Account
8. Investment Listing (Yield Analysis Report)
9. Asset Detail – Consolidated
10. Custody Transaction History – Consolidated
11. Callan Quarterly Review
12. Chandler Quarterly Review
13. Rating Agency Comparisons

CHANDLER ASSET MANAGEMENT

June 30, 2021

Mr. Lorenzo Tyner
Assistant General Manager
Director of Finance and Administrative Services
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley CA 92708-7018

Dear Lorenzo,

Bond Market Recap

We believe the outlook for US economic growth in the second half of the year is strong, fueled by ongoing fiscal support, accommodative monetary policy, widespread vaccinations, and the continued reopening of the economy. Although some of these factors have begun to moderate, we expect they will continue to provide tailwinds for the economy through year-end. Vaccination rates in the US have slowed, and infection rates have recently increased but remain well below their peak. Thus far, US-approved vaccines have shown to be effective against COVID-19 as well as more aggressive variants. As such, we remain optimistic about the continued reopening of the US economy. Meanwhile, although some pandemic-related fiscal relief is starting to phase out, President Biden and a group of bipartisan senators have agreed to an overall framework for an infrastructure plan. Though the details have not been finalized or approved by Congress, the negotiations signal that more fiscal stimulus is likely on the horizon. Meanwhile, the Federal Reserve continues to signal that it will look past the near-term uptick in inflation to facilitate continued improvement in the labor market. While we believe financial market volatility is likely to increase in the second half of the year, we anticipate that gross domestic product (GDP) will continue to grow at an above-trend pace.

The Federal Open Market Committee (FOMC) kept monetary policy unchanged in June. The fed funds target rate remains in the range of 0.0% to 0.25%, and the Fed continues to purchase $80 billion of Treasuries per month, and $40 billion of agency mortgage-backed securities per month. The Fed has started to discuss the idea of reducing its asset purchases at some point, but that decision remains uncertain. FOMC members' updated economic projections also suggest that the Fed may start to raise interest rates in 2023, versus the previous estimate of 2024. Overall, monetary policy remains highly accommodative for now, but the Fed seems to be inching toward a path of policy normalization. We believe the Fed will proceed with caution, particularly given the high number of people who remain unemployed and continued uncertainty about the pandemic and impact of COVID-19 variants. While about 55% of people in the U.S. have received at least one dose of a COVID-19 vaccine, less than a quarter of the world population has received at least one dose. Should the U.S. economy remain on its current trajectory, and global vaccination rates improve meaningfully, we believe there is a high probability that the Fed will begin tapering its asset purchases during the first half of next year.

The yield curve flattened in June. We believe multiple factors influenced Treasury rates in June, including market technicals, dollar strengthening, uneven global vaccination rates, and a more modest forecast for U.S. infrastructure spending than initially expected. Nevertheless, we believe longer-term rates have room to move higher this year and we believe the Treasury yield curve is poised to steepen in the second half of the year.

The treasury yield curve is steeper on a year-over-year basis. The 3-month T-bill yield was about nine basis points lower, while the 2-year Treasury yield was about ten basis points higher, and the 10-Year Treasury yield was about 81 basis points higher, year-over-year, as of June month-end. The Fed has signaled plans to keep the front end of the Treasury yield curve anchored near zero until 2023. We believe longer-term rates still have room to move higher this year.

Consumer Prices

The Consumer Price Index (CPI) was up 5.0% year-over-year in May versus up 4.2% in April. Core CPI (CPI less food and energy) was up 3.8% year-over-year in May, versus up 3.0% in April. The Personal Consumption Expenditures (PCE) index was up 3.9% year-over-year in May, versus up 3.6% year-over-year in April. Core PCE was up 3.4% year-over-year in May, versus up 3.1% year-over-year in April. Current inflation readings are running well above the Fed's longer-run target of around 2.0%, though many of the factors are expected to be temporary.

Retail Sales

On a year-over-year basis, retail sales were up 28.1% in May versus up 53.4% in April. The year-over-year gains are distorted by the drop-off in spending and activity at the early stage of the pandemic last year. On a month-over-month basis, retail sales declined 1.3% in May, following a 0.9% increase in April. Retail sales have been somewhat uneven due to the timing of fiscal stimulus and economic reopening. Overall, we believe consumer spending remains healthy and consistent with an ongoing recovery in economic activity.

Labor Market

Job growth was stronger than expected in June. U.S. nonfarm payrolls increased by 850,000, versus the consensus forecast of 720,000. May payrolls were also revised up by 24,000 to 583,000. On a trailing 3-month and 6-month basis, payrolls increased by an average of 567,000 and 543,000 per month, respectively, which is indicative of a steady recovery in the labor market. The leisure and hospitality sectors continue to drive the job gains in June and increased by 343,000. Government payrolls also posted a solid increase of 188,000 in June. The labor participation rate was unchanged at 61.6% in June. The unemployment rate ticked higher to 5.9% in June from 5.8% in May. The U-6 underemployment rate, which includes those who are marginally attached to the labor force and employed part time for economic reasons, declined to 9.8% in June from 10.2% in May. The index of aggregate private weekly payrolls was up 2.8% in June from February 2020, suggesting a solid increase in aggregate wages.

Housing Starts

Total housing starts rose 3.6% in May to an annual pace of 1,572,000. Single-family starts rose 4.2% in May while multi-family starts were up 2.4%. On a year-over-year basis, housing starts were up 50.3% in May, due in part to the steep decline in activity during the early stage of the pandemic last year.

TREASURY YIELDS	6/30/2021	3/31/2021	CHANGE
3 Month	0.04	0.02	0.02
2 Year	0.25	0.16	0.09
3 Year	0.46	0.35	0.11
5 Year	0.89	0.94	(0.05)
7 Year	1.24	1.42	(0.18)
10 Year	1.47	1.74	(0.27)
30 Year	2.09	2.41	(0.32)

Economy Is Poised for Continued Above-Trend Growth

ECONOMIC INDICATOR	Current Release	Prior Release	One Year Ago
Trade Balance	(71.24) $Bln MAY 21	(69.07) $Bln APR 21	(54.92) $Bln MAY 20
Gross Domestic Product	6.40% MAR 21	4.30% DEC 20	(5.00%) MAR 20
Unemployment Rate	5.90% JUN 21	5.80% MAY 21	11.10% JUN 20
Prime Rate	3.25% JUN 21	3.25% MAY 21	3.25% JUN 20
Commodity Research Bureau Index	213.39 JUN 21	205.70 MAY 21	137.97 JUN 20
Oil (West Texas Int.)	$73.47 JUN 21	$66.32 MAY 21	$39.27 JUN 20
Consumer Price Index (y/o/y)	5.00% MAY 21	4.20% APR 21	0.10% MAY 20
Producer Price Index (y/o/y)	8.70% MAY 21	9.50% APR 21	(3.20%) MAY 20
Dollar/Euro	1.19 JUN 21	1.22 MAY 21	1.12 JUN 20

Source: Bloomberg

CHANDLER ASSET MANAGEMENT

Performance Attribution

Long-Term Portfolio

The OC Sanitation Long-Term Portfolio generated a positive quarterly total return of 0.19% compared to the 0.20% total return of the ICE Bank of America Merrill Lynch 1-5 Year US Corporate and Government AAA-A Index. During the quarter, the term structure of the Treasury curve adjusted with shorter maturity yields moving higher and longer maturity yields moving lower. The Chandler team believes one of the primary catalysts for the change in interest rates was the Federal Reserve's technical adjustment to the Interest on Excess Reserves (IOER) rate, increasing the IOER target to 0.15% from 0.10%, and also adjusting the Federal Reserve's reverse repo rate higher to 0.05% from 0.00%. The change in IOER and the Reverse Repo rate served to put a floor on very short maturity Treasury yields which led to benchmark two year and three year rates moving higher, while longer term rates were more stable, grinding lower by a total of 5 basis points at the five year maturity point. The unorthodox change to the term structure did not enable the portfolios more barbelled portfolio structure, relative to the benchmark, to generate above benchmark returns.

Multiple securities were purchased in the Treasury, Commercial Paper, Certificate of Deposit, Asset Backed and Corporate sectors of the portfolio allocation. The purchased securities ranged in maturity from July 2021 to June 2026. Several securities were sold and matured to facilitate the new holdings in the portfolio. $30 million was contributed to the portfolio in April 2021. The sector allocation was relatively stable. Notably the Treasury and Agency allocations each moved lower by 2.2% and 3.0% respectively, offset by modest increases in the Supranational, Corporate, Asset Backed, Commercial Paper and Negotiable Certificate of Deposit sectors. The duration of the portfolio was stable on a quarter over quarter basis, remaining at 2.55. The Chandler team will continue to keep the overall duration of the portfolio close to the benchmark in coming quarters.

Liquid Portfolio

Multiple purchases were made in the Treasury, Commercial Paper, Certificate of Deposit, and Corporate sectors to keep the portfolio allocation consistent with Chandler targets and forecasted cash flow needs. The purchased securities ranged in maturity from October 2021 to May 2022. Several securities matured during the reporting period to fund the new holdings in the portfolio and provide for the cash needs at the end of the quarter. On a net basis $42 million in cash was added to the portfolio, a $72 million contribution in April and a $30 million withdrawal in June. The sector allocation changed moderately during the quarter. Notably the Treasury allocation was reduced by 9.8% to 78.8% of the portfolio, partially offset by increases of 3.8% in Commercial Paper and 2.4% in Certificates of Deposit, to 3.8% and 3.9% of the portfolio, respectively. The duration of the portfolio increased moderately to 0.35 compared to the prior quarter's 0.30. The Chandler team will continue to look for opportunities to lengthen the duration of the portfolio consistent with the upcoming cash flow needs of OC Sanitation.

Economic Outlook

The timeline on the global economic recovery extended in the 2nd quarter as the coronavirus delta variant spread and Covid containment measures negatively impacted the reopening theme in multiple developed market economies. The pace of Covid vaccinations in the U.S. also slowed with both the South and Midwest having disproportionately lower levels of vaccination compared to the rest of the country which could introduce additional risks to the economic recovery later in the year. Given the high level of vaccine availability in the U.S., the risk of a domestic government shutdown of the economy remains very low in Chandler's view. Risk assets continued to perform, although the rate of change slowed and some of the laggards from the prior quarter recovered. Arguably the most impactful market movement during the quarter was the flattening of the US Treasury yield curve, most pronounced in the latter half of June. Short maturity rates moved higher, and longer maturity rates contracted, which also contributed to some of the broad sector repricing in the equity market as the reopening economic narrative continues to evolve.

Economic data was solid during the quarter with the three-month moving average of non-farm payrolls at 567k and the unemployment rate down to 5.9% as of June 2021. Supply bottlenecks continue to permeate in multiple sectors, but the Chandler team expects the shortages to dissipate on multiple fronts, particularly in the 4th quarter as extended unemployment benefits expire and children returning to school should increase the availability of sidelined workers. Both the ISM Manufacturing and Services Indices remain robust at 60.6 and 60.1, respectively, however both are marginally lower than the prior month readings indicating the possibility peak growth will be in 2Q 2021. Market participants continue to closely follow developments on inflation, and whether the Federal Reserve's 'transitory' forecast will come to fruition. Annualized Core CPI came in at 4.5% in June and the Core PCE Deflator, the Federal Reserves preferred inflation metric, at 3.4% annualized in May. Chandler's base case is inflation will remain elevated over the summer months and then stabilize, albeit at higher levels than the pre-pandemic experience. The risk case is inflation accelerates further late in the year and into 2022, if supply bottlenecks persist and the availability of workers does not remedy some of the supply/demand imbalances.

Congressional negotiations on the proposed infrastructure bill continue, and Chandler expects legislation to move forward later in the year. The Federal Reserve surprised market participants at the June FOMC meeting with the Interest on Excess Reserves (IOER) rate increasing by 0.05%, to 0.15%, and the Federal Reserve Reverse Repo rate increasing to 0.05% from the previous 0.00%. Policymakers appear to have been concerned about the 'ill functioning' money market sector and increasing the IOER and Reverse Repo rate helped to mitigate the possibility of negative interest rates in short maturity Treasury notes. The change in policy accelerated the flattening of the Treasury curve as the yield on the two year and three year Treasury notes moved higher after the IOER adjustment. Several factors were at play in supporting the move lower in longer maturity Treasury yields, however the Chandler team believes the dominant influence is linked to the Federal Reserve's Flexible Average Inflation Targeting (FAIT) regime. The Federal Reserve established the FAIT regime in 2020 to better allow for an inflation overshoot to make up for the time periods when inflation was below the 2% objective. In Chandler's view an adherence to FAIT policy would lead to the Federal Reserve maintaining accommodative policy for longer, promoting a steeper Treasury yield curve, and implying when the Federal Reserve ultimately adjusted rates the magnitude of the change would be greater than recent cycles due to higher realized inflation (a higher terminal fed funds rate). In essence the Fed's updated policy is 'outcome based' as opposed to 'forecast based', allowing for an overshoot of inflation metrics. Recent commentary from multiple Federal Reserve Governors seems to be questioning the Fed's committee to the FAIT framework. The Chandler team believes Fed Chair Powell, Fed Vice Chair Clarida and New York Fed President Williams remain committed to the FAIT framework, and do not believe the Federal Reserve will tighten monetary policy prematurely and forecast the steepening bias in the Treasury curve to reassert itself later this year.

Strategy

Strategy highlights for the Long-Term Portfolio in coming months:

- Remain focused on structuring the overall term structure and asset allocation of the portfolio consistent with a growing economy and patient Federal Reserve from a monetary policy standpoint.
    - Look to add Corporate exposure further out the curve with attractive relative value.
    - Continue to avoid the Agency sector where a lack of issuance in 2021 has led to unattractive valuations – consider the sector a source of funds when executing duration extension swaps in other products.
    - Opportunistically add to the Supranational sector when spreads offer a reasonable concession to the Agency sector and are consistent with the swaps curve.
- Chandler models continue to highlight the four year maturity point as being attractively priced – look to add spread product in this portion of the term structure where applicable.

Strategy highlights for the Liquidity Portfolio in coming months:

- Continue to ladder the Treasury and Agency exposure to coincide with forecasted liquidity needs. Taking into account the current zero rate policy by the Federal Reserve, look at immunize cash flow needs with Commercial Paper where applicable.
- Opportunistically add longer duration (i.e., close to one year) in the Corporate and Negotiable CD portion of the allocation to take advantage of the more attractive valuation from both a maturity and spread perspective compared to the Treasury sector.
- Maintain a dedicated exposure to the Treasury sector on an ongoing basis to ensure ample transactional liquidity in the event of an unexpected cash flow need.

CHANDLER ASSET MANAGEMENT

Compliance Issues

Orange County Sanitation District Long Term

Assets managed by Chandler Asset Management are in full compliance with state law and with the investment policy

Category	Standard	Comment
U.S. Treasuries	10% minimum; 5 years max maturity	*Complies**
Federal Agencies	20% max per agency of the U.S. Government, which does not provide the full faith and credit of the U.S. government; 5 years max maturity; Securities, obligations, participations, or other instruments of, or issued by, or fully guaranteed as to principal and interest by the US Government , a federal agency, or a US Government-sponsored enterprise	*Complies*
Supranational Obligations	"AA" rated or better by a NRSRO; 30% max; 5 years max maturity; U.S. dollar denominated senior unsecured unsubordinated obligations issued or unconditionally guaranteed by the International Bank for Reconstruction and Development ("IBRD"), the International Finance Corporation ("IFC") or the Inter-American Development Bank ("IADB")	*Complies*
Municipal Securities	"A" rated or higher by a NRSRO; or as otherwise approved by the Board of Directors; Taxable or tax-exempt municipal bonds issued by any of the 50 states; 10% max; 5% max issuer; 5 years max maturity	*Complies*
Corporate Medium Term Notes	"A" rating category or better by a NRSRO; 30% max; 5% max per issuer; 5 years max maturity; Issued by corporations organized and operating within the U.S. or issued by depository institutions licensed by the U.S. or any state and operating within the U.S. with AUM >$500 million	*Complies*
Non- Agency Asset-Backed Securities, Mortgage-Backed Securities, CMOs	"AA" rating category or better by a NRSRO; 20% max(combined MBS/CMO/ABS); 5% max issuer (except U.S. government or its agencies) ; 5 years max maturity; Mortgage pass-through security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, equipment lease-backed certificate, consumer receivable pass-through certificate, or consumer receivable-backed bond	*Complies**
Negotiable Certificates of Deposit (NCD)	"A" rating or better long term debt by a NRSRO; or highest short term rating for deposits by a NRSRO; or as otherwise approved by the Board of Directors; 30% max; 5% max issuer; 5 years max maturity; Negotiable certificates of deposit issued by a nationally or state-chartered bank or state of federal savings and loan association, as defined by Section 5102 of the California Financial Code	*Complies*
Certificates of Deposit	5% max issuer; 5 years max maturity; Secured (collateralized) time deposits issued by a nationally or state-chartered bank or state or federal savings and loan association, as defined by Section 5102 of the California Financial Code and having a net operating profit in the two most recently completed fiscal years; Collateral must comply with California Government Code	*Complies*
Banker's Acceptances	A-1 rated or highest short term rating by a NRSRO; 40% max; 5% max issuer; 180 days max maturity; Acceptance is eligible for purchase by the Federal Reserve System	*Complies*
Commercial Paper	A-1 rated or better by a NRSRO; "A" long term debt rating or better by a NRSRO; Issued by a domestic corporation organized and operating in the U.S. with assets > $500 million; 25% max; 5% max issuer; 10% max of the outstanding commercial paper of any single issuer; 270 days max maturity	*Complies*
Mutual Fund & Money Market Mutual Fund	Highest rating or "AAA" rated by two NRSROs; or SEC registered adviser with AUM >$500 million and experience > than 5 years; 20% max in Mutual Funds; 10% max per one Mutual Fund; 20% max per issuer on Money Market Mutual Funds and are not subject to the 10% stipulation	*Complies*
Local Agency Investment Fund (LAIF)	No more than the statutory maximum may be invested in LAIF; Not used by investment adviser; Investment of OCSD funds in LAIF shall be subject to investigation and due diligence prior to investing, and on a continual basis to a level of review pursuant to the policy	*Complies*
Orange County Treasurer's Money Market Commingled Investment Pool (OCCIP)	15% max; Not used by investment adviser; Orange County Treasurer's Money Market Commingled Investment Pool; Investment of OCSD funds in OCCIP would be subject to investigation and due diligence prior to investing and on continual basis to a level of review pursuant to the policy	*Complies*
Repurchase Agreements	20% max; 102% collateralization	*Complies*
Reverse Repurchase Agreements	5% max, 90 days max maturity	*Complies*
Prohibited	Mortgage Derivatives, which include interest-only payments (IOs) and principal-only payments (POs); Inverse floaters, and RE-REMICS (Real Estate Mortgage Investment Conduits)	*Complies*
Securities Downgrade	If securities owned by the OCSD are downgraded below the quality required by the Investment Policy, it shall be OCSD's policy to review the credit situation and make a determination as to whether to sell or retain such securities in the portfolio. If a decision is made to retain the downgraded securities in the portfolio, their presence in the portfolio will be monitored and reported quarterly to the OCSD General Manager, the Administration Committee and Board of Directors	*Complies*
Avg Duration	Not to exceed 60 months - (80% to 120% of the benchmark)	*Complies*
Max Per Holding	5% max of the total debt outstanding of any issuer per individual holding	*Complies*
Max Per Issuer	5% max per issuer (except Supranationals, U.S. Government, Agencies, Mutual Funds); 20% max per issuer on Money Market Mutual Funds	*Complies*
Maximum Maturity	5 years max maturity	*Complies**

**The portfolio has twenty (20) securities with maturities greater than 5 years including four (4) CMOs and sixteen (16) MBS. All securities were inherited from the previous manager and complied at time of purchase.*

Orange County Sanitation District Liquid

Assets managed by Chandler Asset Management are in full compliance with state law and with the investment policy

Category	Standard	Comment
U.S. Treasuries	10% minimum; 1 year max maturity	*Complies*
Federal Agencies	20% max per agency of the U.S. Government, which does not provide the full faith and credit of the U.S. government; 1 year max maturity; Securities, obligations, participations, or other instruments of, or issued by, or fully guaranteed as to principal and interest by the US Government , a federal agency, or a US Government-sponsored enterprise	*Complies*
Supranational Obligations	"AA" rated or better by a NRSRO; 30% max; 1 year max maturity; U.S. dollar denominated senior unsecured unsubordinated obligations issued or unconditionally guaranteed by the International Bank for Reconstruction and Development ("IBRD"), the International Finance Corporation ("IFC") or the Inter-American Development Bank ("IADB")	*Complies*
Municipal Securities	"A" rated or higher by a NRSRO; or as otherwise approved by the Board of Directors; Taxable or tax-exempt municipal bonds issued by any of the 50 states; 10% max; 5% max issuer; 1 year max maturity	*Complies*
Corporate Medium Term Notes	"A" rating category or better by a NRSRO; 30% max; 5% max per issuer; 1 year max maturity; Issued by corporations organized and operating within the U.S. or issued by depository institutions licensed by the U.S. or any state and operating within the U.S. with AUM >$500 million	*Complies*
Non- Agency Asset-Backed Securities, Mortgage-Backed Securities, CMOs	"AA" rating category or better by a NRSRO; 20% max (combined MBS/CMO/ABS); 5% max issuer (except U.S. government or its agencies) ; 1 year max maturity; Mortgage pass-through security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, equipment lease-backed certificate, consumer receivable pass-through certificate, or consumer receivable-backed bond	*Complies*
Negotiable Certificates of Deposit (NCD)	"A" rating or better long term debt by a NRSRO; or highest short term rating for deposits by a NRSRO; or as otherwise approved by the Board of Directors; 30% max; 5% max issuer; 1 year max maturity; Negotiable certificates of deposit issued by a nationally or state-chartered bank or state of federal savings and loan association, as defined by Section 5102 of the California Financial Code	*Complies*
Certificates of Deposit	5% max issuer; 1 year max maturity; Secured (collateralized) time deposits issued by a nationally or state-chartered bank or state or federal savings and loan association, as defined by Section 5102 of the California Financial Code and having a net operating profit in the two most recently completed fiscal years; Collateral must comply with California Government Code	*Complies*
Banker's Acceptances	A-1 rated or highest short term rating by a NRSRO; 40% max; 5% max issuer; 180 days max maturity; Acceptance is eligible for purchase by the Federal Reserve System	*Complies*
Commercial Paper	A-1 rated or better by a NRSRO; "A" long term debt rating or better by a NRSRO; Issued by a domestic corporation organized and operating in the U.S. with assets > $500 million; 25% max; 5% max issuer; 10% max of the outstanding commercial paper of any single issuer; 270 days max maturity	*Complies*
Mutual Fund & Money Market Mutual Fund	Highest rating or "AAA" rated by two NRSROs; or SEC registered adviser with AUM >$500 million and experience > than 5 years; 20% max in Mutual Funds; 10% max per one Mutual Fund; 20% max per issuer on Money Market Mutual Funds and are not subject to the 10% stipulation	*Complies*
Local Agency Investment Fund (LAIF)	No more than the statutory maximum may be invested in LAIF; Not used by investment adviser; Investment of OCSD funds in LAIF shall be subject to investigation and due diligence prior to investing, and on a continual basis to a level of review pursuant to the policy	*Complies*
Orange County Treasurer's Money Market Commingled Investment Pool (OCCIP)	15% max; Not used by investment adviser; Orange County Treasurer's Money Market Commingled Investment Pool; Investment of OCSD funds in OCCIP would be subject to investigation and due diligence prior to investing and on continual basis to a level of review pursuant to the policy	*Complies*
Repurchase Agreements	20% max; 102% collateralization	*Complies*
Reverse Repurchase Agreements	5% max, 90 days max maturity	*Complies*
Prohibited	Mortgage Derivatives, which include interest-only payments (IOs) and principal-only payments (POs); Inverse floaters, and RE-REMICS (Real Estate Mortgage Investment Conduits)	*Complies*
Securities Downgrade	If securities owned by the OCSD are downgraded below the quality required by the Investment Policy, it shall be OCSD's policy to review the credit situation and make a determination as to whether to sell or retain such securities in the portfolio. If a decision is made to retain the downgraded securities in the portfolio, their presence in the portfolio will be monitored and reported quarterly to the OCSD General Manager, the Administration Committee and Board of Directors	*Complies*
Avg Duration	Not to exceed 180 days	*Complies*
Max Per Holding	5% max of the total debt outstanding of any issuer per individual holding	*Complies*
Max Per Issuer	5% max per issuer (except Supranationals, U.S. Government, Agencies, Mutual Funds); 20% max per issuer on Money Market Mutual Funds	*Complies*
Maximum Maturity	1 year max maturity	*Complies*

CHANDLER ASSET MANAGEMENT

OCSD Lehman Exposure *Assets managed by Chandler Asset Management are in full compliance with state law and with the investment policy*		
Category	**Standard**	**Comment**
Treasury Issues	5 years maximum maturity	*Complies*
Supranational	"AA" or better by 1 of 3 NRSROs; 30% maximum; 5% max; 5 years maturity; Includes only: IADB, IBRD, and IFC per CGC	*Complies*
U.S. Agencies	20% max issuer; 5 years maximum maturity	*Complies*
U.S. Corporate (MTNs)	"A" or better long term rating by 1 of 3 NRSROs; 30% maximum; 5% max issuer; 5 years max maturity	*Complies**
Municipal Securities	"A" or higher by 1 of 3 NRSROS; 10% maximum; 5% max issuer; 5 years maximum maturity	*Complies*
Asset Backed/ CMOs/ Mortgage-backed	"AA" or better by 1 of 3 NRSROs; "A" or higher issuer rating by 1 of 3 NRSROs; 20% maximum; 5% max issuer (excluding MBS/govt agency); 5 years max maturity	*Complies*
Negotiable CDs	"A" or better on its long term debt by 1 of 3 NRSROs ; "A1/P1" or highest short term ratings by 1 of 3 NRSROs; 30% maximum; 5% max issuer; 5 years max maturity	*Complies*
CDs/ TDS	5% max issuer; 5 years max maturity	*Complies*
Banker's Acceptances	A-1, or equivalent highest short term rating by 1 of 3 NRSROS; 40% maximum; 5% max issuer; 180 days max maturity	*Complies*
Commercial Paper	A-1, or equivalent by 1 of 3 NRSROS; "A" or better by 1 of 3 NRSROs, if long term debt issued; 25% maximum; 5% max issuer; 270 days max maturity	*Complies*
Money Market Fund	Highest rating by 2 of 3 NRSROs; 20% maximum; 10% max issuer	*Complies*
Repurchase Agreements	102% collateralization	*Complies*
Reverse Repurchase Agreements	5% maximum, 90 days max maturity	*Complies*
LAIF	Not used by investment adviser	*Complies*
Avg Duration	Not to exceed 60 months - (80% to 120% of the benchmark)	*Complies*
Maximum Maturity	5 years maximum maturity	*Complies*

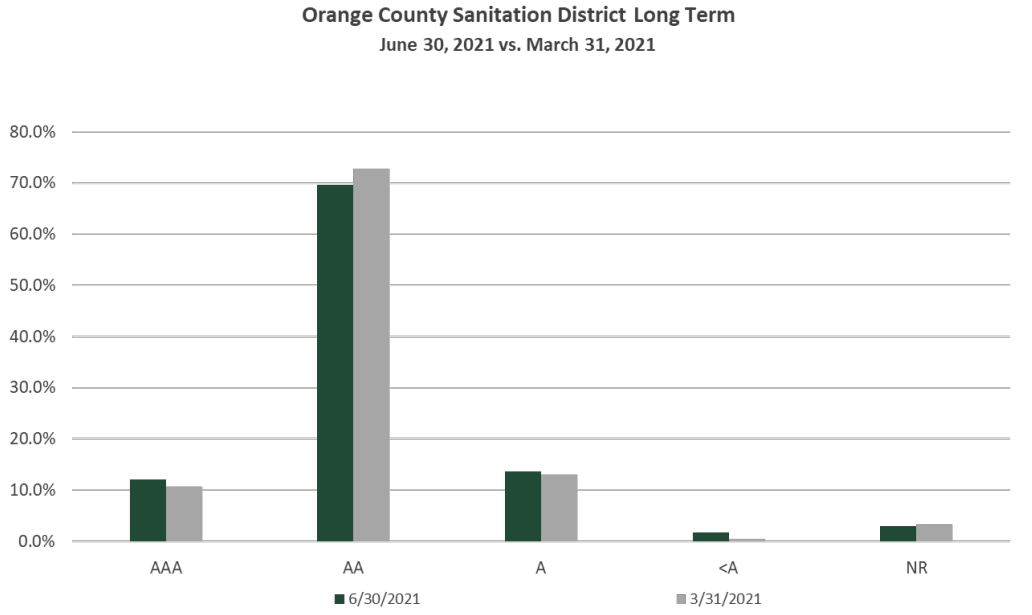
** Account holds $2 million face value (cusip 525ESC0Y6) and $600,000 face value (cusip 525ESC1B7) of defaulted Lehman Bros Holdings that were purchased by the previous manager. Complied at time of purchase.*

Defaulted Bonds

OCSD Lehman Exposure - Account #10284

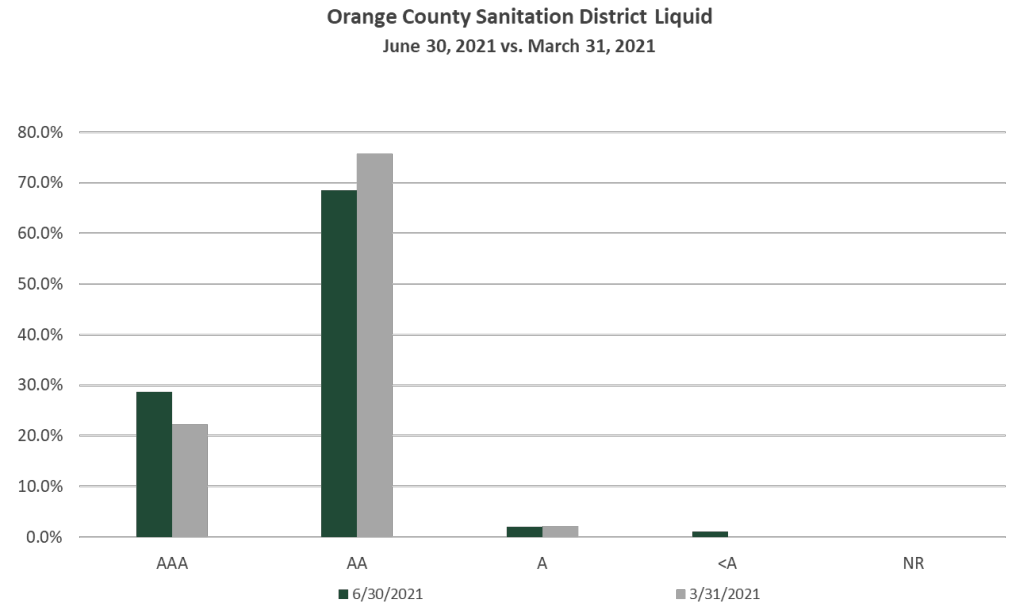
CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
Common Stock									
SLHOPNTA4	Lehman Brothers, Inc Open Position Long Exposure	60,641.49	11/21/2014	57,842.64	0.42	25,621.03	58.47%	NR / NR	0.00
	0.000% Due 06/30/2021		0.00%	57,842.64	0.00%	0.00	(32,221.61)	NR	0.00
				57,842.64		**25,621.03**	**58.47%**	**NR / NR**	**0.00**
TOTAL Common Stock		**60,641.49**	**0.00%**	**57,842.64**	**0.00%**	**0.00**	**(32,221.61)**	**NR**	**0.00**
Corporate									
525ESCIB7	Lehman Brothers Note-Defaulted	600,000.00	09/19/2008	316,428.27	0.70	4,200.00	9.58%	NR / NR	0.57
	0.000% Due 01/24/2022		0.00%	316,428.27	0.00%	0.00	(312,228.27)	NR	0.00
525ESC0Y6	Lehman Brothers Note-Defaulted	2,000,000.00	09/18/2008	1,019,380.10	0.70	14,000.00	31.95%	NR / NR	28.33
	0.000% Due 10/22/2049		0.00%	1,019,380.10	0.00%	0.00	(1,005,380.10)	NR	0.00
				1,335,808.37		**18,200.00**	**41.53%**	**NR / NR**	**21.92**
TOTAL Corporate		**2,600,000.00**	**0.00%**	**1,335,808.37**	**0.00%**	**0.00**	**(1,317,608.37)**	**NR**	**0.00**
				1,393,651.01		**43,821.03**	**100.00%**	**NR / NR**	**9.11**
TOTAL PORTFOLIO		**2,660,641.49**	**0.00%**	**1,393,651.01**	**0.00%**	**0.00**	**(1,349,829.98)**	**NR**	**0.00**
TOTAL MARKET VALUE PLUS ACCRUALS						**43,821.03**			

Ratings



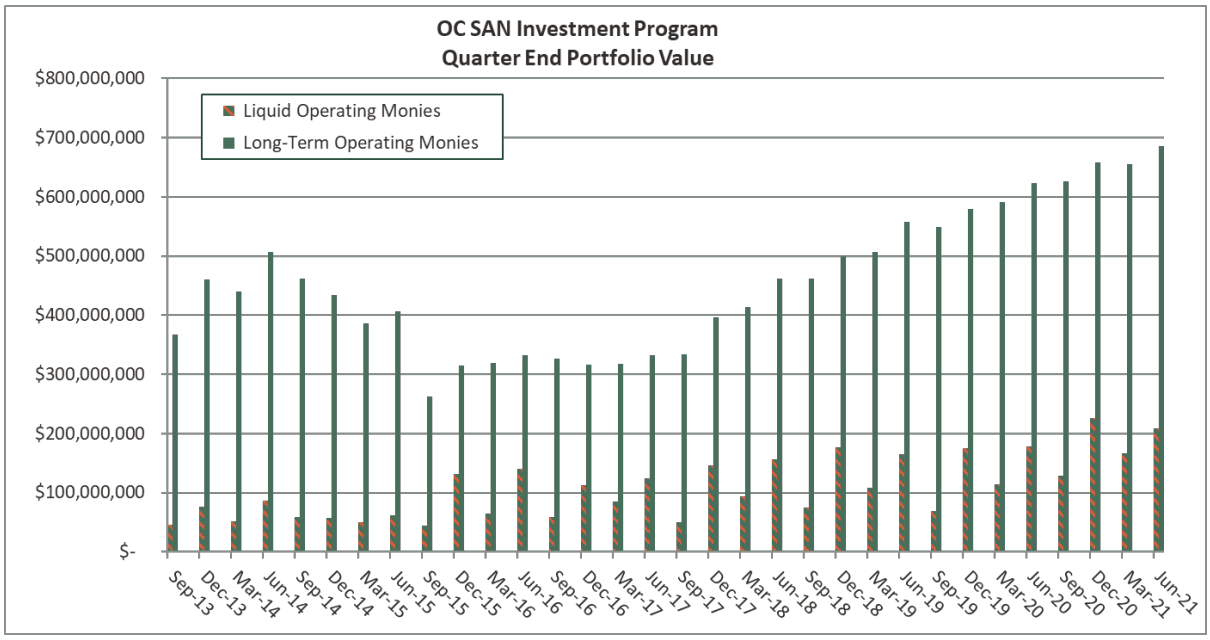
	AAA	AA	A	<A	NR
06/30/21	12.1%	69.6%	13.6%	1.7%	2.9%
03/31/21	10.6%	72.7%	13.0%	0.4%	3.2%

Source: S&P Ratings

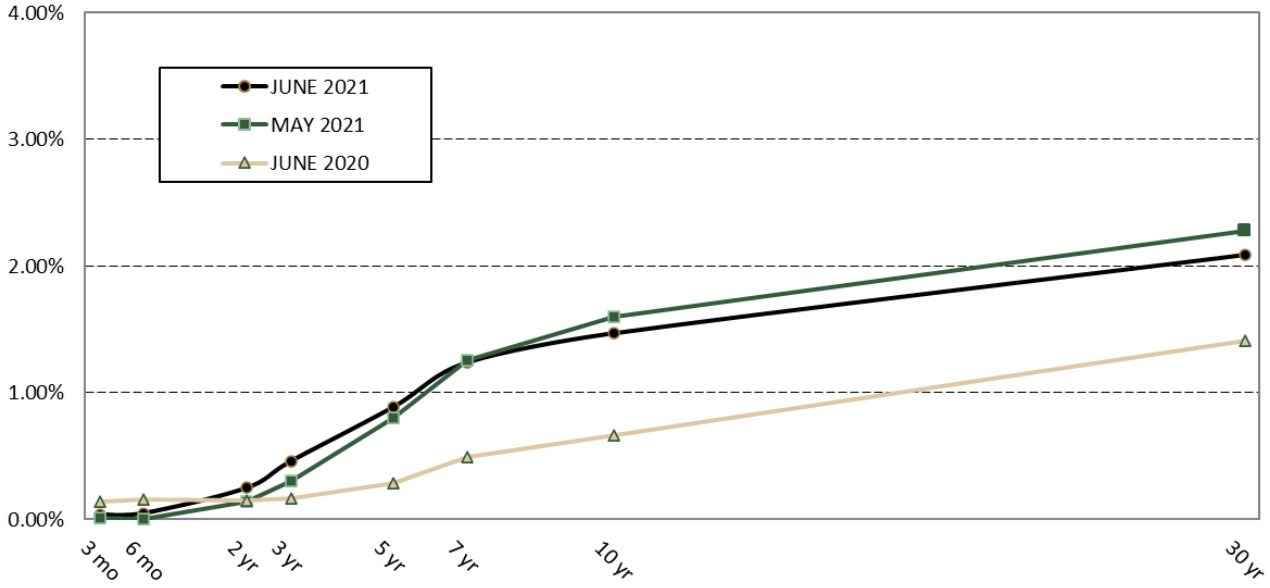


	AAA	AA	A	<A	NR
06/30/21	28.6%	68.5%	2.0%	1.0%	0.0%
03/31/21	22.2%	75.7%	2.1%	0.0%	0.0%

Source: S&P Ratings



HISTORICAL YIELD CURVE



Orange County Sanitation District Liquid

Account #10282

Portfolio Summary

As of June 30, 2021

PORTFOLIO CHARACTERISTICS

Average Modified Duration	0.35
Average Coupon	0.99%
Average Purchase YTM	0.08%
Average Market YTM	0.09%
Average S&P/Moody Rating	AA+/Aaa
Average Final Maturity	0.35 yrs
Average Life	0.31 yrs

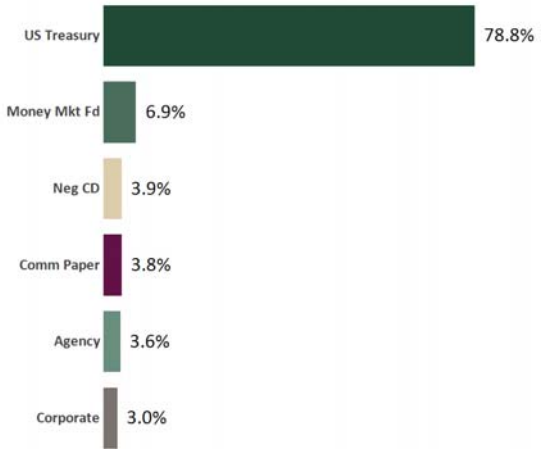
ACCOUNT SUMMARY

	Beg. Values as of 5/31/21	End Values as of 6/30/21
Market Value	236,990,199	207,103,345
Accrued Interest	822,450	707,509
Total Market Value	**237,812,649**	**207,810,854**
Income Earned	19,434	17,814
Cont/WD		-30,000,000
Par	236,188,524	206,359,524
Book Value	236,981,130	207,113,884
Cost Value	237,810,435	207,697,459

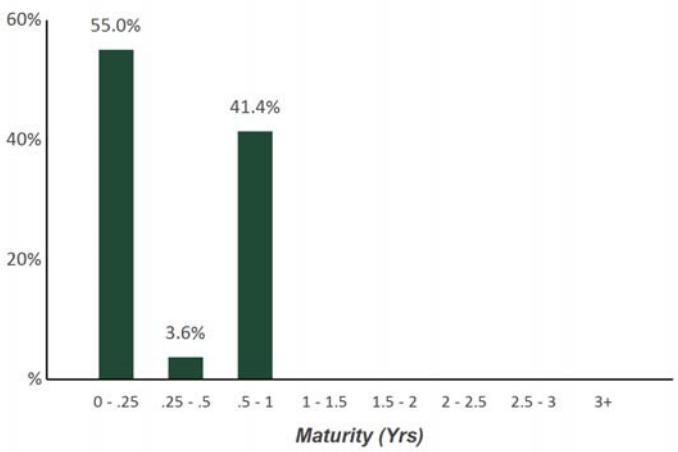
TOP ISSUERS

Government of United States	78.8%
First American Govt Obligation	6.9%
Federal Home Loan Bank	3.6%
Toyota Motor Corp	1.9%
Bank of Nova Scotia Houston	1.4%
Nordea Bank ABP New York	1.4%
Caterpillar Inc	1.0%
Morgan Stanley	1.0%
Total	**96.1%**

SECTOR ALLOCATION



MATURITY DISTRIBUTION



CREDIT QUALITY (S&P)

PERFORMANCE REVIEW

					Annualized				
TOTAL RATE OF RETURN	**1M**	**3M**	**YTD**	**1YR**	**2YRS**	**3YRS**	**5YRS**	**10YRS**	**11/30/2014**
Orange County Sanitation District Liquid	0.00%	0.01%	0.05%	0.13%	1.01%	1.48%	1.27%	N/A	1.04%
ICE BAML 3-Month US Treasury Bill Index	0.00%	0.00%	0.02%	0.09%	0.86%	1.34%	1.17%	N/A	0.92%

Orange County Sanitation District Long Term

Account #10268

Portfolio Summary

As of June 30, 2021

PORTFOLIO CHARACTERISTICS

Average Modified Duration	2.55
Average Coupon	1.56%
Average Purchase YTM	1.53%
Average Market YTM	0.43%
Average S&P/Moody Rating	AA/Aa1
Average Final Maturity	2.76 yrs
Average Life	2.60 yrs

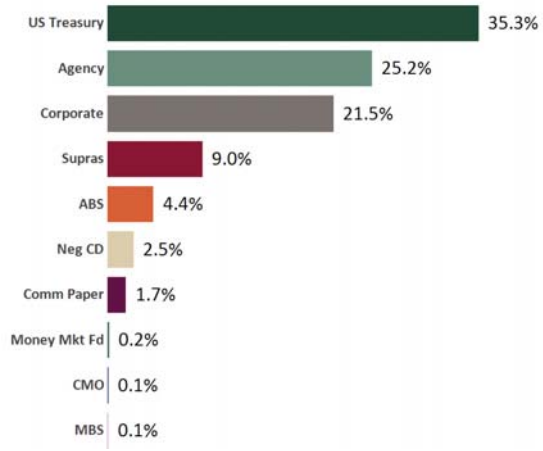
ACCOUNT SUMMARY

	Beg. Values as of 5/31/21	End Values as of 6/30/21
Market Value	684,578,258	683,637,749
Accrued Interest	2,710,312	2,344,082
Total Market Value	**687,288,570**	**685,981,831**
Income Earned	887,166	868,497
Cont/WD		94,848
Par	667,634,552	669,069,976
Book Value	668,445,049	669,854,197
Cost Value	668,185,215	669,962,678

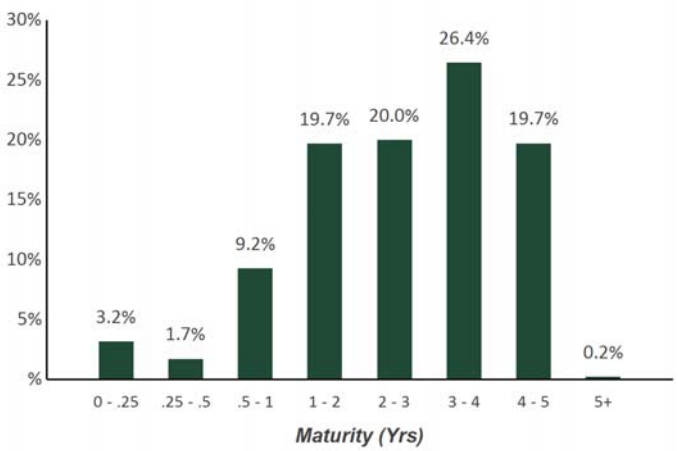
TOP ISSUERS

Government of United States	35.3%
Federal National Mortgage Assoc	11.1%
Federal Home Loan Bank	6.9%
Federal Home Loan Mortgage Corp	5.3%
Intl Bank Recon and Development	4.6%
Inter-American Dev Bank	4.1%
Federal Farm Credit Bank	2.1%
MUFG Bank Ltd/NY	1.7%
Total	**71.1%**

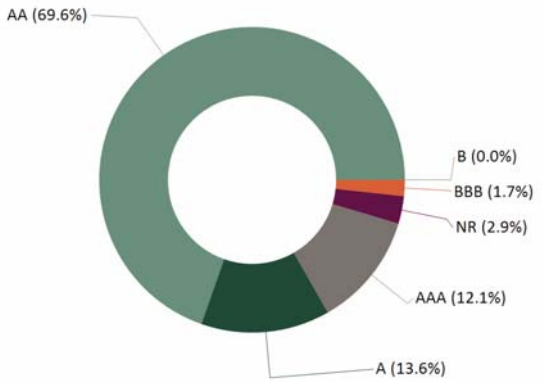
SECTOR ALLOCATION



MATURITY DISTRIBUTION



CREDIT QUALITY (S&P)



PERFORMANCE REVIEW

TOTAL RATE OF RETURN	1M	3M	YTD	1YR	*Annualized* 2YRS	3YRS	5YRS	10YRS	11/30/2014
Orange County Sanitation District Long Term	-0.20%	0.19%	-0.31%	0.19%	2.71%	3.43%	2.10%	N/A	2.04%
ICE BAML 1-5 Yr US Corp/Govt Rated AAA-A Index	-0.20%	0.20%	-0.33%	0.06%	2.67%	3.48%	2.00%	N/A	2.00%
ICE BAML US 1-5 Yr US Corp/Govt Rated AAA-BBB Indx	-0.17%	0.30%	-0.22%	0.57%	2.92%	3.73%	2.22%	N/A	2.18%

Orange County Sanitation District
Investment Transactions and Balances in the
State of California Local Agency Investment Fund
June 30, 2021

	Par Value	Book Value	Market Value	Rate	Yield
Balance June 1, 2021	**$64,384,965**	**$64,384,965**	**$64,384,965**	**0.26**	**0.26**
Deposits:					
6/30/2021	24,100,000	24,100,000	24,100,000	0.26	0.26
Total Deposits	24,100,000	24,100,000	24,100,000	0.26	0.26
Quarterly Interest Distribution	-	-	-	0.26	0.26
Withdrawals:					
6/2/2021	(2,000,000)	(2,000,000)	(2,000,000)	0.26	0.26
6/9/2021	(1,000,000)	(1,000,000)	(1,000,000)	0.26	0.26
6/15/2021	(2,400,000)	(2,400,000)	(2,400,000)	0.26	0.26
6/16/2021	(9,200,000)	(9,200,000)	(9,200,000)	0.26	0.26
6/23/2021	(6,100,000)	(6,100,000)	(6,100,000)	0.26	0.26
Total Withdrawals	(20,700,000)	(20,700,000)	(20,700,000)	0.26	0.26
Balance June 30, 2021	**$67,784,965**	**$67,784,965**	**$67,784,965**	**0.26**	**0.26**

U.S. Bank
Asset Summary - Liquid
As of 06/30/2021

Industry Name	Shares/Units	Cost Basis	Market Value	Percent of Total	Unrealized Gain/Loss
Cash Equivalents					
COMMERCIAL PAPER	8,000,000.0000	7,991,753.34	7,993,120.00	3.86	1,366.66
FIRST AMERICAN SHORT TERM FDS	14,334,524.1400	14,334,524.14	14,334,524.14	6.92	-
U. S. GOVERNMENT	30,500,000.0000	30,490,514.53	30,498,000.00	14.73	7,485.47
Cash Equivalents Total	**52,834,524.1400**	**52,816,792.01**	**52,825,644.14**	**25.51**	**8,852.13**
Fixed Income					
CONSUMER DISCRETIONARY	2,000,000.0000	2,032,780.00	2,030,240.00	0.98	(2,540.00)
FINANCE	2,000,000.0000	2,047,260.00	2,044,600.00	0.99	(2,660.00)
FIXED INCOME FUNDS OTHER	3,000,000.0000	3,000,300.89	3,000,540.00	1.45	239.11
INDUSTRIAL	2,000,000.0000	2,043,700.00	2,036,120.00	0.98	(7,580.00)
SHORT TERM FUNDS	5,000,000.0000	4,999,999.94	5,001,790.00	2.42	1,790.06
U. S. GOVERNMENT	132,000,000.0000	133,233,593.79	132,645,925.00	64.05	(587,668.79)
US AGY - LONG TERM ISSUES	7,525,000.0000	7,523,032.66	7,524,548.50	3.63	1,515.84
Fixed Income Total	**153,525,000.0000**	**154,880,667.28**	**154,283,763.50**	**74.49**	**(596,903.78)**
Grand Total	**206,359,524.1400**	**207,697,459.29**	**207,109,407.64**	**100.00**	**(588,051.65)**

U.S. Bank
Asset Summary - Long-Term
As of 06/30/2021

Industry Name	Shares/Units	Cost Basis	Market Value	Percent of Total	Unrealized Gain/Loss
Cash Equivalents					
COMMERCIAL PAPER	12,000,000.0000	11,997,000.00	11,999,040.00	1.76	2,040.00
FIRST AMERICAN SHORT TERM FDS	1,155,352.3400	1,155,352.34	1,155,352.34	0.17	-
Cash Equivalents Total	**13,155,352.3400**	**13,152,352.34**	**13,154,392.34**	**1.92**	**2,040.00**
Fixed Income					
CONSUMER DISCRETIONARY	14,554,000.0000	14,656,686.38	14,889,315.23	2.18	232,628.85
CONSUMER STAPLES	3,880,000.0000	3,878,991.40	4,110,472.00	0.60	231,480.60
ENERGY	3,500,000.0000	3,441,095.00	3,674,720.00	0.54	233,625.00
FINANCE	91,969,000.0000	91,604,943.09	91,939,310.02	13.45	334,366.93
FIXED INCOME FUNDS OTHER	7,000,000.0000	7,000,702.07	7,001,260.00	1.02	557.93
FOREIGN FIXED INCOME	14,500,000.0000	14,676,215.00	15,344,785.00	2.24	668,570.00
HEALTH CARE	3,755,000.0000	3,709,323.15	3,848,667.35	0.56	139,344.20
INDUSTRIAL	1,250,000.0000	1,250,237.50	1,343,375.00	0.20	93,137.50
INFORMATION TECHNOLOGY	11,045,000.0000	11,085,045.15	11,546,820.80	1.69	461,775.65
MTG RELATED SECURITY	31,108,778.4400	31,171,652.97	31,335,139.87	4.58	163,486.90
SHORT TERM FUNDS	10,000,000.0000	9,999,999.61	10,003,300.00	1.46	3,300.39
SUPRANATIONAL	61,665,000.0000	61,260,431.35	61,692,730.15	9.02	432,298.80
U. S. GOVERNMENT	225,004,188.9900	223,731,970.85	229,046,625.98	33.51	5,314,655.13
U.S. GOVERNMENT TIPS	11,693,656.0000	11,548,936.09	12,574,071.36	1.84	1,025,135.27
US AGY - LONG TERM ISSUES	167,590,000.0000	169,103,423.75	172,077,079.75	25.17	2,973,656.00
Fixed Income Total	**658,514,623.4300**	**658,119,653.36**	**670,427,672.51**	**98.08**	**12,308,019.15**
Grand Total	**671,669,975.7700**	**671,272,005.70**	**683,582,064.85**	**100.00**	**12,310,059.15**

BNY MELLON

Statement Period 06/01/2021 Through 06/30/2021
Account 300282 Base Currency = USD
OCSD LIBERTY MUTUAL

Statement of Assets Held by Asset Classification

Shares/Par Value	Asset Description	Market Price	Market Value	Cost	Average Cost	Accrued Income	Estimated Income	Market Yield
CASH AND SHORT TERM								
500,000.000	UNITED STATES TREASURY BILL CUSIP: 912796F38 MATURITY DATE: 03/24/2022 RATE: 0.000%	99.96500	499,825.00	499,762.39	99.95248	0.00	0.00	0.00%
	CASH BALANCE		941.20	941.20	0.00000	0.00	0.00	0.00%
Total CASH AND SHORT TERM			**500,766.20**	**500,703.59**		**0.00**	**0.00**	**0.00%**
ACCOUNT TOTALS			**500,766.20**	**500,703.59**		**0.00**	**0.00**	**0.00%**

Total Market Value Plus Total Accrued Income 500,766.20

Statement of Transactions by Transaction Date

Transaction Date	Transaction Description	Income	Principal	Cost	Realized Gains/Losses

No Transactions This Period

Cumulative realized capital gain and loss position from 12/31/2020 for securities held in principal of account:

Short Term: 630.68 * Long Term: 0.00 *

* The above gain and loss position does not include transactions where tax cost information is incomplete or unavailable.

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U.S. Bank
Investment Listing - Yield
As of 06/30/2021

Asset Category	CUSIP	Asset Short Name	Yield	Shares/Units	Moody's	S&P Rating	Price	Cost Basis	Market Value
Cash Equivalents	21687AYV9	COOPERATIEVE CENTRALE C P 11/29/21	0.0000%	2,000,000.0000			99.94	1,997,978.89	1,998,820.00
Cash Equivalents	31846V567	FIRST AM GOVT OB FD CL Z	0.0200%	14,334,524.1400			1.00	14,334,524.14	14,334,524.14
Cash Equivalents	31846V567	FIRST AM GOVT OB FD CL Z	0.0200%	1,155,352.3400			1.00	1,155,352.34	1,155,352.34
Cash Equivalents	62479MAM5	MUFG BK LTD N Y BRH C P 1/21/22	0.0000%	2,000,000.0000			99.92	1,997,907.78	1,998,300.00
Cash Equivalents	62479LUS2	MUFG BK LTD N Y BRH C P 7/26/21	0.0000%	12,000,000.0000			99.99	11,997,000.00	11,999,040.00
Cash Equivalents	89233HAU8	TOYOTA MTR CR CORP DISC C P 1/28/22	0.0000%	4,000,000.0000			99.90	3,995,866.67	3,996,000.00
Cash Equivalents	912796C49	U S TREASURY BILL 7/22/21	0.0425%	5,000,000.0000	N/A	N/A	100.00	4,997,661.81	4,999,850.00
Cash Equivalents	912796C56	U S TREASURY BILL 7/29/21	0.0350%	7,000,000.0000	N/A	N/A	100.00	6,997,275.06	6,999,720.00
Cash Equivalents	912796D55	U S TREASURY BILL 8/26/21	0.0363%	13,000,000.0000	N/A	N/A	99.99	12,996,273.41	12,999,090.00
Cash Equivalents	912796M22	U S TREASURY BILL 10/05/21	0.0425%	5,500,000.0000	N/A	N/A	99.99	5,499,304.25	5,499,340.00
Fixed Income	00440EAS6	ACE INA HOLDING 3.150% 3/15/25	2.9142%	2,000,000.0000	A3	A	108.09	2,203,740.00	2,161,860.00
Fixed Income	00440EAU1	ACE INA HOLDINGS 2.875% 11/03/22	2.7923%	4,169,000.0000	A3	A	102.96	4,232,453.17	4,292,527.47
Fixed Income	023135BW5	AMAZON COM INC 0.450% 5/12/24	0.4510%	5,490,000.0000	A1	AA	99.78	5,481,984.60	5,477,867.10
Fixed Income	02665WDF5	AMERICAN HONDA MTN 1.950% 5/20/22	1.9210%	2,000,000.0000	A3	A-	101.51	2,032,780.00	2,030,240.00
Fixed Income	02665WCZ2	AMERICAN HONDA MTN 2.400% 6/27/24	2.2859%	1,219,000.0000	A3	A-	104.99	1,213,843.63	1,279,852.48
Fixed Income	02665WCJ8	AMERICAN HONDA MTN 3.450% 7/14/23	3.2493%	845,000.0000	A3	A-	106.18	843,538.15	897,195.65
Fixed Income	02665WCQ2	AMERICAN HONDA MTN 3.625% 10/10/23	3.3844%	2,000,000.0000	A3	A-	107.11	1,998,320.00	2,142,200.00
Fixed Income	03215PFN4	AMRESCO 1.38193% 6/25/29	1.4137%	119,021.6400	N/A	BBB	97.75	89,377.81	116,343.65
Fixed Income	037833CU2	APPLE INC 2.850% 5/11/24	2.6854%	3,000,000.0000	AA1	AA+	106.13	3,017,760.00	3,183,840.00
Fixed Income	06051GJD2	BANK AMER CORP MTN 1.319% 6/19/26	1.3161%	2,250,000.0000	A2	A-	100.22	2,254,432.50	2,254,927.50
Fixed Income	06417MQL2	BANK NOVA C D 0.200% 6/23/22	0.2000%	5,000,000.0000			99.99	4,999,999.61	4,999,650.00
Fixed Income	06417MNK7	BANK NOVA C D 0.220% 4/08/22	0.2199%	3,000,000.0000			100.04	3,000,000.00	3,001,050.00
Fixed Income	06051GHF9	BANK OF AMERICA 3.550% 3/05/24	3.3788%	6,675,000.0000	A2	A-	105.07	6,770,625.75	7,013,289.00
Fixed Income	06051GHY8	BANK OF AMERICAN MTN 2.015% 2/13/26	1.9543%	2,500,000.0000	A2	A-	103.11	2,583,450.00	2,577,625.00
Fixed Income	06417MMB8	BANK OF NOVA C D 0.280% 11/24/21	0.2798%	5,000,000.0000			100.07	5,000,000.00	5,003,650.00
Fixed Income	06406RAA5	BANK OF NY MTN 2.600% 2/07/22	2.5680%	2,500,000.0000	A1	A	101.25	2,504,475.00	2,531,125.00
Fixed Income	06406RAE7	BANK OF NY MTN 2.950% 1/29/23	2.8378%	2,500,000.0000	A1	A	103.96	2,489,555.00	2,598,875.00
Fixed Income	084670BR8	BERKSHIRE HATHAWAY 2.750% 3/15/23	2.6499%	2,500,000.0000	AA2	AA	103.78	2,440,950.00	2,594,450.00
Fixed Income	084664BT7	BERKSHIRE HATHAWAY 3.000% 5/15/22	2.9306%	4,000,000.0000	AA2	AA	102.37	4,131,120.00	4,094,720.00
Fixed Income	09247XAL5	BLACKROCK INC 3.500% 3/18/24	3.2399%	1,000,000.0000	AA3	AA-	108.03	1,036,330.00	1,080,280.00
Fixed Income	14913Q2T5	CATERPILLAR FINL MTN 2.950% 2/26/22	2.8977%	2,000,000.0000	A2	A	101.81	2,043,700.00	2,036,120.00
Fixed Income	808513AT2	CHARLES SCHWAB CORP 2.650% 1/25/23	2.5636%	6,750,000.0000	A2	A	103.37	6,729,480.00	6,977,610.00
Fixed Income	166764AH3	CHEVRON CORP 3.191% 6/24/23	3.0393%	3,500,000.0000	AA2	AA-	104.99	3,441,095.00	3,674,720.00
Fixed Income	00440EAP2	CHUBB INA HLDGS INC 2.700% 3/13/23	2.5964%	2,000,000.0000	A3	A	103.99	1,937,000.00	2,079,840.00
Fixed Income	3133ELYR9	F F C B DEB 0.250% 5/06/22	0.2496%	8,850,000.0000	AAA	AA+	100.14	8,838,760.50	8,862,655.50
Fixed Income	3133EKWV4	F F C B DEB 1.850% 7/26/24	1.7762%	5,000,000.0000	AAA	AA+	104.15	5,048,280.00	5,207,700.00
Fixed Income	3130A1XJ2	F H L B 2.875% 6/14/24	2.6872%	11,110,000.0000	AAA	AA+	106.99	11,589,031.30	11,886,255.70
Fixed Income	3130A4CH3	F H L B DEB 2.375% 3/14/25	2.2341%	5,225,000.0000	AAA	AA+	106.31	5,526,848.25	5,554,645.25
Fixed Income	3130A2UW4	F H L B DEB 2.875% 9/13/24	2.6762%	2,500,000.0000	AAA	AA+	107.43	2,635,950.00	2,685,725.00
Fixed Income	313383QR5	F H L B DEB 3.250% 6/09/23	3.0721%	5,000,000.0000	AAA	AA+	105.79	5,083,350.00	5,289,600.00

U.S. Bank
Investment Listing - Yield
As of 06/30/2021

Asset Category	CUSIP	Asset Short Name	Yield	Shares/Units	Moody's	S&P Rating	Price	Cost Basis	Market Value
Fixed Income	313383YJ4	F H L B DEB 3.375% 9/08/23	3.1664%	10,000,000.0000	AAA	AA+	106.59	10,211,831.00	10,658,900.00
Fixed Income	3130A0F70	F H L B DEB 3.375% 12/08/23	3.1439%	10,000,000.0000	AAA	AA+	107.35	10,269,043.75	10,735,100.00
Fixed Income	313385KW5	F H L B DISC NTS 8/25/21	0.0000%	7,525,000.0000	N/A	N/A	99.99	7,523,032.66	7,524,548.50
Fixed Income	3137EAEP0	F H L M C 1.500% 2/12/25	1.4539%	12,335,000.0000	AAA	AA+	103.17	12,510,182.05	12,726,389.55
Fixed Income	3137EAEN5	F H L M C 2.750% 6/19/23	2.6211%	10,000,000.0000	AAA	AA+	104.92	9,956,500.00	10,491,900.00
Fixed Income	3137EAEU9	F H L M C M T N 0.375% 7/21/25	0.3804%	5,030,000.0000	AAA	AA+	98.59	5,004,950.60	4,959,177.60
Fixed Income	3137EAEX3	F H L M C M T N 0.375% 9/23/25	0.3810%	7,660,000.0000	AAA	AA+	98.44	7,636,943.40	7,540,121.00
Fixed Income	31348SWZ3	F H L M C #786064 2.262% 1/01/28	2.2474%	1,449.2100	N/A	N/A	100.65	1,413.91	1,458.62
Fixed Income	3133TCE95	F H L M C MLTCL MTG 3.855% 8/15/32	3.8244%	3,982.9000	N/A	N/A	100.80	3,987.08	4,014.76
Fixed Income	31394JY35	F H L M C MLTCL MTG 6.500% 9/25/43	5.6279%	521,023.3000	N/A	N/A	115.50	590,058.88	601,761.07
Fixed Income	3135G05G4	F N M A 0.250% 7/10/23	0.2500%	6,775,000.0000	AAA	AA+	100.00	6,760,433.75	6,775,067.75
Fixed Income	3135G05X7	F N M A 0.375% 8/25/25	0.3806%	7,945,000.0000	AAA	AA+	98.52	7,907,817.40	7,827,334.55
Fixed Income	3135G04Z3	F N M A 0.500% 6/17/25	0.5031%	9,905,000.0000	AAA	AA+	99.37	9,884,496.65	9,842,994.70
Fixed Income	3135G06G3	F N M A 0.500% 11/07/25	0.5060%	8,255,000.0000	AAA	AA+	98.81	8,225,447.10	8,157,013.15
Fixed Income	3135G0X24	F N M A 1.625% 1/07/25	1.5696%	10,000,000.0000	AAA	AA+	103.53	10,157,936.40	10,352,900.00
Fixed Income	3135G0T45	F N M A 1.875% 4/05/22	1.8497%	5,000,000.0000	AAA	AA+	101.37	4,972,500.00	5,068,350.00
Fixed Income	3135G0S38	F N M A 2.000% 1/05/22	1.9806%	3,000,000.0000	AAA	AA+	100.98	2,994,570.00	3,029,370.00
Fixed Income	3135G0V34	F N M A 2.500% 2/05/24	2.3701%	5,000,000.0000	AAA	AA+	105.48	4,980,850.00	5,274,050.00
Fixed Income	31371NUC7	F N M A #257179 4.500% 4/01/28	4.1849%	8,856.8900	N/A	N/A	107.53	9,367.04	9,523.73
Fixed Income	31376KT22	F N M A #357969 5.000% 9/01/35	4.3651%	68,798.6200	N/A	N/A	114.55	73,958.50	78,805.38
Fixed Income	31403DJZ3	F N M A #745580 5.000% 6/01/36	4.3711%	61,567.5000	N/A	N/A	114.39	66,185.05	70,425.83
Fixed Income	31403GXF4	F N M A #748678 5.000% 10/01/33	4.5317%	811.9700	N/A	N/A	110.33	872.86	895.88
Fixed Income	31406PQY8	F N M A #815971 5.000% 3/01/35	4.3698%	91,918.0000	N/A	N/A	114.42	98,811.86	105,173.49
Fixed Income	31406XWT5	F N M A #823358 2.035% 2/01/35	1.9314%	70,004.8800	N/A	N/A	105.36	69,457.96	73,759.94
Fixed Income	31407BXH7	F N M A #826080 5.000% 7/01/35	4.3694%	12,322.6000	N/A	N/A	114.43	13,246.77	14,100.87
Fixed Income	31410F4V4	F N M A #888336 5.000% 7/01/36	4.3693%	109,827.2800	N/A	N/A	114.43	118,064.33	125,679.75
Fixed Income	3138EG6F6	F N M A #AL0869 4.500% 6/01/29	4.1843%	5,809.6700	N/A	N/A	107.55	6,144.31	6,248.07
Fixed Income	31417YAY3	F N M A #MA0022 4.500% 4/01/29	4.1832%	9,914.9300	N/A	N/A	107.57	10,486.01	10,665.79
Fixed Income	3135G03U5	F N M A DEB 0.625% 4/22/25	0.6258%	14,000,000.0000	AAA	AA+	99.88	13,996,711.60	13,982,780.00
Fixed Income	3135G0T94	F N M A DEB 2.375% 1/19/23	2.2973%	5,000,000.0000	AAA	AA+	103.38	4,910,990.00	5,169,050.00
Fixed Income	31397QRE0	F N M A GTD REMIC 2.472% 2/25/41	0.7595%	111,677.6500	N/A	N/A	101.58	111,642.77	113,442.16
Fixed Income	36225CAZ9	G N M A I I #080023 2.125% 12/20/26	2.0511%	10,094.9500	N/A	N/A	103.61	10,261.72	10,458.87
Fixed Income	36225CC20	G N M A I I #080088 2.875% 6/20/27	2.8222%	7,835.8900	N/A	N/A	101.87	8,007.30	7,982.50
Fixed Income	36225CNM4	G N M A I I #080395 2.875% 4/20/30	2.7680%	4,188.9900	N/A	N/A	103.87	4,151.00	4,350.98
Fixed Income	36225CN28	G N M A I I #080408 2.875% 5/20/30	2.7677%	33,224.2300	N/A	N/A	103.88	32,886.79	34,512.00
Fixed Income	36225DCB8	G N M A I I #080965 2.250% 7/20/34	2.1586%	27,536.5100	N/A	N/A	104.23	27,519.31	28,702.13
Fixed Income	43813GAC5	HONDA AUTO 0.270% 4/21/25	0.2702%	1,605,000.0000	AAA	N/A	99.94	1,604,970.63	1,603,972.80
Fixed Income	43813KAC6	HONDA AUTO 0.370% 10/18/24	0.3695%	3,235,000.0000	N/A	AAA	100.14	3,234,524.78	3,239,399.60
Fixed Income	43815HAC1	HONDA AUTO 2.950% 8/22/22	2.9348%	659,157.5100	AAA	N/A	100.52	659,067.07	662,578.54
Fixed Income	43814UAG4	HONDA AUTO 3.010% 5/18/22	3.0040%	97,302.1800	N/A	AAA	100.20	97,300.06	97,496.78

U.S. Bank
Investment Listing - Yield
As of 06/30/2021

Asset Category	CUSIP	Asset Short Name	Yield	Shares/Units	Moody's	S&P Rating	Price	Cost Basis	Market Value
Fixed Income	438516CB0	HONEYWELL 1.350% 6/01/25	1.3256%	5,000,000.0000	A2	A	101.84	5,119,000.00	5,092,200.00
Fixed Income	44891VAC5	HYUNDAI AUTO LEASE 0.330% 6/17/24	0.3306%	4,155,000.0000	AAA	AAA	99.82	4,154,376.75	4,147,604.10
Fixed Income	44933LAC7	HYUNDAI AUTO REC 0.380% 9/15/25	0.3801%	2,100,000.0000	N/A	AAA	99.97	2,099,779.08	2,099,391.00
Fixed Income	458140BD1	INTEL CORP 2.875% 5/11/24	2.7035%	5,000,000.0000	A1	A+	106.35	5,025,900.00	5,317,250.00
Fixed Income	4581X0DN5	INTER AMER BK M T N 0.625% 7/15/25	0.6279%	5,050,000.0000	AAA	AAA	99.55	5,071,967.50	5,027,073.00
Fixed Income	4581X0DV7	INTER AMER BK M T N 0.875% 4/20/26	0.8751%	13,370,000.0000	AAA	AAA	99.99	13,308,765.40	13,368,796.70
Fixed Income	4581X0CZ9	INTER AMER DEV BK 1.750% 9/14/22	1.7177%	6,500,000.0000	AAA	AAA	101.88	6,249,655.00	6,622,070.00
Fixed Income	4581X0CW6	INTER AMER DEV BK 2.125% 1/18/22	2.1027%	3,000,000.0000	AAA	N/A	101.06	2,996,310.00	3,031,860.00
Fixed Income	459058FY4	INTL BK 2.000% 1/26/22	1.9795%	10,000,000.0000	AAA	N/A	101.04	10,006,350.00	10,103,600.00
Fixed Income	459058JL8	INTL BK M T N 0.500% 10/28/25	0.5062%	15,000,000.0000	AAA	AAA	98.77	14,964,951.60	14,815,350.00
Fixed Income	459058JB0	INTL BK M T N 0.625% 4/22/25	0.6273%	6,245,000.0000	AAA	AAA	99.64	6,220,831.85	6,222,580.45
Fixed Income	45950KCJ7	INTL FINANCE CORP 1.125% 7/20/21	1.1244%	2,500,000.0000	WR	N/R	100.06	2,441,600.00	2,501,400.00
Fixed Income	24422EUM9	JOHN DEERE MTN 3.650% 10/12/23	3.3963%	1,250,000.0000	A2	A	107.47	1,250,237.50	1,343,375.00
Fixed Income	47788UAC6	JOHN DEERE OWNER 0.360% 9/15/25	0.3605%	2,300,000.0000	AAA	N/A	99.87	2,299,557.94	2,297,033.00
Fixed Income	47787NAC3	JOHN DEERE OWNER 0.510% 11/15/24	0.5087%	1,480,000.0000	AAA	N/A	100.25	1,479,774.45	1,483,759.20
Fixed Income	47788EAC2	JOHN DEERE OWNER 3.080% 11/15/22	3.0642%	536,545.0100	AAA	N/A	100.51	536,504.34	539,302.85
Fixed Income	46625HRL6	JP MORGAN CHASE CO 2.700% 5/18/23	2.5968%	5,000,000.0000	A2	A-	103.97	4,821,910.00	5,198,650.00
Fixed Income	46647PBH8	JPMORGAN CHASE CO 2.005% 3/13/26	1.9421%	3,500,000.0000	A2	A-	103.24	3,602,345.00	3,613,400.00
Fixed Income	46647PAU0	JPMORGAN CHASE CO 3.797% 7/23/24	3.5635%	2,500,000.0000	A2	A-	106.55	2,632,175.00	2,663,825.00
Fixed Income	525ESC0Y6	LEHMAN BRTH HLD ESC	0.0000%	2,000,000.0000			-	1,019,380.10	-
Fixed Income	525ESCIB7	LEHMAN BRTH MTN ES 0.00001% 1/24/13	0.0014%	600,000.0000	N/A	N/A	0.70	316,428.27	4,200.00
Fixed Income	58769KAD6	MERCEDES BENZ AUTO 0.400% 11/15/24	0.4002%	3,315,000.0000	N/A	AAA	99.95	3,314,749.72	3,313,441.95
Fixed Income	58770FAC6	MERCEDES BENZ AUTO 1.840% 12/15/22	1.8266%	2,050,000.0000	AAA	AAA	100.73	2,049,729.81	2,065,026.50
Fixed Income	58933YAF2	MERCK CO INC 2.800% 5/18/23	2.6747%	2,000,000.0000	A1	A+	104.69	1,948,640.00	2,093,720.00
Fixed Income	594918BP8	MICROSOFT CORP 1.550% 8/08/21	1.5496%	3,045,000.0000	WR	AAA	100.02	3,041,385.15	3,045,730.80
Fixed Income	61747YEA9	MORGAN STANLEY 0.790% 5/30/25	0.7928%	8,885,000.0000	A1	BBB+	99.65	8,889,710.25	8,853,635.95
Fixed Income	61744YAH1	MORGAN STANLEY 2.750% 5/19/22	2.6900%	2,000,000.0000	A1	BBB+	102.23	2,047,260.00	2,044,600.00
Fixed Income	61747WAL3	MORGAN STANLEY 5.500% 7/28/21	5.4790%	2,800,000.0000	WR	N/R	100.38	3,200,848.00	2,810,724.00
Fixed Income	65479JAD5	NISSAN AUTO 1.930% 7/15/24	1.9062%	4,185,000.0000	AAA	AAA	101.25	4,184,779.03	4,237,145.10
Fixed Income	65479GAD1	NISSAN AUTO 3.060% 3/15/23	3.0268%	1,144,976.4700	AAA	AAA	101.10	1,144,939.38	1,157,548.31
Fixed Income	65558UBJ0	NORDEA BK ABP C D 0.210% 5/16/22	0.2100%	3,000,000.0000			100.02	3,000,300.89	3,000,540.00
Fixed Income	65558UBJ0	NORDEA BK ABP C D 0.210% 5/16/22	0.2100%	7,000,000.0000			100.02	7,000,702.07	7,001,260.00
Fixed Income	69353RFB9	PNC BANK NA MTN 2.625% 2/17/22	2.5911%	1,000,000.0000	A2	A	101.31	974,940.00	1,013,100.00
Fixed Income	69353RFL7	PNC BANK NA MTN 3.500% 6/08/23	3.3068%	5,000,000.0000	A2	A	105.84	4,993,318.05	5,292,200.00
Fixed Income	78015K7H1	ROYAL BANK OF MTN 1.150% 6/10/25	1.1439%	2,500,000.0000	A2	A	100.53	2,527,720.00	2,513,350.00
Fixed Income	78013XZU5	ROYAL BANK OF MTN 2.550% 7/16/24	2.4181%	6,500,000.0000	A2	A	105.46	6,581,445.00	6,854,575.00
Fixed Income	78445JAA5	S L M A 1.69437% 4/25/23	1.6802%	10,118.6500	BAA3	B	100.84	10,077.59	10,204.05
Fixed Income	808513BN4	SCHWAB CHARLES 0.750% 3/18/24	0.7458%	2,785,000.0000	A2	A	100.57	2,783,607.50	2,800,763.10
Fixed Income	89114W7M1	TORONTO C D 0.240% 4/28/22	0.2399%	2,000,000.0000			100.04	1,999,999.94	2,000,740.00
Fixed Income	89114QCA4	TORONTO DOMINION MTN 2.650% 6/12/24	2.5036%	3,000,000.0000	A1	A	105.85	3,000,570.00	3,175,410.00

U.S. Bank
Investment Listing - Yield
As of 06/30/2021

Asset Category	CUSIP	Asset Short Name	Yield	Shares/Units	Moody's	S&P Rating	Price	Cost Basis	Market Value
Fixed Income	89114QC48	TORONTO MTN 3.500% 7/19/23	3.2927%	5,000,000.0000	AA2	AA-	106.30	5,094,200.00	5,314,800.00
Fixed Income	89237VAB5	TOYOTA AUTO RECV 0.440% 10/15/24	0.4389%	2,960,000.0000	AAA	AAA	100.25	2,959,772.08	2,967,281.60
Fixed Income	89236TJK2	TOYOTA MTR CR MTN 1.125% 6/18/26	1.1300%	7,285,000.0000	A1	A+	99.56	7,281,794.60	7,252,946.00
Fixed Income	912828WU0	U S TREASURY I P S 0.125% 7/15/24	0.1162%	11,693,656.0000	AAA	N/A	107.53	11,548,936.09	12,574,071.36
Fixed Income	91282CBG5	U S TREASURY NT 0.125% 1/31/23	0.1251%	10,000,000.0000	AAA	N/A	99.90	9,998,046.88	9,990,200.00
Fixed Income	912828ZM5	U S TREASURY NT 0.125% 4/30/22	0.1250%	15,000,000.0000	AAA	N/A	100.03	15,010,839.85	15,004,650.00
Fixed Income	91282CBA8	U S TREASURY NT 0.125% 12/15/23	0.1257%	6,500,000.0000	AAA	N/A	99.47	6,491,367.19	6,465,745.00
Fixed Income	91282CAM3	U S TREASURY NT 0.250% 9/30/25	0.2554%	6,500,000.0000	AAA	N/A	97.90	6,477,656.25	6,363,175.00
Fixed Income	91282CBH3	U S TREASURY NT 0.375% 1/31/26	0.3827%	18,000,000.0000	AAA	N/A	98.00	17,781,875.00	17,639,280.00
Fixed Income	912828ZL7	U S TREASURY NT 0.375% 4/30/25	0.3791%	12,000,000.0000	AAA	N/A	98.93	11,998,515.63	11,871,120.00
Fixed Income	91282CBC4	U S TREASURY NT 0.375% 12/31/25	0.3822%	10,000,000.0000	AAA	N/A	98.11	9,943,320.32	9,810,600.00
Fixed Income	91282CBT7	U S TREASURY NT 0.750% 3/31/26	0.7534%	10,000,000.0000	AAA	N/A	99.55	9,943,359.37	9,955,100.00
Fixed Income	91282CCF6	U S TREASURY NT 0.750% 5/31/26	0.7543%	7,500,000.0000	AAA	N/A	99.43	7,443,750.00	7,457,250.00
Fixed Income	912828S76	U S TREASURY NT 1.125% 7/31/21	1.1240%	43,000,000.0000	WR	N/A	100.09	43,267,968.77	43,038,700.00
Fixed Income	912828Z60	U S TREASURY NT 1.375% 1/31/22	1.3645%	20,000,000.0000	AAA	N/A	100.77	20,174,609.38	20,153,200.00
Fixed Income	912828H86	U S TREASURY NT 1.500% 1/31/22	1.4874%	7,500,000.0000	AAA	N/A	100.84	7,582,031.25	7,563,300.00
Fixed Income	912828YC8	U S TREASURY NT 1.500% 8/31/21	1.4964%	9,000,000.0000	AAA	N/A	100.24	9,084,726.56	9,021,690.00
Fixed Income	912828YH7	U S TREASURY NT 1.500% 9/30/24	1.4539%	14,000,000.0000	AAA	N/A	103.17	13,859,296.88	14,443,520.00
Fixed Income	912828R69	U S TREASURY NT 1.625% 5/31/23	1.5832%	5,000,000.0000	AAA	N/A	102.64	4,757,226.56	5,132,050.00
Fixed Income	912828J43	U S TREASURY NT 1.750% 2/28/22	1.7307%	7,500,000.0000	AAA	N/A	101.12	7,606,054.69	7,583,775.00
Fixed Income	912828J76	U S TREASURY NT 1.750% 3/31/22	1.7284%	5,000,000.0000	AAA	N/A	101.25	4,976,383.94	5,062,500.00
Fixed Income	912828XW5	U S TREASURY NT 1.750% 6/30/22	1.7217%	5,000,000.0000	AAA	N/A	101.64	4,973,454.25	5,082,050.00
Fixed Income	9128287F1	U S TREASURY NT 1.750% 7/31/21	1.7475%	2,000,000.0000	WR	N/A	100.14	2,014,531.25	2,002,820.00
Fixed Income	912828L57	U S TREASURY NT 1.750% 9/30/22	1.7155%	16,000,000.0000	AAA	N/A	102.01	15,829,492.20	16,321,920.00
Fixed Income	912828U65	U S TREASURY NT 1.750% 11/30/21	1.7378%	6,500,000.0000	AAA	N/A	100.70	6,407,599.90	6,545,695.00
Fixed Income	912828V72	U S TREASURY NT 1.875% 1/31/22	1.8554%	3,000,000.0000	AAA	N/A	101.06	3,004,814.74	3,031,770.00
Fixed Income	912828L24	U S TREASURY NT 1.875% 8/31/22	1.8378%	6,000,000.0000	AAA	N/A	102.02	5,987,832.60	6,121,380.00
Fixed Income	912828XX3	U S TREASURY NT 2.000% 6/30/24	1.9124%	5,000,000.0000	AAA	N/A	104.58	5,028,710.94	5,228,900.00
Fixed Income	912828M80	U S TREASURY NT 2.000% 11/30/22	1.9496%	8,000,000.0000	AAA	N/A	102.59	7,907,500.00	8,206,880.00
Fixed Income	912828W48	U S TREASURY NT 2.125% 2/29/24	2.0310%	10,000,000.0000	AAA	N/A	104.63	9,911,718.75	10,462,900.00
Fixed Income	912828RC6	U S TREASURY NT 2.125% 8/15/21	2.1195%	5,000,000.0000	AAA	N/A	100.26	5,039,453.13	5,012,950.00
Fixed Income	912828U57	U S TREASURY NT 2.125% 11/30/23	2.0369%	15,000,000.0000	AAA	N/A	104.32	14,723,632.81	15,648,600.00
Fixed Income	9128283J7	U S TREASURY NT 2.125% 11/30/24	2.0175%	16,500,000.0000	AAA	N/A	105.33	16,783,886.72	17,379,120.00
Fixed Income	912828N30	U S TREASURY NT 2.125% 12/31/22	2.0650%	5,000,000.0000	AAA	N/A	102.91	4,926,562.50	5,145,300.00
Fixed Income	912828V80	U S TREASURY NT 2.250% 1/31/24	2.1460%	7,500,000.0000	AAA		104.85	7,491,503.91	7,863,600.00
Fixed Income	9128286M7	U S TREASURY NT 2.250% 4/15/22	2.2122%	7,500,000.0000	AAA	N/A	101.71	7,657,324.22	7,628,325.00
Fixed Income	912828WY2	U S TREASURY NT 2.250% 7/31/21	2.2459%	8,000,000.0000	WR	N/A	100.18	8,144,296.88	8,014,640.00
Fixed Income	9128286H8	U S TREASURY NT 2.375% 3/15/22	2.3370%	7,500,000.0000	AAA	N/A	101.63	7,651,757.81	7,621,875.00
Fixed Income	9128284D9	U S TREASURY NT 2.500% 3/31/23	2.4041%	10,000,000.0000	AAA	N/A	103.99	9,887,265.63	10,398,800.00
Fixed Income	912828WJ5	U S TREASURY NT 2.500% 5/15/24	2.3601%	7,000,000.0000	AAA	N/A	105.93	7,193,046.88	7,414,820.00

U.S. Bank
Investment Listing - Yield
As of 06/30/2021

Asset Category	CUSIP	Asset Short Name	Yield	Shares/Units	Moody's	S&P Rating	Price	Cost Basis	Market Value
Fixed Income	91324PEC2	UNITEDHEALTH 1.150% 5/15/26	1.1500%	1,755,000.0000	A3	A+	100.00	1,760,683.15	1,754,947.35
Fixed Income	90331HPL1	US BANK NA MTN 2.050% 1/21/25	1.9634%	7,270,000.0000	A1	AA-	104.41	7,254,514.90	7,590,607.00
Fixed Income	90331HNL3	US BANK NA MTN 2.850% 1/23/23	2.7473%	2,000,000.0000	A1	AA-	103.74	1,992,640.00	2,074,780.00
Fixed Income	931142EK5	WALMART INC 3.400% 6/26/23	3.2094%	3,880,000.0000	AA2	AA	105.94	3,878,991.40	4,110,472.00
Total Consolidated									**890,691,472.49**

U.S. Bank
Asset Detail - Consolidated
As of 06/30/2021

CUSIP	Asset Short Name	Price	Shares/Units	Cost Basis	Market Value	Percent of Total	Unrealized Gain/Loss
Cash Equivalents							
21687AYV9	COOPERATIEVE CENTRALE C P 11/29/21	99.94	2,000,000.0000	1,997,978.89	1,998,820.00	0.22	841.11
31846V567	FIRST AM GOVT OB FD CL Z	1.00	14,334,524.1400	14,334,524.14	14,334,524.14	1.61	-
31846V567	FIRST AM GOVT OB FD CL Z	1.00	1,155,352.3400	1,155,352.34	1,155,352.34	0.13	-
62479MAM5	MUFG BK LTD N Y BRH C P 1/21/22	99.92	2,000,000.0000	1,997,907.78	1,998,300.00	0.22	392.22
62479LUS2	MUFG BK LTD N Y BRH C P 7/26/21	99.99	12,000,000.0000	11,997,000.00	11,999,040.00	1.35	2,040.00
89233HAU8	TOYOTA MTR CR CORP DISC C P 1/28/22	99.90	4,000,000.0000	3,995,866.67	3,996,000.00	0.45	133.33
912796C49	U S TREASURY BILL 7/22/21	100.00	5,000,000.0000	4,997,661.81	4,999,850.00	0.56	2,188.19
912796C56	U S TREASURY BILL 7/29/21	100.00	7,000,000.0000	6,997,275.06	6,999,720.00	0.79	2,444.94
912796D55	U S TREASURY BILL 8/26/21	99.99	13,000,000.0000	12,996,273.41	12,999,090.00	1.46	2,816.59
912796M22	U S TREASURY BILL 10/05/21	99.99	5,500,000.0000	5,499,304.25	5,499,340.00	0.62	35.75
Cash Equivalents Total			**65,989,876.4800**	**65,969,144.35**	**65,980,036.48**	**7.41**	**10,892.13**
Fixed Income							
00440EAS6	ACE INA HOLDING 3.150% 3/15/25	108.09	2,000,000.0000	2,203,740.00	2,161,860.00	0.24	(41,880.00)
00440EAU1	ACE INA HOLDINGS 2.875% 11/03/22	102.96	4,169,000.0000	4,232,453.17	4,292,527.47	0.48	60,074.30
023135BW5	AMAZON COM INC 0.450% 5/12/24	99.78	5,490,000.0000	5,481,984.60	5,477,867.10	0.62	(4,117.50)
02665WDF5	AMERICAN HONDA MTN 1.950% 5/20/22	101.51	2,000,000.0000	2,032,780.00	2,030,240.00	0.23	(2,540.00)
02665WCZ2	AMERICAN HONDA MTN 2.400% 6/27/24	104.99	1,219,000.0000	1,213,843.63	1,279,852.48	0.14	66,008.85
02665WCJ8	AMERICAN HONDA MTN 3.450% 7/14/23	106.18	845,000.0000	843,538.15	897,195.65	0.10	53,657.50
02665WCQ2	AMERICAN HONDA MTN 3.625% 10/10/23	107.11	2,000,000.0000	1,998,320.00	2,142,200.00	0.24	143,880.00
03215PFN4	AMRESCO 1.38193% 6/25/29	97.75	119,021.6400	89,377.81	116,343.65	0.01	26,965.84
037833CU2	APPLE INC 2.850% 5/11/24	106.13	3,000,000.0000	3,017,760.00	3,183,840.00	0.36	166,080.00
06051GJD2	BANK AMER CORP MTN 1.319% 6/19/26	100.22	2,250,000.0000	2,254,432.50	2,254,927.50	0.25	495.00
06417MQL2	BANK NOVA C D 0.200% 6/23/22	99.99	5,000,000.0000	4,999,999.61	4,999,650.00	0.56	(349.61)
06417MNK7	BANK NOVA C D 0.220% 4/08/22	100.04	3,000,000.0000	3,000,000.00	3,001,050.00	0.34	1,050.00
06051GHF9	BANK OF AMERICA 3.550% 3/05/24	105.07	6,675,000.0000	6,770,625.75	7,013,289.00	0.79	242,663.25
06051GHY8	BANK OF AMERICAN MTN 2.015% 2/13/26	103.11	2,500,000.0000	2,583,450.00	2,577,625.00	0.29	(5,825.00)
06417MMB8	BANK OF NOVA C D 0.280% 11/24/21	100.07	5,000,000.0000	5,000,000.00	5,003,650.00	0.56	3,650.00
06406RAA5	BANK OF NY MTN 2.600% 2/07/22	101.25	2,500,000.0000	2,504,475.00	2,531,125.00	0.28	26,650.00
06406RAE7	BANK OF NY MTN 2.950% 1/29/23	103.96	2,500,000.0000	2,489,555.00	2,598,875.00	0.29	109,320.00
084670BR8	BERKSHIRE HATHAWAY 2.750% 3/15/23	103.78	2,500,000.0000	2,440,950.00	2,594,450.00	0.29	153,500.00
084664BT7	BERKSHIRE HATHAWAY 3.000% 5/15/22	102.37	4,000,000.0000	4,131,120.00	4,094,720.00	0.46	(36,400.00)
09247XAL5	BLACKROCK INC 3.500% 3/18/24	108.03	1,000,000.0000	1,036,330.00	1,080,280.00	0.12	43,950.00
14913Q2T5	CATERPILLAR FINL MTN 2.950% 2/26/22	101.81	2,000,000.0000	2,043,700.00	2,036,120.00	0.23	(7,580.00)
808513AT2	CHARLES SCHWAB CORP 2.650% 1/25/23	103.37	6,750,000.0000	6,729,480.00	6,977,610.00	0.78	248,130.00
166764AH3	CHEVRON CORP 3.191% 6/24/23	104.99	3,500,000.0000	3,441,095.00	3,674,720.00	0.41	233,625.00
00440EAP2	CHUBB INA HLDGS INC 2.700% 3/13/23	103.99	2,000,000.0000	1,937,000.00	2,079,840.00	0.23	142,840.00
3133ELYR9	F F C B DEB 0.250% 5/06/22	100.14	8,850,000.0000	8,838,760.50	8,862,655.50	1.00	23,895.00
3133EKWV4	F F C B DEB 1.850% 7/26/24	104.15	5,000,000.0000	5,048,280.00	5,207,700.00	0.58	159,420.00
3130A1XJ2	F H L B 2.875% 6/14/24	106.99	11,110,000.0000	11,589,031.30	11,886,255.70	1.33	297,224.40

U.S. Bank
Asset Detail - Consolidated
As of 06/30/2021

CUSIP	Asset Short Name	Price	Shares/Units	Cost Basis	Market Value	Percent of Total	Unrealized Gain/Loss
3130A4CH3	F H L B DEB 2.375% 3/14/25	106.31	5,225,000.0000	5,526,848.25	5,554,645.25	0.62	27,797.00
3130A2UW4	F H L B DEB 2.875% 9/13/24	107.43	2,500,000.0000	2,635,950.00	2,685,725.00	0.30	49,775.00
313383QR5	F H L B DEB 3.250% 6/09/23	105.79	5,000,000.0000	5,083,350.00	5,289,600.00	0.59	206,250.00
313383YJ4	F H L B DEB 3.375% 9/08/23	106.59	10,000,000.0000	10,211,831.00	10,658,900.00	1.20	447,069.00
3130A0F70	F H L B DEB 3.375% 12/08/23	107.35	10,000,000.0000	10,269,043.75	10,735,100.00	1.21	466,056.25
313385KW5	F H L B DISC NTS 8/25/21	99.99	7,525,000.0000	7,523,032.66	7,524,548.50	0.84	1,515.84
3137EAEP0	F H L M C 1.500% 2/12/25	103.17	12,335,000.0000	12,510,182.05	12,726,389.55	1.43	216,207.50
3137EAEN5	F H L M C 2.750% 6/19/23	104.92	10,000,000.0000	9,956,500.00	10,491,900.00	1.18	535,400.00
3137EAEU9	F H L M C M T N 0.375% 7/21/25	98.59	5,030,000.0000	5,004,950.60	4,959,177.60	0.56	(45,773.00)
3137EAEX3	F H L M C M T N 0.375% 9/23/25	98.44	7,660,000.0000	7,636,943.40	7,540,121.00	0.85	(96,822.40)
31348SWZ3	F H L M C #786064 2.262% 1/01/28	100.65	1,449.2100	1,413.91	1,458.62	0.00	44.71
3133TCE95	F H L M C MLTCL MTG 3.855% 8/15/32	100.80	3,982.9000	3,987.08	4,014.76	0.00	27.68
31394JY35	F H L M C MLTCL MTG 6.500% 9/25/43	115.50	521,023.3000	590,058.88	601,761.07	0.07	11,702.19
3135G05G4	F N M A 0.250% 7/10/23	100.00	6,775,000.0000	6,760,433.75	6,775,067.75	0.76	14,634.00
3135G05X7	F N M A 0.375% 8/25/25	98.52	7,945,000.0000	7,907,817.40	7,827,334.55	0.88	(80,482.85)
3135G04Z3	F N M A 0.500% 6/17/25	99.37	9,905,000.0000	9,884,496.65	9,842,994.70	1.11	(41,501.95)
3135G06G3	F N M A 0.500% 11/07/25	98.81	8,255,000.0000	8,225,447.10	8,157,013.15	0.92	(68,433.95)
3135G0X24	F N M A 1.625% 1/07/25	103.53	10,000,000.0000	10,157,936.40	10,352,900.00	1.16	194,963.60
3135G0T45	F N M A 1.875% 4/05/22	101.37	5,000,000.0000	4,972,500.00	5,068,350.00	0.57	95,850.00
3135G0S38	F N M A 2.000% 1/05/22	100.98	3,000,000.0000	2,994,570.00	3,029,370.00	0.34	34,800.00
3135G0V34	F N M A 2.500% 2/05/24	105.48	5,000,000.0000	4,980,850.00	5,274,050.00	0.59	293,200.00
31371NUC7	F N M A #257179 4.500% 4/01/28	107.53	8,856.8900	9,367.04	9,523.73	0.00	156.69
31376KT22	F N M A #357969 5.000% 9/01/35	114.55	68,798.6200	73,958.50	78,805.38	0.01	4,846.88
31403DJZ3	F N M A #745580 5.000% 6/01/36	114.39	61,567.5000	66,185.05	70,425.83	0.01	4,240.78
31403GXF4	F N M A #748678 5.000% 10/01/33	110.33	811.9700	872.86	895.88	0.00	23.02
31406PQY8	F N M A #815971 5.000% 3/01/35	114.42	91,918.0000	98,811.86	105,173.49	0.01	6,361.63
31406XWT5	F N M A #823358 2.035% 2/01/35	105.36	70,004.8800	69,457.96	73,759.94	0.01	4,301.98
31407BXH7	F N M A #826080 5.000% 7/01/35	114.43	12,322.6000	13,246.77	14,100.87	0.00	854.10
31410F4V4	F N M A #888336 5.000% 7/01/36	114.43	109,827.2800	118,064.33	125,679.75	0.01	7,615.42
3138EG6F6	F N M A #AL0869 4.500% 6/01/29	107.55	5,809.6700	6,144.31	6,248.07	0.00	103.76
31417YAY3	F N M A #MA0022 4.500% 4/01/29	107.57	9,914.9300	10,486.01	10,665.79	0.00	179.78
3135G03U5	F N M A DEB 0.625% 4/22/25	99.88	14,000,000.0000	13,996,711.60	13,982,780.00	1.57	(13,931.60)
3135G0T94	F N M A DEB 2.375% 1/19/23	103.38	5,000,000.0000	4,910,990.00	5,169,050.00	0.58	258,060.00
31397QRE0	F N M A GTD REMIC 2.472% 2/25/41	101.58	111,677.6500	111,642.77	113,442.16	0.01	1,799.39
36225CAZ9	G N M A I I #080023 2.125% 12/20/26	103.61	10,094.9500	10,261.72	10,458.87	0.00	197.15
36225CC20	G N M A I I #080088 2.875% 6/20/27	101.87	7,835.8900	8,007.30	7,982.50	0.00	(24.80)
36225CNM4	G N M A I I #080395 2.875% 4/20/30	103.87	4,188.9900	4,151.00	4,350.98	0.00	199.98
36225CN28	G N M A I I #080408 2.875% 5/20/30	103.88	33,224.2300	32,886.79	34,512.00	0.00	1,625.21
36225DCB8	G N M A I I #080965 2.250% 7/20/34	104.23	27,536.5100	27,519.31	28,702.13	0.00	1,182.82
43813GAC5	HONDA AUTO 0.270% 4/21/25	99.94	1,605,000.0000	1,604,970.63	1,603,972.80	0.18	(997.83)
43813KAC6	HONDA AUTO 0.370% 10/18/24	100.14	3,235,000.0000	3,234,524.78	3,239,399.60	0.36	4,874.82

U.S. Bank
Asset Detail - Consolidated
As of 06/30/2021

CUSIP	Asset Short Name	Price	Shares/Units	Cost Basis	Market Value	Percent of Total	Unrealized Gain/Loss
43815HAC1	HONDA AUTO 2.950% 8/22/22	100.52	659,157.5100	659,067.07	662,578.54	0.07	3,511.47
43814UAG4	HONDA AUTO 3.010% 5/18/22	100.20	97,302.1800	97,300.06	97,496.78	0.01	196.72
438516CB0	HONEYWELL 1.350% 6/01/25	101.84	5,000,000.0000	5,119,000.00	5,092,200.00	0.57	(26,800.00)
44891VAC5	HYUNDAI AUTO LEASE 0.330% 6/17/24	99.82	4,155,000.0000	4,154,376.75	4,147,604.10	0.47	(6,772.65)
44933LAC7	HYUNDAI AUTO REC 0.380% 9/15/25	99.97	2,100,000.0000	2,099,779.08	2,099,391.00	0.24	(388.08)
458140BD1	INTEL CORP 2.875% 5/11/24	106.35	5,000,000.0000	5,025,900.00	5,317,250.00	0.60	291,350.00
4581X0DN5	INTER AMER BK M T N 0.625% 7/15/25	99.55	5,050,000.0000	5,071,967.50	5,027,073.00	0.56	(44,894.50)
4581X0DV7	INTER AMER BK M T N 0.875% 4/20/26	99.99	13,370,000.0000	13,308,765.40	13,368,796.70	1.50	60,031.30
4581X0CZ9	INTER AMER DEV BK 1.750% 9/14/22	101.88	6,500,000.0000	6,249,655.00	6,622,070.00	0.74	372,415.00
4581X0CW6	INTER AMER DEV BK 2.125% 1/18/22	101.06	3,000,000.0000	2,996,310.00	3,031,860.00	0.34	35,550.00
459058FY4	INTL BK 2.000% 1/26/22	101.04	10,000,000.0000	10,006,350.00	10,103,600.00	1.13	97,250.00
459058JL8	INTL BK M T N 0.500% 10/28/25	98.77	15,000,000.0000	14,964,951.60	14,815,350.00	1.66	(149,601.60)
459058JB0	INTL BK M T N 0.625% 4/22/25	99.64	6,245,000.0000	6,220,831.85	6,222,580.45	0.70	1,748.60
45950KCJ7	INTL FINANCE CORP 1.125% 7/20/21	100.06	2,500,000.0000	2,441,600.00	2,501,400.00	0.28	59,800.00
24422EUM9	JOHN DEERE MTN 3.650% 10/12/23	107.47	1,250,000.0000	1,250,237.50	1,343,375.00	0.15	93,137.50
47788UAC6	JOHN DEERE OWNER 0.360% 9/15/25	99.87	2,300,000.0000	2,299,557.94	2,297,033.00	0.26	(2,524.94)
47787NAC3	JOHN DEERE OWNER 0.510% 11/15/24	100.25	1,480,000.0000	1,479,774.45	1,483,759.20	0.17	3,984.75
47788EAC2	JOHN DEERE OWNER 3.080% 11/15/22	100.51	536,545.0100	536,504.34	539,302.85	0.06	2,798.51
46625HRL6	JP MORGAN CHASE CO 2.700% 5/18/23	103.97	5,000,000.0000	4,821,910.00	5,198,650.00	0.58	376,740.00
46647PBH8	JPMORGAN CHASE CO 2.005% 3/13/26	103.24	3,500,000.0000	3,602,345.00	3,613,400.00	0.41	11,055.00
46647PAU0	JPMORGAN CHASE CO 3.797% 7/23/24	106.55	2,500,000.0000	2,632,175.00	2,663,825.00	0.30	31,650.00
525ESC0Y6	LEHMAN BRTH HLD ESC	-	2,000,000.0000	1,019,380.10	-	-	(1,019,380.10)
525ESCIB7	LEHMAN BRTH MTN ES 0.00001% 1/24/13	0.70	600,000.0000	316,428.27	4,200.00	0.00	(312,228.27)
58769KAD6	MERCEDES BENZ AUTO 0.400% 11/15/24	99.95	3,315,000.0000	3,314,749.72	3,313,441.95	0.37	(1,307.77)
58770FAC6	MERCEDES BENZ AUTO 1.840% 12/15/22	100.73	2,050,000.0000	2,049,729.81	2,065,026.50	0.23	15,296.69
58933YAF2	MERCK CO INC 2.800% 5/18/23	104.69	2,000,000.0000	1,948,640.00	2,093,720.00	0.24	145,080.00
594918BP8	MICROSOFT CORP 1.550% 8/08/21	100.02	3,045,000.0000	3,041,385.15	3,045,730.80	0.34	4,345.65
61747YEA9	MORGAN STANLEY 0.790% 5/30/25	99.65	8,885,000.0000	8,889,710.25	8,853,635.95	0.99	(36,074.30)
61744YAH1	MORGAN STANLEY 2.750% 5/19/22	102.23	2,000,000.0000	2,047,260.00	2,044,600.00	0.23	(2,660.00)
61747WAL3	MORGAN STANLEY 5.500% 7/28/21	100.38	2,800,000.0000	3,200,848.00	2,810,724.00	0.32	(390,124.00)
65479JAD5	NISSAN AUTO 1.930% 7/15/24	101.25	4,185,000.0000	4,184,779.03	4,237,145.10	0.48	52,366.07
65479GAD1	NISSAN AUTO 3.060% 3/15/23	101.10	1,144,976.4700	1,144,939.38	1,157,548.31	0.13	12,608.93
65558UBJ0	NORDEA BK ABP C D 0.210% 5/16/22	100.02	3,000,000.0000	3,000,300.89	3,000,540.00	0.34	239.11
65558UBJ0	NORDEA BK ABP C D 0.210% 5/16/22	100.02	7,000,000.0000	7,000,702.07	7,001,260.00	0.79	557.93
69353RFB9	PNC BANK NA MTN 2.625% 2/17/22	101.31	1,000,000.0000	974,940.00	1,013,100.00	0.11	38,160.00
69353RFL7	PNC BANK NA MTN 3.500% 6/08/23	105.84	5,000,000.0000	4,993,318.05	5,292,200.00	0.59	298,881.95
78015K7H1	ROYAL BANK OF MTN 1.150% 6/10/25	100.53	2,500,000.0000	2,527,720.00	2,513,350.00	0.28	(14,370.00)
78013XZU5	ROYAL BANK OF MTN 2.550% 7/16/24	105.46	6,500,000.0000	6,581,445.00	6,854,575.00	0.77	273,130.00
78445JAA5	S L M A 1.69437% 4/25/23	100.84	10,118.6500	10,077.59	10,204.05	0.00	126.46
808513BN4	SCHWAB CHARLES 0.750% 3/18/24	100.57	2,785,000.0000	2,783,607.50	2,800,763.10	0.31	17,155.60
89114W7M1	TORONTO C D 0.240% 4/28/22	100.04	2,000,000.0000	1,999,999.94	2,000,740.00	0.22	740.06

U.S. Bank
Asset Detail - Consolidated
As of 06/30/2021

CUSIP	Asset Short Name	Price	Shares/Units	Cost Basis	Market Value	Percent of Total	Unrealized Gain/Loss
89114QCA4	TORONTO DOMINION MTN 2.650% 6/12/24	105.85	3,000,000.0000	3,000,570.00	3,175,410.00	0.36	174,840.00
89114QC48	TORONTO MTN 3.500% 7/19/23	106.30	5,000,000.0000	5,094,200.00	5,314,800.00	0.60	220,600.00
89237VAB5	TOYOTA AUTO RECV 0.440% 10/15/24	100.25	2,960,000.0000	2,959,772.08	2,967,281.60	0.33	7,509.52
89236TJK2	TOYOTA MTR CR MTN 1.125% 6/18/26	99.56	7,285,000.0000	7,281,794.60	7,252,946.00	0.81	(28,848.60)
912828WU0	U S TREASURY I P S 0.125% 7/15/24	107.53	11,693,656.0000	11,548,936.09	12,574,071.36	1.41	1,025,135.27
91282CBG5	U S TREASURY NT 0.125% 1/31/23	99.90	10,000,000.0000	9,998,046.88	9,990,200.00	1.12	(7,846.88)
912828ZM5	U S TREASURY NT 0.125% 4/30/22	100.03	15,000,000.0000	15,010,839.85	15,004,650.00	1.68	(6,189.85)
91282CBA8	U S TREASURY NT 0.125% 12/15/23	99.47	6,500,000.0000	6,491,367.19	6,465,745.00	0.73	(25,622.19)
91282CAM3	U S TREASURY NT 0.250% 9/30/25	97.90	6,500,000.0000	6,477,656.25	6,363,175.00	0.71	(114,481.25)
91282CBH3	U S TREASURY NT 0.375% 1/31/26	98.00	18,000,000.0000	17,781,875.00	17,639,280.00	1.98	(142,595.00)
912828ZL7	U S TREASURY NT 0.375% 4/30/25	98.93	12,000,000.0000	11,998,515.63	11,871,120.00	1.33	(127,395.63)
91282CBC4	U S TREASURY NT 0.375% 12/31/25	98.11	10,000,000.0000	9,943,320.32	9,810,600.00	1.10	(132,720.32)
91282CBT7	U S TREASURY NT 0.750% 3/31/26	99.55	10,000,000.0000	9,943,359.37	9,955,100.00	1.12	11,740.63
91282CCF6	U S TREASURY NT 0.750% 5/31/26	99.43	7,500,000.0000	7,443,750.00	7,457,250.00	0.84	13,500.00
912828S76	U S TREASURY NT 1.125% 7/31/21	100.09	43,000,000.0000	43,267,968.77	43,038,700.00	4.83	(229,268.77)
912828Z60	U S TREASURY NT 1.375% 1/31/22	100.77	20,000,000.0000	20,174,609.38	20,153,200.00	2.26	(21,409.38)
912828H86	U S TREASURY NT 1.500% 1/31/22	100.84	7,500,000.0000	7,582,031.25	7,563,300.00	0.85	(18,731.25)
912828YC8	U S TREASURY NT 1.500% 8/31/21	100.24	9,000,000.0000	9,084,726.56	9,021,690.00	1.01	(63,036.56)
912828YH7	U S TREASURY NT 1.500% 9/30/24	103.17	14,000,000.0000	13,859,296.88	14,443,520.00	1.62	584,223.12
912828R69	U S TREASURY NT 1.625% 5/31/23	102.64	5,000,000.0000	4,757,226.56	5,132,050.00	0.58	374,823.44
912828J43	U S TREASURY NT 1.750% 2/28/22	101.12	7,500,000.0000	7,606,054.69	7,583,775.00	0.85	(22,279.69)
912828J76	U S TREASURY NT 1.750% 3/31/22	101.25	5,000,000.0000	4,976,383.94	5,062,500.00	0.57	86,116.06
912828XW5	U S TREASURY NT 1.750% 6/30/22	101.64	5,000,000.0000	4,973,454.25	5,082,050.00	0.57	108,595.75
9128287F1	U S TREASURY NT 1.750% 7/31/21	100.14	2,000,000.0000	2,014,531.25	2,002,820.00	0.22	(11,711.25)
912828L57	U S TREASURY NT 1.750% 9/30/22	102.01	16,000,000.0000	15,829,492.20	16,321,920.00	1.83	492,427.80
912828U65	U S TREASURY NT 1.750% 11/30/21	100.70	6,500,000.0000	6,407,599.90	6,545,695.00	0.73	138,095.10
912828V72	U S TREASURY NT 1.875% 1/31/22	101.06	3,000,000.0000	3,004,814.74	3,031,770.00	0.34	26,955.26
912828L24	U S TREASURY NT 1.875% 8/31/22	102.02	6,000,000.0000	5,987,832.60	6,121,380.00	0.69	133,547.40
912828XX3	U S TREASURY NT 2.000% 6/30/24	104.58	5,000,000.0000	5,028,710.94	5,228,900.00	0.59	200,189.06
912828M80	U S TREASURY NT 2.000% 11/30/22	102.59	8,000,000.0000	7,907,500.00	8,206,880.00	0.92	299,380.00
912828W48	U S TREASURY NT 2.125% 2/29/24	104.63	10,000,000.0000	9,911,718.75	10,462,900.00	1.17	551,181.25
912828RC6	U S TREASURY NT 2.125% 8/15/21	100.26	5,000,000.0000	5,039,453.13	5,012,950.00	0.56	(26,503.13)
912828U57	U S TREASURY NT 2.125% 11/30/23	104.32	15,000,000.0000	14,723,632.81	15,648,600.00	1.76	924,967.19
9128283J7	U S TREASURY NT 2.125% 11/30/24	105.33	16,500,000.0000	16,783,886.72	17,379,120.00	1.95	595,233.28
912828N30	U S TREASURY NT 2.125% 12/31/22	102.91	5,000,000.0000	4,926,562.50	5,145,300.00	0.58	218,737.50
912828V80	U S TREASURY NT 2.250% 1/31/24	104.85	7,500,000.0000	7,491,503.91	7,863,600.00	0.88	372,096.09
9128286M7	U S TREASURY NT 2.250% 4/15/22	101.71	7,500,000.0000	7,657,324.22	7,628,325.00	0.86	(28,999.22)
912828WY2	U S TREASURY NT 2.250% 7/31/21	100.18	8,000,000.0000	8,144,296.88	8,014,640.00	0.90	(129,656.88)
9128286H8	U S TREASURY NT 2.375% 3/15/22	101.63	7,500,000.0000	7,651,757.81	7,621,875.00	0.86	(29,882.81)
9128284D9	U S TREASURY NT 2.500% 3/31/23	103.99	10,000,000.0000	9,887,265.63	10,398,800.00	1.17	511,534.37
912828WJ5	U S TREASURY NT 2.500% 5/15/24	105.93	7,000,000.0000	7,193,046.88	7,414,820.00	0.83	221,773.12

U.S. Bank
Asset Detail - Consolidated
As of 06/30/2021

CUSIP	Asset Short Name	Price	Shares/Units	Cost Basis	Market Value	Percent of Total	Unrealized Gain/Loss
91324PEC2	UNITEDHEALTH 1.150% 5/15/26	100.00	1,755,000.0000	1,760,683.15	1,754,947.35	0.20	(5,735.80)
90331HPL1	US BANK NA MTN 2.050% 1/21/25	104.41	7,270,000.0000	7,254,514.90	7,590,607.00	0.85	336,092.10
90331HNL3	US BANK NA MTN 2.850% 1/23/23	103.74	2,000,000.0000	1,992,640.00	2,074,780.00	0.23	82,140.00
931142EK5	WALMART INC 3.400% 6/26/23	105.94	3,880,000.0000	3,878,991.40	4,110,472.00	0.46	231,480.60
Fixed Income Total			**812,039,623.4300**	**813,000,320.64**	**824,711,436.01**	**92.59**	**11,711,115.37**
Grand Total			**878,029,499.9100**	**878,969,464.99**	**890,691,472.49**	**100.00**	**11,722,007.50**

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
ACQUISITIONS							
04/01/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	7,360.0600	1.000000	-7,360.06	7,360.06	0.00
04/05/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	216.6200	1.000000	-216.62	216.62	0.00
04/05/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	47,700.3600	1.000000	-47,700.36	47,700.36	0.00
04/09/2021	06417MNK7	PURCHASED PAR VALUE OF BANK NOVA C D 0.220% 4/08/22 /BOFA SECURITIES, INC./FXD INC/3,000,000 PAR VALUE AT 100 %	3,000,000.0000	1.000000	-3,000,000.00	3,000,000.00	0.00
04/12/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	59,062.5000	1.000000	-59,062.50	59,062.50	0.00
04/15/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	779,159.1900	1.000000	-779,159.19	779,159.19	0.00
04/15/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	915.2300	1.000000	-915.23	915.23	0.00
04/16/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	3,021,078.3300	1.000000	-3,021,078.33	3,021,078.33	0.00
04/19/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	98,476.8400	1.000000	-98,476.84	98,476.84	0.00
04/20/2021	4581X0DV7	PURCHASED PAR VALUE OF INTER AMER BK M T N 0.875% 4/20/26 /J.P. MORGAN SECURITIES LLC/13,370,000 PAR VALUE AT 99.542 %	13,370,000.0000	0.995420	-13,308,765.40	13,308,765.40	0.00
04/21/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	2,500,000.0000	1.000000	-2,500,000.00	2,500,000.00	0.00
04/21/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	2,016.6700	1.000000	-2,016.67	2,016.67	0.00
04/21/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	212,210.7600	1.000000	-212,210.76	212,210.76	0.00
04/22/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	43,750.0000	1.000000	-43,750.00	43,750.00	0.00
04/22/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	19,546.8500	1.000000	-19,546.85	19,546.85	0.00
04/23/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	72,000,000.0000	1.000000	-72,000,000.00	72,000,000.00	0.00
04/23/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	30,000,000.0000	1.000000	-30,000,000.00	30,000,000.00	0.00
04/26/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	16,576.5800	1.000000	-16,576.58	16,576.58	0.00
04/26/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	7,437.5300	1.000000	-7,437.53	7,437.53	0.00
04/27/2021	62479MAM5	PURCHASED PAR VALUE OF MUFG BK LTD N Y BRH C P 1/21/22 /MUFG UNION BK NA/MMI/PIMS/IPA/2,000,000 PAR VALUE AT 99.895389 %	2,000,000.0000	0.998954	-1,997,907.78	1,997,907.78	0.00
04/27/2021	62479LUS2	PURCHASED PAR VALUE OF MUFG BK LTD N Y BRH C P 7/26/21 /MUFG UNION BK NA/MMI/PIMS/IPA/12,000,000 PAR VALUE AT 99.975 %	12,000,000.0000	0.999750	-11,997,000.00	11,997,000.00	0.00
04/28/2021	44933LAC7	PURCHASED PAR VALUE OF HYUNDAI AUTO REC 0.00001% 9/15/25 /BARCLAYS CAPITAL INC. FIXED IN/2,100,000 PAR VALUE AT 99.98948 %	2,100,000.0000	0.999895	-2,099,779.08	2,099,779.08	0.00
04/29/2021	21687AYV9	PURCHASED PAR VALUE OF COOPERATIEVE CENTRALE C P 11/29/21 /BOFA SECURITIES, INC./FXD INC/2,000,000 PAR VALUE AT 99.8989445 %	2,000,000.0000	0.998989	-1,997,978.89	1,997,978.89	0.00
04/30/2021	46647PBH8	PURCHASED PAR VALUE OF JPMORGAN CHASE CO 2.005% 3/13/26 /CREDIT SUISSE SECURITIES (USA)/1,000,000 PAR VALUE AT 103.027 %	1,000,000.0000	1.030270	-1,030,270.00	1,030,270.00	0.00
04/30/2021	89114W7M1	PURCHASED PAR VALUE OF TORONTO C D 0.240% 4/28/22 /BOFA SECURITIES, INC./FXD INC/2,000,000 PAR VALUE AT 99.999997 %	2,000,000.0000	1.000000	-1,999,999.94	1,999,999.94	0.00
04/30/2021	912828H86	PURCHASED PAR VALUE OF U S TREASURY NT 1.500% 1/31/22 /J.P. MORGAN SECURITIES LLC/7,500,000 PAR VALUE AT 101.09375 %	7,500,000.0000	1.010938	-7,582,031.25	7,582,031.25	0.00
04/30/2021	912828J43	PURCHASED PAR VALUE OF U S TREASURY NT 1.750% 2/28/22 /J.P. MORGAN SECURITIES LLC/7,500,000 PAR VALUE AT 101.41406253 %	7,500,000.0000	1.014141	-7,606,054.69	7,606,054.69	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
04/30/2021	9128286M7	PURCHASED PAR VALUE OF U S TREASURY NT 2.250% 4/15/22 /WELLS FARGO SECURITIES, LLC/7,500,000 PAR VALUE AT 102.09765627 %	7,500,000.0000	1.020977	-7,657,324.22	7,657,324.22	0.00
04/30/2021	9128286H8	PURCHASED PAR VALUE OF U S TREASURY NT 2.375% 3/15/22 /J.P. MORGAN SECURITIES LLC/7,500,000 PAR VALUE AT 102.02343747 %	7,500,000.0000	1.020234	-7,651,757.81	7,651,757.81	0.00
05/03/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	59,929.3800	1.000000	-59,929.38	59,929.38	0.00
05/04/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	423.1200	1.000000	-423.12	423.12	0.00
05/04/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	429.1300	1.000000	-429.13	429.13	0.00
05/06/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	1,171,458.7500	1.000000	-1,171,458.75	1,171,458.75	0.00
05/06/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	11,062.5000	1.000000	-11,062.50	11,062.50	0.00
05/07/2021	912828Z60	PURCHASED PAR VALUE OF U S TREASURY NT 1.375% 1/31/22 /NOMURA SECURITIES INTERNATIONA/10,000,000 PAR VALUE AT 100.9726563 %	10,000,000.0000	1.009727	-10,097,265.63	10,097,265.63	0.00
05/07/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	20,064.2400	1.000000	-20,064.24	20,064.24	0.00
05/10/2021	14913Q2T5	PURCHASED PAR VALUE OF CATERPILLAR FINL MTN 2.950% 2/26/22 /MORGAN STANLEY & CO. LLC/2,000,000 PAR VALUE AT 102.185 %	2,000,000.0000	1.021850	-2,043,700.00	2,043,700.00	0.00
05/11/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	3,322,025.0000	1.000000	-3,322,025.00	3,322,025.00	0.00
05/12/2021	023135BW5	PURCHASED PAR VALUE OF AMAZON COM INC 0.450% 5/12/24 /J.P. MORGAN SECURITIES LLC/5,490,000 PAR VALUE AT 99.854 %	5,490,000.0000	0.998540	-5,481,984.60	5,481,984.60	0.00
05/17/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	2,000,000.0000	1.000000	-2,000,000.00	2,000,000.00	0.00
05/17/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	27,500.0000	1.000000	-27,500.00	27,500.00	0.00
05/17/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	3,846,861.7000	1.000000	-3,846,861.70	3,846,861.70	0.00
05/17/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	1,085.3300	1.000000	-1,085.33	1,085.33	0.00
05/18/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	84,917.8400	1.000000	-84,917.84	84,917.84	0.00
05/18/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	95,500.0000	1.000000	-95,500.00	95,500.00	0.00
05/19/2021	65558UBJ0	PURCHASED PAR VALUE OF NORDEA BK ABP C D 0.210% 5/16/22 /WELLS FARGO SECURITIES, LLC/3,000,000 PAR VALUE AT 100.01002967 %	3,000,000.0000	1.000100	-3,000,300.89	3,000,300.89	0.00
05/19/2021	65558UBJ0	PURCHASED PAR VALUE OF NORDEA BK ABP C D 0.210% 5/16/22 /WELLS FARGO SECURITIES, LLC/7,000,000 PAR VALUE AT 100.01002957 %	7,000,000.0000	1.000100	-7,000,702.07	7,000,702.07	0.00
05/20/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	1,171.5400	1.000000	-1,171.54	1,171.54	0.00
05/21/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	1,407,506.2500	1.000000	-1,407,506.25	1,407,506.25	0.00
05/21/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	178,791.3300	1.000000	-178,791.33	178,791.33	0.00
05/24/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	1,000,005.0000	1.000000	-1,000,005.00	1,000,005.00	0.00
05/24/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	6,875.0000	1.000000	-6,875.00	6,875.00	0.00
05/25/2021	89233HAU8	PURCHASED PAR VALUE OF TOYOTA MTR CR CORP DISC C P 1/28/22 /DBTC AMERICAS/COMMERCIAL PAPER/4,000,000 PAR VALUE AT 99.89666675 %	4,000,000.0000	0.998967	-3,995,866.67	3,995,866.67	0.00
05/25/2021	912828ZM5	PURCHASED PAR VALUE OF U S TREASURY NT 0.125% 4/30/22 /WELLS FARGO SECURITIES, LLC/7,500,000 PAR VALUE AT 100.0742188 %	7,500,000.0000	1.000742	-7,505,566.41	7,505,566.41	0.00
05/25/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	25,224.4900	1.000000	-25,224.49	25,224.49	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
05/27/2021	912828ZM5	PURCHASED PAR VALUE OF U S TREASURY NT 0.125% 4/30/22 /J.P. MORGAN SECURITIES LLC/7,500,000 PAR VALUE AT 100.07031253 %	7,500,000.0000	1.000703	-7,505,273.44	7,505,273.44	0.00
05/28/2021	91282CBT7	PURCHASED PAR VALUE OF U S TREASURY NT 0.750% 3/31/26 /J.P. MORGAN SECURITIES LLC/3,000,000 PAR VALUE AT 99.87109367 %	3,000,000.0000	0.998711	-2,996,132.81	2,996,132.81	0.00
06/01/2021	61747YEA9	PURCHASED PAR VALUE OF MORGAN STANLEY 0.790% 5/30/25 /MORGAN STANLEY & CO. LLC/4,735,000 PAR VALUE AT 100 %	4,735,000.0000	1.000000	-4,735,000.00	4,735,000.00	0.00
06/01/2021	61747YEA9	PURCHASED PAR VALUE OF MORGAN STANLEY 0.790% 5/30/25 /WELLS FARGO SECURITIES, LLC/2,075,000 PAR VALUE AT 100.109 %	2,075,000.0000	1.001090	-2,077,261.75	2,077,261.75	0.00
06/01/2021	61747YEA9	PURCHASED PAR VALUE OF MORGAN STANLEY 0.790% 5/30/25 /WELLS FARGO SECURITIES, LLC/2,075,000 PAR VALUE AT 100.118 %	2,075,000.0000	1.001180	-2,077,448.50	2,077,448.50	0.00
06/02/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	571.9800	1.000000	-571.98	571.98	0.00
06/02/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	410.8300	1.000000	-410.83	410.83	0.00
06/08/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	256,250.0000	1.000000	-256,250.00	256,250.00	0.00
06/09/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	81,250.0000	1.000000	-81,250.00	81,250.00	0.00
06/10/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	14,375.0000	1.000000	-14,375.00	14,375.00	0.00
06/11/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	4,037,500.0000	1.000000	-4,037,500.00	4,037,500.00	0.00
06/14/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	199,456.2500	1.000000	-199,456.25	199,456.25	0.00
06/15/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	325,339.2600	1.000000	-325,339.26	325,339.26	0.00
06/15/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	39,403.0100	1.000000	-39,403.01	39,403.01	0.00
06/16/2021	44891VAC5	PURCHASED PAR VALUE OF HYUNDAI AUTO LEASE 0.330% 6/17/24 /BOFA SECURITIES, INC./FXD INC/4,155,000 PAR VALUE AT 99.985 %	4,155,000.0000	0.999850	-4,154,376.75	4,154,376.75	0.00
06/16/2021	61744YAH1	PURCHASED PAR VALUE OF MORGAN STANLEY 2.750% 5/19/22 /TD SECURITIES (USA)/2,000,000 PAR VALUE AT 102.363 %	2,000,000.0000	1.023630	-2,047,260.00	2,047,260.00	0.00
06/16/2021	91324PEC2	PURCHASED PAR VALUE OF UNITEDHEALTH 1.150% 5/15/26 /MORGAN STANLEY & CO. LLC/1,180,000 PAR VALUE AT 100.333 %	1,180,000.0000	1.003330	-1,183,929.40	1,183,929.40	0.00
06/16/2021	91324PEC2	PURCHASED PAR VALUE OF UNITEDHEALTH 1.150% 5/15/26 /MORGAN STANLEY & CO. LLC/240,000 PAR VALUE AT 100.333 %	240,000.0000	1.003330	-240,799.20	240,799.20	0.00
06/17/2021	91324PEC2	PURCHASED PAR VALUE OF UNITEDHEALTH 1.150% 5/15/26 /BOFA SECURITIES, INC./575,000 PAR VALUE AT 100.305 %	575,000.0000	1.003050	-576,753.75	576,753.75	0.00
06/17/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	1,648,792.4500	1.000000	-1,648,792.45	1,648,792.45	0.00
06/17/2021	91324PEC2	PURCHASE-REV PAR VALUE OF UNITEDHEALTH 1.150% 5/15/26 /MORGAN STANLEY & CO. LLC/240,000 PAR VALUE AT 100.333 %	-240,000.0000	-1.003330	240,799.20	-240,799.20	0.00
06/18/2021	02665WDF5	PURCHASED PAR VALUE OF AMERICAN HONDA MTN 1.950% 5/20/22 /BOFA SECURITIES, INC./FXD INC/2,000,000 PAR VALUE AT 101.639 %	2,000,000.0000	1.016390	-2,032,780.00	2,032,780.00	0.00
06/18/2021	89236TJK2	PURCHASED PAR VALUE OF TOYOTA MTR CR MTN 1.125% 6/18/26 /CITIGROUP GLOBAL MARKETS INC./7,285,000 PAR VALUE AT 99.956 %	7,285,000.0000	0.999560	-7,281,794.60	7,281,794.60	0.00
06/21/2021	91282CCF6	PURCHASED PAR VALUE OF U S TREASURY NT 0.750% 5/31/26 /CITIGROUP GLOBAL MARKETS INC./7,500,000 PAR VALUE AT 99.25 %	7,500,000.0000	0.992500	-7,443,750.00	7,443,750.00	0.00
06/21/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	403,569.2400	1.000000	-403,569.24	403,569.24	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
06/22/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	7,603,125.0000	1.000000	-7,603,125.00	7,603,125.00	0.00
06/23/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	3,018,196.1900	1.000000	-3,018,196.19	3,018,196.19	0.00
06/24/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	55,842.5000	1.000000	-55,842.50	55,842.50	0.00
06/25/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	34,277.5300	1.000000	-34,277.53	34,277.53	0.00
06/28/2021	06051GJD2	PURCHASED PAR VALUE OF BANK AMER CORP MTN 1.319% 6/19/26 /BOFA SECURITIES, INC./FXD INC/2,250,000 PAR VALUE AT 100.197 %	2,250,000.0000	1.001970	-2,254,432.50	2,254,432.50	0.00
06/28/2021	912796M22	PURCHASED PAR VALUE OF U S TREASURY BILL 10/05/21 /WELLS FARGO SECURITIES, LLC/5,500,000 PAR VALUE AT 99.98735 %	5,500,000.0000	0.999874	-5,499,304.25	5,499,304.25	0.00
06/29/2021	58769KAD6	PURCHASED PAR VALUE OF MERCEDES BENZ AUTO 0.400% 11/15/24 /J.P. MORGAN SECURITIES LLC/3,315,000 PAR VALUE AT 99.99245008 %	3,315,000.0000	0.999925	-3,314,749.72	3,314,749.72	0.00
06/30/2021	06417MQL2	PURCHASED PAR VALUE OF BANK NOVA C D 0.200% 6/23/22 /PERSHING LLC/5,000,000 PAR VALUE AT 99.9999922 %	5,000,000.0000	1.000000	-4,999,999.61	4,999,999.61	0.00
06/30/2021	912828Z60	PURCHASED PAR VALUE OF U S TREASURY NT 1.375% 1/31/22 /NOMURA SECURITIES INTERNATIONA/10,000,000 PAR VALUE AT 100.7734375 %	10,000,000.0000	1.007734	-10,077,343.75	10,077,343.75	0.00
06/30/2021	31846V567	PURCHASED UNITS OF FIRST AM GOVT OB FD CL Z	54,391,250.0000	1.000000	-54,391,250.00	54,391,250.00	0.00
TOTAL ACQUISITIONS			**370,790,947.3600**		**-371,497,793.52**	**371,497,793.52**	**0.00**
DISPOSITIONS							
04/09/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-3,000,000.0000	1.000000	3,000,000.00	-3,000,000.00	0.00
04/15/2021	31348SWZ3	PAID DOWN PAR VALUE OF F H L M C #786064 2.262% 1/01/28 MARCH FHLMC DUE 4/15/21	-20.5200	0.000000	20.52	-20.02	0.50
04/15/2021	3133TCE95	PAID DOWN PAR VALUE OF F H L M C MLTCL MTG 3.870% 8/15/32	-47.7000	0.000000	47.70	-47.75	-0.05
04/15/2021	43815NAB0	PAID DOWN PAR VALUE OF HONDA AUTO 1.900% 4/15/22	-284,356.9600	0.000000	284,356.96	-284,337.05	19.91
04/15/2021	47788EAC2	PAID DOWN PAR VALUE OF JOHN DEERE OWNER 3.080% 11/15/22	-271,979.7700	0.000000	271,979.77	-271,959.15	20.62
04/15/2021	65479GAD1	PAID DOWN PAR VALUE OF NISSAN AUTO 3.060% 3/15/23	-202,692.0200	0.000000	202,692.02	-202,685.45	6.57
04/16/2021	68389XBK0	SOLD PAR VALUE OF ORACLE CORP 1.900% 9/15/21 /GOLDMAN SACHS & CO. LLC/3,000,000 PAR VALUE AT 100.539 %	-3,000,000.0000	1.005390	3,016,170.00	-2,892,240.00	123,930.00
04/19/2021	43814UAG4	PAID DOWN PAR VALUE OF HONDA AUTO 3.010% 5/18/22	-96,590.7400	0.000000	96,590.74	-96,588.64	2.10
04/20/2021	36225CAZ9	PAID DOWN PAR VALUE OF G N M A I I #080023 2.125% 12/20/26 MARCH GNMA DUE 4/20/21	-427.9500	0.000000	427.95	-435.02	-7.07
04/20/2021	36225CC20	PAID DOWN PAR VALUE OF G N M A I I #080088 2.875% 6/20/27 MARCH GNMA DUE 4/20/21	-461.3800	0.000000	461.38	-471.47	-10.09
04/20/2021	36225CNM4	PAID DOWN PAR VALUE OF G N M A I I #080395 2.875% 4/20/30 MARCH GNMA DUE 4/20/21	-38.9400	0.000000	38.94	-38.59	0.35
04/20/2021	36225CN28	PAID DOWN PAR VALUE OF G N M A I I #080408 2.875% 5/20/30 MARCH GNMA DUE 4/20/21	-295.4300	0.000000	295.43	-292.43	3.00
04/20/2021	36225DCB8	PAID DOWN PAR VALUE OF G N M A I I #080965 2.250% 7/20/34 MARCH GNMA DUE 4/20/21	-174.9800	0.000000	174.98	-174.87	0.11
04/20/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-13,307,180.5200	1.000000	13,307,180.52	-13,307,180.52	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
04/21/2021	55380TMD9	MATURED PAR VALUE OF MUFG BK LTD N Y C D 0.240% 4/21/21 2,500,000 PAR VALUE AT 100 %	-2,500,000.0000	1.000000	2,500,000.00	-2,500,000.00	0.00
04/21/2021	43815HAC1	PAID DOWN PAR VALUE OF HONDA AUTO 2.950% 8/22/22	-208,879.2100	0.000000	208,879.21	-208,850.55	28.66
04/26/2021	31394JY35	PAID DOWN PAR VALUE OF F H L M C MLTCL MTG 6.500% 9/25/43	-4,596.2800	0.000000	4,596.28	-5,205.29	-609.01
04/26/2021	31371NUC7	PAID DOWN PAR VALUE OF F N M A #257179 4.500% 4/01/28 MARCH DUE 4/25/21 FNMA	-112.5600	0.000000	112.56	-119.04	-6.48
04/26/2021	31376KT22	PAID DOWN PAR VALUE OF F N M A #357969 5.000% 9/01/35 MARCH DUE 4/25/21 FNMA	-1,969.3500	0.000000	1,969.35	-2,117.05	-147.70
04/26/2021	31403DJZ3	PAID DOWN PAR VALUE OF F N M A #745580 5.000% 6/01/36 MARCH DUE 4/25/21 FNMA	-1,285.4100	0.000000	1,285.41	-1,381.82	-96.41
04/26/2021	31403GXF4	PAID DOWN PAR VALUE OF F N M A #748678 5.000% 10/01/33 MARCH DUE 4/25/21 FNMA	-254.6700	0.000000	254.67	-273.77	-19.10
04/26/2021	31406PQY8	PAID DOWN PAR VALUE OF F N M A #815971 5.000% 3/01/35 MARCH DUE 4/25/21 FNMA	-468.8300	0.000000	468.83	-503.99	-35.16
04/26/2021	31406XWT5	PAID DOWN PAR VALUE OF F N M A #823358 2.035% 2/01/35 MARCH DUE 4/25/21 FNMA	-462.4000	0.000000	462.40	-458.79	3.61
04/26/2021	31407BXH7	PAID DOWN PAR VALUE OF F N M A #826080 5.000% 7/01/35 MARCH DUE 4/25/21 FNMA	-597.5100	0.000000	597.51	-642.32	-44.81
04/26/2021	31410F4V4	PAID DOWN PAR VALUE OF F N M A #888336 5.000% 7/01/36 MARCH DUE 4/25/21 FNMA	-4,055.0700	0.000000	4,055.07	-4,359.20	-304.13
04/26/2021	3138EG6F6	PAID DOWN PAR VALUE OF F N M A #AL0869 4.500% 6/01/29 MARCH DUE 4/25/21 FNMA	-158.0700	0.000000	158.07	-167.18	-9.11
04/26/2021	31417YAY3	PAID DOWN PAR VALUE OF F N M A #MA0022 4.500% 4/01/29 MARCH DUE 4/25/21 FNMA	-371.0200	0.000000	371.02	-392.39	-21.37
04/26/2021	31397QRE0	PAID DOWN PAR VALUE OF F N M A GTD REMIC 2.472% 2/25/41	-4,594.4600	0.000000	4,594.46	-4,593.02	1.44
04/26/2021	78445JAA5	PAID DOWN PAR VALUE OF S L M A 1.73684% 4/25/23	-338.8000	0.000000	338.80	-337.43	1.37
04/27/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-1,997,907.7800	1.000000	1,997,907.78	-1,997,907.78	0.00
04/27/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-11,997,000.0000	1.000000	11,997,000.00	-11,997,000.00	0.00
04/28/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,062,279.0800	1.000000	2,062,279.08	-2,062,279.08	0.00
04/29/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-1,997,978.8900	1.000000	1,997,978.89	-1,997,978.89	0.00
04/30/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-32,575,791.1400	1.000000	32,575,791.14	-32,575,791.14	0.00
04/30/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-972,887.6400	1.000000	972,887.64	-972,887.64	0.00
05/06/2021	037833AR1	MATURED PAR VALUE OF APPLE INC 2.850% 5/06/21 1,155,000 PAR VALUE AT 100 %	-1,155,000.0000	1.000000	1,155,000.00	-1,182,327.30	-27,327.30
05/07/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-10,133,729.7200	1.000000	10,133,729.72	-10,133,729.72	0.00
05/10/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,055,827.7800	1.000000	2,055,827.78	-2,055,827.78	0.00
05/11/2021	369550BE7	MATURED PAR VALUE OF GENERAL DYNAMICS 3.000% 5/11/21 3,160,000 PAR VALUE AT 100 %	-3,160,000.0000	1.000000	3,160,000.00	-3,138,038.00	21,962.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
05/12/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-5,481,984.6000	1.000000	5,481,984.60	-5,481,984.60	0.00
05/17/2021	166764BG4	MATURED PAR VALUE OF CHEVRON CORP 2.100% 5/16/21 2,500,000 PAR VALUE AT 100 %	-2,500,000.0000	1.000000	2,500,000.00	-2,485,350.00	14,650.00
05/17/2021	89236TBJ3	MATURED PAR VALUE OF TOYOTA MOTOR MTN 2.750% 5/17/21 2,000,000 PAR VALUE AT 100 %	-2,000,000.0000	1.000000	2,000,000.00	-2,025,350.00	-25,350.00
05/17/2021	913366EJ5	MATURED PAR VALUE OF UNIV OF CALIFORNIA 5.035% 5/15/21 400,000 PAR VALUE AT 100 %	-400,000.0000	1.000000	400,000.00	-400,000.00	0.00
05/17/2021	31348SWZ3	PAID DOWN PAR VALUE OF F H L M C #786064 2.262% 1/01/28 APRIL FHLMC DUE 5/15/21	-20.6500	0.000000	20.65	-20.15	0.50
05/17/2021	3133TCE95	PAID DOWN PAR VALUE OF F H L M C MLTCL MTG 3.865% 8/15/32	-88.4500	0.000000	88.45	-88.54	-0.09
05/17/2021	43815NAB0	PAID DOWN PAR VALUE OF HONDA AUTO 1.900% 4/15/22	-254,286.5200	0.206376	254,286.52	-254,268.72	17.80
05/17/2021	47788EAC2	PAID DOWN PAR VALUE OF JOHN DEERE OWNER 3.080% 11/15/22	-311,787.8100	0.168315	311,787.81	-311,764.18	23.63
05/17/2021	65479GAD1	PAID DOWN PAR VALUE OF NISSAN AUTO 3.060% 3/15/23	-178,385.4400	0.294186	178,385.44	-178,379.66	5.78
05/18/2021	43814UAG4	PAID DOWN PAR VALUE OF HONDA AUTO 3.010% 5/18/22	-83,274.0200	0.000000	83,274.02	-83,272.20	1.82
05/19/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-3,000,388.3900	1.000000	3,000,388.39	-3,000,388.39	0.00
05/19/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-7,000,906.2400	1.000000	7,000,906.24	-7,000,906.24	0.00
05/20/2021	36225CAZ9	PAID DOWN PAR VALUE OF G N M A I I #080023 2.125% 12/20/26 APRIL GNMA DUE 5/20/21	-168.0000	0.000000	168.00	-170.78	-2.78
05/20/2021	36225CC20	PAID DOWN PAR VALUE OF G N M A I I #080088 2.875% 6/20/27 APRIL GNMA DUE 5/20/21	-225.6400	0.000000	225.64	-230.58	-4.94
05/20/2021	36225CNM4	PAID DOWN PAR VALUE OF G N M A I I #080395 2.875% 4/20/30 APRIL GNMA DUE 5/20/21	-49.4100	0.000000	49.41	-48.96	0.45
05/20/2021	36225CN28	PAID DOWN PAR VALUE OF G N M A I I #080408 2.875% 5/20/30 APRIL GNMA DUE 5/20/21	-293.4300	0.000000	293.43	-290.45	2.98
05/20/2021	36225DCB8	PAID DOWN PAR VALUE OF G N M A I I #080965 2.250% 7/20/34 APRIL GNMA DUE 5/20/21	-251.8500	0.000000	251.85	-251.69	0.16
05/21/2021	808513AW5	MATURED PAR VALUE OF CHARLES SCHWAB CORP 3.250% 5/21/21 1,385,000 PAR VALUE AT 100 %	-1,385,000.0000	1.000000	1,385,000.00	-1,419,472.65	-34,472.65
05/21/2021	43815HAC1	PAID DOWN PAR VALUE OF HONDA AUTO 2.950% 8/22/22	-175,973.2700	3.933550	175,973.27	-175,949.13	24.14
05/24/2021	459058FH1	MATURED PAR VALUE OF INTL BK 1.375% 5/24/21 1,000,000 PAR VALUE AT 100 %	-1,000,000.0000	1.000000	1,000,000.00	-1,010,570.00	-10,570.00
05/24/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-94.4900	1.000000	94.49	-94.49	0.00
05/25/2021	31394JY35	PAID DOWN PAR VALUE OF F H L M C MLTCL MTG 6.500% 9/25/43	-6,832.8200	0.000000	6,832.82	-7,738.17	-905.35
05/25/2021	31371NUC7	PAID DOWN PAR VALUE OF F N M A #257179 4.500% 4/01/28 APRIL FNMA DUE 5/25/21	-113.6300	0.000000	113.63	-120.17	-6.54
05/25/2021	31376KT22	PAID DOWN PAR VALUE OF F N M A #357969 5.000% 9/01/35 APRIL FNMA DUE 5/25/21	-1,547.6400	0.000000	1,547.64	-1,663.71	-116.07
05/25/2021	31403DJZ3	PAID DOWN PAR VALUE OF F N M A #745580 5.000% 6/01/36 APRIL FNMA DUE 5/25/21	-2,086.8200	0.000000	2,086.82	-2,243.33	-156.51

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
05/25/2021	31403GXF4	PAID DOWN PAR VALUE OF F N M A #748678 5.000% 10/01/33 APRIL FNMA DUE 5/25/21	-3.9400	0.000000	3.94	-4.24	-0.30
05/25/2021	31406PQY8	PAID DOWN PAR VALUE OF F N M A #815971 5.000% 3/01/35 APRIL FNMA DUE 5/25/21	-490.5800	0.000000	490.58	-527.37	-36.79
05/25/2021	31406XWT5	PAID DOWN PAR VALUE OF F N M A #823358 2.035% 2/01/35 APRIL FNMA DUE 5/25/21	-512.8800	0.000000	512.88	-508.87	4.01
05/25/2021	31407BXH7	PAID DOWN PAR VALUE OF F N M A #826080 5.000% 7/01/35 APRIL FNMA DUE 5/25/21	-141.1600	0.000000	141.16	-151.75	-10.59
05/25/2021	31410F4V4	PAID DOWN PAR VALUE OF F N M A #888336 5.000% 7/01/36 APRIL FNMA DUE 5/25/21	-4,099.5600	0.000000	4,099.56	-4,407.03	-307.47
05/25/2021	3138EG6F6	PAID DOWN PAR VALUE OF F N M A #AL0869 4.500% 6/01/29 APRIL FNMA DUE 5/25/21	-181.9100	0.000000	181.91	-192.39	-10.48
05/25/2021	31417YAY3	PAID DOWN PAR VALUE OF F N M A #MA0022 4.500% 4/01/29 APRIL FNMA DUE 5/25/21	-223.9800	0.000000	223.98	-236.88	-12.90
05/25/2021	31397QRE0	PAID DOWN PAR VALUE OF F N M A GTD REMIC 2.472% 2/25/41	-4,242.3700	0.000000	4,242.37	-4,241.04	1.33
05/25/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-7,506,203.3000	1.000000	7,506,203.30	-7,506,203.30	0.00
05/25/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-3,995,866.6700	1.000000	3,995,866.67	-3,995,866.67	0.00
05/27/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-7,505,961.2800	1.000000	7,505,961.28	-7,505,961.28	0.00
05/28/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,999,698.3800	1.000000	2,999,698.38	-2,999,698.38	0.00
06/01/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-8,339,397.7500	1.000000	8,339,397.75	-8,339,397.75	0.00
06/11/2021	313379RB7	MATURED PAR VALUE OF F H L B DEB 1.875% 6/11/21 4,000,000 PAR VALUE AT 100 %	-4,000,000.0000	1.000000	4,000,000.00	-4,030,160.00	-30,160.00
06/15/2021	31348SWZ3	PAID DOWN PAR VALUE OF F H L M C #786064 2.262% 1/01/28 MAY FHLMC DUE 6/15/21	-29.2600	0.000000	29.26	-28.55	0.71
06/15/2021	3133TCE95	PAID DOWN PAR VALUE OF F H L M C MLTCL MTG 3.855% 8/15/32	-53.9500	0.000000	53.95	-54.01	-0.06
06/15/2021	43815NAB0	PAID DOWN PAR VALUE OF HONDA AUTO 1.900% 4/15/22 CMO FINAL PAYDOWN	-39,403.0100	0.000000	39,403.01	-39,400.25	2.76
06/15/2021	47788EAC2	PAID DOWN PAR VALUE OF JOHN DEERE OWNER 3.080% 11/15/22	-139,112.0500	0.000000	139,112.05	-139,101.51	10.54
06/15/2021	65479GAD1	PAID DOWN PAR VALUE OF NISSAN AUTO 3.060% 3/15/23	-163,987.7700	0.000000	163,987.77	-163,982.46	5.31
06/16/2021	912828T34	SOLD PAR VALUE OF U S TREASURY NT 1.125% 9/30/21 /CITIGROUP GLOBAL MARKETS INC./1,600,000 PAR VALUE AT 100.3203125 %	-1,600,000.0000	1.003203	1,605,125.00	-1,557,880.36	47,244.64
06/16/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,051,385.0000	1.000000	2,051,385.00	-2,051,385.00	0.00
06/16/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-1,184,947.1500	1.000000	1,184,947.15	-1,184,947.15	0.00
06/16/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,786,471.0600	1.000000	2,786,471.06	-2,786,471.06	0.00
06/17/2021	912828T34	SOLD PAR VALUE OF U S TREASURY NT 1.125% 9/30/21 /CITIGROUP GLOBAL MARKETS INC./1,400,000 PAR VALUE AT 100.31640643 %	-1,400,000.0000	1.003164	1,404,429.69	-1,363,145.32	41,284.37
06/17/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-552,505.5600	1.000000	552,505.56	-552,505.56	0.00
06/18/2021	43814UAG4	PAID DOWN PAR VALUE OF HONDA AUTO 3.010% 5/18/22	-77,108.2300	0.000000	77,108.23	-77,106.55	1.68

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
06/18/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,035,813.3300	1.000000	2,035,813.33	-2,035,813.33	0.00
06/18/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-7,203,251.4300	1.000000	7,203,251.43	-7,203,251.43	0.00
06/21/2021	36225CAZ9	PAID DOWN PAR VALUE OF G N M A I I #080023 2.125% 12/20/26 MAY 6/20/21 GNMA DUE	-184.9000	0.000000	184.90	-187.95	-3.05
06/21/2021	36225CC20	PAID DOWN PAR VALUE OF G N M A I I #080088 2.875% 6/20/27 MAY 6/20/21 GNMA DUE	-116.1300	0.000000	116.13	-118.67	-2.54
06/21/2021	36225CNM4	PAID DOWN PAR VALUE OF G N M A I I #080395 2.875% 4/20/30 MAY 6/20/21 GNMA DUE	-34.9100	0.000000	34.91	-34.59	0.32
06/21/2021	36225CN28	PAID DOWN PAR VALUE OF G N M A I I #080408 2.875% 5/20/30 MAY 6/20/21 GNMA DUE	-294.1300	0.000000	294.13	-291.14	2.99
06/21/2021	36225DCB8	PAID DOWN PAR VALUE OF G N M A I I #080965 2.250% 7/20/34 MAY 6/20/21 GNMA DUE	-940.4600	0.000000	940.46	-939.87	0.59
06/21/2021	43815HAC1	PAID DOWN PAR VALUE OF HONDA AUTO 2.950% 8/22/22	-164,296.7000	0.000000	164,296.70	-164,274.16	22.54
06/21/2021	912828T34	SOLD PAR VALUE OF U S TREASURY NT 1.125% 9/30/21 /NOMURA SECURITIES INTERNATIONA/1,500,000 PAR VALUE AT 100.29687533 %	-1,500,000.0000	1.002969	1,504,453.13	-1,438,833.15	65,619.98
06/21/2021	912828T67	SOLD PAR VALUE OF U S TREASURY NT 1.250% 10/31/21 /J.P. MORGAN SECURITIES LLC/6,000,000 PAR VALUE AT 100.4296875 %	-6,000,000.0000	1.004297	6,025,781.25	-5,813,691.98	212,089.27
06/22/2021	3135G0U35	MATURED PAR VALUE OF F N M A 2.750% 6/22/21 7,500,000 PAR VALUE AT 100 %	-7,500,000.0000	1.000000	7,500,000.00	-7,515,225.00	-15,225.00
06/23/2021	912828T34	SOLD PAR VALUE OF U S TREASURY NT 1.125% 9/30/21 /WELLS FARGO SECURITIES, LLC/2,500,000 PAR VALUE AT 100.2968752 %	-2,500,000.0000	1.002969	2,507,421.88	-2,398,055.25	109,366.63
06/23/2021	912828U65	SOLD PAR VALUE OF U S TREASURY NT 1.750% 11/30/21 /J.P. MORGAN SECURITIES LLC/500,000 PAR VALUE AT 100.753906 %	-500,000.0000	1.007539	503,769.53	-492,892.30	10,877.23
06/25/2021	31394JY35	PAID DOWN PAR VALUE OF F H L M C MLTCL MTG 6.500% 9/25/43	-12,437.0300	0.000000	12,437.03	-14,084.94	-1,647.91
06/25/2021	31371NUC7	PAID DOWN PAR VALUE OF F N M A #257179 4.500% 4/01/28 MAY 6/25/21 FNMA DUE	-113.3900	0.000000	113.39	-119.92	-6.53
06/25/2021	31376KT22	PAID DOWN PAR VALUE OF F N M A #357969 5.000% 9/01/35 MAY 6/25/21 FNMA DUE	-1,820.6300	0.000000	1,820.63	-1,957.18	-136.55
06/25/2021	31403DJZ3	PAID DOWN PAR VALUE OF F N M A #745580 5.000% 6/01/36 MAY 6/25/21 FNMA DUE	-1,895.3300	0.000000	1,895.33	-2,037.48	-142.15
06/25/2021	31403GXF4	PAID DOWN PAR VALUE OF F N M A #748678 5.000% 10/01/33 MAY 6/25/21 FNMA DUE	-3.9600	0.000000	3.96	-4.26	-0.30
06/25/2021	31406PQY8	PAID DOWN PAR VALUE OF F N M A #815971 5.000% 3/01/35 MAY 6/25/21 FNMA DUE	-3,151.0000	0.000000	3,151.00	-3,387.33	-236.33
06/25/2021	31406XWT5	PAID DOWN PAR VALUE OF F N M A #823358 2.035% 2/01/35 MAY 6/25/21 FNMA DUE	-483.9200	0.000000	483.92	-480.14	3.78
06/25/2021	31407BXH7	PAID DOWN PAR VALUE OF F N M A #826080 5.000% 7/01/35 MAY 6/25/21 FNMA DUE	-191.6900	0.000000	191.69	-206.07	-14.38
06/25/2021	31410F4V4	PAID DOWN PAR VALUE OF F N M A #888336 5.000% 7/01/36 MAY 6/25/21 FNMA DUE	-5,481.7900	0.000000	5,481.79	-5,892.92	-411.13

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
06/25/2021	3138EG6F6	PAID DOWN PAR VALUE OF F N M A #AL0869 4.500% 6/01/29 MAY FNMA DUE 6/25/21	-251.0800	0.000000	251.08	-265.54	-14.46
06/25/2021	31417YAY3	PAID DOWN PAR VALUE OF F N M A #MA0022 4.500% 4/01/29 MAY FNMA DUE 6/25/21	-199.7600	0.000000	199.76	-211.27	-11.51
06/25/2021	31397QRE0	PAID DOWN PAR VALUE OF F N M A GTD REMIC 2.472% 2/25/41	-3,579.6300	0.000000	3,579.63	-3,578.51	1.12
06/28/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-5,499,304.2500	1.000000	5,499,304.25	-5,499,304.25	0.00
06/28/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-2,174,586.4400	1.000000	2,174,586.44	-2,174,586.44	0.00
06/29/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-3,314,749.7200	1.000000	3,314,749.72	-3,314,749.72	0.00
06/30/2021	912828S27	MATURED PAR VALUE OF U S TREASURY NT 1.125% 6/30/21 27,000,000 PAR VALUE AT 100 %	-27,000,000.0000	1.000000	27,000,000.00	-27,141,328.14	-141,328.14
06/30/2021	9128287A2	MATURED PAR VALUE OF U S TREASURY NT 1.625% 6/30/21 19,000,000 PAR VALUE AT 100 %	-19,000,000.0000	1.000000	19,000,000.00	-19,180,937.51	-180,937.51
06/30/2021	912828WR7	MATURED PAR VALUE OF U S TREASURY NT 2.125% 6/30/21 8,000,000 PAR VALUE AT 100 %	-8,000,000.0000	1.000000	8,000,000.00	-8,118,398.44	-118,398.44
06/30/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-40,134,318.8900	1.000000	40,134,318.89	-40,134,318.89	0.00
06/30/2021	31846V567	SOLD UNITS OF FIRST AM GOVT OB FD CL Z	-4,834,569.0500	1.000000	4,834,569.05	-4,834,569.05	0.00
TOTAL DISPOSITIONS			**-296,528,668.0500**		**296,595,818.53**	**-296,537,848.47**	**57,970.06**
OTHER TRANSACTIONS							
04/01/2021	31846V567	INTEREST EARNED ON FIRST AM GOVT OB FD CL Z UNIT ON 0.0000 SHARES DUE 3/31/2021 INTEREST FROM 3/1/21 TO 3/31/21	0.0000	0.000000	216.62	0.00	0.00
04/01/2021	31846V567	INTEREST EARNED ON FIRST AM GOVT OB FD CL Z UNIT ON 0.0000 SHARES DUE 3/31/2021 INTEREST FROM 3/1/21 TO 3/31/21	0.0000	0.000000	825.36	0.00	0.00
04/01/2021	525ESC0Y6	Unknown LEHMAN BRTH HLD ESC PARTIAL LIQUIDATING DISTRIBUTION PAID @ 0.02828/SH	0.0000	0.000000	5,656.95	-5,656.95	0.00
04/01/2021	525ESCIB7	Unknown LEHMAN BRTH MTN ES 0.00001% 1/24/13 PARTIAL LIQUIDATING DISTRIBUTION PAID @ 2.84/SHARE	0.0000	0.000000	1,703.11	-1,703.11	0.00
04/05/2021	3135G0T45	INTEREST EARNED ON F N M A 1.875% 4/05/22 $1 PV ON 5000000.0000 SHARES DUE 4/5/2021	0.0000	0.000000	46,875.00	0.00	0.00
04/12/2021	02665WCQ2	INTEREST EARNED ON AMERICAN HONDA MTN 3.625% 10/10/23 $1 PV ON 2000000.0000 SHARES DUE 4/12/2021	0.0000	0.000000	36,250.00	0.00	0.00
04/12/2021	24422EUM9	INTEREST EARNED ON JOHN DEERE MTN 3.650% 10/12/23 $1 PV ON 1250000.0000 SHARES DUE 4/12/2021	0.0000	0.000000	22,812.50	0.00	0.00
04/13/2021	912828WU0	BOOK VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 30784.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
04/13/2021	912828WU0	FED BASIS OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 30784.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	30,784.00	0.00
04/13/2021	912828WU0	PAR VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 30784.0000 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	30,784.0000	0.000000	0.00	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
04/13/2021	912828WU0	STATE COST OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 30784.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
04/15/2021	31348SWZ3	INTEREST EARNED ON F H L M C #786064 2.262% 1/01/28 $1 PV ON 2.8600 SHARES DUE 4/15/2021 FEBRUARY FHLMC DUE 4/15/21	0.0000	0.000000	2.86	0.00	0.00
04/15/2021	3133TCE95	INTEREST EARNED ON F H L M C MLTCL MTG 3.870% 8/15/32 $1 PV ON 13.4600 SHARES DUE 4/15/2021 $0.00323/PV ON 4,173.00 PV DUE 4/15/21	0.0000	0.000000	13.46	0.00	0.00
04/15/2021	43815NAB0	INTEREST EARNED ON HONDA AUTO 1.900% 4/15/22 $1 PV ON 915.2400 SHARES DUE 4/15/2021 $0.00158/PV ON 578,046.49 PV DUE 4/15/21	0.0000	0.000000	915.24	0.00	0.00
04/15/2021	47788UAC6	INTEREST EARNED ON JOHN DEERE OWNER 0.360% 9/15/25 $1 PV ON 915.2300 SHARES DUE 4/15/2021 $0.00040/PV ON 2,300,000.00 PV DUE 4/15/21	0.0000	0.000000	915.23	0.00	0.00
04/15/2021	47787NAC3	INTEREST EARNED ON JOHN DEERE OWNER 0.510% 11/15/24 $1 PV ON 629.0000 SHARES DUE 4/15/2021 $0.00042/PV ON 1,480,000.00 PV DUE 4/15/21	0.0000	0.000000	629.00	0.00	0.00
04/15/2021	47788EAC2	INTEREST EARNED ON JOHN DEERE OWNER 3.080% 11/15/22 $1 PV ON 3232.5200 SHARES DUE 4/15/2021 $0.00257/PV ON 1,259,424.64 PV DUE 4/15/21	0.0000	0.000000	3,232.52	0.00	0.00
04/15/2021	58770FAC6	INTEREST EARNED ON MERCEDES BENZ AUTO 1.840% 12/15/22 $1 PV ON 3143.3300 SHARES DUE 4/15/2021 $0.00153/PV ON 2,050,000.00 PV DUE 4/15/21	0.0000	0.000000	3,143.33	0.00	0.00
04/15/2021	65479JAD5	INTEREST EARNED ON NISSAN AUTO 1.930% 7/15/24 $1 PV ON 6730.8700 SHARES DUE 4/15/2021 $0.00161/PV ON 4,185,000.00 PV DUE 4/15/21	0.0000	0.000000	6,730.87	0.00	0.00
04/15/2021	65479GAD1	INTEREST EARNED ON NISSAN AUTO 3.060% 3/15/23 $1 PV ON 4309.6100 SHARES DUE 4/15/2021 $0.00255/PV ON 1,690,041.70 PV DUE 4/15/21	0.0000	0.000000	4,309.61	0.00	0.00
04/15/2021	89237VAB5	INTEREST EARNED ON TOYOTA AUTO RECV 0.440% 10/15/24 $1 PV ON 1085.3300 SHARES DUE 4/15/2021 $0.00037/PV ON 2,960,000.00 PV DUE 4/15/21	0.0000	0.000000	1,085.33	0.00	0.00
04/16/2021	68389XBK0	RECEIVED ACCRUED INTEREST ON SALE OF ORACLE CORP 1.900% 9/15/21	0.0000	0.000000	4,908.33	0.00	0.00
04/19/2021	43813KAC6	INTEREST EARNED ON HONDA AUTO 0.370% 10/18/24 $1 PV ON 997.4600 SHARES DUE 4/18/2021 $0.00031/PV ON 3,235,000.00 PV DUE 4/18/21	0.0000	0.000000	997.46	0.00	0.00
04/19/2021	43814UAG4	INTEREST EARNED ON HONDA AUTO 3.010% 5/18/22 $1 PV ON 888.6400 SHARES DUE 4/18/2021 $0.00251/PV ON 354,275.17 PV DUE 4/18/21	0.0000	0.000000	888.64	0.00	0.00
04/20/2021	36225CAZ9	INTEREST EARNED ON G N M A I I #080023 2.125% 12/20/26 $1 PV ON 19.2600 SHARES DUE 4/20/2021 MARCH GNMA DUE 4/20/21	0.0000	0.000000	19.26	0.00	0.00
04/20/2021	36225CC20	INTEREST EARNED ON G N M A I I #080088 2.875% 6/20/27 $1 PV ON 20.7000 SHARES DUE 4/20/2021 MARCH GNMA DUE 4/20/21	0.0000	0.000000	20.70	0.00	0.00
04/20/2021	36225CNM4	INTEREST EARNED ON G N M A I I #080395 2.875% 4/20/30 $1 PV ON 10.3300 SHARES DUE 4/20/2021 MARCH GNMA DUE 4/20/21	0.0000	0.000000	10.33	0.00	0.00
04/20/2021	36225CN28	INTEREST EARNED ON G N M A I I #080408 2.875% 5/20/30 $1 PV ON 81.7200 SHARES DUE 4/20/2021 MARCH GNMA DUE 4/20/21	0.0000	0.000000	81.72	0.00	0.00
04/20/2021	36225DCB8	INTEREST EARNED ON G N M A I I #080965 2.250% 7/20/34 $1 PV ON 54.1900 SHARES DUE 4/20/2021 MARCH GNMA DUE 4/20/21	0.0000	0.000000	54.19	0.00	0.00
04/21/2021	43813GAC5	INTEREST EARNED ON HONDA AUTO 0.270% 4/21/25 $1 PV ON 361.1300 SHARES DUE 4/21/2021 $0.00023/PV ON 1,605,000.00 PV DUE 4/21/21	0.0000	0.000000	361.13	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
04/21/2021	43815HAC1	INTEREST EARNED ON HONDA AUTO 2.950% 8/22/22 $1 PV ON 2970.4200 SHARES DUE 4/21/2021 $0.00246/PV ON 1,208,306.69 PV DUE 4/21/21	0.0000	0.000000	2,970.42	0.00	0.00
04/21/2021	55380TMD9	INTEREST EARNED ON MUFG BK LTD N Y C D 0.240% 4/21/21 $1 PV ON 2500000.0000 SHARES DUE 4/21/2021 INTEREST ON 4/21/2021 MATURITY	0.0000	0.000000	2,016.67	0.00	0.00
04/22/2021		CASH RECEIPT INCOMING WIRES WIRE REC'D 4/22/2021	0.0000	0.000000	72,000,000.00	0.00	0.00
04/22/2021		CASH RECEIPT INCOMING WIRES WIRE REC'D 4/22/2021	0.0000	0.000000	30,000,000.00	0.00	0.00
04/22/2021	3135G03U5	INTEREST EARNED ON F N M A DEB 0.625% 4/22/25 $1 PV ON 14000000.0000 SHARES DUE 4/22/2021	0.0000	0.000000	43,750.00	0.00	0.00
04/22/2021	459058JB0	INTEREST EARNED ON INTL BK M T N 0.625% 4/22/25 $1 PV ON 6245000.0000 SHARES DUE 4/22/2021	0.0000	0.000000	19,546.85	0.00	0.00
04/26/2021	31394JY35	INTEREST EARNED ON F H L M C MLTCL MTG 6.500% 9/25/43 $1 PV ON 2951.4800 SHARES DUE 4/25/2021 $0.00542/PV ON 544,889.43 PV DUE 4/25/21	0.0000	0.000000	2,951.48	0.00	0.00
04/26/2021	31371NUC7	INTEREST EARNED ON F N M A #257179 4.500% 4/01/28 $1 PV ON 34.4900 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	34.49	0.00	0.00
04/26/2021	31376KT22	INTEREST EARNED ON F N M A #357969 5.000% 9/01/35 $1 PV ON 308.9000 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	308.90	0.00	0.00
04/26/2021	31403DJZ3	INTEREST EARNED ON F N M A #745580 5.000% 6/01/36 $1 PV ON 278.4800 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	278.48	0.00	0.00
04/26/2021	31403GXF4	INTEREST EARNED ON F N M A #748678 5.000% 10/01/33 $1 PV ON 4.4800 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	4.48	0.00	0.00
04/26/2021	31406PQY8	INTEREST EARNED ON F N M A #815971 5.000% 3/01/35 $1 PV ON 400.1200 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	400.12	0.00	0.00
04/26/2021	31406XWT5	INTEREST EARNED ON F N M A #823358 2.035% 2/01/35 $1 PV ON 121.1900 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	121.19	0.00	0.00
04/26/2021	31407BXH7	INTEREST EARNED ON F N M A #826080 5.000% 7/01/35 $1 PV ON 55.2200 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	55.22	0.00	0.00
04/26/2021	31410F4V4	INTEREST EARNED ON F N M A #888336 5.000% 7/01/36 $1 PV ON 514.4300 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	514.43	0.00	0.00
04/26/2021	3138EG6F6	INTEREST EARNED ON F N M A #AL0869 4.500% 6/01/29 $1 PV ON 24.0000 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	24.00	0.00	0.00
04/26/2021	31417YAY3	INTEREST EARNED ON F N M A #MA0022 4.500% 4/01/29 $1 PV ON 40.1600 SHARES DUE 4/25/2021 MARCH FNMA DUE 4/25/21	0.0000	0.000000	40.16	0.00	0.00
04/26/2021	31397QRE0	INTEREST EARNED ON F N M A GTD REMIC 2.472% 2/25/41 $1 PV ON 81.5500 SHARES DUE 4/25/2021 $0.00066/PV ON 124,094.11 PV DUE 4/25/21	0.0000	0.000000	81.55	0.00	0.00
04/26/2021	47788UAC6	INTEREST EARNED ON JOHN DEERE OWNER 0.360% 9/15/25 $1 PV ON 2300000.0000 SHARES DUE 4/15/2021	0.0000	0.000000	805.00	0.00	0.00
04/26/2021	47788UAC6	INTEREST EARNED ON JOHN DEERE OWNER 0.360% 9/15/25 $1 PV ON 915.2300 SHARES DUE 4/15/2021 RATE REVISION APRIL	0.0000	0.000000	-915.23	0.00	0.00
04/26/2021	78445JAA5	INTEREST EARNED ON S L M A 1.73684% 4/25/23 $1 PV ON 45.4100 SHARES DUE 4/25/2021 $0.00434/PV ON 10,457.45 PV DUE 4/25/21	0.0000	0.000000	45.41	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
04/28/2021	912828WU0	BOOK VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 31408.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
04/28/2021	912828WU0	FED BASIS OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 31408.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	31,408.00	0.00
04/28/2021	459058JL8	INTEREST EARNED ON INTL BK M T N 0.500% 10/28/25 $1 PV ON 15000000.0000 SHARES DUE 4/28/2021	0.0000	0.000000	37,500.00	0.00	0.00
04/28/2021	912828WU0	PAR VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 31408.0000 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	31,408.0000	0.000000	0.00	0.00	0.00
04/28/2021	912828WU0	STATE COST OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 31408.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
04/30/2021	912828ZL7	INTEREST EARNED ON U S TREASURY NT 0.375% 4/30/25 $1 PV ON 12000000.0000 SHARES DUE 4/30/2021	0.0000	0.000000	22,500.00	0.00	0.00
04/30/2021	912828T67	INTEREST EARNED ON U S TREASURY NT 1.250% 10/31/21 $1 PV ON 6000000.0000 SHARES DUE 4/30/2021	0.0000	0.000000	37,500.00	0.00	0.00
04/30/2021	46647PBH8	PAID ACCRUED INTEREST ON PURCHASE OF JPMORGAN CHASE CO 2.005% 3/13/26	0.0000	0.000000	-2,617.64	0.00	0.00
04/30/2021	89114W7M1	PAID ACCRUED INTEREST ON PURCHASE OF TORONTO C D 0.240% 4/28/22	0.0000	0.000000	-26.67	0.00	0.00
04/30/2021	912828H86	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 1.500% 1/31/22	0.0000	0.000000	-27,658.84	0.00	0.00
04/30/2021	912828J43	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 1.750% 2/28/22	0.0000	0.000000	-21,756.11	0.00	0.00
04/30/2021	9128286M7	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 2.250% 4/15/22	0.0000	0.000000	-6,915.98	0.00	0.00
04/30/2021	9128286H8	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 2.375% 3/15/22	0.0000	0.000000	-22,265.63	0.00	0.00
05/03/2021	00440EAU1	INTEREST EARNED ON ACE INA HOLDINGS 2.875% 11/03/22 $1 PV ON 4169000.0000 SHARES DUE 5/3/2021	0.0000	0.000000	59,929.38	0.00	0.00
05/03/2021	31846V567	INTEREST EARNED ON FIRST AM GOVT OB FD CL Z UNIT ON 0.0000 SHARES DUE 4/30/2021 INTEREST FROM 4/1/21 TO 4/30/21	0.0000	0.000000	423.12	0.00	0.00
05/03/2021	31846V567	INTEREST EARNED ON FIRST AM GOVT OB FD CL Z UNIT ON 0.0000 SHARES DUE 4/30/2021 INTEREST FROM 4/1/21 TO 4/30/21	0.0000	0.000000	429.13	0.00	0.00
05/06/2021	037833AR1	INTEREST EARNED ON APPLE INC 2.850% 5/06/21 $1 PV ON 1155000.0000 SHARES DUE 5/6/2021	0.0000	0.000000	16,458.75	0.00	0.00
05/06/2021	3133ELYR9	INTEREST EARNED ON F F C B DEB 0.250% 5/06/22 $1 PV ON 8850000.0000 SHARES DUE 5/6/2021	0.0000	0.000000	11,062.50	0.00	0.00
05/07/2021	3135G06G3	INTEREST EARNED ON F N M A 0.500% 11/07/25 $1 PV ON 8255000.0000 SHARES DUE 5/7/2021	0.0000	0.000000	20,064.24	0.00	0.00
05/07/2021	912828Z60	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 1.375% 1/31/22	0.0000	0.000000	-36,464.09	0.00	0.00
05/10/2021	14913Q2T5	PAID ACCRUED INTEREST ON PURCHASE OF CATERPILLAR FINL MTN 2.950% 2/26/22	0.0000	0.000000	-12,127.78	0.00	0.00
05/11/2021	037833CU2	INTEREST EARNED ON APPLE INC 2.850% 5/11/24 $1 PV ON 3000000.0000 SHARES DUE 5/11/2021	0.0000	0.000000	42,750.00	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
05/11/2021	369550BE7	INTEREST EARNED ON GENERAL DYNAMICS 3.000% 5/11/21 $1 PV ON 3160000.0000 SHARES DUE 5/11/2021	0.0000	0.000000	47,400.00	0.00	0.00
05/11/2021	458140BD1	INTEREST EARNED ON INTEL CORP 2.875% 5/11/24 $1 PV ON 5000000.0000 SHARES DUE 5/11/2021	0.0000	0.000000	71,875.00	0.00	0.00
05/13/2021	912828WU0	BOOK VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 38896.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
05/13/2021	912828WU0	FED BASIS OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 38896.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	38,896.00	0.00
05/13/2021	912828WU0	PAR VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 38896.0000 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	38,896.0000	0.000000	0.00	0.00	0.00
05/13/2021	912828WU0	STATE COST OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 38896.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
05/17/2021	084664BT7	INTEREST EARNED ON BERKSHIRE HATHAWAY 3.000% 5/15/22 $1 PV ON 4000000.0000 SHARES DUE 5/15/2021	0.0000	0.000000	60,000.00	0.00	0.00
05/17/2021	166764BG4	INTEREST EARNED ON CHEVRON CORP 2.100% 5/16/21 $1 PV ON 2500000.0000 SHARES DUE 5/16/2021	0.0000	0.000000	26,250.00	0.00	0.00
05/17/2021	31348SWZ3	INTEREST EARNED ON F H L M C #786064 2.262% 1/01/28 $1 PV ON 2.8300 SHARES DUE 5/15/2021 MARCH FHLMC DUE 5/15/21	0.0000	0.000000	2.83	0.00	0.00
05/17/2021	3133TCE95	INTEREST EARNED ON F H L M C MLTCL MTG 3.865% 8/15/32 $1 PV ON 13.2900 SHARES DUE 5/15/2021 $0.00322/PV ON 4,125.30 PV DUE 5/15/21	0.0000	0.000000	13.29	0.00	0.00
05/17/2021	43815NAB0	INTEREST EARNED ON HONDA AUTO 1.900% 4/15/22 $1 PV ON 465.0100 SHARES DUE 5/15/2021 $0.00158/PV ON 293,689.53 PV DUE 5/15/21	0.0000	0.000000	465.01	0.00	0.00
05/17/2021	44933LAC7	INTEREST EARNED ON HYUNDAI AUTO REC 0.21533% 9/15/25 $1 PV ON 376.8300 SHARES DUE 5/15/2021 $0.00018/PV ON 2,100,000.00 PV DUE 5/15/21	0.0000	0.000000	376.83	0.00	0.00
05/17/2021	47787NAC3	INTEREST EARNED ON JOHN DEERE OWNER 0.510% 11/15/24 $1 PV ON 629.0000 SHARES DUE 5/15/2021 $0.00042/PV ON 1,480,000.00 PV DUE 5/15/21	0.0000	0.000000	629.00	0.00	0.00
05/17/2021	47788EAC2	INTEREST EARNED ON JOHN DEERE OWNER 3.080% 11/15/22 $1 PV ON 2534.4400 SHARES DUE 5/15/2021 $0.00257/PV ON 987,444.87 PV DUE 5/15/21	0.0000	0.000000	2,534.44	0.00	0.00
05/17/2021	47788UAC6	INTEREST EARNED ON JOHN DEERE OWNER 0.4093% 9/15/25 $1 PV ON 784.4900 SHARES DUE 5/15/2021 $0.00034/PV ON 2,300,000.00 PV DUE 5/15/21	0.0000	0.000000	784.49	0.00	0.00
05/17/2021	58770FAC6	INTEREST EARNED ON MERCEDES BENZ AUTO 1.840% 12/15/22 $1 PV ON 3143.3300 SHARES DUE 5/15/2021 $0.00153/PV ON 2,050,000.00 PV DUE 5/15/21	0.0000	0.000000	3,143.33	0.00	0.00
05/17/2021	65479JAD5	INTEREST EARNED ON NISSAN AUTO 1.930% 7/15/24 $1 PV ON 6730.8700 SHARES DUE 5/15/2021 $0.00161/PV ON 4,185,000.00 PV DUE 5/15/21	0.0000	0.000000	6,730.87	0.00	0.00
05/17/2021	65479GAD1	INTEREST EARNED ON NISSAN AUTO 3.060% 3/15/23 $1 PV ON 3792.7400 SHARES DUE 5/15/2021 $0.00255/PV ON 1,487,349.68 PV DUE 5/15/21	0.0000	0.000000	3,792.74	0.00	0.00
05/17/2021	89237VAB5	INTEREST EARNED ON TOYOTA AUTO RECV 0.440% 10/15/24 $1 PV ON 1085.3300 SHARES DUE 5/15/2021 $0.00037/PV ON 2,960,000.00 PV DUE 5/15/21	0.0000	0.000000	1,085.33	0.00	0.00
05/17/2021	89236TBJ3	INTEREST EARNED ON TOYOTA MOTOR MTN 2.750% 5/17/21 $1 PV ON 2000000.0000 SHARES DUE 5/17/2021 ACCRUED INTEREST ON 5/17/2021 MATURITY	0.0000	0.000000	27,500.00	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
05/17/2021	912828WJ5	INTEREST EARNED ON U S TREASURY NT 2.500% 5/15/24 $1 PV ON 7000000.0000 SHARES DUE 5/15/2021	0.0000	0.000000	87,500.00	0.00	0.00
05/17/2021	913366EJ5	INTEREST EARNED ON UNIV OF CALIFORNIA 5.035% 5/15/21 $1 PV ON 400000.0000 SHARES DUE 5/15/2021	0.0000	0.000000	10,070.00	0.00	0.00
05/18/2021	43813KAC6	INTEREST EARNED ON HONDA AUTO 0.370% 10/18/24 $1 PV ON 997.4600 SHARES DUE 5/18/2021 $0.00031/PV ON 3,235,000.00 PV DUE 5/18/21	0.0000	0.000000	997.46	0.00	0.00
05/18/2021	43814UAG4	INTEREST EARNED ON HONDA AUTO 3.010% 5/18/22 $1 PV ON 646.3600 SHARES DUE 5/18/2021 $0.00251/PV ON 257,684.43 PV DUE 5/18/21	0.0000	0.000000	646.36	0.00	0.00
05/18/2021	46625HRL6	INTEREST EARNED ON JP MORGAN CHASE CO 2.700% 5/18/23 $1 PV ON 5000000.0000 SHARES DUE 5/18/2021	0.0000	0.000000	67,500.00	0.00	0.00
05/18/2021	58933YAF2	INTEREST EARNED ON MERCK CO INC 2.800% 5/18/23 $1 PV ON 2000000.0000 SHARES DUE 5/18/2021	0.0000	0.000000	28,000.00	0.00	0.00
05/19/2021	65558UBJ0	PAID ACCRUED INTEREST ON PURCHASE OF NORDEA BK ABP C D 0.210% 5/16/22	0.0000	0.000000	-87.50	0.00	0.00
05/19/2021	65558UBJ0	PAID ACCRUED INTEREST ON PURCHASE OF NORDEA BK ABP C D 0.210% 5/16/22	0.0000	0.000000	-204.17	0.00	0.00
05/20/2021	36225CAZ9	INTEREST EARNED ON G N M A I I #080023 2.125% 12/20/26 $1 PV ON 18.5000 SHARES DUE 5/20/2021 APRIL GNMA DUE 5/20/21	0.0000	0.000000	18.50	0.00	0.00
05/20/2021	36225CC20	INTEREST EARNED ON G N M A I I #080088 2.875% 6/20/27 $1 PV ON 19.5900 SHARES DUE 5/20/2021 APRIL GNMA DUE 5/20/21	0.0000	0.000000	19.59	0.00	0.00
05/20/2021	36225CNM4	INTEREST EARNED ON G N M A I I #080395 2.875% 4/20/30 $1 PV ON 10.2400 SHARES DUE 5/20/2021 APRIL GNMA DUE 5/20/21	0.0000	0.000000	10.24	0.00	0.00
05/20/2021	36225CN28	INTEREST EARNED ON G N M A I I #080408 2.875% 5/20/30 $1 PV ON 81.0100 SHARES DUE 5/20/2021 APRIL GNMA DUE 5/20/21	0.0000	0.000000	81.01	0.00	0.00
05/20/2021	36225DCB8	INTEREST EARNED ON G N M A I I #080965 2.250% 7/20/34 $1 PV ON 53.8700 SHARES DUE 5/20/2021 APRIL GNMA DUE 5/20/21	0.0000	0.000000	53.87	0.00	0.00
05/21/2021	808513AW5	INTEREST EARNED ON CHARLES SCHWAB CORP 3.250% 5/21/21 $1 PV ON 1385000.0000 SHARES DUE 5/21/2021	0.0000	0.000000	22,506.25	0.00	0.00
05/21/2021	43813GAC5	INTEREST EARNED ON HONDA AUTO 0.270% 4/21/25 $1 PV ON 361.1300 SHARES DUE 5/21/2021 $0.00023/PV ON 1,605,000.00 PV DUE 5/21/21	0.0000	0.000000	361.13	0.00	0.00
05/21/2021	43815HAC1	INTEREST EARNED ON HONDA AUTO 2.950% 8/22/22 $1 PV ON 2456.9300 SHARES DUE 5/21/2021 $0.00246/PV ON 999,427.48 PV DUE 5/21/21	0.0000	0.000000	2,456.93	0.00	0.00
05/24/2021	459058FH1	INTEREST EARNED ON INTL BK 1.375% 5/24/21 $1 PV ON 1000000.0000 SHARES DUE 5/24/2021	0.0000	0.000000	6,880.00	0.00	0.00
05/24/2021	47788UAC6	INTEREST EARNED ON JOHN DEERE OWNER 0.4093% 9/15/25 $1 PV ON 2300000.0000 SHARES DUE 5/15/2021	0.0000	0.000000	690.00	0.00	0.00
05/24/2021	47788UAC6	INTEREST EARNED ON JOHN DEERE OWNER 0.4093% 9/15/25 $1 PV ON 784.4900 SHARES DUE 5/15/2021 RATE REVISION MAY	0.0000	0.000000	-784.49	0.00	0.00
05/25/2021	31394JY35	INTEREST EARNED ON F H L M C MLTCL MTG 6.500% 9/25/43 $1 PV ON 2926.5900 SHARES DUE 5/25/2021 $0.00542/PV ON 540,293.15 PV DUE 5/25/21	0.0000	0.000000	2,926.59	0.00	0.00
05/25/2021	31371NUC7	INTEREST EARNED ON F N M A #257179 4.500% 4/01/28 $1 PV ON 34.0600 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	34.06	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
05/25/2021	31376KT22	INTEREST EARNED ON F N M A #357969 5.000% 9/01/35 $1 PV ON 300.7000 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	300.70	0.00	0.00
05/25/2021	31403DJZ3	INTEREST EARNED ON F N M A #745580 5.000% 6/01/36 $1 PV ON 273.1200 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	273.12	0.00	0.00
05/25/2021	31403GXF4	INTEREST EARNED ON F N M A #748678 5.000% 10/01/33 $1 PV ON 3.4200 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	3.42	0.00	0.00
05/25/2021	31406PQY8	INTEREST EARNED ON F N M A #815971 5.000% 3/01/35 $1 PV ON 398.1600 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	398.16	0.00	0.00
05/25/2021	31406XWT5	INTEREST EARNED ON F N M A #823358 2.035% 2/01/35 $1 PV ON 120.4100 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	120.41	0.00	0.00
05/25/2021	31407BXH7	INTEREST EARNED ON F N M A #826080 5.000% 7/01/35 $1 PV ON 52.7300 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	52.73	0.00	0.00
05/25/2021	31410F4V4	INTEREST EARNED ON F N M A #888336 5.000% 7/01/36 $1 PV ON 497.5400 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	497.54	0.00	0.00
05/25/2021	3138EG6F6	INTEREST EARNED ON F N M A #AL0869 4.500% 6/01/29 $1 PV ON 23.4100 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	23.41	0.00	0.00
05/25/2021	31417YAY3	INTEREST EARNED ON F N M A #MA0022 4.500% 4/01/29 $1 PV ON 38.7700 SHARES DUE 5/25/2021 APRIL FNMA DUE 5/25/21	0.0000	0.000000	38.77	0.00	0.00
05/25/2021	31397QRE0	INTEREST EARNED ON F N M A GTD REMIC 2.472% 2/25/41 $1 PV ON 78.2900 SHARES DUE 5/25/2021 $0.00066/PV ON 119,499.65 PV DUE 5/25/21	0.0000	0.000000	78.29	0.00	0.00
05/25/2021	912828ZM5	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 0.125% 4/30/22	0.0000	0.000000	-636.89	0.00	0.00
05/26/2021	912828WU0	BOOK VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 42120.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
05/26/2021	912828WU0	FED BASIS OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 42120.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	42,120.00	0.00
05/26/2021	912828WU0	PAR VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 42120.0000 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	42,120.0000	0.000000	0.00	0.00	0.00
05/26/2021	912828WU0	STATE COST OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 42120.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
05/27/2021	912828ZM5	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 0.125% 4/30/22	0.0000	0.000000	-687.84	0.00	0.00
05/28/2021	91282CBT7	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 0.750% 3/31/26	0.0000	0.000000	-3,565.57	0.00	0.00
06/01/2021	31846V567	INTEREST EARNED ON FIRST AM GOVT OB FD CL Z UNIT ON 0.0000 SHARES DUE 5/31/2021 INTEREST FROM 5/1/21 TO 5/31/21	0.0000	0.000000	571.98	0.00	0.00
06/01/2021	31846V567	INTEREST EARNED ON FIRST AM GOVT OB FD CL Z UNIT ON 0.0000 SHARES DUE 5/31/2021 INTEREST FROM 5/1/21 TO 5/31/21	0.0000	0.000000	410.83	0.00	0.00
06/01/2021	438516CB0	INTEREST EARNED ON HONEYWELL 1.350% 6/01/25 $1 PV ON 5000000.0000 SHARES DUE 6/1/2021	0.0000	0.000000	33,750.00	0.00	0.00
06/01/2021	912828R69	INTEREST EARNED ON U S TREASURY NT 1.625% 5/31/23 $1 PV ON 5000000.0000 SHARES DUE 5/31/2021	0.0000	0.000000	40,625.00	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
06/01/2021	912828U65	INTEREST EARNED ON U S TREASURY NT 1.750% 11/30/21 $1 PV ON 7000000.0000 SHARES DUE 5/31/2021	0.0000	0.000000	61,250.00	0.00	0.00
06/01/2021	912828M80	INTEREST EARNED ON U S TREASURY NT 2.000% 11/30/22 $1 PV ON 8000000.0000 SHARES DUE 5/31/2021	0.0000	0.000000	80,000.00	0.00	0.00
06/01/2021	912828U57	INTEREST EARNED ON U S TREASURY NT 2.125% 11/30/23 $1 PV ON 15000000.0000 SHARES DUE 5/31/2021	0.0000	0.000000	159,375.00	0.00	0.00
06/01/2021	9128283J7	INTEREST EARNED ON U S TREASURY NT 2.125% 11/30/24 $1 PV ON 16500000.0000 SHARES DUE 5/31/2021	0.0000	0.000000	175,312.50	0.00	0.00
06/08/2021	3130A0F70	INTEREST EARNED ON F H L B DEB 3.375% 12/08/23 $1 PV ON 10000000.0000 SHARES DUE 6/8/2021	0.0000	0.000000	168,750.00	0.00	0.00
06/08/2021	69353RFL7	INTEREST EARNED ON PNC BANK NA MTN 3.500% 6/08/23 $1 PV ON 5000000.0000 SHARES DUE 6/8/2021	0.0000	0.000000	87,500.00	0.00	0.00
06/09/2021	313383QR5	INTEREST EARNED ON F H L B DEB 3.250% 6/09/23 $1 PV ON 5000000.0000 SHARES DUE 6/9/2021	0.0000	0.000000	81,250.00	0.00	0.00
06/10/2021	78015K7H1	INTEREST EARNED ON ROYAL BANK OF MTN 1.150% 6/10/25 $1 PV ON 2500000.0000 SHARES DUE 6/10/2021	0.0000	0.000000	14,375.00	0.00	0.00
06/11/2021	912828WU0	BOOK VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 47112.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
06/11/2021	912828WU0	FED BASIS OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 47112.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	47,112.00	0.00
06/11/2021	313379RB7	INTEREST EARNED ON F H L B DEB 1.875% 6/11/21 $1 PV ON 4000000.0000 SHARES DUE 6/11/2021	0.0000	0.000000	37,500.00	0.00	0.00
06/11/2021	912828WU0	PAR VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 47112.0000 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	47,112.0000	0.000000	0.00	0.00	0.00
06/11/2021	912828WU0	STATE COST OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 47112.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
06/14/2021	3130A1XJ2	INTEREST EARNED ON F H L B 2.875% 6/14/24 $1 PV ON 11110000.0000 SHARES DUE 6/14/2021	0.0000	0.000000	159,706.25	0.00	0.00
06/14/2021	89114QCA4	INTEREST EARNED ON TORONTO DOMINION MTN 2.650% 6/12/24 $1 PV ON 3000000.0000 SHARES DUE 6/12/2021	0.0000	0.000000	39,750.00	0.00	0.00
06/15/2021	31348SWZ3	INTEREST EARNED ON F H L M C #786064 2.262% 1/01/28 $1 PV ON 2.7900 SHARES DUE 6/15/2021 APRIL FHLMC DUE 6/15/21	0.0000	0.000000	2.79	0.00	0.00
06/15/2021	3133TCE95	INTEREST EARNED ON F H L M C MLTCL MTG 3.855% 8/15/32 $1 PV ON 12.9700 SHARES DUE 6/15/2021 $0.00321/PV ON 4,036.85 PV DUE 6/15/21	0.0000	0.000000	12.97	0.00	0.00
06/15/2021	43815NAB0	INTEREST EARNED ON HONDA AUTO 1.900% 4/15/22 $1 PV ON 62.3900 SHARES DUE 6/15/2021 $0.00158/PV ON 39,403.01 PV DUE 6/15/21	0.0000	0.000000	62.39	0.00	0.00
06/15/2021	44933LAC7	INTEREST EARNED ON HYUNDAI AUTO REC 0.380% 9/15/25 $1 PV ON 665.0000 SHARES DUE 6/15/2021 $0.00032/PV ON 2,100,000.00 PV DUE 6/15/21	0.0000	0.000000	665.00	0.00	0.00
06/15/2021	47788UAC6	INTEREST EARNED ON JOHN DEERE OWNER 0.360% 9/15/25 $1 PV ON 690.0000 SHARES DUE 6/15/2021 $0.00030/PV ON 2,300,000.00 PV DUE 6/15/21	0.0000	0.000000	690.00	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
06/15/2021	47787NAC3	INTEREST EARNED ON JOHN DEERE OWNER 0.510% 11/15/24 $1 PV ON 629.0000 SHARES DUE 6/15/2021 $0.00042/PV ON 1,480,000.00 PV DUE 6/15/21	0.0000	0.000000	629.00	0.00	0.00
06/15/2021	47788EAC2	INTEREST EARNED ON JOHN DEERE OWNER 3.080% 11/15/22 $1 PV ON 1734.1900 SHARES DUE 6/15/2021 $0.00257/PV ON 675,657.06 PV DUE 6/15/21	0.0000	0.000000	1,734.19	0.00	0.00
06/15/2021	58770FAC6	INTEREST EARNED ON MERCEDES BENZ AUTO 1.840% 12/15/22 $1 PV ON 3143.3300 SHARES DUE 6/15/2021 $0.00153/PV ON 2,050,000.00 PV DUE 6/15/21	0.0000	0.000000	3,143.33	0.00	0.00
06/15/2021	65479JAD5	INTEREST EARNED ON NISSAN AUTO 1.930% 7/15/24 $1 PV ON 6730.8700 SHARES DUE 6/15/2021 $0.00161/PV ON 4,185,000.00 PV DUE 6/15/21	0.0000	0.000000	6,730.87	0.00	0.00
06/15/2021	65479GAD1	INTEREST EARNED ON NISSAN AUTO 3.060% 3/15/23 $1 PV ON 3337.8600 SHARES DUE 6/15/2021 $0.00255/PV ON 1,308,964.24 PV DUE 6/15/21	0.0000	0.000000	3,337.86	0.00	0.00
06/15/2021	89237VAB5	INTEREST EARNED ON TOYOTA AUTO RECV 0.440% 10/15/24 $1 PV ON 1085.3300 SHARES DUE 6/15/2021 $0.00037/PV ON 2,960,000.00 PV DUE 6/15/21	0.0000	0.000000	1,085.33	0.00	0.00
06/15/2021	91282CBA8	INTEREST EARNED ON U S TREASURY NT 0.125% 12/15/23 $1 PV ON 6500000.0000 SHARES DUE 6/15/2021	0.0000	0.000000	4,062.50	0.00	0.00
06/16/2021	61744YAH1	PAID ACCRUED INTEREST ON PURCHASE OF MORGAN STANLEY 2.750% 5/19/22	0.0000	0.000000	-4,125.00	0.00	0.00
06/16/2021	91324PEC2	PAID ACCRUED INTEREST ON PURCHASE OF UNITEDHEALTH 1.150% 5/15/26	0.0000	0.000000	-1,017.75	0.00	0.00
06/16/2021	91324PEC2	PAID ACCRUED INTEREST ON PURCHASE OF UNITEDHEALTH 1.150% 5/15/26	0.0000	0.000000	-207.00	0.00	0.00
06/16/2021	912828T34	RECEIVED ACCRUED INTEREST ON SALE OF U S TREASURY NT 1.125% 9/30/21	0.0000	0.000000	3,786.89	0.00	0.00
06/17/2021	3135G04Z3	INTEREST EARNED ON F N M A 0.500% 6/17/25 $1 PV ON 9905000.0000 SHARES DUE 6/17/2021	0.0000	0.000000	24,762.50	0.00	0.00
06/17/2021	91324PEC2	PAID ACCRUED INTEREST ON PURCHASE OF UNITEDHEALTH 1.150% 5/15/26	0.0000	0.000000	-514.31	0.00	0.00
06/17/2021	91324PEC2	PAID ACCRUED INTEREST ON PURCHASE OF UNITEDHEALTH 1.150% 5/15/26	0.0000	0.000000	207.00	0.00	0.00
06/17/2021	912828T34	RECEIVED ACCRUED INTEREST ON SALE OF U S TREASURY NT 1.125% 9/30/21	0.0000	0.000000	3,356.56	0.00	0.00
06/18/2021	43813KAC6	INTEREST EARNED ON HONDA AUTO 0.370% 10/18/24 $1 PV ON 997.4600 SHARES DUE 6/18/2021 $0.00031/PV ON 3,235,000.00 PV DUE 6/18/21	0.0000	0.000000	997.46	0.00	0.00
06/18/2021	43814UAG4	INTEREST EARNED ON HONDA AUTO 3.010% 5/18/22 $1 PV ON 437.4800 SHARES DUE 6/18/2021 $0.00251/PV ON 174,410.41 PV DUE 6/18/21	0.0000	0.000000	437.48	0.00	0.00
06/18/2021	02665WDF5	PAID ACCRUED INTEREST ON PURCHASE OF AMERICAN HONDA MTN 1.950% 5/20/22	0.0000	0.000000	-3,033.33	0.00	0.00
06/21/2021	3137EAEN5	INTEREST EARNED ON F H L M C 2.750% 6/19/23 $1 PV ON 10000000.0000 SHARES DUE 6/19/2021	0.0000	0.000000	137,500.00	0.00	0.00
06/21/2021	36225CAZ9	INTEREST EARNED ON G N M A I I #080023 2.125% 12/20/26 $1 PV ON 18.2000 SHARES DUE 6/20/2021 MAY GNMA DUE 6/20/21	0.0000	0.000000	18.20	0.00	0.00
06/21/2021	36225CC20	INTEREST EARNED ON G N M A I I #080088 2.875% 6/20/27 $1 PV ON 19.0500 SHARES DUE 6/20/2021 MAY GNMA DUE 6/20/21	0.0000	0.000000	19.05	0.00	0.00
06/21/2021	36225CNM4	INTEREST EARNED ON G N M A I I #080395 2.875% 4/20/30 $1 PV ON 10.1200 SHARES DUE 6/20/2021 MAY GNMA DUE 6/20/21	0.0000	0.000000	10.12	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
06/21/2021	36225CN28	INTEREST EARNED ON G N M A I I #080408 2.875% 5/20/30 $1 PV ON 80.3000 SHARES DUE 6/20/2021 MAY GNMA DUE 6/20/21	0.0000	0.000000	80.30	0.00	0.00
06/21/2021	36225DCB8	INTEREST EARNED ON G N M A I I #080965 2.250% 7/20/34 $1 PV ON 53.3900 SHARES DUE 6/20/2021 MAY GNMA DUE 6/20/21	0.0000	0.000000	53.39	0.00	0.00
06/21/2021	43813GAC5	INTEREST EARNED ON HONDA AUTO 0.270% 4/21/25 $1 PV ON 361.1300 SHARES DUE 6/21/2021 $0.00023/PV ON 1,605,000.00 PV DUE 6/21/21	0.0000	0.000000	361.13	0.00	0.00
06/21/2021	43815HAC1	INTEREST EARNED ON HONDA AUTO 2.950% 8/22/22 $1 PV ON 2024.3300 SHARES DUE 6/21/2021 $0.00246/PV ON 823,454.21 PV DUE 6/21/21	0.0000	0.000000	2,024.33	0.00	0.00
06/21/2021	91282CCF6	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 0.750% 5/31/26	0.0000	0.000000	-3,227.46	0.00	0.00
06/21/2021	912828T34	RECEIVED ACCRUED INTEREST ON SALE OF U S TREASURY NT 1.125% 9/30/21	0.0000	0.000000	3,780.74	0.00	0.00
06/21/2021	912828T67	RECEIVED ACCRUED INTEREST ON SALE OF U S TREASURY NT 1.250% 10/31/21	0.0000	0.000000	10,597.83	0.00	0.00
06/22/2021	3135G0U35	INTEREST EARNED ON F N M A 2.750% 6/22/21 $1 PV ON 7500000.0000 SHARES DUE 6/22/2021	0.0000	0.000000	103,125.00	0.00	0.00
06/23/2021	912828T34	RECEIVED ACCRUED INTEREST ON SALE OF U S TREASURY NT 1.125% 9/30/21	0.0000	0.000000	6,454.92	0.00	0.00
06/23/2021	912828U65	RECEIVED ACCRUED INTEREST ON SALE OF U S TREASURY NT 1.750% 11/30/21	0.0000	0.000000	549.86	0.00	0.00
06/24/2021	166764AH3	INTEREST EARNED ON CHEVRON CORP 3.191% 6/24/23 $1 PV ON 3500000.0000 SHARES DUE 6/24/2021	0.0000	0.000000	55,842.50	0.00	0.00
06/25/2021	31394JY35	INTEREST EARNED ON F H L M C MLTCL MTG 6.500% 9/25/43 $1 PV ON 2889.5800 SHARES DUE 6/25/2021 $0.00542/PV ON 533,460.33 PV DUE 6/25/21	0.0000	0.000000	2,889.58	0.00	0.00
06/25/2021	31371NUC7	INTEREST EARNED ON F N M A #257179 4.500% 4/01/28 $1 PV ON 33.6400 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	33.64	0.00	0.00
06/25/2021	31376KT22	INTEREST EARNED ON F N M A #357969 5.000% 9/01/35 $1 PV ON 294.2500 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	294.25	0.00	0.00
06/25/2021	31403DJZ3	INTEREST EARNED ON F N M A #745580 5.000% 6/01/36 $1 PV ON 264.4300 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	264.43	0.00	0.00
06/25/2021	31403GXF4	INTEREST EARNED ON F N M A #748678 5.000% 10/01/33 $1 PV ON 3.4000 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	3.40	0.00	0.00
06/25/2021	31406PQY8	INTEREST EARNED ON F N M A #815971 5.000% 3/01/35 $1 PV ON 396.1200 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	396.12	0.00	0.00
06/25/2021	31406XWT5	INTEREST EARNED ON F N M A #823358 2.035% 2/01/35 $1 PV ON 119.5400 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	119.54	0.00	0.00
06/25/2021	31407BXH7	INTEREST EARNED ON F N M A #826080 5.000% 7/01/35 $1 PV ON 52.1400 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	52.14	0.00	0.00
06/25/2021	31410F4V4	INTEREST EARNED ON F N M A #888336 5.000% 7/01/36 $1 PV ON 480.4500 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	480.45	0.00	0.00
06/25/2021	3138EG6F6	INTEREST EARNED ON F N M A #AL0869 4.500% 6/01/29 $1 PV ON 22.7300 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	22.73	0.00	0.00
06/25/2021	31417YAY3	INTEREST EARNED ON F N M A #MA0022 4.500% 4/01/29 $1 PV ON 37.9300 SHARES DUE 6/25/2021 MAY FNMA DUE 6/25/21	0.0000	0.000000	37.93	0.00	0.00

U.S. Bank
Transaction History
04/01/2021 - 06/30/2021

Entry Date	CUSIP Id	Explanation	Units	Price	Net Cash Amt	Cost	Gain/Loss
06/25/2021	31397QRE0	INTEREST EARNED ON F N M A GTD REMIC 2.472% 2/25/41 $1 PV ON 74.1100 SHARES DUE 6/25/2021 $0.00064/PV ON 115,257.28 PV DUE 6/25/21	0.0000	0.000000	74.11	0.00	0.00
06/28/2021	912828WU0	BOOK VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 47736.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
06/28/2021	912828WU0	FED BASIS OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 47736.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	47,736.00	0.00
06/28/2021	02665WCZ2	INTEREST EARNED ON AMERICAN HONDA MTN 2.400% 6/27/24 $1 PV ON 1219000.0000 SHARES DUE 6/28/2021	0.0000	0.000000	14,628.00	0.00	0.00
06/28/2021	931142EK5	INTEREST EARNED ON WALMART INC 3.400% 6/26/23 $1 PV ON 3880000.0000 SHARES DUE 6/26/2021	0.0000	0.000000	65,960.00	0.00	0.00
06/28/2021	06051GJD2	PAID ACCRUED INTEREST ON PURCHASE OF BANK AMER CORP MTN 1.319% 6/19/26	0.0000	0.000000	-741.94	0.00	0.00
06/28/2021	912828WU0	PAR VALUE OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 47736.0000 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	47,736.0000	0.000000	0.00	0.00	0.00
06/28/2021	912828WU0	STATE COST OF U S TREASURY I P S 0.125% 7/15/24 ADJUSTED BY 47736.00 UNITS INCREASE TO ADJUST FOR CHANGE IN CPI	0.0000	0.000000	0.00	0.00	0.00
06/30/2021		CASH DISBURSEMENT PAID TO OCS OUTGOING DOMESTIC WIRE PER DIR DTD 6/28/2021	0.0000	0.000000	-30,000,000.00	0.00	0.00
06/30/2021	91282CBC4	INTEREST EARNED ON U S TREASURY NT 0.375% 12/31/25 $1 PV ON 10000000.0000 SHARES DUE 6/30/2021	0.0000	0.000000	18,750.00	0.00	0.00
06/30/2021	912828S27	INTEREST EARNED ON U S TREASURY NT 1.125% 6/30/21 $1 PV ON 27000000.0000 SHARES DUE 6/30/2021	0.0000	0.000000	151,875.00	0.00	0.00
06/30/2021	9128287A2	INTEREST EARNED ON U S TREASURY NT 1.625% 6/30/21 $1 PV ON 19000000.0000 SHARES DUE 6/30/2021	0.0000	0.000000	154,375.00	0.00	0.00
06/30/2021	912828XW5	INTEREST EARNED ON U S TREASURY NT 1.750% 6/30/22 $1 PV ON 5000000.0000 SHARES DUE 6/30/2021	0.0000	0.000000	43,750.00	0.00	0.00
06/30/2021	912828XX3	INTEREST EARNED ON U S TREASURY NT 2.000% 6/30/24 $1 PV ON 5000000.0000 SHARES DUE 6/30/2021	0.0000	0.000000	50,000.00	0.00	0.00
06/30/2021	912828WR7	INTEREST EARNED ON U S TREASURY NT 2.125% 6/30/21 $1 PV ON 8000000.0000 SHARES DUE 6/30/2021	0.0000	0.000000	85,000.00	0.00	0.00
06/30/2021	912828N30	INTEREST EARNED ON U S TREASURY NT 2.125% 12/31/22 $1 PV ON 5000000.0000 SHARES DUE 6/30/2021	0.0000	0.000000	53,125.00	0.00	0.00
06/30/2021	06417MQL2	PAID ACCRUED INTEREST ON PURCHASE OF BANK NOVA C D 0.200% 6/23/22	0.0000	0.000000	-194.44	0.00	0.00
06/30/2021	912828Z60	PAID ACCRUED INTEREST ON PURCHASE OF U S TREASURY NT 1.375% 1/31/22	0.0000	0.000000	-56,975.14	0.00	0.00
TOTAL OTHER TRANSACTIONS			**238,056.0000**		**74,901,974.99**	**230,695.94**	**0.00**

Callan

June 30, 2021

Orange County Sanitation District

Investment Measurement Service
Quarterly Review

Orange County Sanitation District
Executive Summary for Period Ending June 30, 2021

Asset Allocation

	June 30, 2021				March 31, 2021	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Domestic Fixed Income						
Long Term Operating Fund*	685,922,367	76.75%	30,000,000	1,537,401	654,384,966	79.79%
Liquid Operating Monies*	207,817,043	23.25%	42,000,000	30,423	165,786,620	20.21%
Total Fund	**$893,739,409**	**100.0%**	**$72,000,000**	**$1,567,824**	**$820,171,585**	**100.0%**

Performance

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Domestic Fixed Income					
Long Term Operating Fund^	0.25%	0.28%	3.48%	2.17%	2.07%
Chandler	0.25%	0.28%	3.48%	2.17%	-
Blmbg Govt/Cred 1-5 Year Idx	0.27%	0.40%	3.70%	2.18%	2.12%
ML 1-5 Govt/Corp	0.30%	0.57%	3.73%	2.22%	2.15%
Liquid Operating Monies^	0.01%	0.12%	1.45%	1.26%	0.97%
Chandler	0.01%	0.12%	1.45%	1.26%	-
Citigroup 3-Month Treasury Bill	0.01%	0.08%	1.31%	1.14%	0.84%
Total Fund	**0.22%**	**0.27%**	**3.11%**	**1.97%**	**1.84%**
Target*	0.24%	0.47%	3.24%	2.00%	1.89%

* Current Quarter Target = 80.0% ML 1-5 Govt/Corp and 20.0% FTSE 3mo T-Bills.
^Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

Recent Developments

— During the quarter, $30 million was contributed to the Long Term Operating Fund and $42 million was added to the Liquid Operating Monies, for a total contribution of $72 million.

Organizational Issues

— N/A

Fixed Income Market Snapshot

— The 10-year U.S. Treasury yield declined steadily throughout the quarter, from 1.74% as of 3/31 to 1.45% on 6/30. TIPS outperformed nominal Treasuries for the quarter given strong relative performance in April and May. The Bloomberg Barclays US Aggregate Bond Index rose 1.8% but remains down 1.6% YTD. Strong equity market performance and robust economic data fueled risk appetites, and lower-quality securities were the best performers again this quarter. Corporates outperformed Treasuries as investors continued to reach for yield in spite of the paltry yield advantage (the average option-adjusted spread on the Corporate Index was 80 bps

as of quarter-end, the lowest since 1998). The Bloomberg Barclays High Yield Index was up 2.7%. The absolute yield-to-worst for the Index reached an all-time low of 3.75% and its option-adjusted spread hit 268 bps, the lowest since 2007. Municipals (Bloomberg Barclays Municipal Bond Index: +1.4%) performed in line with Treasuries for the quarter.

Manager Performance

- The Long Term Operating Fund climbed 0.25% in the second quarter, which slightly trailed the 0.27% return of the ML U.S. 1-5 Corp/Gov Index. Over the trailing one-year period, the Long Term Operating Fund gained 0.28%, which trailed the benchmark return of 0.40%. The Fund ranked below the median manager in Callan's Short Term Fixed Income peer group in the second quarter, and is in the bottom decile over the trailing year. The fund's longer term rankings are mixed, but tend to fluctuate around the peer median.
- The Treasury and Agency sector allocations were reduced slightly, while Corporate, Asset Backed, and Investment Grade Credit ticked higher. The portfolio's duration remained constant at 2.55 years. The portfolio had less than 30% invested in credit (22%) and less than the permitted 20% invested in the combination of asset-backed securities (4%), commercial mortgage backed securities (0%), and CMOs (0%) as of June 30, 2021 (see page 20).
- The Liquid Operating Portfolio was down two basis points (after fees) in the second quarter, trailing the Citigroup 3-Month Treasury Bill Index's return of 0.01% by three basis points. Over the trailing year, the fund declined 0.03%, which trailed the benchmark by 11 basis points.

Cordially,

Alex Ford
Vice President

Table of Contents
June 30, 2021

Capital Market Review 1

Active Management Overview

Market Overview 7

Domestic Fixed Income 8

Asset Allocation

Investment Manager Asset Allocation 10

Investment Manager Returns 11

Asset Class Risk and Return 15

Manager Analysis

Chandler-Long Term Operating Fund 17

Chandler-Liquid Operating Money 21

Callan Research/Education 23

Definitions 26

Disclosures 31

Capital Market Review

U.S. EQUITY

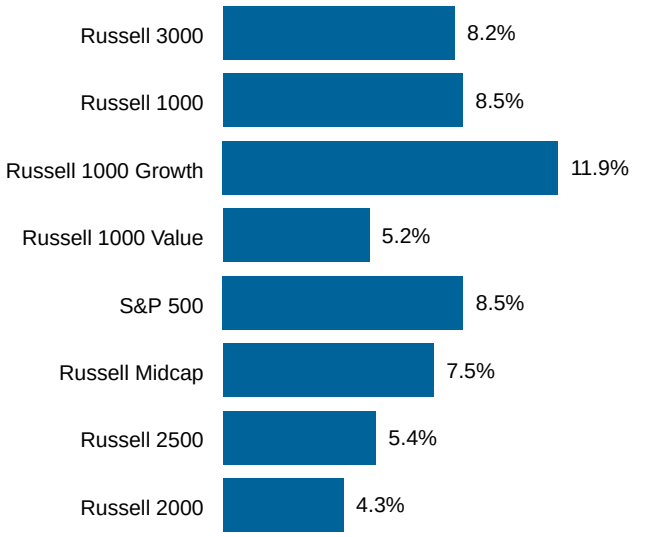
Markets keep setting all-time highs

- The S&P 500 Index continued to hit record highs in 2Q21.
- The 12-month rebound after the market low in March 2020 for the S&P 500 surpasses the 12-month GFC and Dot-Com Bubble rebounds. Since March 2020, the S&P is up 96.1%, with all sectors posting gains over 45%; Energy +140.6%.
- All sectors posted positive returns except for Utilities. 2Q21 top sectors were Technology and Energy.

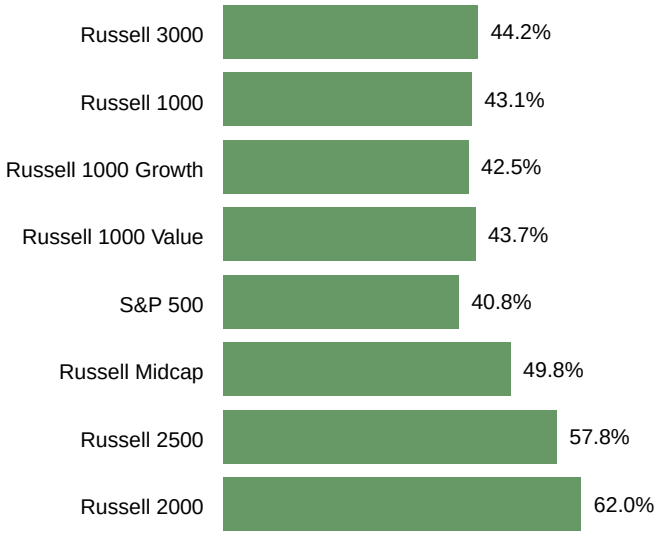
Market leadership changed in 2Q21

- Vaccine news/roll-outs provided a catalyst for market rotation into value/cyclicals in 4Q20 and 1Q21.
- In June 2021, the Fed moved up its timeline for rate hikes, prompting a shift back to growth stocks.
- Generally, growth outperformed value during the quarter as investors contemplated a "transitory" inflationary environment. The only exception was in small caps, where the Russell 2000 Growth underperformed the Russell 2000 Value. Continued outperformance of meme stocks helped small value.
- Larger cap stocks outperformed smaller cap stocks, reversing the recent trend of small cap outperformance.
- Starting in 2005, cumulative returns for broad large cap and small cap indices were in lock-step, until 4Q18.
- In 2Q21, Russell 1000 increased by 8.5%, ending a two-quarter streak in which small cap stocks outperformed large.
- After cyclical stocks led the market for the prior two quarters, mega-cap Technology stocks outperformed in 2Q. This helped the Russell 1000 beat the Russell 2000. For the year, the two best-performing sectors are Energy and Financials.
- Historically, small cap stocks have outperformed in the first 12 months of market recoveries. They tend to underperform in the ensuing 12 months.

U.S. Equity: Quarterly Returns

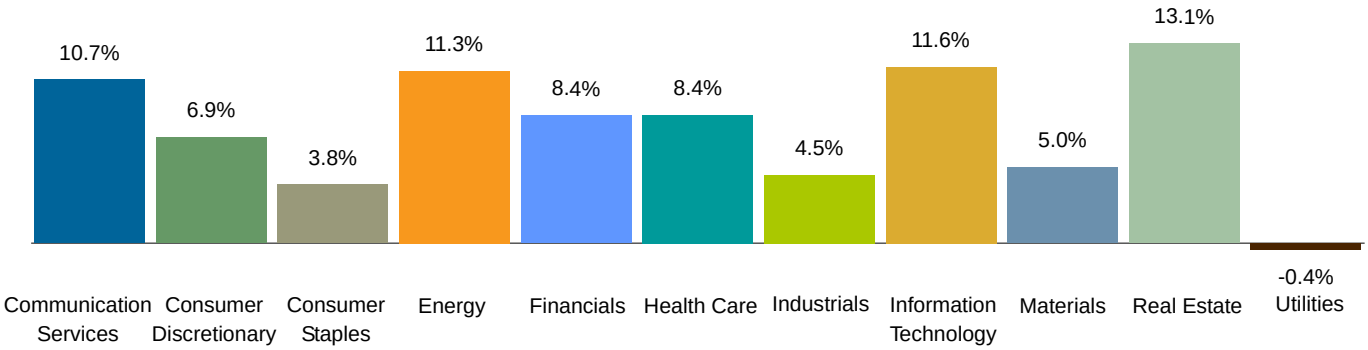


U.S. Equity: One-Year Returns



Sources: FTSE Russell, S&P Dow Jones Indices

S&P Sector Returns, Quarter Ended June 30, 2021



Source: S&P Dow Jones Indices

GLOBAL EQUITY

Strong growth despite pockets of COVID-19 outbreaks

- Government stimulus and a continued "return to normal" spurred positive sentiment.
- Risk assets lost some steam amid concerns around the Delta variant.
- Small cap was largely in-line with large, except within emerging markets where smaller companies benefited from rebounds within industrials and basic materials.
- Despite return dispersions within regions, developed and emerging markets performed similarly over the quarter.

Market shifts away from cyclicals

- Expectations remain positive, but cooled from previous quarters, causing cyclical stocks to lag.
- Factor performance showed a preference for quality and growth, a divergence from last quarter.

U.S. dollar vs. other currencies

- The U.S. dollar was mixed versus other currencies and did not contribute meaningfully to global ex-U.S. results.

Growth vs. value

- Growth overturned value, except in emerging markets, where commodity-rich countries rallied.

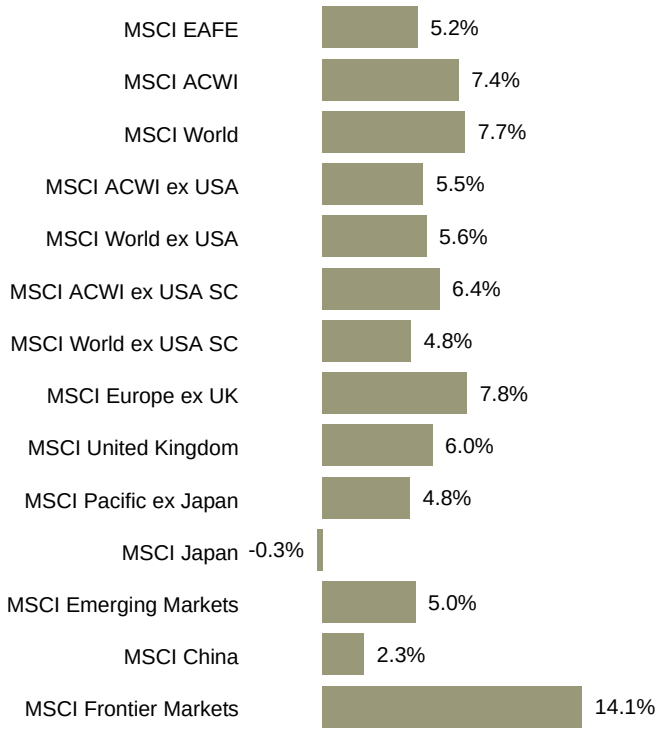
Uneven global vaccination rates

- North America and Europe leading, while the rest of world still lagging in vaccinations
- YTD equity market returns mirroring regional vaccination status as many countries ex-U.S. remain in lockdown:
  - MSCI North America: +14.9%
  - MSCI Europe: +11.8%
  - MSCI EM Latam: +8.9%
  - MSCI EM Asia: +7.5%
  - MSCI China: +2.3%

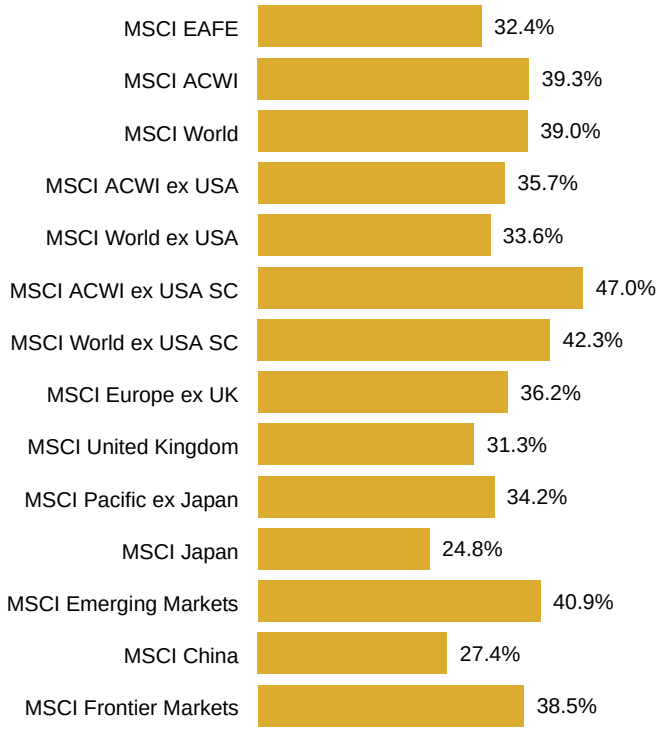
Potential for re-opening trade ex-U.S.

- Historically, small cap, value, and cyclicals thrive in recoveries as manufacturing resumes and retail sales rise.
- Pointing toward 2H21 ex-U.S. GDP surge and equity market rebounds as vaccination rates increase and lockdowns abate

Global Equity: Quarterly Returns



Global Equity: One-Year Returns



Source: MSCI

U.S. FIXED INCOME

U.S. Treasury yield curve flattens

- The 10-year U.S. Treasury yield closed 2Q21 at 1.45%, a decline of 29 bps from 1Q21.
- The short-end of the curve remained anchored, though a hawkish tone from the Fed's June meeting rallied rates on the long end.
- TIPS outperformed nominal U.S. Treasuries given strong relative performance in April and May.

Bloomberg Barclays Aggregate rallies

- The Bloomberg Barclays US Aggregate Bond Index added 1.8%, with spread sectors outperforming treasuries.
- Demand for corporate credit remained strong, with spreads tightening 11 bps over the quarter, to 80 bps.

High yield rally continues on lowered default expectations

- High yield (HY) bonds outperformed investment grade (IG) in 2Q adjusted for duration, but underperformed IG in absolute terms.
- Leveraged loans returned 1.5% for the quarter, driven by favorable supply/demand dynamics.

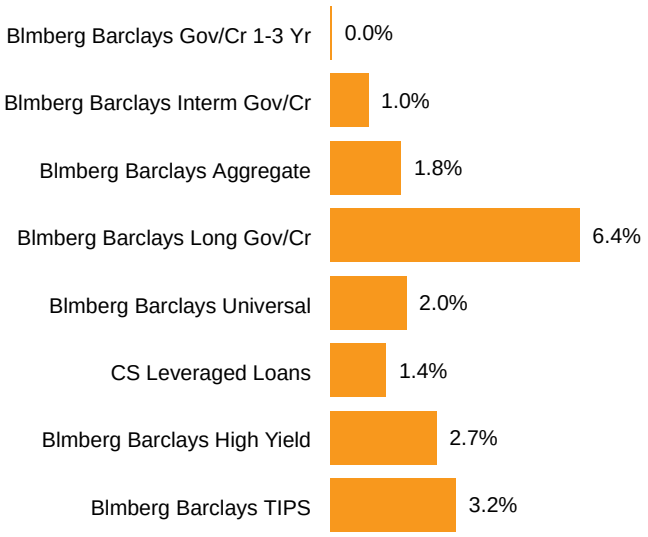
Munis outperform Treasuries as economies re-open

- Municipals topped treasuries, as municipal yields rose less than treasury yields.
- The municipal market was supported by the American Rescue Act.

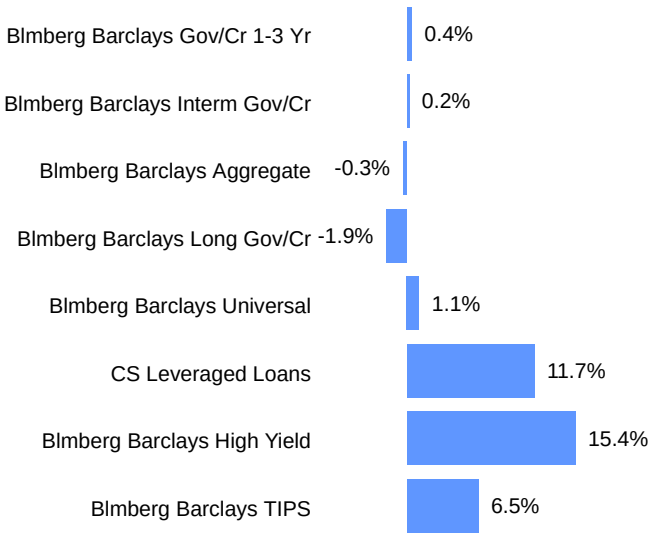
Tight corporate spreads and fall in default rate

- Corporate credit spreads have not traded this tight since 1H07
- Default rate is declining from the near-term highs reached during the pandemic. Fed's support provided issuers the opportunity to term out their existing debt and extend maturities, while accelerating growth and better-than-expected earnings were tailwinds to debt holders.
- 2021 marks the most modest first half of a calendar year for defaults/distressed transactions since 2011, according to JPMorgan.
- Some market participants have lowered their rolling 12-month default forecasts to a range of <1% to 2.5% for 2021.

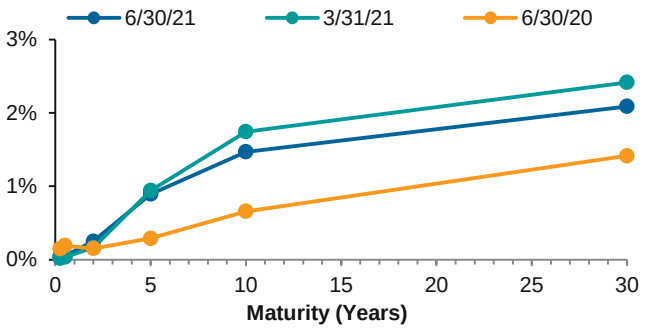
U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: One-Year Returns



U.S. Treasury Yield Curves



Sources: Bloomberg, Bloomberg Barclays, Credit Suisse

GLOBAL FIXED INCOME

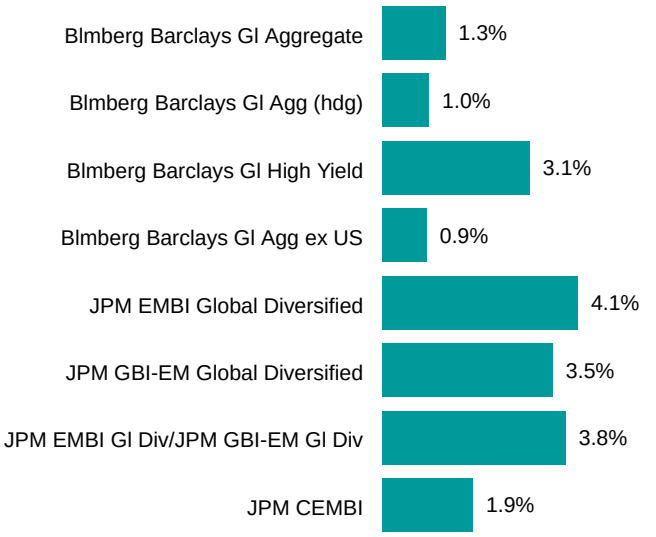
Global fixed income posts positive returns

- Global fixed income ex-U.S. (hedged) gained as global economies re-opened, albeit underperforming the US Aggregate.
- The U.S. dollar was mixed against developed currencies, up 0.3% versus the yen; down 1.1% vs. euro, 1.3% vs. the Canadian dollar, 2.0% vs. the Swiss franc.

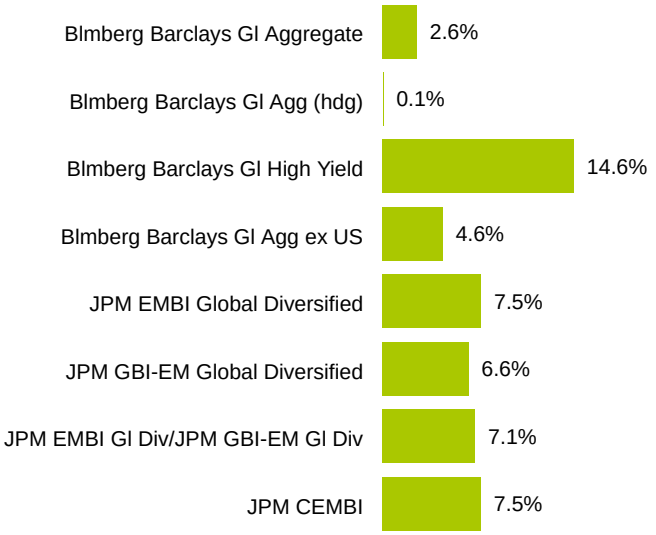
Emerging market debt gains

- Emerging market debt rallied in 2Q21, with JPM EMBI Global Diversified gaining 4.1% in hard currency, as falling U.S. rates spilled into emerging markets, and 3.5% in local currency. However, both remained down YTD, -0.7% and -3.4%, respectively.
- The U.S. dollar generally depreciated versus emerging currencies. Notables include -1.5% vs. Chinese yuan and -13.4% vs. Brazilian real.
- EM corporates fared better than sovereigns amid improving corporate fundamentals and global economic recovery.
- Local currency index (GBI-EM Global Diversified) slightly trailed hard currency, as real GDP growth expectations increased.

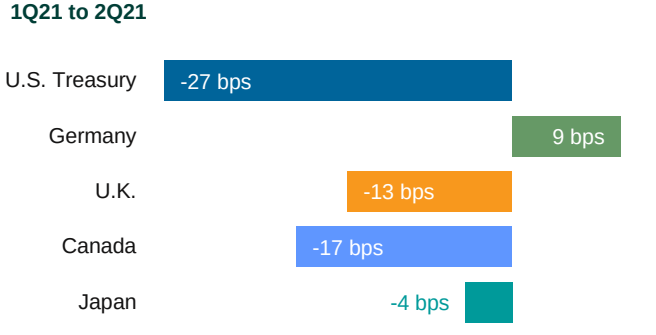
Global Fixed Income: Quarterly Returns



Global Fixed Income: One-Year Returns



Change in 10-Year Global Government Bond Yields



Sources: Bloomberg, Bloomberg Barclays, JP Morgan

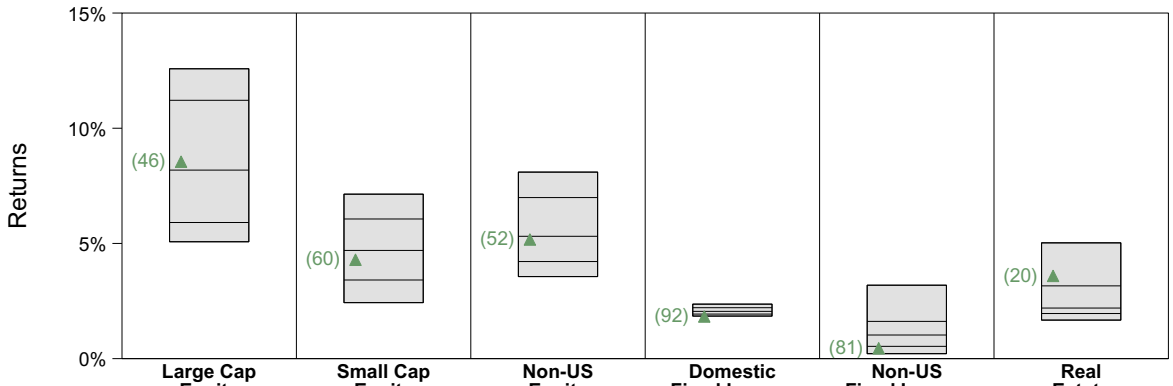
Active Management Overview

Market Overview
Active Management vs Index Returns

Market Overview

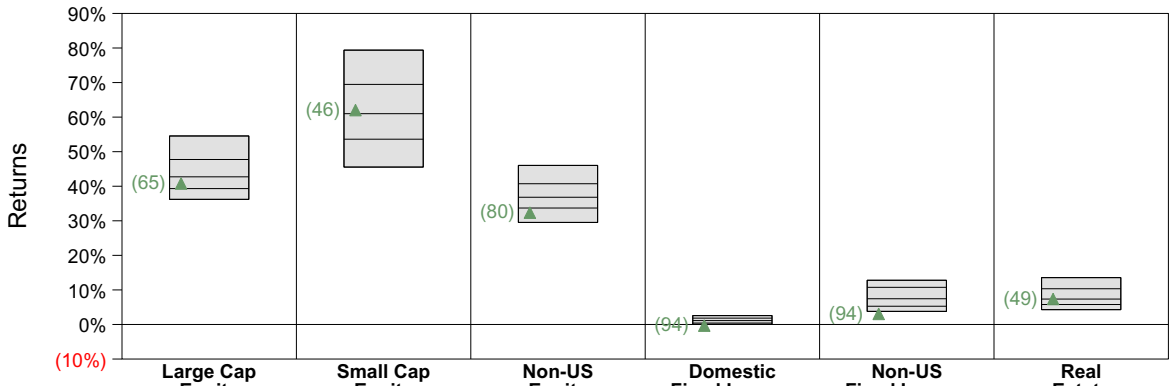
The charts below illustrate the range of returns across managers in Callan's Separate Account database over the most recent one quarter and one year time periods. The database is broken down by asset class to illustrate the difference in returns across those asset classes. An appropriate index is also shown for each asset class for comparison purposes. As an example, the first bar in the upper chart illustrates the range of returns for domestic equity managers over the last quarter. The triangle represents the S&P 500 return. The number next to the triangle represents the ranking of the S&P 500 in the Large Cap Equity manager database.

Range of Separate Account Manager Returns by Asset Class
One Quarter Ended June 30, 2021



	Large Cap Equity vs S&P 500	Small Cap Equity vs Russell 2000	Non-US Equity vs MSCI EAFE	Domestic Fixed Income vs Blmbg Aggr Bd	Non-US Fixed Income vs Citi Non-US Govt	Real Estate vs NCREIF Index
10th Percentile	12.58	7.14	8.10	2.37	3.19	5.03
25th Percentile	11.21	6.06	6.99	2.21	1.62	3.16
Median	8.18	4.70	5.31	2.05	1.03	2.20
75th Percentile	5.91	3.41	4.21	1.93	0.53	1.96
90th Percentile	5.07	2.43	3.56	1.85	0.22	1.67
Index ▲	8.55	4.29	5.17	1.83	0.45	3.59

Range of Separate Account Manager Returns by Asset Class
One Year Ended June 30, 2021

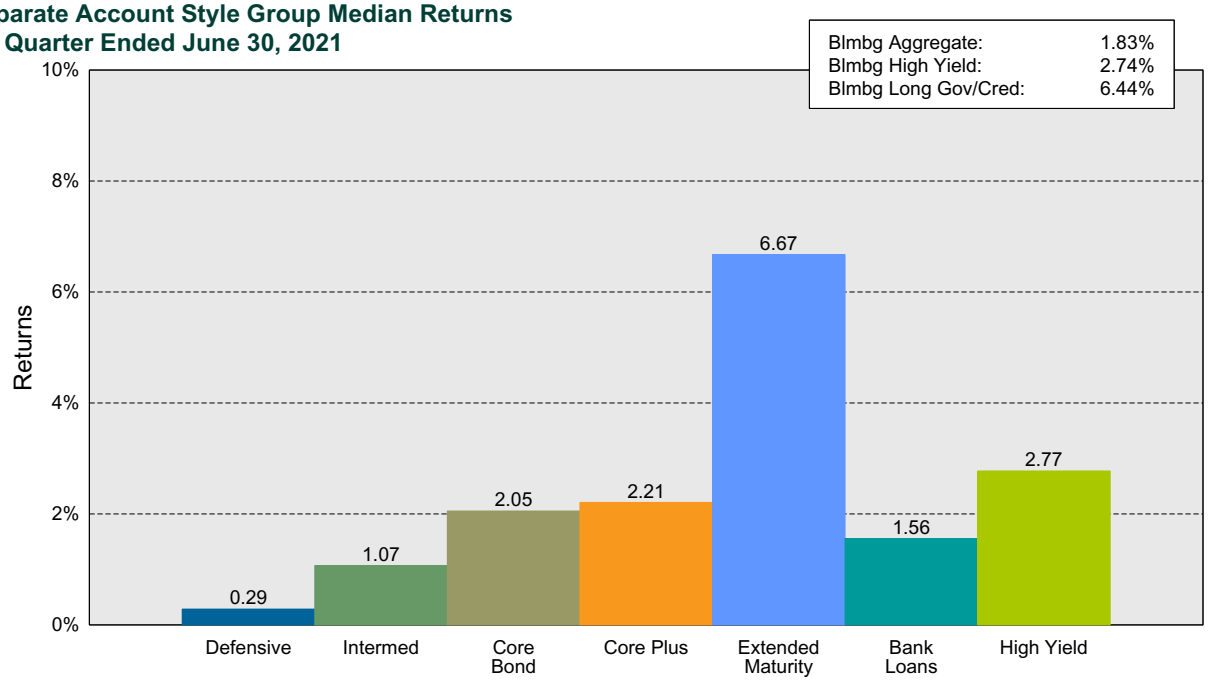


	Large Cap Equity vs S&P 500	Small Cap Equity vs Russell 2000	Non-US Equity vs MSCI EAFE	Domestic Fixed Income vs Blmbg Aggr Bd	Non-US Fixed Income vs Citi Non-US Govt	Real Estate vs NCREIF Index
10th Percentile	54.55	79.38	46.03	2.57	12.79	13.56
25th Percentile	47.74	69.47	40.73	1.84	10.75	10.34
Median	42.72	60.99	36.81	1.13	7.45	7.35
75th Percentile	39.32	53.61	33.69	0.42	5.28	5.78
90th Percentile	36.20	45.54	29.53	0.05	3.79	4.29
Index ▲	40.79	62.03	32.35	(0.33)	3.06	7.37

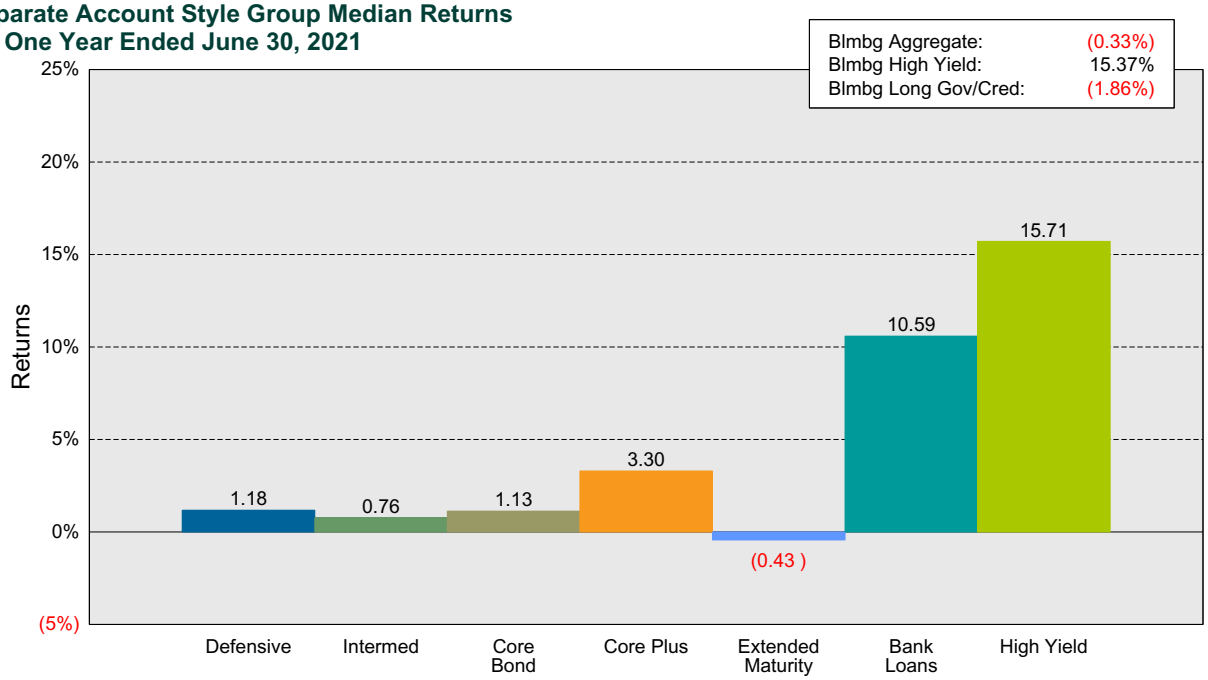
Domestic Fixed Income
Active Management Overview

The 10-year U.S. Treasury yield declined steadily throughout the quarter, from 1.74% as of 3/31 to 1.45%. The Bloomberg Barclays US Aggregate Bond Index rose 1.8% but remains down 1.6% YTD. Strong equity performance and robust economic data fueled risk appetites, and lower-quality securities were the best performers again this quarter. Corporates outperformed Treasuries as investors continued to reach for yield in spite of the paltry yield advantage (the average option-adjusted spread on the Corporate Index was 80 bps as of quarter-end, the lowest since 1998). The Bloomberg Barclays High Yield Index was up 2.7%. The absolute yield-to-worst for the Index reached an all-time low of 3.75% and its option-adjusted spread hit 268 bps, the lowest since 2007.

Separate Account Style Group Median Returns for Quarter Ended June 30, 2021



Separate Account Style Group Median Returns for One Year Ended June 30, 2021



Asset Allocation

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2021, with the distribution as of March 31, 2021. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	June 30, 2021				March 31, 2021	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Domestic Fixed Income						
Long Term Operating Fund*	685,922,367	76.75%	30,000,000	1,537,401	654,384,966	79.79%
Liquid Operating Monies*	207,817,043	23.25%	42,000,000	30,423	165,786,620	20.21%
Total Fund	**$893,739,409**	**100.0%**	**$72,000,000**	**$1,567,824**	**$820,171,585**	**100.0%**

*Chandler replaced PIMCO during the 4th quarter of 2014. Assets were transferred in-kind as of 12/01/2014.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2021. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2021

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Domestic Fixed Income					
Long Term Operating Fund^	0.25%	0.28%	3.48%	2.17%	2.07%
Chandler	0.25%	0.28%	3.48%	2.17%	-
Blmbg Govt/Cred 1-5 Year Idx	0.27%	0.40%	3.70%	2.18%	2.12%
ML 1-5 Govt/Corp	0.30%	0.57%	3.73%	2.22%	2.15%
Liquid Operating Monies^	0.01%	0.12%	1.45%	1.26%	0.97%
Chandler	0.01%	0.12%	1.45%	1.26%	-
Citigroup 3-Month Treasury Bill	0.01%	0.08%	1.31%	1.14%	0.84%
Total Fund	**0.22%**	**0.27%**	**3.11%**	**1.97%**	**1.84%**
Target*	0.24%	0.47%	3.24%	2.00%	1.89%

* Current Quarter Target = 80.0% ML:Corp/Gov 1-5 Yr and 20.0% FTSE 3 Mo T-Bill.
^Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2021. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2021

	Last 10 Years	Last 15 Years	Last 25-3/4 Years
Domestic Fixed Income			
Long Term Operating Fund^	2.01%	3.18%	4.14%
Blmbg Govt/Cred 1-5 Year Idx	1.98%	3.07%	3.99%
ML 1-5 Govt/Corp	2.03%	3.10%	4.02%
Liquid Operating Monies^	0.72%	1.23%	2.46%
Citigroup 3-Month Treasury Bill	0.60%	1.02%	2.17%
Total Fund	**1.77%**	**2.80%**	**3.87%**
Target*	1.75%	2.68%	3.65%

* Current Quarter Target = 80.0% ML:Corp/Gov 1-5 Yr and 20.0% FTSE 3 Mo T-Bill.
^Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	12/2020-6/2021	2020	2019	2018	2017
Domestic Fixed Income					
Long Term Operating Fund^	(0.24%)	4.42%	4.70%	1.60%	1.18%
Chandler	(0.24%)	4.42%	4.70%	1.60%	1.18%
Blmbg Govt/Cred 1-5 Year Idx	(0.30%)	4.71%	5.01%	1.38%	1.27%
ML 1-5 Govt/Corp	(0.22%)	4.65%	5.08%	1.40%	1.28%
Liquid Operating Monies^	0.05%	0.84%	2.39%	1.90%	0.91%
Chandler	0.05%	0.84%	2.39%	1.90%	0.91%
Citigroup 3-Month Treasury Bill	0.03%	0.58%	2.25%	1.86%	0.84%
Total Fund	**(0.16%)**	**3.73%**	**4.26%**	**1.72%**	**1.02%**
Target*	(0.17%)	3.82%	4.51%	1.49%	1.19%

* Current Quarter Target = 80.0% ML:Corp/Gov 1-5 Yr and 20.0% FTSE 3 Mo T-Bill.
^Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

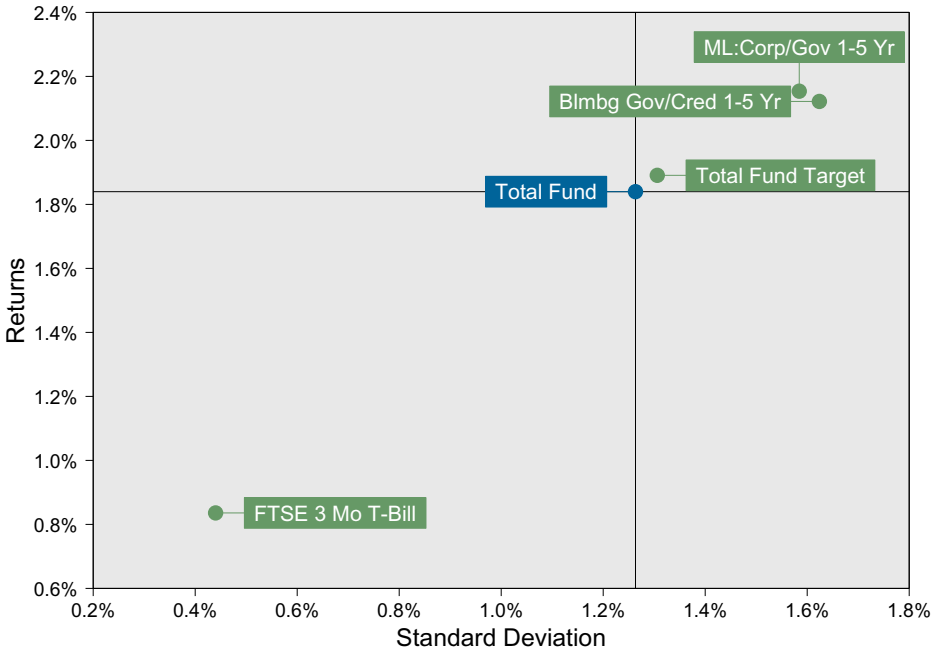
	2016	2015	2014	2013	2012
Domestic Fixed Income					
Long Term Operating Fund^	1.58%	0.85%	1.98%	(1.77%)	3.06%
Blmbg Govt/Cred 1-5 Year Idx	1.56%	0.97%	1.42%	0.28%	2.24%
ML 1-5 Govt/Corp	1.62%	1.05%	1.51%	0.32%	2.47%
Liquid Operating Monies^	0.47%	0.22%	0.09%	0.13%	0.17%
Citigroup 3-Month Treasury Bill	0.27%	0.03%	0.03%	0.05%	0.07%
Total Fund	**1.15%**	**0.80%**	**1.73%**	**(1.49%)**	**2.70%**
Target*	1.35%	0.85%	1.21%	0.26%	1.99%

* Current Quarter Target = 80.0% ML:Corp/Gov 1-5 Yr and 20.0% FTSE 3 Mo T-Bill.
^Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

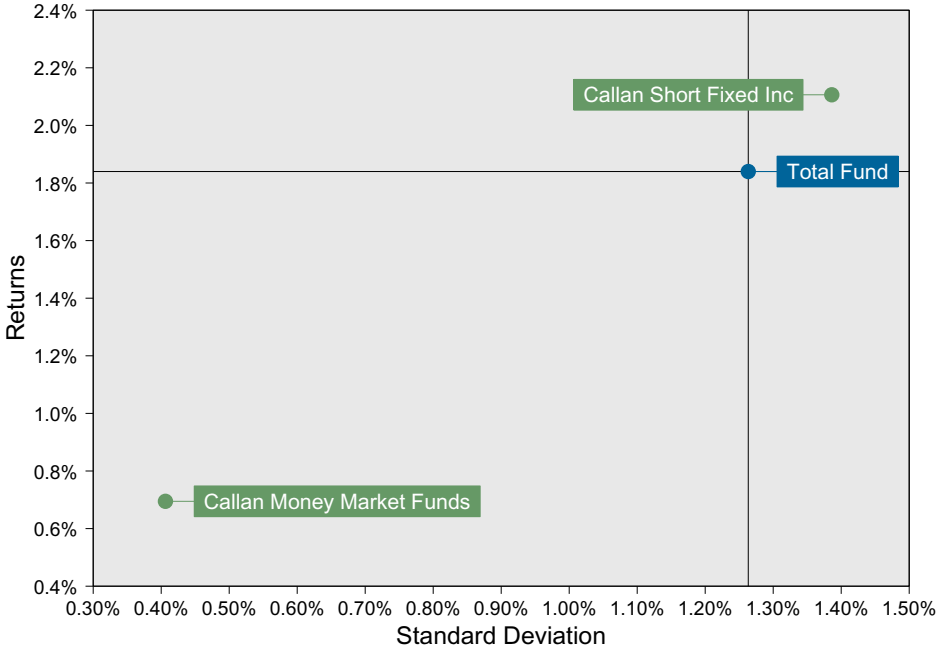
Asset Class Risk and Return

The charts below show the seven year annualized risk and return for each asset class component of the Total Fund. The first graph contrasts these values with those of the appropriate index for each asset class. The second chart contrasts them with the risk and return of the median portfolio in each of the appropriate CAI comparative databases. In each case, the crosshairs on the chart represent the return and risk of the Total Fund.

Seven Year Annualized Risk vs Return
Asset Classes vs Benchmark Indices



Seven Year Annualized Risk vs Return
Asset Classes vs Asset Class Median



Manager Analysis

Long Term Operating Fund
Period Ended June 30, 2021

Investment Philosophy

Chandler Asset Management's Short Term Bond strategy is driven by quantitative models and focuses on active duration management, sector selection and term structure. The strategy seeks to achieve consistent above-benchmark returns with low volatility relative to the style's performance benchmark. The firm has a unique focus on high quality fixed income management, and places risk control as a higher objective than return. Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

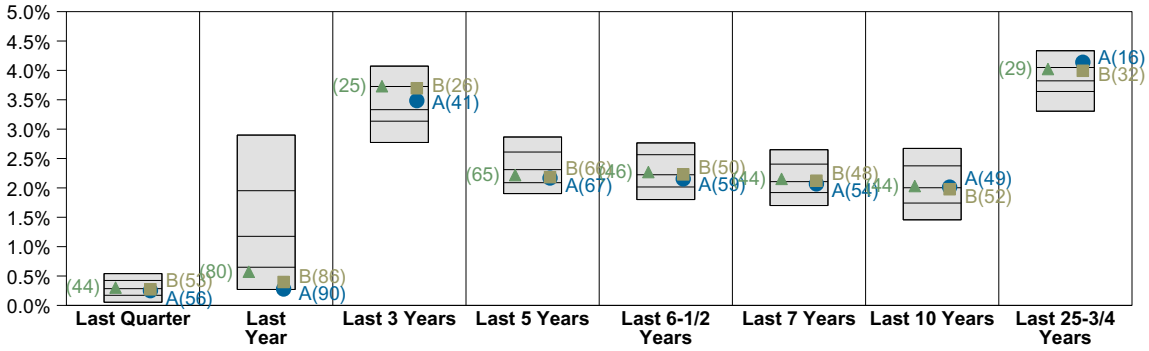
Quarterly Summary and Highlights

- Long Term Operating Fund's portfolio posted a 0.25% return for the quarter placing it in the 56 percentile of the Callan Short Term Fixed Income group for the quarter and in the 90 percentile for the last year.
- Long Term Operating Fund's portfolio underperformed the ML:Corp/Gov 1-5 Yr by 0.05% for the quarter and underperformed the ML:Corp/Gov 1-5 Yr for the year by 0.29%.

Quarterly Asset Growth

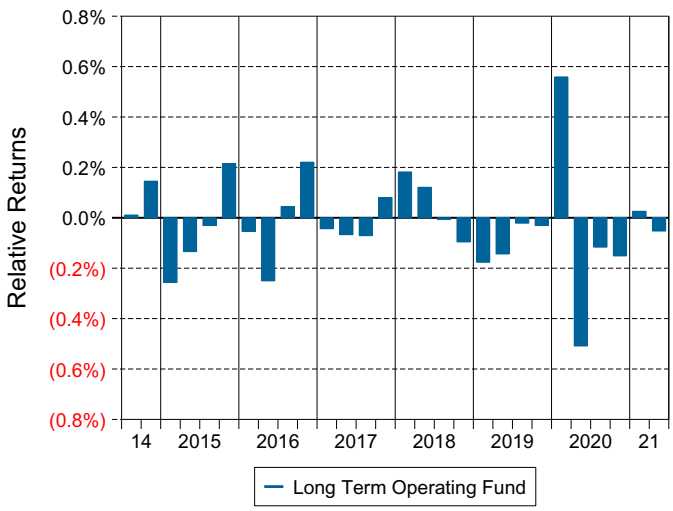
Beginning Market Value	$654,384,966
Net New Investment	$30,000,000
Investment Gains/(Losses)	$1,537,401
Ending Market Value	$685,922,367

Performance vs Callan Short Term Fixed Income (Gross)

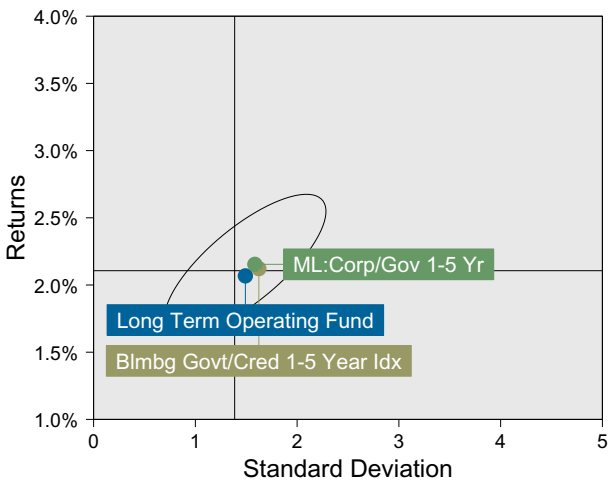


		Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6-1/2 Years	Last 7 Years	Last 10 Years	Last 25-3/4 Years
10th Percentile		0.54	2.90	4.07	2.87	2.77	2.65	2.67	4.33
25th Percentile		0.42	1.95	3.73	2.61	2.56	2.40	2.38	4.05
Median		0.29	1.18	3.33	2.31	2.22	2.11	2.00	3.82
75th Percentile		0.17	0.65	3.14	2.09	2.02	1.92	1.74	3.64
90th Percentile		0.05	0.27	2.77	1.90	1.80	1.70	1.46	3.31
Long Term Operating Fund	A	0.25	0.28	3.48	2.17	2.15	2.07	2.01	4.14
Blmbg Govt/Cred 1-5 Year Idx	B	0.27	0.40	3.70	2.18	2.23	2.12	1.98	3.99
ML:Corp/Gov 1-5 Yr	▲	0.30	0.57	3.73	2.22	2.27	2.15	2.03	4.02

Relative Return vs ML:Corp/Gov 1-5 Yr



Callan Short Term Fixed Income (Gross) Annualized Seven Year Risk vs Return

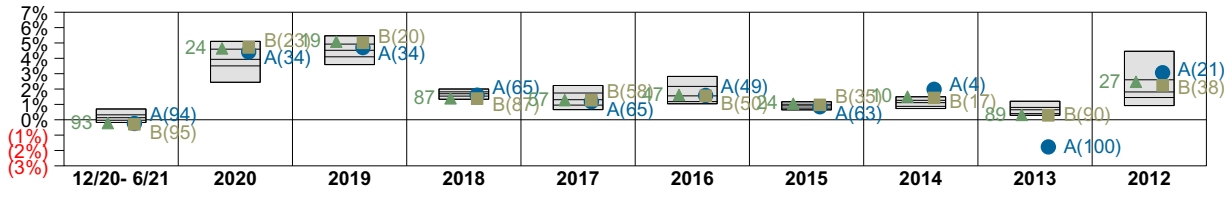


Long Term Operating Fund
Return Analysis Summary

Return Analysis

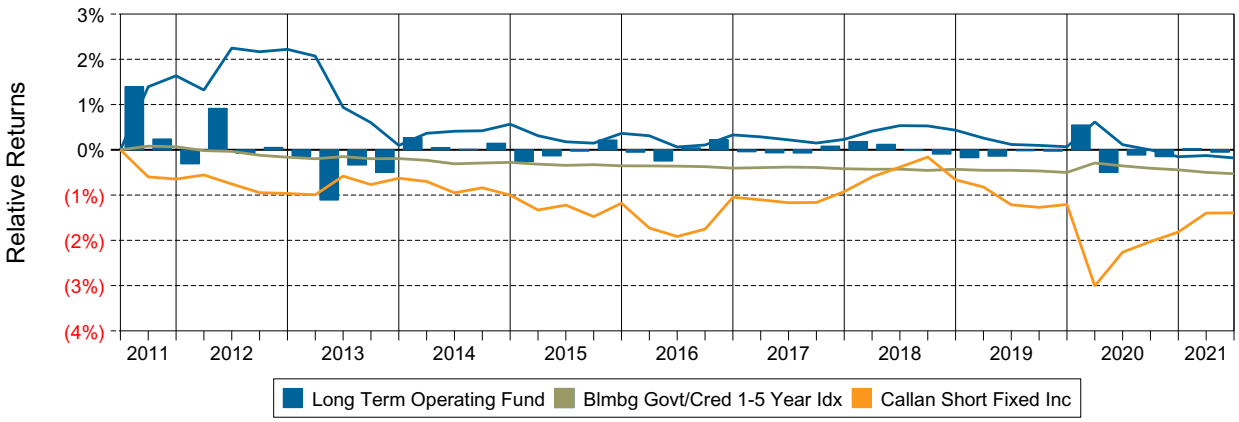
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.
Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

Performance vs Callan Short Term Fixed Income (Gross)

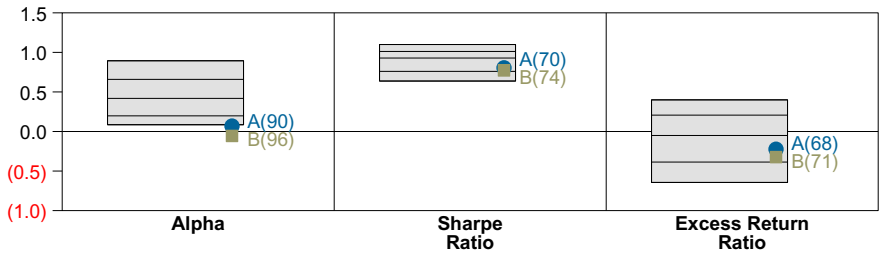


		12/20- 6/21	2020	2019	2018	2017	2016	2015	2014	2013	2012
10th Percentile		0.70	5.10	5.47	2.00	2.23	2.82	1.17	1.50	1.20	4.46
25th Percentile		0.32	4.59	4.92	1.82	1.74	2.17	1.01	1.27	0.80	2.60
Median		0.14	3.93	4.52	1.69	1.31	1.56	0.91	1.11	0.65	1.81
75th Percentile		(0.03)	3.51	4.10	1.54	0.95	1.18	0.76	0.87	0.40	1.45
90th Percentile		(0.18)	2.44	3.59	1.33	0.66	1.04	0.64	0.73	0.29	0.92
Long Term Operating Fund	A	(0.24)	4.42	4.70	1.60	1.18	1.58	0.85	1.98	(1.77)	3.06
Blmbg Govt/Cred 1-5 Year Idx	B	(0.30)	4.71	5.01	1.38	1.27	1.56	0.97	1.42	0.28	2.24
ML:Corp/Gov 1-5 Yr	▲	(0.22)	4.65	5.08	1.40	1.28	1.62	1.05	1.51	0.32	2.47

Cumulative and Quarterly Relative Return vs ML:Corp/Gov 1-5 Yr



Risk Adjusted Return Measures vs ML:Corp/Gov 1-5 Yr
Rankings Against Callan Short Term Fixed Income (Gross)
Seven Years Ended June 30, 2021



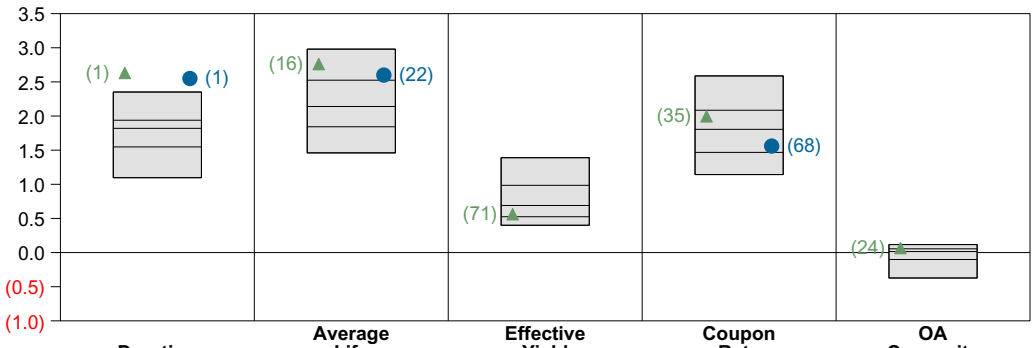
		Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile		0.89	1.10	0.40
25th Percentile		0.66	1.01	0.21
Median		0.42	0.93	(0.05)
75th Percentile		0.20	0.76	(0.39)
90th Percentile		0.09	0.64	(0.64)
Long Term Operating Fund	A	0.07	0.80	(0.22)
Blmbg Govt/Cred 1-5 Year Idx	B	(0.06)	0.77	(0.32)

Long Term Operating Fund
Bond Characteristics Analysis Summary

Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics
Rankings Against Callan Short Term Fixed Income
as of June 30, 2021

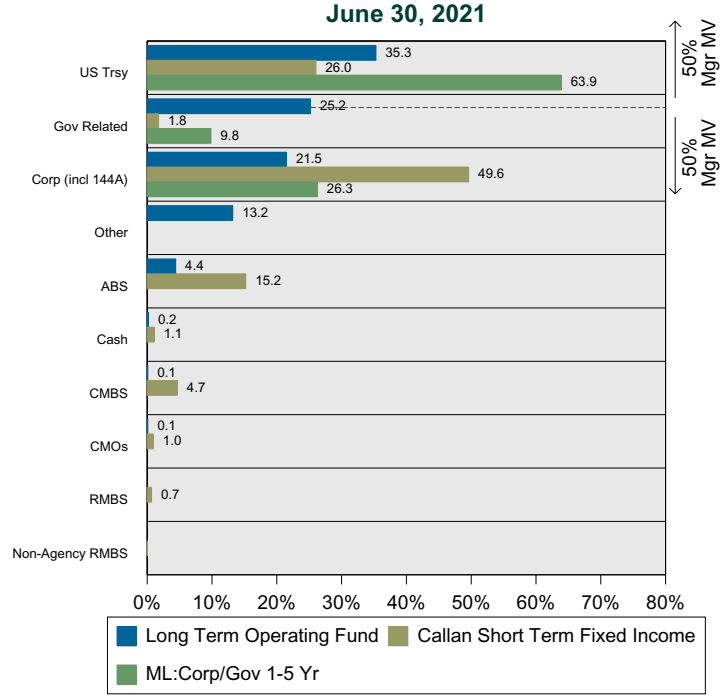


	Duration	Average Life	Effective Yield	Coupon Rate	OA Convexity
10th Percentile	2.35	2.98	1.39	2.59	0.12
25th Percentile	1.94	2.53	0.99	2.09	0.05
Median	1.82	2.14	0.69	1.81	0.01
75th Percentile	1.55	1.84	0.52	1.47	(0.10)
90th Percentile	1.10	1.46	0.40	1.14	(0.37)
Long Term Operating Fund ●	2.55	2.60	-	1.56	-
ML:Corp/Gov 1-5 Yr ▲	2.63	2.76	0.56	2.00	0.07

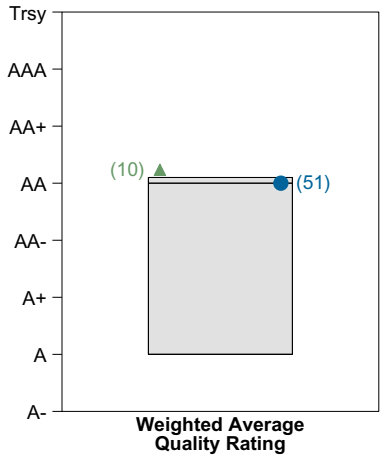
Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

Sector Allocation
June 30, 2021



Quality Ratings
vs Callan Short Term Fixed Income



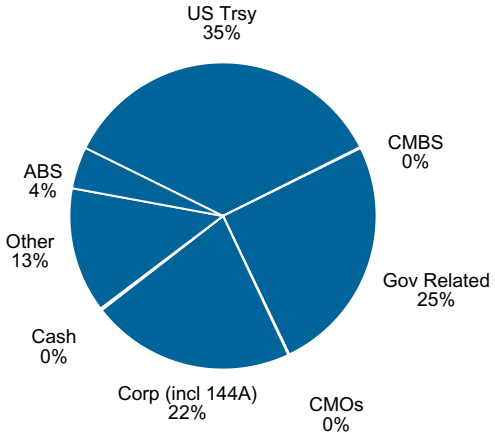
10th Percentile	AA
25th Percentile	AA
Median	AA
75th Percentile	A
90th Percentile	A
Long Term Operating Fund ●	AA
ML:Corp/Gov 1-5 Yr ▲	AA

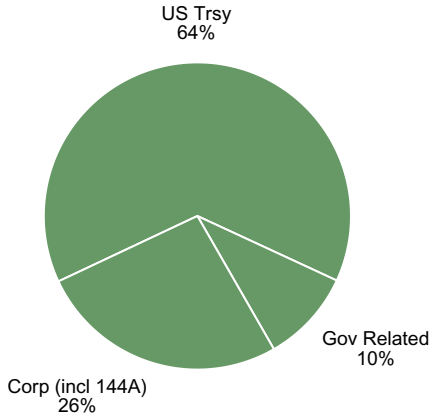
Long Term Operating Fund
Portfolio Characteristics Summary
As of June 30, 2021

Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

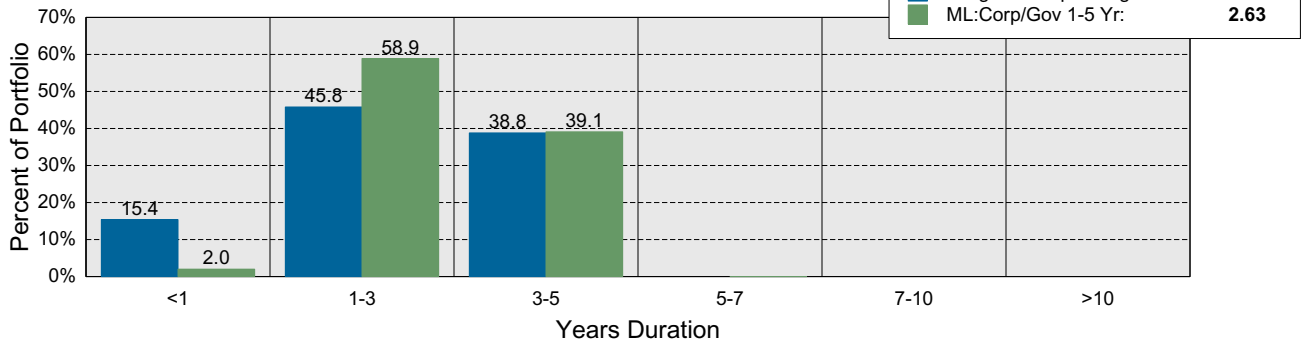
Sector Allocation



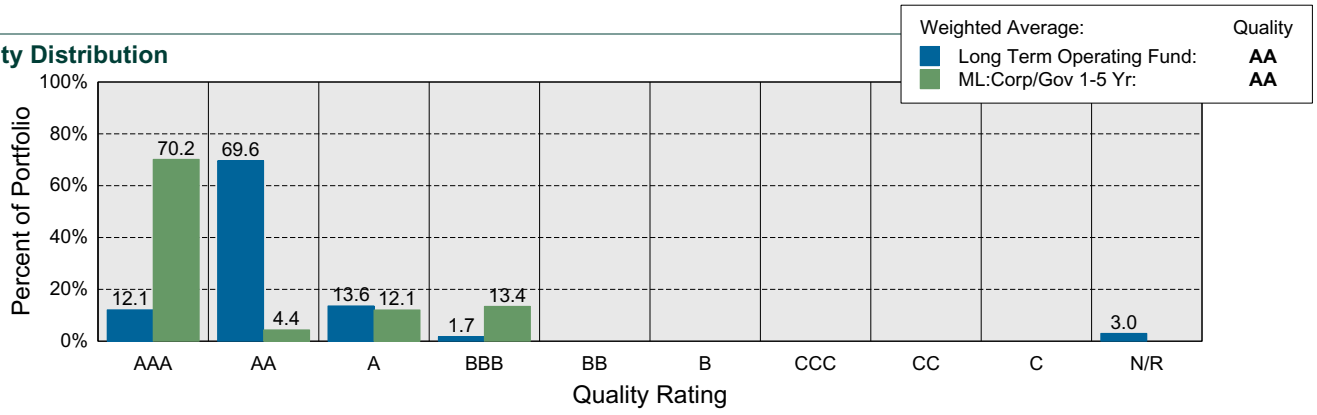


Long Term Operating Fund **ML:Corp/Gov 1-5 Yr**

Duration Distribution



Quality Distribution



Chandler-Liquid Operating Money
Period Ended June 30, 2021

Investment Philosophy

Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

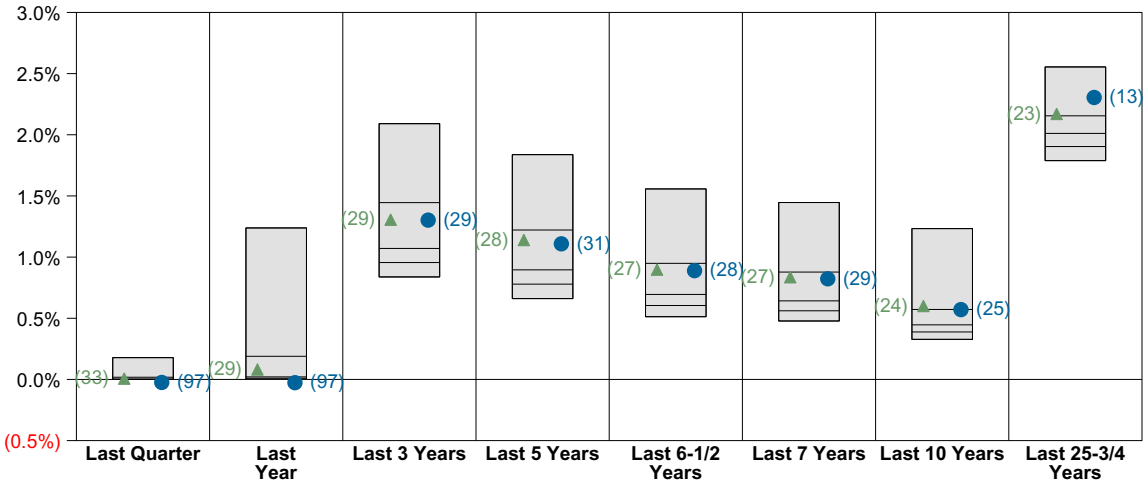
Quarterly Summary and Highlights

- Liquid Operating Money Net's portfolio posted a (0.02)% return for the quarter placing it in the 97 percentile of the Callan Money Market Funds group for the quarter and in the 97 percentile for the last year.
- Liquid Operating Money Net's portfolio underperformed the Citigroup 3-Month Treasury Bill by 0.03% for the quarter and underperformed the Citigroup 3-Month Treasury Bill for the year by 0.11%.

Quarterly Asset Growth

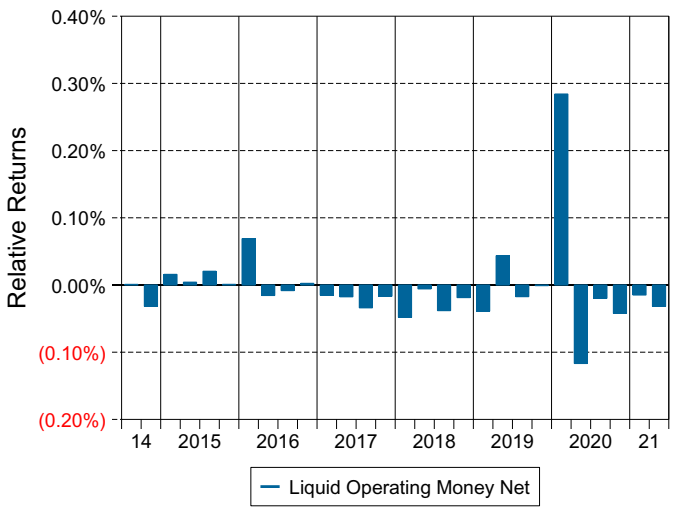
Beginning Market Value	$165,786,620
Net New Investment	$42,000,000
Investment Gains/(Losses)	$30,423
Ending Market Value	$207,817,043

Performance vs Callan Money Market Funds (Net)

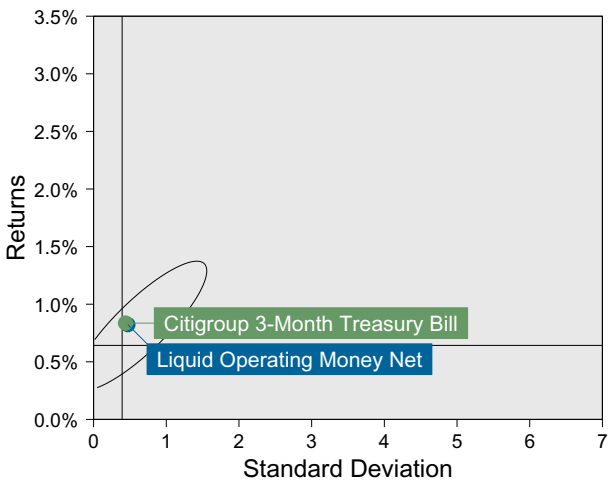


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6-1/2 Years	Last 7 Years	Last 10 Years	Last 25-3/4 Years
10th Percentile	0.18	1.24	2.09	1.84	1.56	1.45	1.23	2.55
25th Percentile	0.02	0.19	1.45	1.22	0.95	0.88	0.57	2.15
Median	0.00	0.02	1.07	0.90	0.69	0.64	0.45	2.01
75th Percentile	0.00	0.01	0.96	0.78	0.60	0.56	0.39	1.90
90th Percentile	0.00	0.00	0.84	0.66	0.51	0.48	0.33	1.79
Liquid Operating Money Net	(0.02)	(0.03)	1.30	1.11	0.89	0.82	0.57	2.30
Citigroup 3-Month Treasury Bill	0.01	0.08	1.31	1.14	0.90	0.84	0.60	2.17

Relative Returns vs Citigroup 3-Month Treasury Bill



Callan Money Market Funds (Net) Annualized Seven Year Risk vs Return

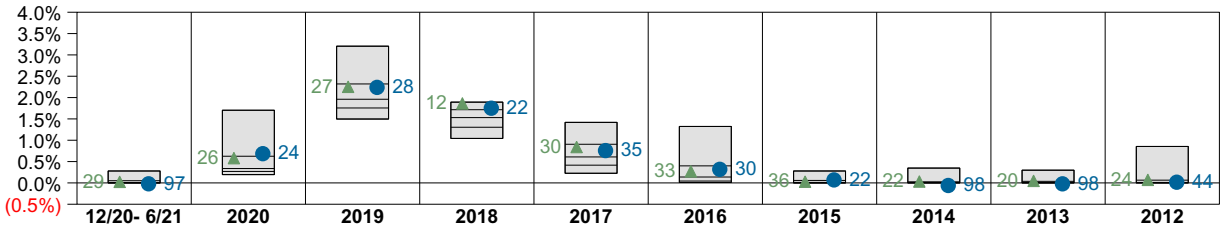


Liquid Operating Money Net
Return Analysis Summary

Return Analysis

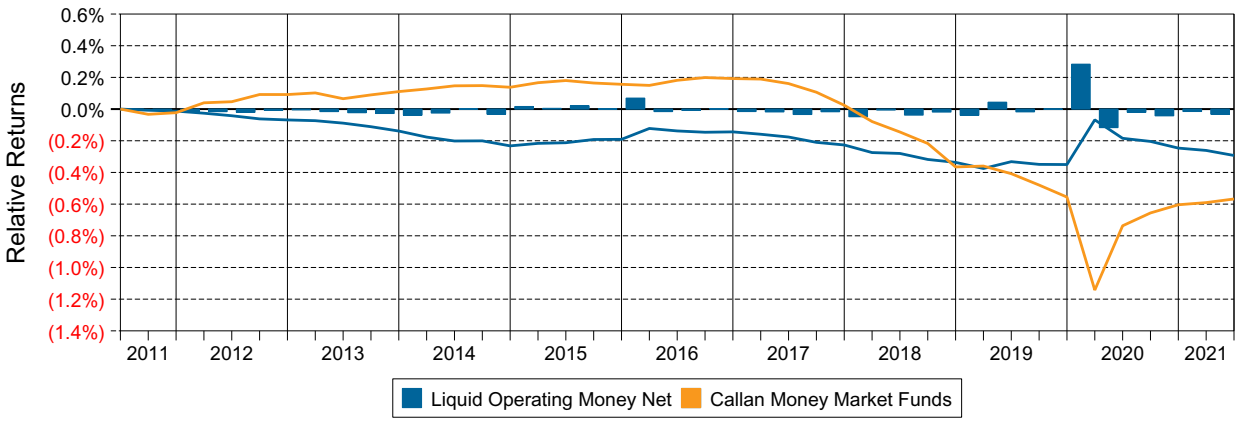
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.
Assets were transferred in kind to Chandler on 12/1/2014. Previous performance reflects PIMCO.

Performance vs Callan Money Market Funds (Net)

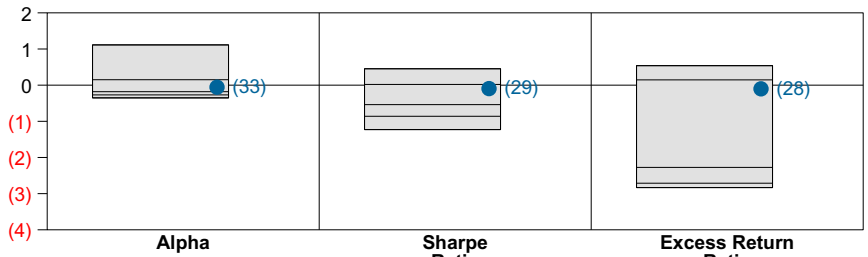


	12/20- 6/21	2020	2019	2018	2017	2016	2015	2014	2013	2012
10th Percentile	0.28	1.70	3.20	1.89	1.42	1.32	0.28	0.35	0.30	0.85
25th Percentile	0.05	0.62	2.32	1.72	0.91	0.40	0.06	0.03	0.04	0.06
Median	0.01	0.34	1.96	1.53	0.61	0.14	0.01	0.01	0.01	0.01
75th Percentile	0.00	0.27	1.76	1.30	0.42	0.04	0.01	0.01	0.01	0.01
90th Percentile	0.00	0.19	1.50	1.04	0.23	0.01	0.00	0.00	0.00	0.00
Liquid Operating Money Net	(0.02)	0.69	2.24	1.75	0.76	0.32	0.07	(0.06)	(0.02)	0.02
Citigroup 3-Month Treasury Bill	0.03	0.58	2.25	1.86	0.84	0.27	0.03	0.03	0.05	0.07

Cumulative and Quarterly Relative Return vs Citigroup 3-Month Treasury Bill



Risk Adjusted Return Measures vs Citigroup 3-Month Treasury Bill
Rankings Against Callan Money Market Funds (Net)
Seven Years Ended June 30, 2021



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.11	0.45	0.54
25th Percentile	0.15	0.02	0.15
Median	(0.18)	(0.54)	(2.27)
75th Percentile	(0.27)	(0.86)	(2.71)
90th Percentile	(0.35)	(1.23)	(2.83)
Liquid Operating Money Net	(0.06)	(0.10)	(0.10)

Callan Research/Education

Callan Institute

Education

2nd Quarter 2021

Quarterly Highlights

The Callan Institute provides research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit www.callan.com/research-library to see all of our publications, and www.callan.com/blog to view our blog. For more information contact Barb Gerraty at 415-274-3093 / institute@callan.com.

New Research from Callan's Experts

Research Cafe: Insurance | Callan's Insurance Focus Leader Sara Hakim discusses AM Best's rating methodology and current research findings with the firm's associate director Fred Eslami. They also discuss insurance assets and general insurance themes in the marketplace.

Webinar: The Fed's Not Concerned About Inflation. Should You Be? | Inflation is top of mind and the fear around it sparks the question of how to best structure a portfolio to protect it in an inflationary environment. Callan specialists Jay Kloepfer and Jim Van Heuit share their knowledge about the issue.

A Guide to Implementing a China A-Shares Allocation | Callan's Ho Hwang provides a detailed exploration on how institutional investors can implement an allocation to China A-shares, focusing on manager search issues and benchmarking.

Research Cafe: Callan Institute's ESG Interview Series | During this interview, Tom Shingler of Callan discusses with Carol Jeppesen from Principles for Responsible Investment its mission, and what it means to be a PRI signatory for asset owners, asset managers, and service providers like Callan.

Blog Highlights

Capital Markets Assumptions and the Future | The question that we often get from clients is, "How have you done in the past when predicting the future of the capital markets?" This blog post provides the answer.

A JOLT of Inflation from the Labor Market? | Recent economic reports have prompted fears that prices in the U.S. are about to take off. While increasing costs have been widespread, the greatest opportunity for sustained price increases lies in the labor market.

When the Passive Index Is an Active Decision | At first blush, the two most prominent large cap indices, the S&P 500 and Russell 1000 Indices, do not seem all that different. But it turns out they can be quite different, and choosing an index series for your passive manager to track can indeed be an active decision.

Putting Values into Action: A Practical Guide for Institutional Investors | Many institutional investors are becoming more active in emphasizing values-oriented investments. This can take several forms, but whatever the approach, it requires a deliberate and thoughtful process for successful implementation.

Quarterly Periodicals

Private Equity Trends, 1Q21 | A high-level summary of private equity activity in the quarter through all the investment stages

Active vs. Passive Charts, 1Q21 | A comparison of active managers alongside relevant benchmarks over the long term

Market Pulse Flipbook, 1Q21 | A quarterly market reference guide covering trends in the U.S. economy, developments for institutional investors, and the latest data on the capital markets

Capital Markets Review, 1Q21 | Analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes

Hedge Fund Quarterly, 1Q21 | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

Real Assets Reporter, 1Q21 | A summary of market activity for real assets and private real estate during the quarter

Events

Miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: callan.com/research-library

Please mark your calendar and look forward to upcoming invitations:

Regional Workshops

November 2, 2021, in Atlanta
November 5, 2021, in San Francisco

For more information about events, please contact Barb Gerraty: 415-274-3093 / gerraty@callan.com

Education: By the Numbers

50+	Unique pieces of research the Institute generates each year
525	Attendees (on average) of the Institute's annual National Conference
3,700	Total attendees of the "Callan College" since 1994

Education

Founded in 1994, the "Callan College" offers educational sessions for industry professionals involved in the investment decision-making process.

Introduction to Investments
August 17-19, 2021 - Virtual
October 6-7, 2021 - Chicago
October 26-28, 2021 - Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. Our virtual session is held over three days with virtual modules of 2.5-3 hours, while the in-person lasts one-and-a-half days. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Virtual tuition is $950 per person and includes instruction and digital materials. In-person tuition is $2,350 per person and includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

Additional information including registration can be found at: callan.com/events-education

Alternative Investments
October 19-20, 2021 - Virtual

Alternative investments like private equity, hedge funds, and real estate can play a key role in any portfolio. In our "Callan College" on Alternatives, you will learn about the importance of allocations to alternatives, and how to consider integrating, evaluating, and monitoring them. Two morning "virtual" sessions will cover topics such as: why invest in alternatives, risk/return characteristics, designing and implementing a program, and trends and case studies.

Additional information including dates and registration can be found at: callan.com/events/oct-alts-college/

"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialogue to raise the bar across the industry."

Greg Allen, CEO and Chief Research Officer

Definitions

Risk/Reward Statistics

The risk statistics used in this report examine performance characteristics of a manager or a portfolio relative to a benchmark (market indicator) which assumes to represent overall movements in the asset class being considered. The main unit of analysis is the excess return, which is the portfolio return minus the return on a risk free asset (3 month T-Bill).

Alpha measures a portfolio's return in excess of the market return adjusted for risk. It is a measure of the manager's contribution to performance with reference to security selection. A positive alpha indicates that a portfolio was positively rewarded for the residual risk which was taken for that level of market exposure.

Beta measures the sensitivity of rates of portfolio returns to movements in the market index. A portfolio's beta measures the expected change in return per 1% change in the return on the market. If a beta of a portfolio is 1.5, a 1 percent increase in the return on the market will result, on average, in a 1.5 percent increase in the return on the portfolio. The converse would also be true.

Downside Risk stems from the desire to differentiate between "good risk" (upside volatility) and "bad risk" (downside volatility). Whereas standard deviation punishes both upside and downside volatility, downside risk measures only the standard deviation of returns below the target. Returns above the target are assigned a deviation of zero. Both the frequency and magnitude of underperformance affect the amount of downside risk.

Excess Return Ratio is a measure of risk adjusted relative return. This ratio captures the amount of active management performance (value added relative to an index) per unit of active management risk (tracking error against the index.) It is calculated by dividing the manager's annualized cumulative excess return relative to the index by the standard deviation of the individual quarterly excess returns. The Excess Return Ratio can be interpreted as the manager's active risk/reward tradeoff for diverging from the index when the index is mandated to be the "riskless" market position.

Information Ratio measures the manager's market risk-adjusted excess return per unit of residual risk relative to a benchmark. It is computed by dividing alpha by the residual risk over a given time period. Assuming all other factors being equal, managers with lower residual risk achieve higher values in the information ratio. Managers with higher information ratios will add value relative to the benchmark more reliably and consistently.

R-Squared indicates the extent to which the variability of the portfolio returns are explained by market action. It can also be thought of as measuring the diversification relative to the appropriate benchmark. An r-squared value of .75 indicates that 75% of the fluctuation in a portfolio return is explained by market action. An r-squared of 1.0 indicates that a portfolio's returns are entirely related to the market and it is not influenced by other factors. An r-squared of zero indicates that no relationship exists between the portfolio's return and the market.

Relative Standard Deviation is a simple measure of a manager's risk (volatility) relative to a benchmark. It is calculated by dividing the manager's standard deviation of returns by the benchmark's standard deviation of returns. A relative standard deviation of 1.20, for example, means the manager has exhibited 20% more risk than the benchmark over that time period. A ratio of .80 would imply 20% less risk. This ratio is especially useful when analyzing the risk of investment grade fixed-income products where actual historical durations are not available. By using this relative risk measure over rolling time periods one can illustrate the "implied" historical duration patterns of the portfolio versus the benchmark.

Residual Portfolio Risk is the unsystematic risk of a fund, the portion of the total risk unique to the fund (manager) itself and not related to the overall market. This reflects the "bets" which the manager places in that particular asset market. These bets may reflect emphasis in particular sectors, maturities (for bonds), or other issue specific factors which the manager considers a good investment opportunity. Diversification of the portfolio will reduce or eliminate the residual risk of that portfolio.

Risk/Reward Statistics

Rising Declining Periods refer to the sub-asset class cycles vis-a-vis the broader asset class. This is determined by evaluating the cumulative relative sub-asset class index performance to that of the broader asset class index. For example, to determine the Growth Style cycle, the S&P 500 Growth Index (sub-asset class) performance is compared to that of the S&P 500 Index (broader asset class).

Sharpe Ratio is a commonly used measure of risk-adjusted return. It is calculated by subtracting the "risk-free" return (usually 3 Month Treasury Bill) from the portfolio return and dividing the resulting "excess return" by the portfolio's risk level (standard deviation). The result is a measure of return gained per unit of risk taken.

Sortino Ratio is a downside risk-adjusted measure of value-added. It measures excess return over a benchmark divided by downside risk. The natural appeal is that it identifies value-added per unit of truly bad risk. The danger of interpretation, however, lies in these two areas: (1) the statistical significance of the denominator, and (2) its reliance on the persistence of skewness in return distributions.

Standard Deviation is a statistical measure of portfolio risk. It reflects the average deviation of the observations from their sample mean. Standard deviation is used as an estimate of risk since it measures how wide the range of returns typically is. The wider the typical range of returns, the higher the standard deviation of returns, and the higher the portfolio risk. If returns are normally distributed (ie. has a bell shaped curve distribution) then approximately 2/3 of the returns would occur within plus or minus one standard deviation from the sample mean.

Total Portfolio Risk is a measure of the volatility of the quarterly excess returns of an asset. Total risk is composed of two measures of risk: market (non-diversifiable or systematic) risk and residual (diversifiable or unsystematic) risk. The purpose of portfolio diversification is to reduce the residual risk of the portfolio.

Tracking Error is a statistical measure of a portfolio's risk relative to an index. It reflects the standard deviation of a portfolio's individual quarterly or monthly returns from the index's returns. Typically, the lower the Tracking Error, the more "index-like" the portfolio.

Treynor Ratio represents the portfolio's average excess return over a specified period divided by the beta relative to its benchmark over that same period. This measure reflects the reward over the risk-free rate relative to the systematic risk assumed.

Note: Alpha, Total Risk, and Residual Risk are annualized.

Fixed Income Portfolio Characteristics

All Portfolio Characteristics are derived by first calculating the characteristics for each security, and then calculating the market value weighted average of these values for the portfolio.

Allocation by Sector - Sector allocation is one of the tools which managers often use to add value without impacting the duration of the portfolio. The sector weights exhibit can be used to contrast a portfolio's weights with those of the index to identify any significant sector bets.

Average Coupon - The average coupon is the market value weighted average coupon of all securities in the portfolio. The total portfolio coupon payments per year are divided by the total portfolio par value.

Average Moody's Rating for Total Portfolio - A measure of the credit quality as determined by the individual security ratings. The ratings for each security, from Moody's Investor Service, are compiled into a composite rating for the whole portfolio. Quality symbols range from Aaa+ (highest investment quality - lowest credit risk) to C (lowest investment quality - highest credit risk).

Average Option Adjusted (Effective) Convexity - Convexity is a measure of the portfolio's exposure to interest rate risk. It is a measure of how much the duration of the portfolio will change given a change in interest rates. Generally, securities with negative convexities are considered to be risky in that changes in interest rates will result in disadvantageous changes in duration. When a security's duration changes it indicates that the stream of expected future cash-flows has changed, generally having a significant impact on the value of the security. The option adjusted convexity for each security in the portfolio is calculated using models developed by Lehman Brothers and Salomon Brothers which determine the expected stream of cash-flows for the security based on various interest rate scenarios. Expected cash-flows take into account any put or call options embedded in the security, any expected sinking-fund paydowns or any expected mortgage principal prepayments.

Average Option Adjusted (Effective) Duration - Duration is one measure of the portfolio's exposure to interest rate risk. Generally, the higher a portfolio's duration, the more that its value will change in response to interest rate changes. The option adjusted duration for each security in the portfolio is calculated using models developed by Lehman Brothers and Salomon Brothers which determine the expected stream of cash-flows for the security based on various interest rate scenarios. Expected cash-flows take into account any put or call options embedded in the security, any expected sinking-fund paydowns or any expected mortgage principal prepayments.

Average Price - The average price is equal to the portfolio market value divided by the number of securities in the portfolio. Portfolios with an average price above par will tend to generate more current income than those with an average price below par.

Average Years to Expected Maturity - This is a measure of the market-value-weighted average of the years to expected maturity across all of the securities in the portfolio. Expected years to maturity takes into account any put or call options embedded in the security, any expected sinking-fund paydowns or any expected mortgage principal prepayments.

Average Years to Stated Maturity - The average years to stated maturity is the market value weighted average time to stated maturity for all securities in the portfolio. This measure does not take into account imbedded options, sinking fund paydowns, or prepayments.

Current Yield - The current yield is the current annual income generated by the total portfolio market value. It is equal to the total portfolio coupon payments per year divided by the current total portfolio market value.

Fixed Income Portfolio Characteristics

Duration Dispersion - Duration dispersion is the market-value weighted standard deviation of the portfolio's individual security durations around the total portfolio duration. The higher the dispersion, the more variable the security durations relative to the total portfolio duration ("barbellness"), and the smaller the dispersion, the more concentrated the holdings' durations around the overall portfolio's ("bulletness"). The purpose of this statistic is to gauge the "bulletness" or "barbellness" of a portfolio relative to its total duration and to that of its benchmark index.

Effective Yield - The effective yield is the actual total annualized return that would be realized if all securities in the portfolio were held to their expected maturities. Effective yield is calculated as the internal rate of return, using the current market value and all expected future interest and principal cash flows. This measure incorporates sinking fund paydowns, expected mortgage principal prepayments, and the exercise of any "in-the-money" imbedded put or call options.

Weighted Average Life - The weighted average life of a security is the weighted average time to payment of all remaining principal. It is calculated by multiplying each expected future principal payment amount by the time left to the payment. This amount is then divided by the total amount of principal remaining. Weighted average life is commonly used as a measure of the investment life for pass-through security types for comparison to non-pass-through securities.

Disclosures

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AllianceBernstein
Allianz
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AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Atlanta Capital Management Co., LLC
Aviva Investors
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors

Manager Name
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BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
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Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
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D.E. Shaw Investment Management, LLC
DePrince, Race & Zollo, Inc.
Dimensional Fund Advisors LP
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Manager Name
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J O Hambro Capital Management Limited
KeyCorp
Lazard Asset Management
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Lincoln National Corporation
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Lord Abbett & Company
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Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Ninety One North America, Inc. (formerly Investec Asset Mgmt.)
North Star Investment Management Corporation
Northern Trust Asset Management
Nuveen
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Parametric Portfolio Associates LLC
Partners Group (USA) Inc.
Pathway Capital Management
P/E Investments
Peregrine Capital Management, LLC
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PineBridge Investments
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Manager Name
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Schroder Investment Management North America Inc.
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INVESTMENT REPORT

CHANDLER ASSET MANAGEMENT

Orange County Sanitation District

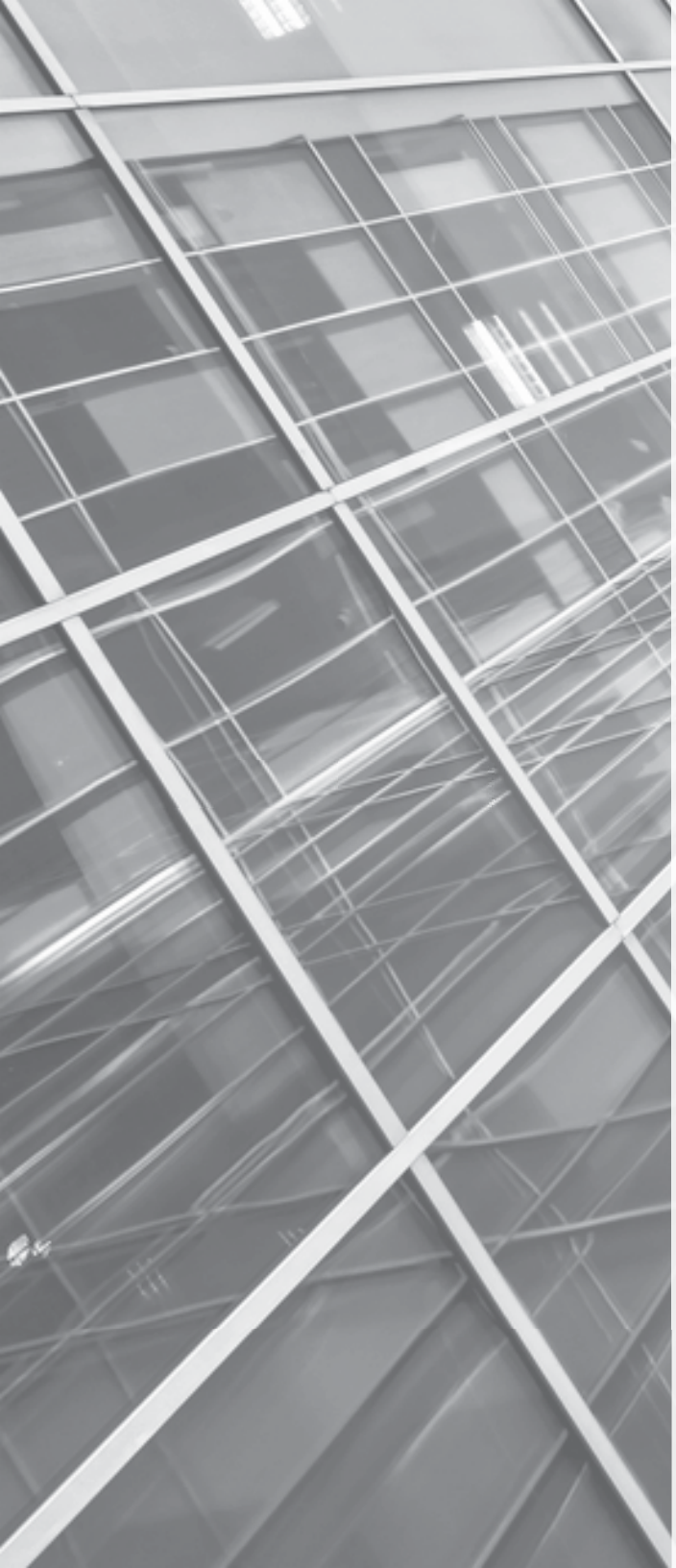
Period Ending June 30, 2021

CHANDLER ASSET MANAGEMENT, INC. | 800.317.4747 | www.chandlerasset.com

Table of Contents

As of June 30, 2021

SECTION 1	**Economic Update**
SECTION 2	**Account Profile**
SECTION 3	**Consolidated Information**
SECTION 4	**Portfolio Holdings**
SECTION 5	**Transactions**



Section 1 | Economic Update

Economic Update

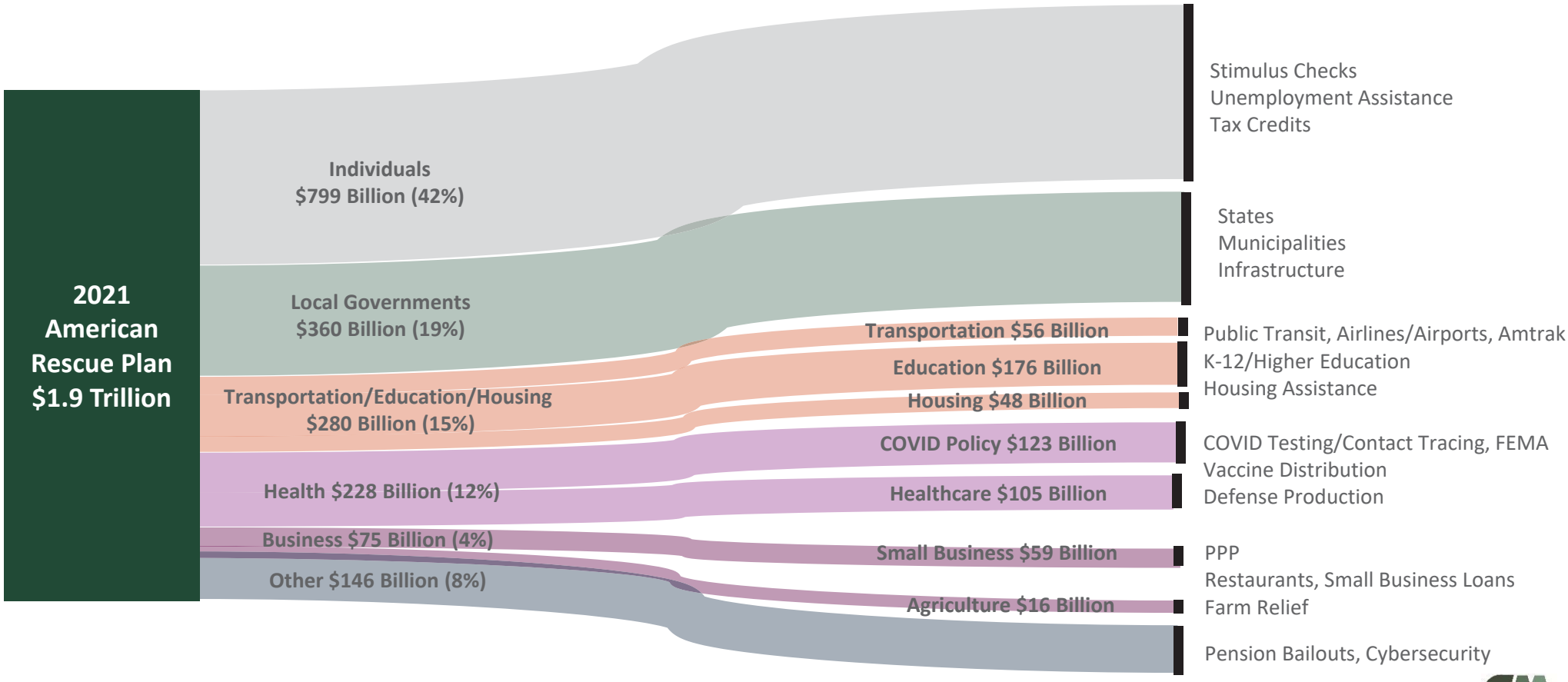
- The US economy continues to recover and while some pockets of the economy remain dislocated, real gross domestic product (GDP) is approaching pre-pandemic levels. The recovery has been fueled by robust fiscal spending, accommodative monetary policy, and a swift vaccine rollout. These factors are beginning to moderate but should continue to provide tailwinds for the economy in the coming quarters. Vaccinations have slowed down, and infection rates in the US have recently ticked up but remain well below their peak. Some pandemic-related fiscal relief is starting to phase out, but an infrastructure spending plan is likely on the horizon. Meanwhile, the Federal Reserve remains accommodative and continues to signal that it will look past any near-term uptick in inflation to facilitate continued improvement in the labor market. Estimates for US GDP growth remain strong. The current Bloomberg consensus estimate for 2021 and 2022 US GDP growth are 6.6% and 4.2%, respectively.

- The Federal Open Market Committee (FOMC) kept monetary policy unchanged at its June meeting. The fed funds target rate remains in the range of 0.0% to 0.25%, and the Fed continues to purchase $80 billion of Treasuries per month, and $40 billion of agency mortgage-backed securities per month. The Fed has started to discuss the idea of reducing its asset purchases at some point, but that decision remains uncertain. FOMC members' updated economic projections also suggest that the Fed may start to raise interest rates in 2023, versus the previous estimate of 2024, as the economy may be on track to reach their employment and inflation goals at a faster than expected pace. Overall, monetary policy remains highly accommodative for now, but the Fed seems to be inching toward a path of policy normalization. We anticipate the Fed will remain on the sidelines over the near-term, but we believe the probability that the Fed will begin tapering its asset purchases during the first half of next year has increased.

- The yield curve flattened in June. We believe multiple factors influenced Treasury rates in the month, including market technicals, dollar strengthening, uneven global vaccination rates, and a more modest forecast for U.S. infrastructure spending than initially expected. The Treasury yield curve has continued to flatten in July, driven by a decline in longer-term rates. Nevertheless, we believe longer-term rates are poised to move higher this year and we believe the Treasury yield curve is likely to steepen into year-end.

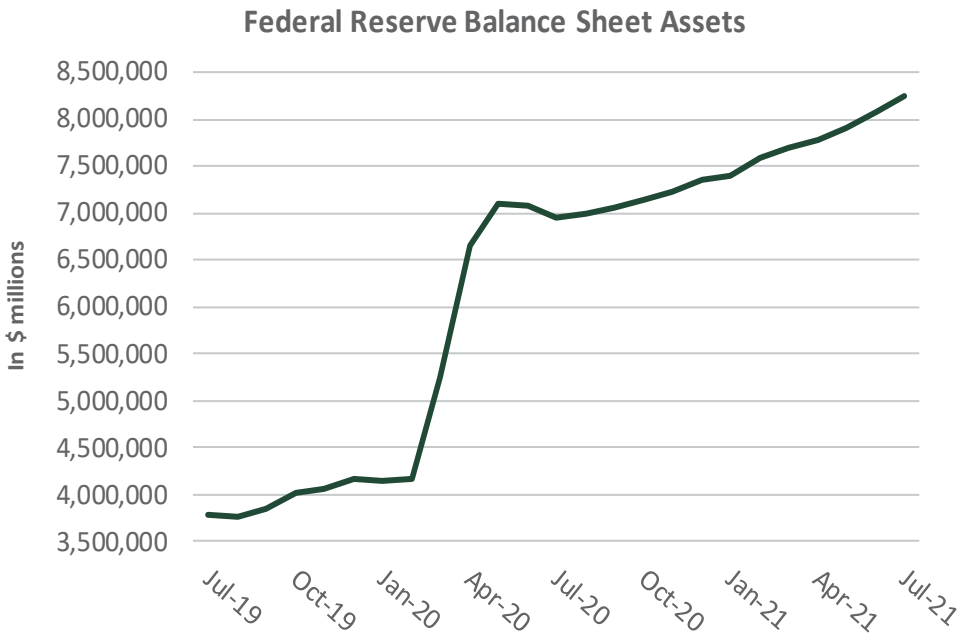
Will $5.5 Trillion Stimulus Propel Growth and Inflation?

Fiscal Package	Amount
CARES Act	$2.23 Trillion
Coronavirus Relief Bill	$484 Billion
Phase 4 Stimulus	$908 Billion
American Rescue Plan	$1.9 Trillion
Total So Far	**$5.5 Trillion**

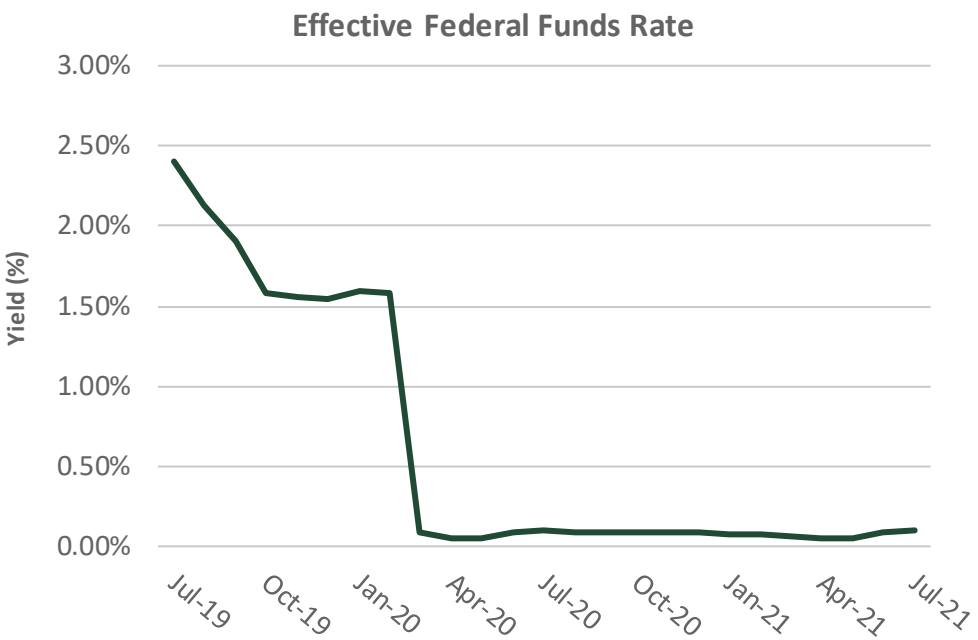


Source: US Congress

Federal Reserve



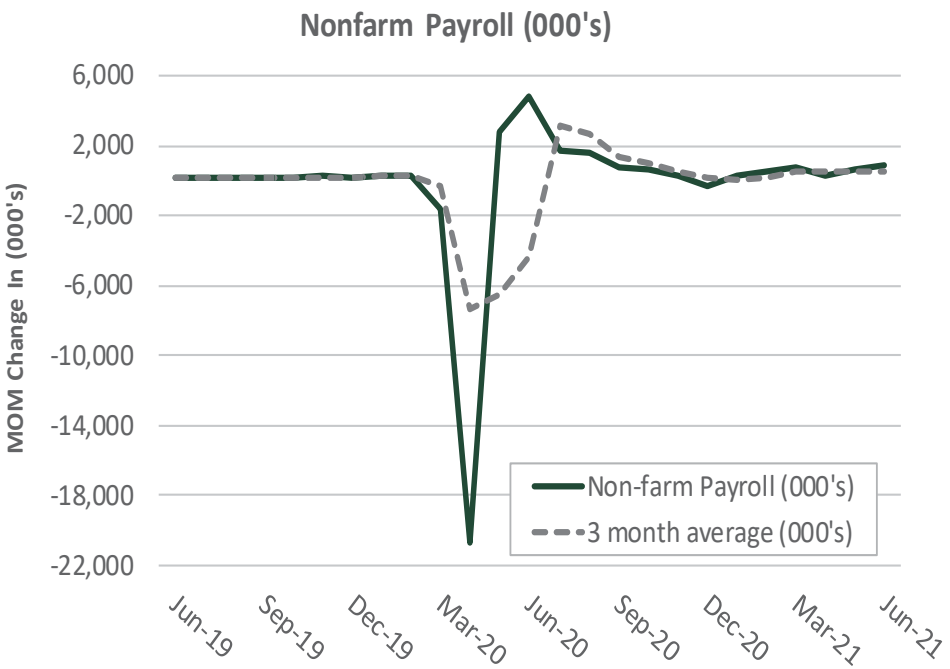
Source: Federal Reserve



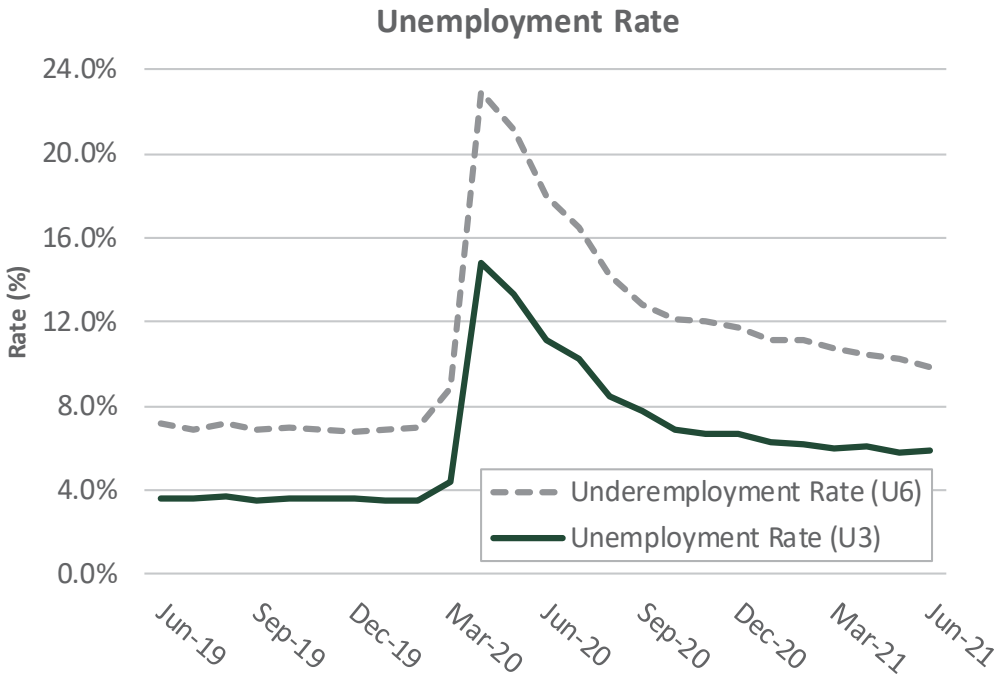
Source: Bloomberg

Last year, the Fed took a wide range of aggressive actions to help stabilize and provide liquidity to the financial markets. The Fed lowered the fed funds target rate to a range of 0.0%-0.25% and continues to purchase Treasury and agency mortgage-backed securities to support smooth market functioning. Last year, policymakers reinstated the Commercial Paper Funding Facility and Money Market Mutual Fund Liquidity Facility. The Fed also established the Primary Market Corporate Credit Facility, Secondary Market Corporate Credit Facility, Term Asset-Backed Securities Loan Facility, Paycheck Protection Program Liquidity Facility, Main Street Lending Facility, and Municipal Liquidity Facility. The Fed has also provided short-term funding through large-scale repo operations and lowered the reserve requirement for depository institutions. Notably, many of the Fed's lending facilities expired at the end of 2020, including the Fed's corporate credit, asset-backed securities, municipal lending, and Main Street Lending programs. In June 2021, the Fed announced plans to gradually unwind its corporate credit facility and expects to sell the full portfolio by year-end.

Employment



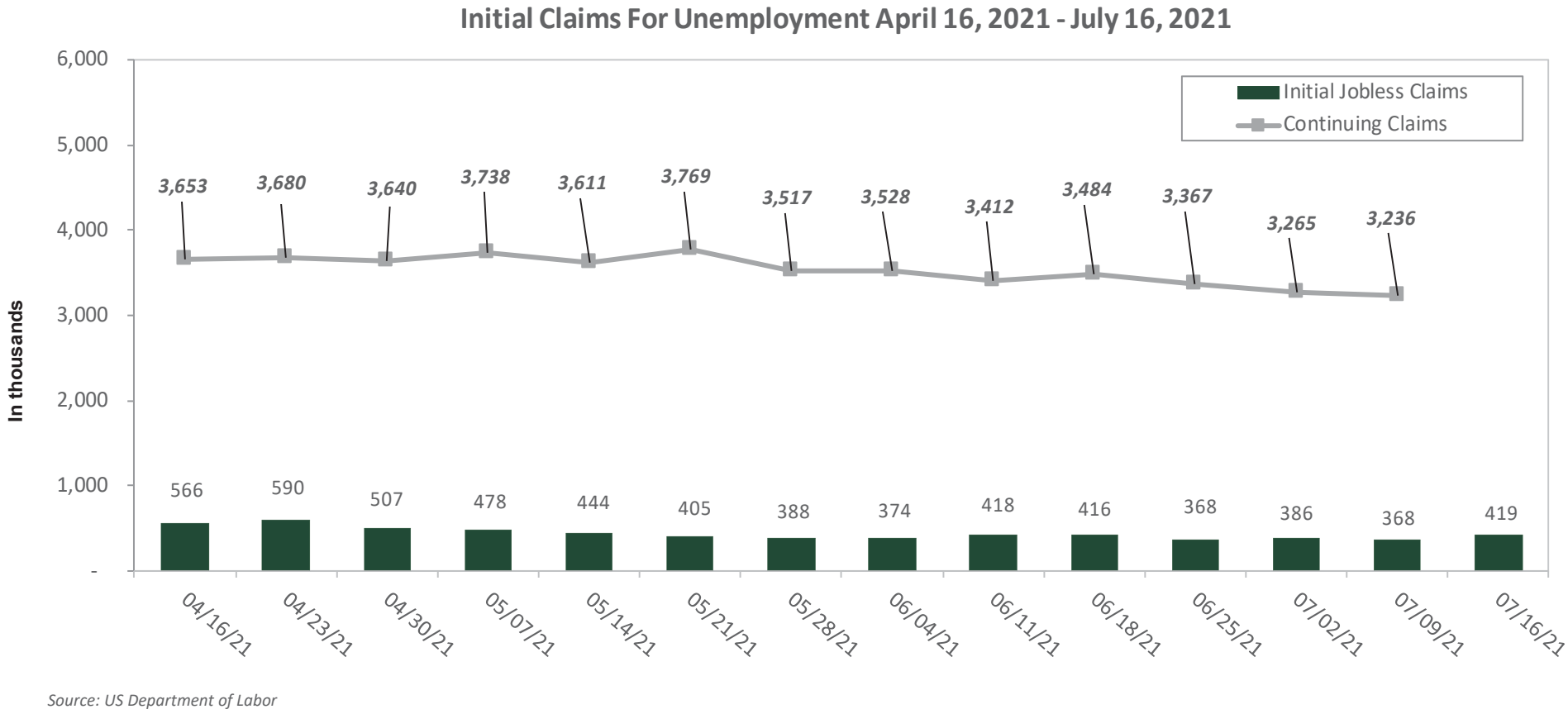
Source: US Department of Labor



Source: US Department of Labor

Job growth was stronger than expected in June. U.S. nonfarm payrolls increased by 850,000, versus the consensus forecast of 720,000. May payrolls were also revised up by 24,000 to 583,000. On a trailing 3-month and 6-month basis, payrolls increased by an average of 567,000 and 543,000 per month, respectively, which is indicative of a steady recovery in the labor market. The leisure and hospitality sectors continue to drive the job gains in June and increased by 343,000. Government payrolls also posted a solid increase of 188,000 in June. The labor participation rate was unchanged at 61.6% in June and is 1.7% lower than the pre-pandemic level. The employment-population ratio was also unchanged in the month at 58.0% and is 3.1% below the pre-pandemic level. The unemployment rate ticked higher to 5.9% in June from 5.8% in May and remains well above the pre-pandemic low of 3.5% in February 2020. The U-6 underemployment rate, which includes those who are marginally attached to the labor force and employed part time for economic reasons, declined to 9.8% in June from 10.2% in May (versus 7.0% in February 2020). The index of aggregate private weekly payrolls was up 2.8% in June from February 2020, suggesting a solid increase in aggregate wages.

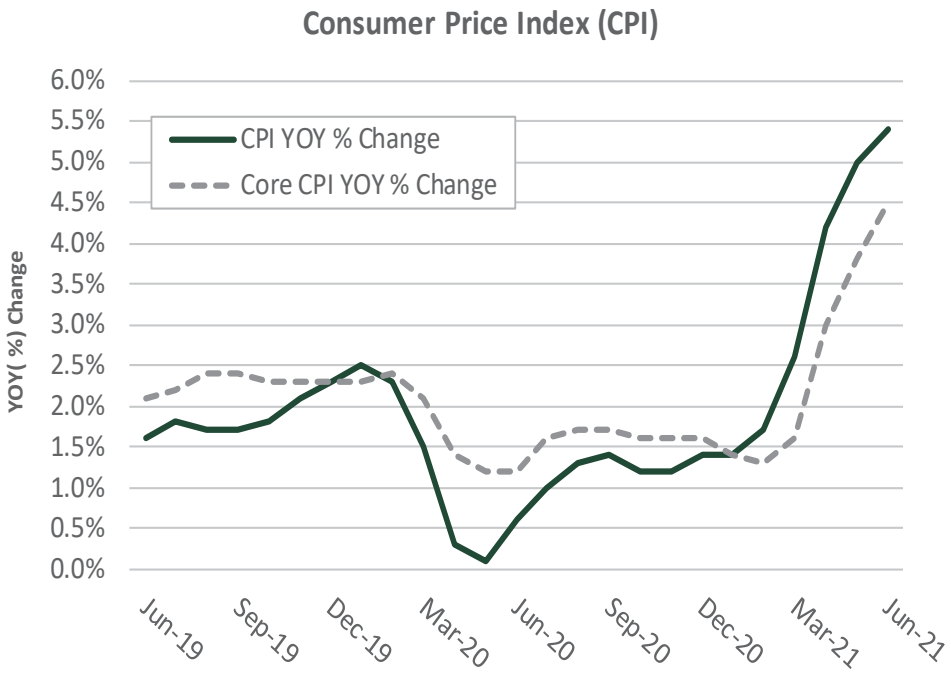
Initial Claims for Unemployment



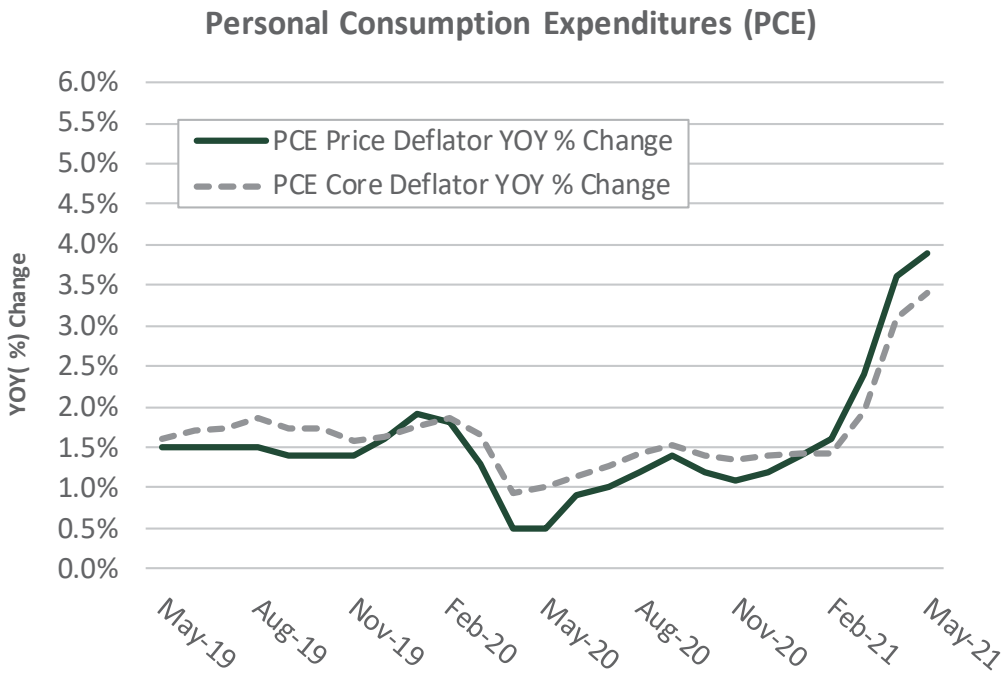
Source: US Department of Labor

In the most recent week, the number of initial jobless claims was 419,000 versus 368,000 in the prior week. The level of continuing unemployment claims (where the data is lagged by one week) declined slightly to 3.236 million versus 3.265 million in the prior week. Continuing jobless claims have declined significantly from the peak of nearly 25 million in May 2020, but they remained above the 2019 (pre-pandemic) average of 1.7 million.

Inflation



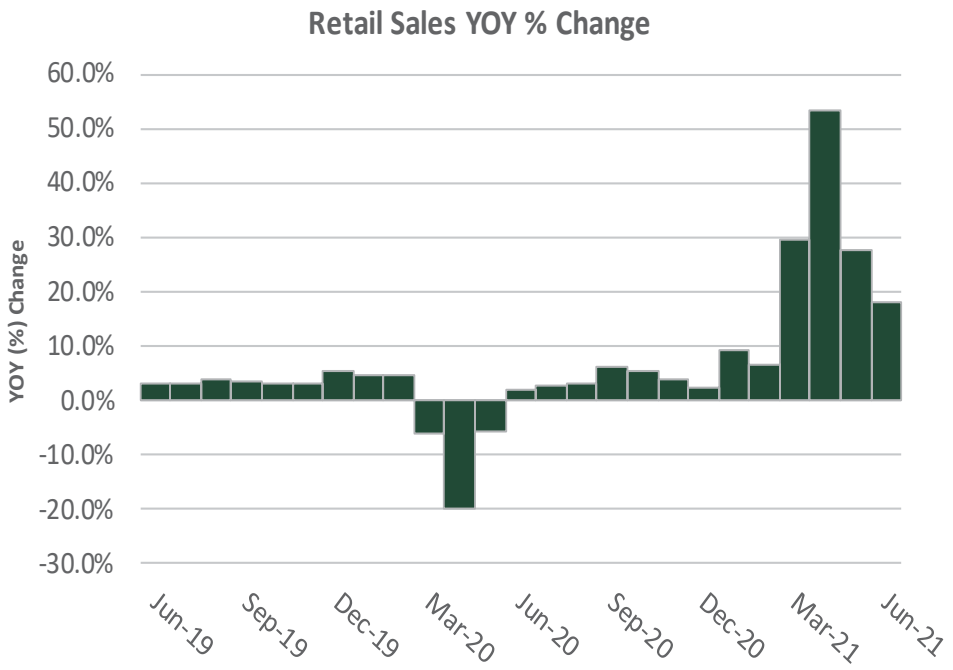
Source: US Department of Labor



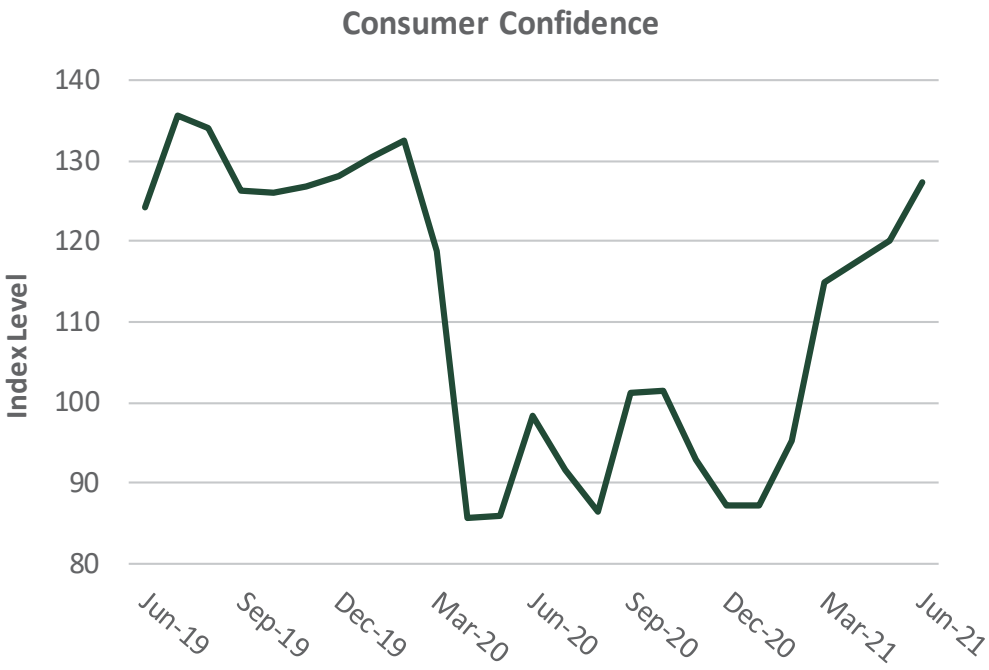
Source: US Department of Commerce

The Consumer Price Index (CPI) was up 5.4% year-over-year in June versus up 5.0% in May. Core CPI (CPI less food and energy) was up 4.5% year-over-year in June, versus up 3.8% in May. The Personal Consumption Expenditures (PCE) index was up 3.9% year-over-year in May, versus up 3.6% year-over-year in April. Core PCE was up 3.4% year-over-year in May, versus up 3.1% year-over-year in April. Current inflation readings are running well above the Fed's longer-run target of around 2.0%. However, the Fed believes that much (if not all) of the recent pricing pressure have been caused by pandemic-related factors (e.g., base effects and supply chain disruptions). Fed policymakers have reiterated that they believe most of those factors will be temporary.

Consumer



Source: US Department of Commerce

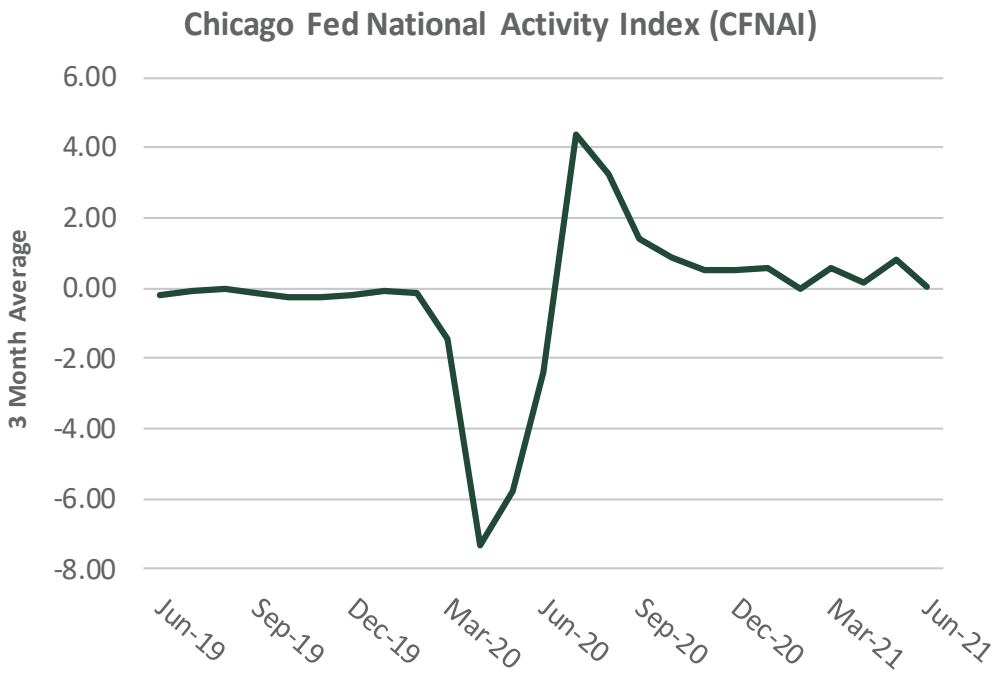


Source: The Conference Board

On a year-over-year basis, retail sales were up 18.0% in June versus up 27.6% in May. Year-over-year gains were fueled in part by the drop-off in spending and activity during the pandemic last year. On a month-over-month basis, retail sales increased 0.6% in June (exceeding expectations), following a 1.7% decline in May. Retail sales have been somewhat uneven on a monthly basis due to the timing of fiscal stimulus and economic reopening. Overall, we believe ongoing fiscal support, an improving labor market, and further progress on vaccinations should continue to support consumer spending. The Consumer Confidence index jumped to 127.3 in June from 120.0 in May, reflecting a strong view of current conditions and a more upbeat outlook.

Economic Activity

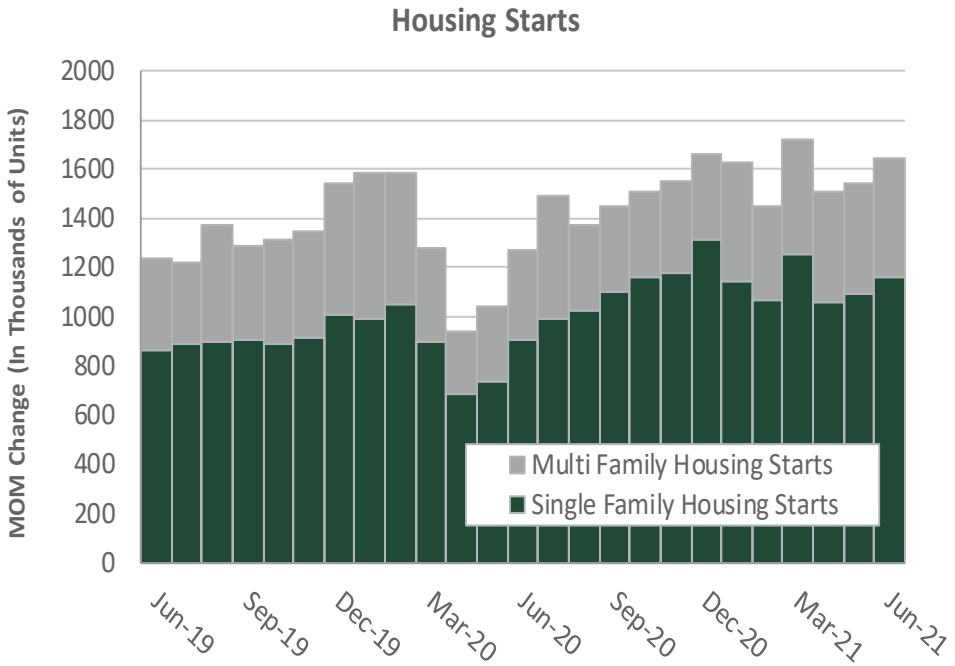
Source: The Conference Board



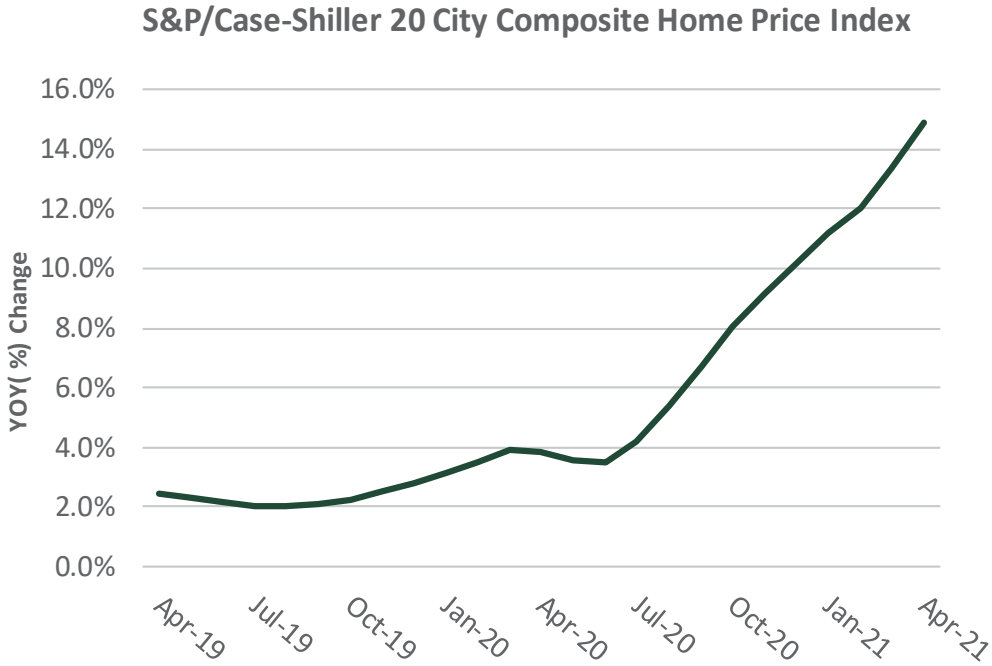
Source: Federal Reserve Bank of Chicago

The Conference Board's Leading Economic Index (LEI) increased 0.7% month-over-month in June (slightly below expectations), following a 1.2% increase in May. On a year-over-year basis, the LEI was up 12.0% in June, reflecting a significant decline in the index last year. According to the Conference Board, even though month-over-month growth slowed in June, the index suggests that economic growth will remain strong in the near term. Meanwhile, the Chicago Fed National Activity Index (CFNAI) fell to 0.09 in June from 0.26 in May. On a 3-month moving average basis, the CFNAI dropped to 0.06 in June from 0.80 in May. Nevertheless, a reading above zero signals above-trend economic growth.

Housing



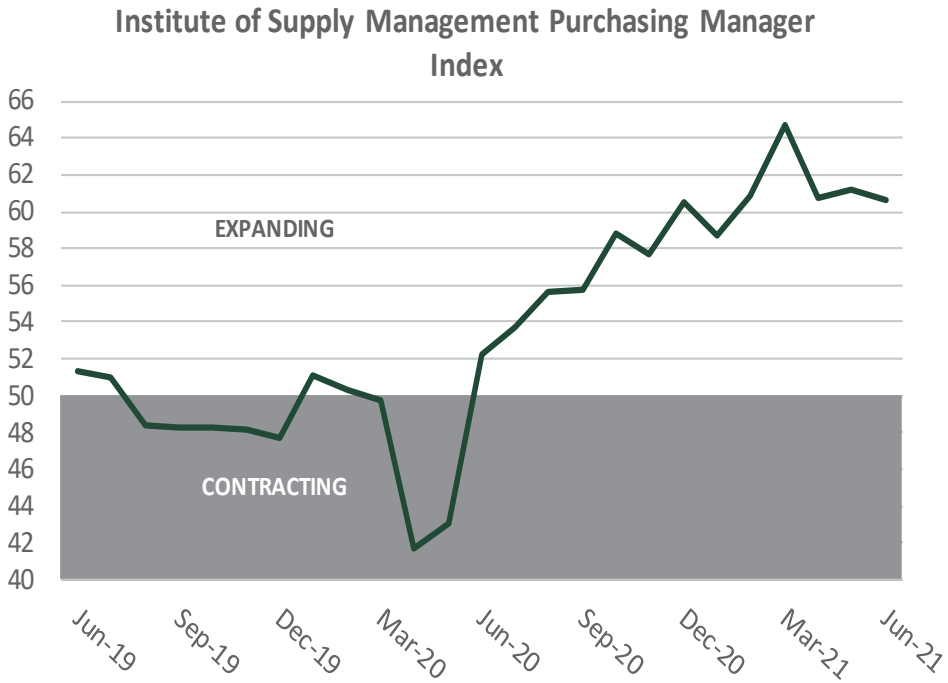
Source: US Department of Commerce



Source: S&P

Total housing starts rose 6.3% in June to an annual pace of 1,643,000, in line with expectations. Single-family starts rose 6.3% in June while multi-family starts were up 6.2%. On a year-over-year basis, housing starts were up 29.1% in June, due in part to a decline in activity due to the pandemic last year. According to the Case-Shiller 20-City home price index, home prices were up 14.9% year-over-year in April versus up 13.4% year-over-year in March. Overall, the housing market remains strong, underpinned by strong demand, low mortgage rates, and tight supply.

Manufacturing



Source: Institute for Supply Management

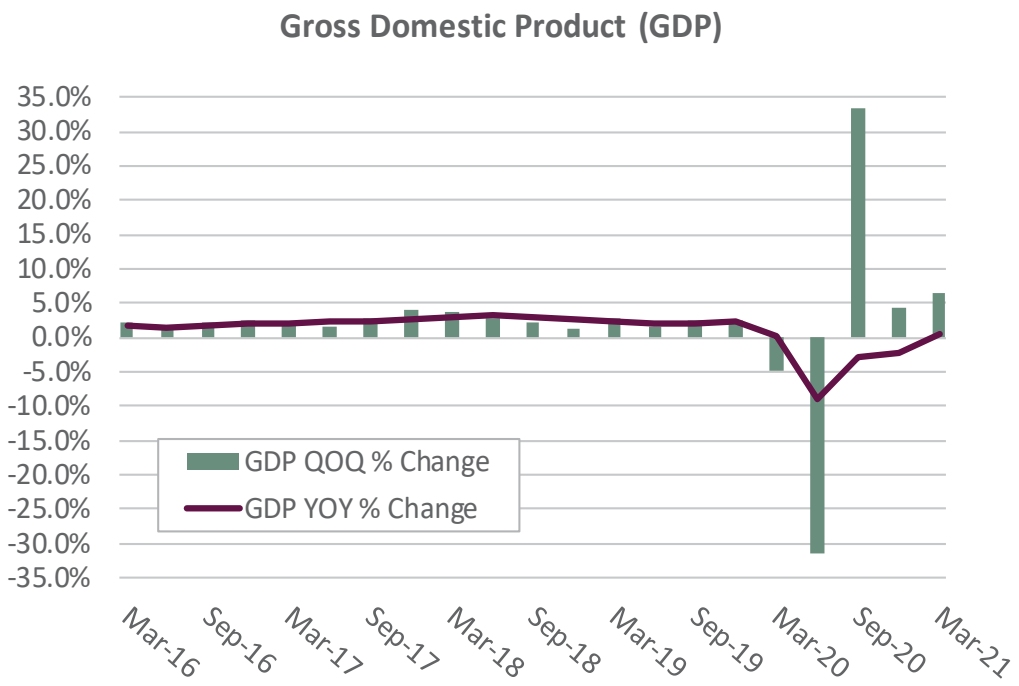
Source: Federal Reserve

The Institute for Supply Management (ISM) manufacturing index eased slightly to 60.6 in June from 61.2 in May. The index continues to point to strength in manufacturing, as readings above 50.0 are indicative of expansion in the manufacturing sector. We believe a weaker US dollar has been supportive of the US manufacturing sector during the pandemic, though the dollar index has been creeping higher since the end of May. The Industrial Production index was up 9.8% year-over-year in June, versus up 16.1% in May. The year-over-year rates are distorted by the effects of the pandemic last year. On a month-over-month basis, the Industrial Production index increased 0.4% in June, following a 0.7% increase in May. Capacity Utilization increased to 75.4% in June from 75.1% in May but remains well below the long-run average of 79.8%. Chip shortages continue to weigh on activity in the manufacturing sector.

Gross Domestic Product (GDP)

Components of GDP	6/20	9/20	12/20	3/21
Personal Consumption Expenditures	-24.0%	25.4%	1.6%	7.4%
Gross Private Domestic Investment	-8.8%	12.0%	4.4%	-0.6%
Net Exports and Imports	0.6%	-3.2%	-1.5%	-1.5%
Federal Government Expenditures	1.2%	-0.4%	-0.1%	0.9%
State and Local (Consumption and Gross Investment)	-0.4%	-0.4%	-0.1%	0.1%
Total	**-31.4%**	**33.4%**	**4.3%**	**6.4%**

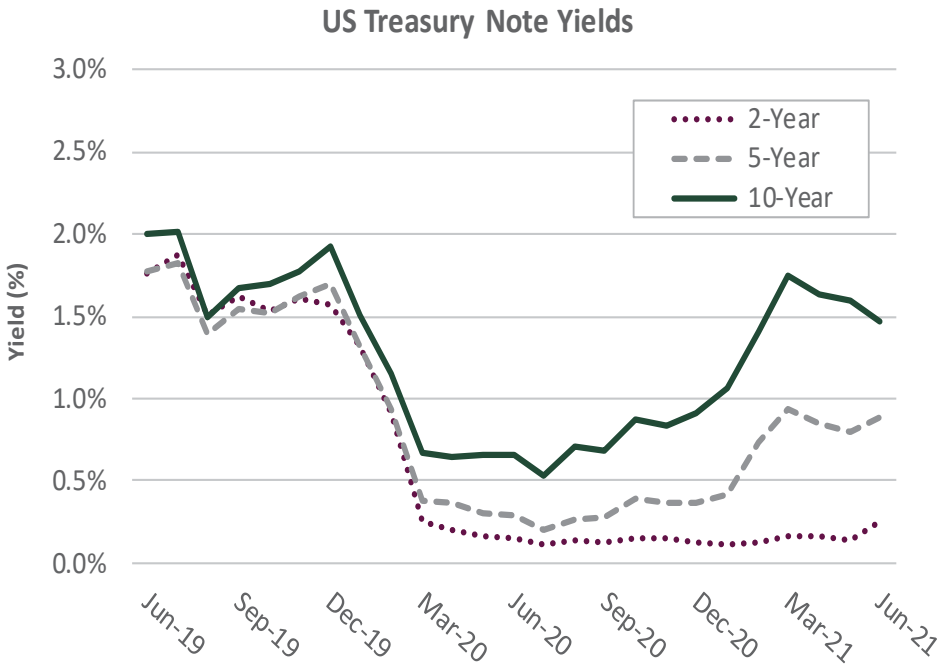
Source: US Department of Commerce



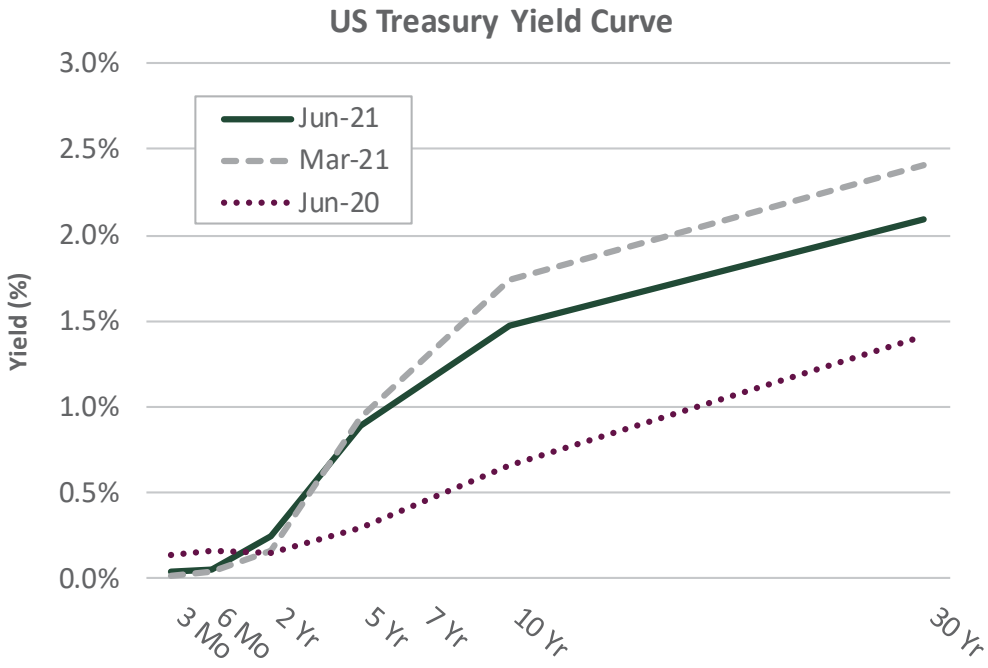
Source: US Department of Commerce

US economic growth accelerated in the first quarter. According to the third estimate, real US gross domestic product (GDP) grew at an annualized rate of 6.4% in the first quarter, following 4.3% growth in the fourth quarter of 2020. Economic growth is believed to have accelerated even further in the second quarter to an annualized rate of 9.0%. The consensus forecast for full year 2021 US gross domestic product growth is 6.6%, following a 3.5% decline in 2020.

Bond Yields

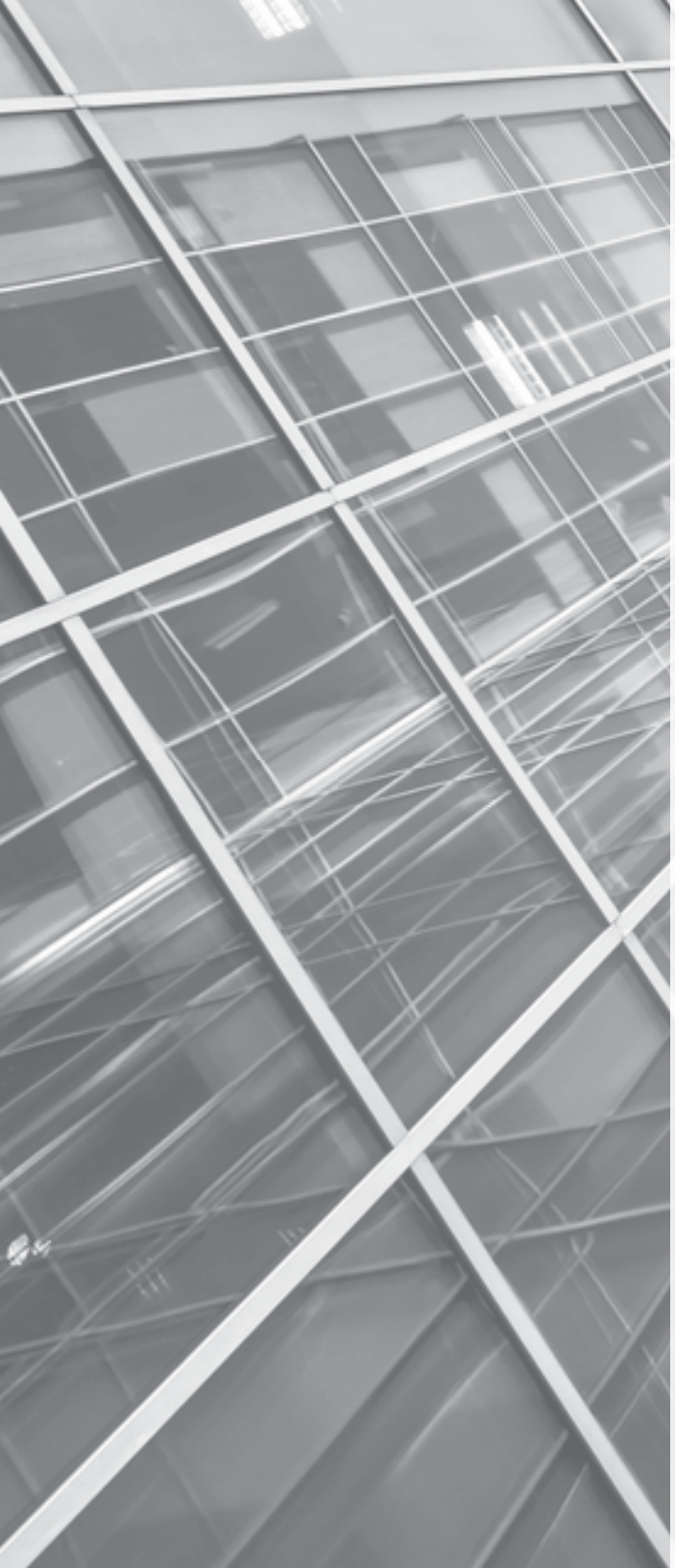


Source: Bloomberg



Source: Bloomberg

The treasury yield curve is steeper on a year-over-year basis. The 3-month T-bill yield was about nine basis points lower, while the 2-year Treasury yield was about ten basis points higher, and the 10-Year Treasury yield was about 81 basis points higher, year-over-year, as of June month-end. The Fed has signaled plans to keep the front end of the Treasury yield curve anchored near zero until 2023. We believe longer-term rates still have room to move higher this year.



Section 2 | Account Profile

Objectives

As of June 30, 2021

Investment Objectives

The investment objectives of the Orange County Sanitation District are first, to provide safety of principal to ensure the preservation of capital in the overall portfolio; second, to provide sufficient liquidity to meet all operating requirements; and third, to earn a commensurate rate of return consistent with the constraints imposed by the safety and liquidity objectives.

Chandler Asset Management Performance Objective

Liquid Operating Monies – will be compared to the 3-month T-Bill rate and operate with a maximum maturity of one year. Long-Term Operating Monies – will be compared to the ICE BAML 1-5 Year Corporate Government Rated AAA – A Index.

Strategy

In order to achieve these objectives, the portfolio invests in high quality fixed income securities consistent with the investment policy and California Government Code.

Compliance

As of June 30, 2021

Orange County Sanitation District Long Term

Assets managed by Chandler Asset Management are in full compliance with state law and with the investment policy

Category	Standard	Comment
U.S. Treasuries	10% minimum; 5 years max maturity	*Complies**
Federal Agencies	20% max per agency of the U.S. Government, which does not provide the full faith and credit of the U.S. government; 5 years max maturity; Securities, obligations, participations, or other instruments of, or issued by, or fully guaranteed as to principal and interest by the US Government , a federal agency, or a US Government-sponsored enterprise	*Complies*
Supranational Obligations	"AA" rated or better by a NRSRO; 30% max; 5 years max maturity; U.S. dollar denominated senior unsecured unsubordinated obligations issued or unconditionally guaranteed by the International Bank for Reconstruction and Development ("IBRD"), the International Finance Corporation ("IFC") or the Inter-American Development Bank ("IADB")	*Complies*
Municipal Securities	"A" rated or higher by a NRSRO; or as otherwise approved by the Board of Directors; Taxable or tax-exempt municipal bonds issued by any of the 50 states; 10% max; 5% max issuer; 5 years max maturity	*Complies*
Corporate Medium Term Notes	"A" rating category or better by a NRSRO; 30% max; 5% max per issuer; 5 years max maturity; Issued by corporations organized and operating within the U.S. or issued by depository institutions licensed by the U.S. or any state and operating within the U.S. with AUM >$500 million	*Complies*
Non- Agency Asset-Backed Securities, Mortgage-Backed Securities, CMOs	"AA" rating category or better by a NRSRO; 20% max(combined MBS/CMO/ABS); 5% max issuer (except U.S. government or its agencies) ; 5 years max maturity; Mortgage pass-through security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, equipment lease-backed certificate, consumer receivable pass-through certificate, or consumer receivable-backed bond	*Complies**
Negotiable Certificates of Deposit (NCD)	"A" rating or better long term debt by a NRSRO; or highest short term rating for deposits by a NRSRO; or as otherwise approved by the Board of Directors; 30% max; 5% max issuer; 5 years max maturity; Negotiable certificates of deposit issued by a nationally or state-chartered bank or state of federal savings and loan association, as defined by Section 5102 of the California Financial Code	*Complies*
Certificates of Deposit	5% max issuer; 5 years max maturity; Secured (collateralized) time deposits issued by a nationally or state-chartered bank or state or federal savings and loan association, as defined by Section 5102 of the California Financial Code and having a net operating profit in the two most recently completed fiscal years; Collateral must comply with California Government Code	*Complies*
Banker's Acceptances	A-1 rated or highest short term rating by a NRSRO; 40% max; 5% max issuer; 180 days max maturity; Acceptance is eligible for purchase by the Federal Reserve System	*Complies*
Commercial Paper	A-1 rated or better by a NRSRO; "A" long term debt rating or better by a NRSRO; Issued by a domestic corporation organized and operating in the U.S. with assets > $500 million; 25% max; 5% max issuer; 10% max of the outstanding commercial paper of any single issuer; 270 days max maturity	*Complies*
Mutual Fund & Money Market Mutual Fund	Highest rating or "AAA" rated by two NRSROs; or SEC registered adviser with AUM >$500 million and experience > than 5 years; 20% max in Mutual Funds; 10% max per one Mutual Fund; 20% max per issuer on Money Market Mutual Funds and are not subject to the 10% stipulation	*Complies*
Local Agency Investment Fund (LAIF)	No more than the statutory maximum may be invested in LAIF; Not used by investment adviser; Investment of OCSD funds in LAIF shall be subject to investigation and due diligence prior to investing, and on a continual basis to a level of review pursuant to the policy	*Complies*
Orange County Treasurer's Money Market Commingled Investment Pool (OCCIP)	15% max; Not used by investment adviser; Orange County Treasurer's Money Market Commingled Investment Pool; Investment of OCSD funds in OCCIP would be subject to investigation and due diligence prior to investing and on continual basis to a level of review pursuant to the policy	*Complies*
Repurchase Agreements	20% max; 102% collateralization	*Complies*
Reverse Repurchase Agreements	5% max, 90 days max maturity	*Complies*
Prohibited	Mortgage Derivatives, which include interest-only payments (IOs) and principal-only payments (POs); Inverse floaters, and RE-REMICS (Real Estate Mortgage Investment Conduits)	*Complies*
Securities Downgrade	If securities owned by the OCSD are downgraded below the quality required by the Investment Policy, it shall be OCSD's policy to review the credit situation and make a determination as to whether to sell or retain such securities in the portfolio. If a decision is made to retain the downgraded securities in the portfolio, their presence in the portfolio will be monitored and reported quarterly to the OCSD General Manager, the Administration Committee and Board of Directors	*Complies*
Avg Duration	Not to exceed 60 months - (80% to 120% of the benchmark)	*Complies*
Max Per Holding	5% max of the total debt outstanding of any issuer per individual holding	*Complies*
Max Per Issuer	5% max per issuer (except Supranationals, U.S. Government, Agencies, Mutual Funds); 20% max per issuer on Money Market Mutual Funds	*Complies*
Maximum Maturity	5 years max maturity	*Complies**

**The portfolio has twenty (20) securities with maturities greater than 5 years including four (4) CMOs and sixteen (16) MBS. All securities were inherited from the previous manager and complied at time of purchase.*

Portfolio Characteristics

As of June 30, 2021

Orange County Sanitation District Long Term

	6/30/2021		3/31/2021
	Benchmark*	Portfolio	Portfolio
Average Maturity (yrs)	2.72	2.76	2.74
Average Modified Duration	2.62	2.55	2.55
Average Purchase Yield	n/a	1.53%	1.67%
Average Market Yield	0.48%	0.43%	0.40%
Average Quality**	NR	AA/Aa1	AA+/Aa1
Total Market Value		685,981,831	654,390,770

**ICE BAML 1-5 Yr US Corp/Govt Rated AAA-A Index*

***Benchmark is a blended rating of S&P, Moody's, and Fitch. Portfolio is S&P and Moody's respectively.*

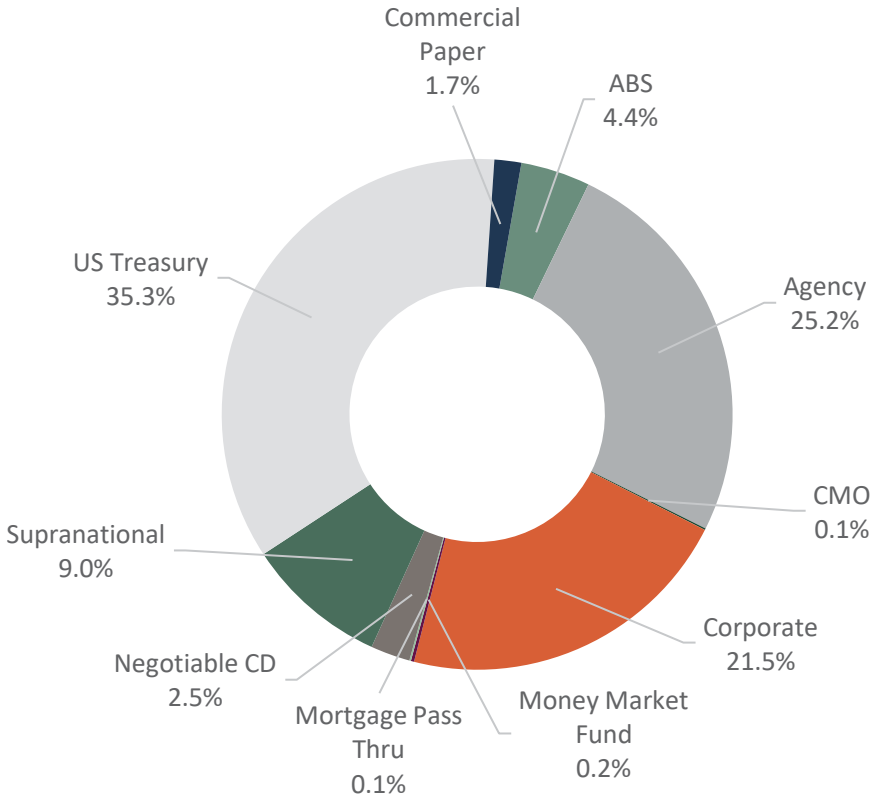
Multiple securities were purchased in the Treasury, Commercial Paper, Certificate of Deposit, Asset Backed and Corporate sectors of the portfolio allocation. The purchased securities ranged in maturity from July 2021 to June 2026. Several securities were sold and matured to facilitate the new holdings in the portfolio. $30 million was contributed to the portfolio in April 2021.

Sector Distribution

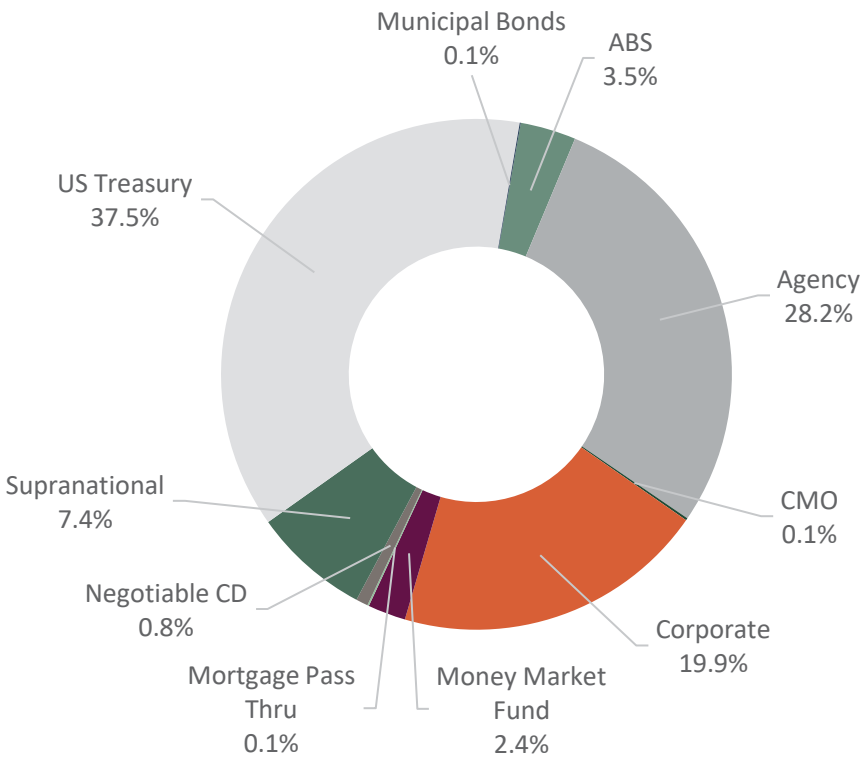
As of June 30, 2021

Orange County Sanitation District Long Term

June 30, 2021



March 31, 2021



The sector allocation was relatively stable. Notably the Treasury and Agency allocations each moved lower by 2.2% and 3.0% respectively, offset by modest increases in the Supranational, Corporate, Asset Backed, Commercial Paper and Negotiable Certificate of Deposit sectors.

Issuers

As of June 30, 2021

Orange County Sanitation District Long Term – Account #10268

Issue Name	Investment Type	% Portfolio
Government of United States	US Treasury	35.31%
Federal National Mortgage Association	Agency	11.05%
Federal Home Loan Bank	Agency	6.85%
Federal Home Loan Mortgage Corp	Agency	5.22%
Intl Bank Recon and Development	Supranational	4.56%
Inter-American Dev Bank	Supranational	4.10%
Federal Farm Credit Bank	Agency	2.06%
MUFG Bank Ltd/NY	Commercial Paper	1.75%
Bank of America Corp	Corporate	1.74%
Morgan Stanley	Corporate	1.71%
JP Morgan Chase & Co	Corporate	1.68%
Bank of Nova Scotia Houston	Negotiable CD	1.46%
Charles Schwab Corp/The	Corporate	1.44%
US Bancorp	Corporate	1.42%
Royal Bank of Canada	Corporate	1.38%
Chubb Corporation	Corporate	1.25%
Toronto Dominion Holdings	Corporate	1.25%
Toyota Motor Corp	Corporate	1.06%
Nordea Bank ABP New York	Negotiable CD	1.02%
Berkshire Hathaway	Corporate	0.98%
PNC Financial Services Group	Corporate	0.92%
Honda ABS	ABS	0.82%
Amazon.com Inc	Corporate	0.80%
Nissan ABS	ABS	0.79%
Mercedes-Benz Auto Lease Trust	ABS	0.78%
Intel Corp	Corporate	0.78%
Bank of New York	Corporate	0.76%
Honeywell Corp	Corporate	0.74%
Honda Motor Corporation	Corporate	0.63%
John Deere ABS	ABS	0.63%
Hyundai Auto Lease Securitization	ABS	0.60%
Wal-Mart Stores	Corporate	0.60%
ChevronTexaco Corp	Corporate	0.54%
Apple Inc	Corporate	0.47%
Microsoft	Corporate	0.45%
Toyota ABS	ABS	0.43%
International Finance Corp	Supranational	0.37%
Merck & Company	Corporate	0.31%

Issuers

As of June 30, 2021

Orange County Sanitation District Long Term – Account #10268

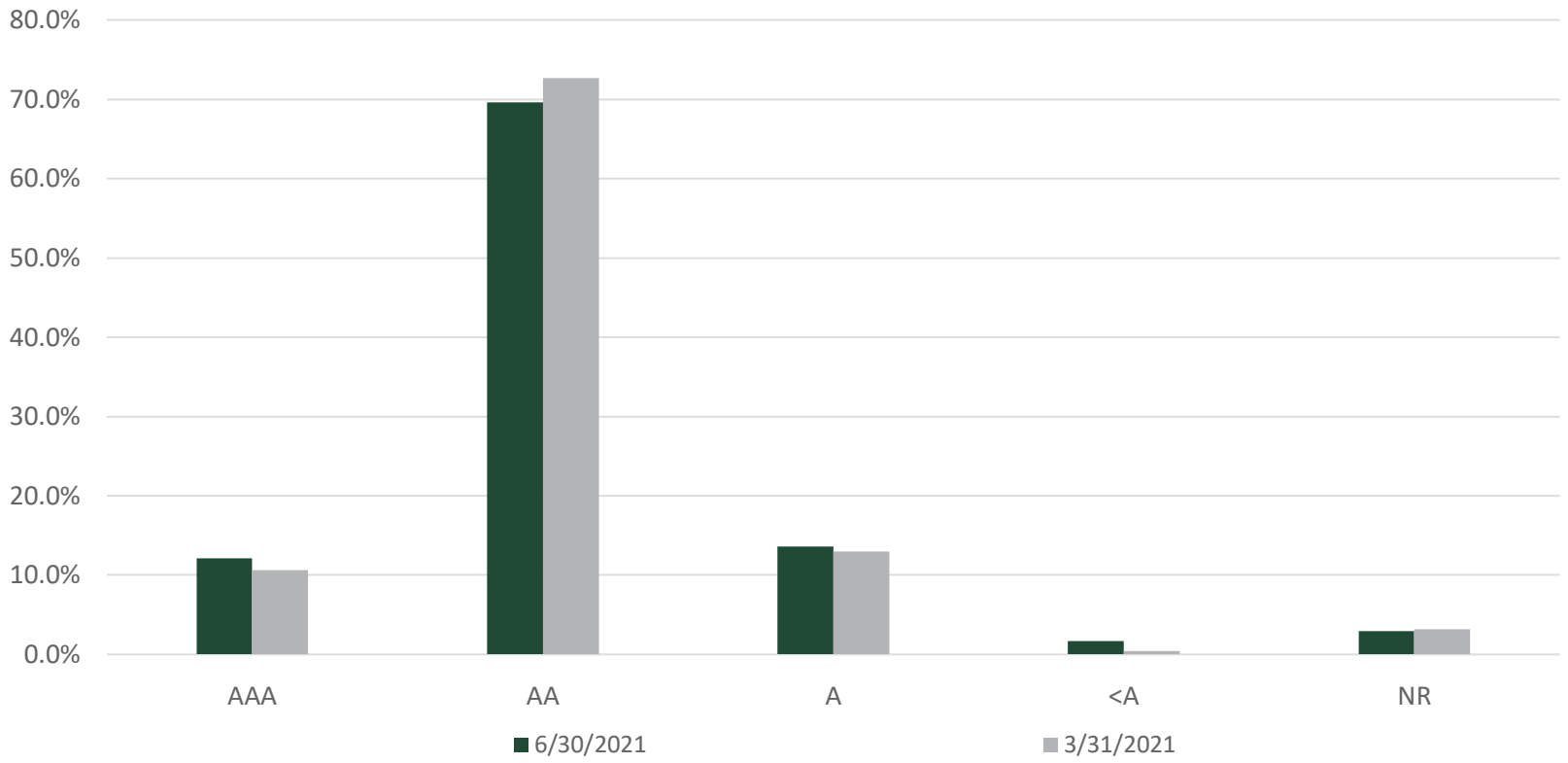
Issue Name	Investment Type	% Portfolio
Hyundai Auot Receivables	ABS	0.31%
United Health Group Inc	Corporate	0.26%
Deere & Company	Corporate	0.20%
First American Govt Obligation Fund Class-Z	Money Market Fund	0.17%
BlackRock Inc/New York	Corporate	0.16%
Federal Home Loan Mortgage Corp	CMO	0.08%
Federal National Mortgage Association	Mortgage Pass Thru	0.07%
AMRESCO Residental Securities Corp	CMO	0.02%
Federal National Mortgage Association	CMO	0.02%
GNMA	Mortgage Pass Thru	0.01%
SLM Corp	ABS	0.00%
Federal Home Loan Mortgage Corp	Mortgage Pass Thru	0.00%
TOTAL		**100.00%**

Quality Distribution

As of June 30, 2021

Orange County Sanitation District Long Term

June 30, 2021 vs. March 31, 2021



	AAA	AA	A	<A	NR
06/30/21	12.1%	69.6%	13.6%	1.7%	2.9%
03/31/21	10.6%	72.7%	13.0%	0.4%	3.2%

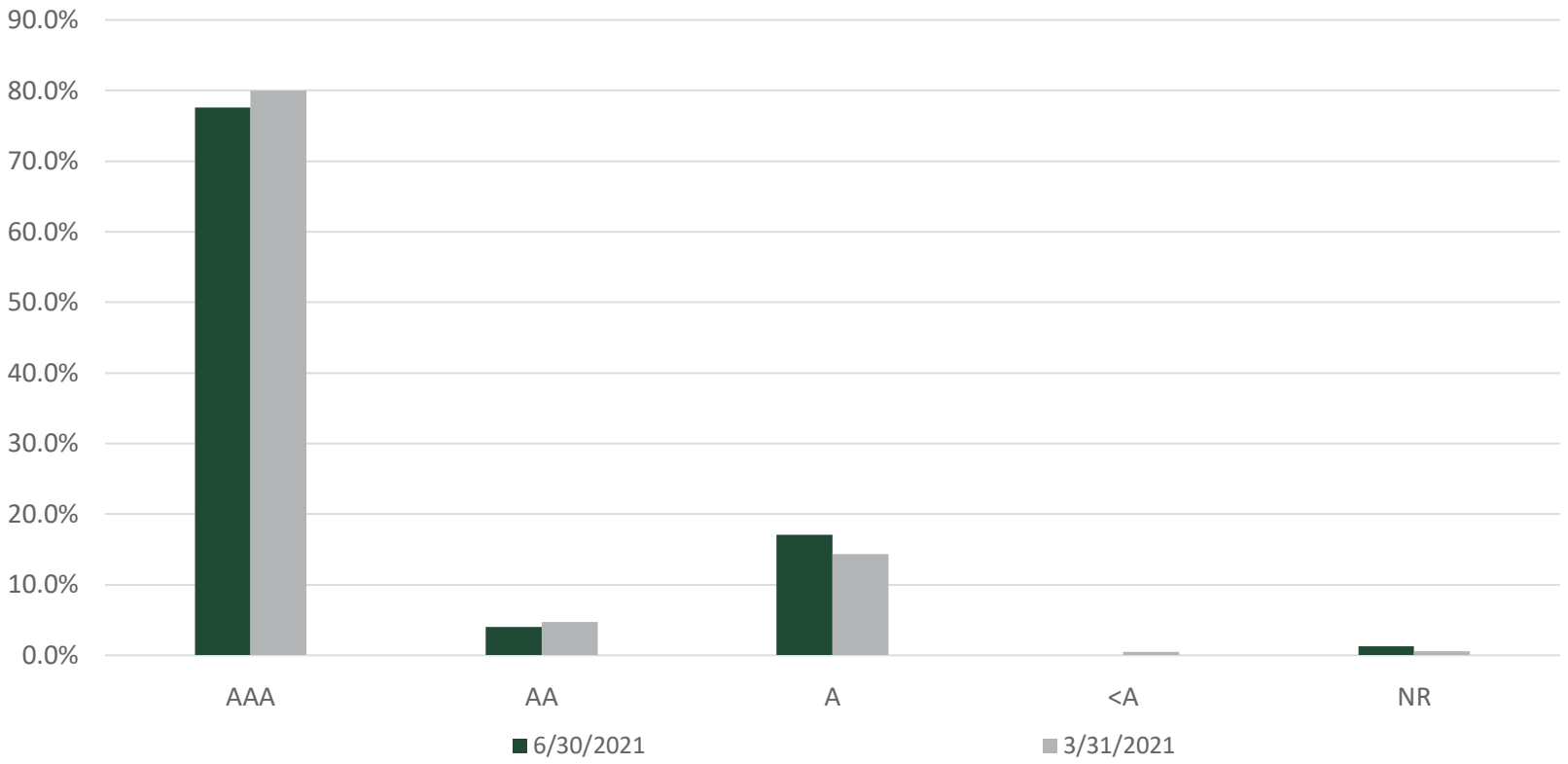
Source: S&P Ratings

Quality Distribution

As of June 30, 2021

Orange County Sanitation District Long Term

June 30, 2021 vs. March 31, 2021

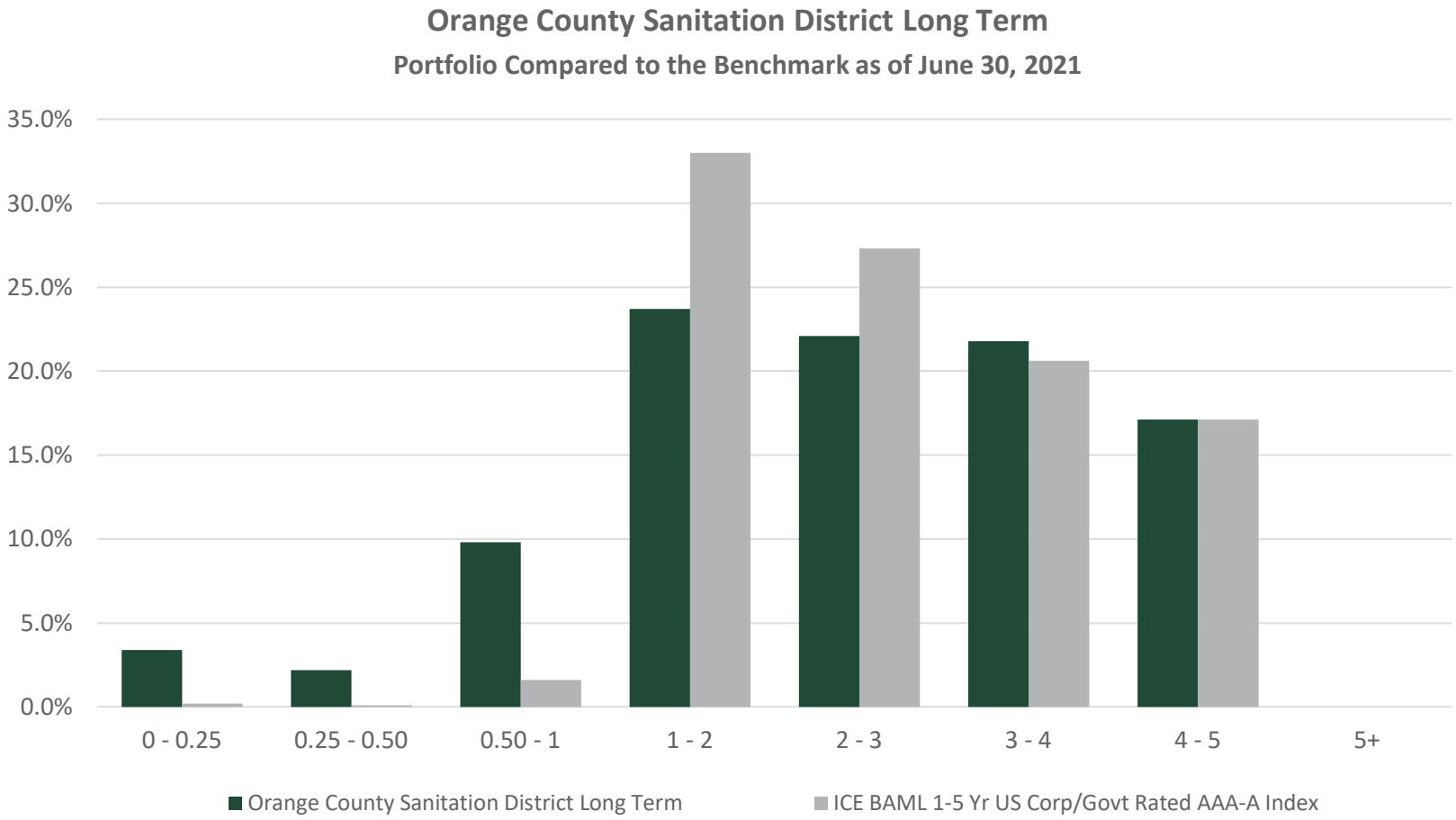


	AAA	AA	A	<A	NR
06/30/21	77.6%	4.0%	17.1%	0.0%	1.3%
03/31/21	80.0%	4.7%	14.3%	0.5%	0.6%

Source: Moody's Ratings

Duration Distribution

As of June 30, 2021



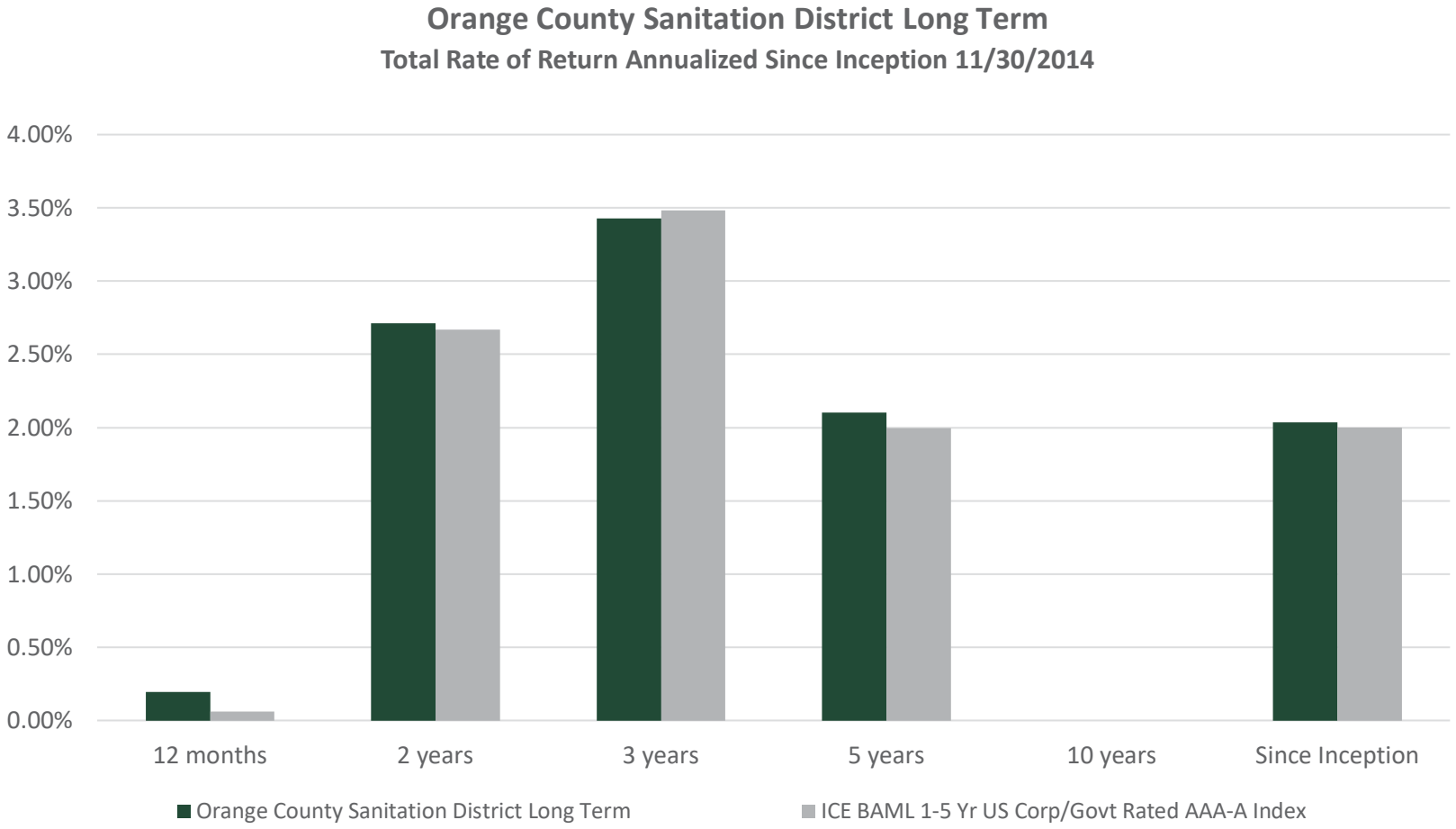
	0 - 0.25	0.25 - 0.50	0.50 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5+
Portfolio	3.4%	2.2%	9.8%	23.7%	22.1%	21.8%	17.1%	0.0%
Benchmark*	0.2%	0.1%	1.6%	33.0%	27.3%	20.6%	17.1%	0.0%

**ICE BAML 1-5 Yr US Corp/Govt Rated AAA-A Index*

The duration of the portfolio was stable on a quarter over quarter basis, remaining at 2.55. The Chandler team will continue to keep the overall duration of the portfolio close to the benchmark in coming quarters.

Investment Performance

As of June 30, 2021



			Annualized				
TOTAL RATE OF RETURN	**3 months**	**12 months**	**2 years**	**3 years**	**5 years**	**10 years**	**Since Inception**
Orange County Sanitation District Long Term	0.19%	0.19%	2.71%	3.43%	2.10%	N/A	2.04%
ICE BAML 1-5 Yr US Corp/Govt Rated AAA-A Index	0.20%	0.06%	2.67%	3.48%	2.00%	N/A	2.00%

Total rate of return: A measure of a portfolio's performance over time. It is the internal rate of return, which equates the beginning value of the portfolio with the ending value; it includes interest earnings, realized and unrealized gains and losses in the portfolio.

Compliance

As of June 30, 2021

Orange County Sanitation District Liquid

Assets managed by Chandler Asset Management are in full compliance with state law and with the investment policy

Category	Standard	Comment
U.S. Treasuries	10% minimum; 1 year max maturity	*Complies*
Federal Agencies	20% max per agency of the U.S. Government, which does not provide the full faith and credit of the U.S. government; 1 year max maturity; Securities, obligations, participations, or other instruments of, or issued by, or fully guaranteed as to principal and interest by the US Government , a federal agency, or a US Government-sponsored enterprise	*Complies*
Supranational Obligations	"AA" rated or better by a NRSRO; 30% max; 1 year max maturity; U.S. dollar denominated senior unsecured unsubordinated obligations issued or unconditionally guaranteed by the International Bank for Reconstruction and Development ("IBRD"), the International Finance Corporation ("IFC") or the Inter-American Development Bank ("IADB")	*Complies*
Municipal Securities	"A" rated or higher by a NRSRO; or as otherwise approved by the Board of Directors; Taxable or tax-exempt municipal bonds issued by any of the 50 states; 10% max; 5% max issuer; 1 year max maturity	*Complies*
Corporate Medium Term Notes	"A" rating category or better by a NRSRO; 30% max; 5% max per issuer; 1 year max maturity; Issued by corporations organized and operating within the U.S. or issued by depository institutions licensed by the U.S. or any state and operating within the U.S. with AUM >$500 million	*Complies*
Non- Agency Asset-Backed Securities, Mortgage-Backed Securities, CMOs	"AA" rating category or better by a NRSRO; 20% max (combined MBS/CMO/ABS); 5% max issuer (except U.S. government or its agencies) ; 1 year max maturity; Mortgage pass-through security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, equipment lease-backed certificate, consumer receivable pass-through certificate, or consumer receivable-backed bond	*Complies*
Negotiable Certificates of Deposit (NCD)	"A" rating or better long term debt by a NRSRO; or highest short term rating for deposits by a NRSRO; or as otherwise approved by the Board of Directors; 30% max; 5% max issuer; 1 year max maturity; Negotiable certificates of deposit issued by a nationally or state-chartered bank or state of federal savings and loan association, as defined by Section 5102 of the California Financial Code	*Complies*
Certificates of Deposit	5% max issuer; 1 year max maturity; Secured (collateralized) time deposits issued by a nationally or state-chartered bank or state or federal savings and loan association, as defined by Section 5102 of the California Financial Code and having a net operating profit in the two most recently completed fiscal years; Collateral must comply with California Government Code	*Complies*
Banker's Acceptances	A-1 rated or highest short term rating by a NRSRO; 40% max; 5% max issuer; 180 days max maturity; Acceptance is eligible for purchase by the Federal Reserve System	*Complies*
Commercial Paper	A-1 rated or better by a NRSRO; "A" long term debt rating or better by a NRSRO; Issued by a domestic corporation organized and operating in the U.S. with assets > $500 million; 25% max; 5% max issuer; 10% max of the outstanding commercial paper of any single issuer; 270 days max maturity	*Complies*
Mutual Fund & Money Market Mutual Fund	Highest rating or "AAA" rated by two NRSROs; or SEC registered adviser with AUM >$500 million and experience > than 5 years; 20% max in Mutual Funds; 10% max per one Mutual Fund; 20% max per issuer on Money Market Mutual Funds and are not subject to the 10% stipulation	*Complies*
Local Agency Investment Fund (LAIF)	No more than the statutory maximum may be invested in LAIF; Not used by investment adviser; Investment of OCSD funds in LAIF shall be subject to investigation and due diligence prior to investing, and on a continual basis to a level of review pursuant to the policy	*Complies*
Orange County Treasurer's Money Market Commingled Investment Pool (OCCIP)	15% max; Not used by investment adviser; Orange County Treasurer's Money Market Commingled Investment Pool; Investment of OCSD funds in OCCIP would be subject to investigation and due diligence prior to investing and on continual basis to a level of review pursuant to the policy	*Complies*
Repurchase Agreements	20% max; 102% collateralization	*Complies*
Reverse Repurchase Agreements	5% max, 90 days max maturity	*Complies*
Prohibited	Mortgage Derivatives, which include interest-only payments (IOs) and principal-only payments (POs); Inverse floaters, and RE-REMICS (Real Estate Mortgage Investment Conduits)	*Complies*
Securities Downgrade	If securities owned by the OCSD are downgraded below the quality required by the Investment Policy, it shall be OCSD's policy to review the credit situation and make a determination as to whether to sell or retain such securities in the portfolio. If a decision is made to retain the downgraded securities in the portfolio, their presence in the portfolio will be monitored and reported quarterly to the OCSD General Manager, the Administration Committee and Board of Directors	*Complies*
Avg Duration	Not to exceed 180 days	*Complies*
Max Per Holding	5% max of the total debt outstanding of any issuer per individual holding	*Complies*
Max Per Issuer	5% max per issuer (except Supranationals, U.S. Government, Agencies, Mutual Funds); 20% max per issuer on Money Market Mutual Funds	*Complies*
Maximum Maturity	1 year max maturity	*Complies*

Portfolio Characteristics

As of June 30, 2021

Orange County Sanitation District Liquid

	6/30/2021		3/31/2021
	Benchmark*	Portfolio	Portfolio
Average Maturity (yrs)	0.15	0.35	0.30
Average Modified Duration	0.15	0.35	0.30
Average Purchase Yield	n/a	0.08%	0.10%
Average Market Yield	0.04%	0.09%	0.09%
Average Quality**	NR	AA+/Aaa	AA+/Aaa
Total Market Value		207,810,854	165,779,992

**ICE BAML 3-Month US Treasury Bill Index*
***Benchmark is a blended rating of S&P, Moody's, and Fitch. Portfolio is S&P and Moody's respectively.*

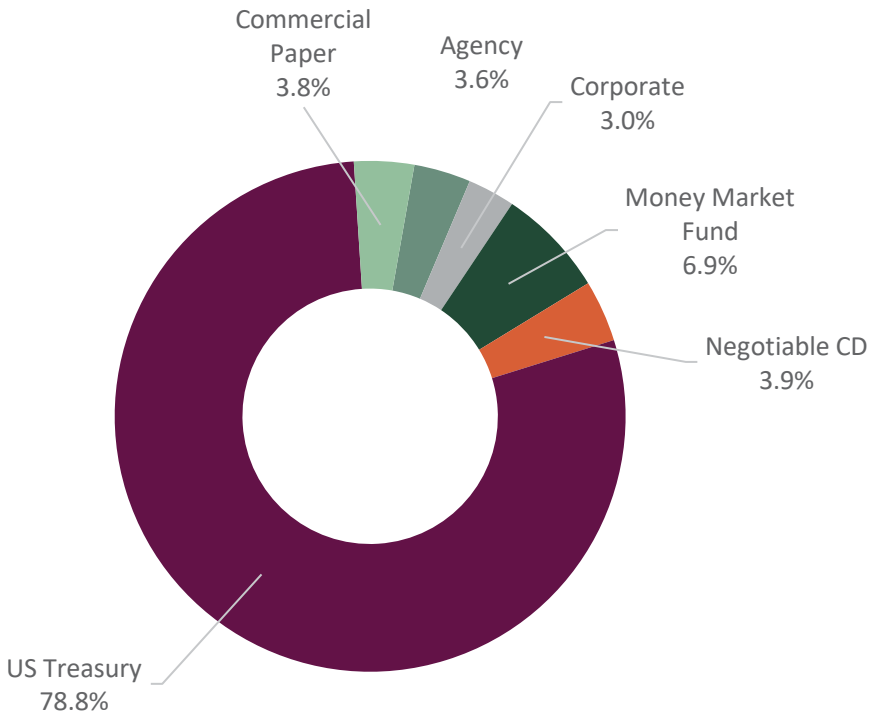
Multiple purchases were made in the Treasury, Commercial Paper, Certificate of Deposit, and Corporate sectors to keep the portfolio allocation consistent with Chandler targets and forecasted cash flow needs. The purchased securities ranged in maturity from October 2021 to May 2022. Several securities matured during the reporting period to fund the new holdings in the portfolio and provide for the cash needs at the end of the quarter. On a net basis $42 million in cash was added to the portfolio, a $72 million contribution in April and a $30 million withdrawal in June.

Sector Distribution

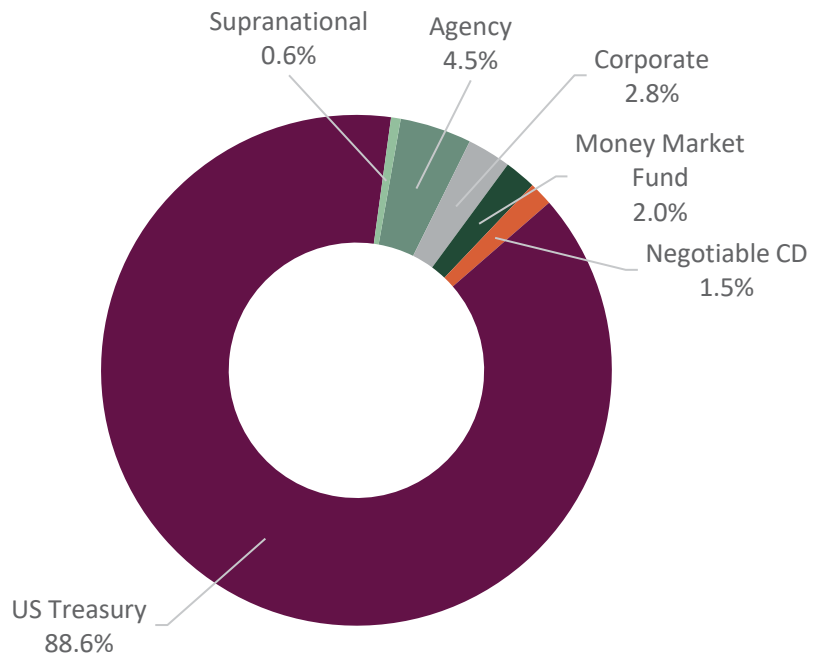
As of June 30, 2021

Orange County Sanitation District Liquid

June 30, 2021



March 31, 2021



The sector allocation changed moderately during the quarter. Notably the Treasury allocation was reduced by 9.8% to 78.8% of the portfolio, partially offset by increases of 3.8% in Commercial Paper and 2.4% in Certificates of Deposit, to 3.8% and 3.9% of the portfolio, respectively.

Issuers

As of June 30, 2021

Orange County Sanitation District Liquid – Account #10282

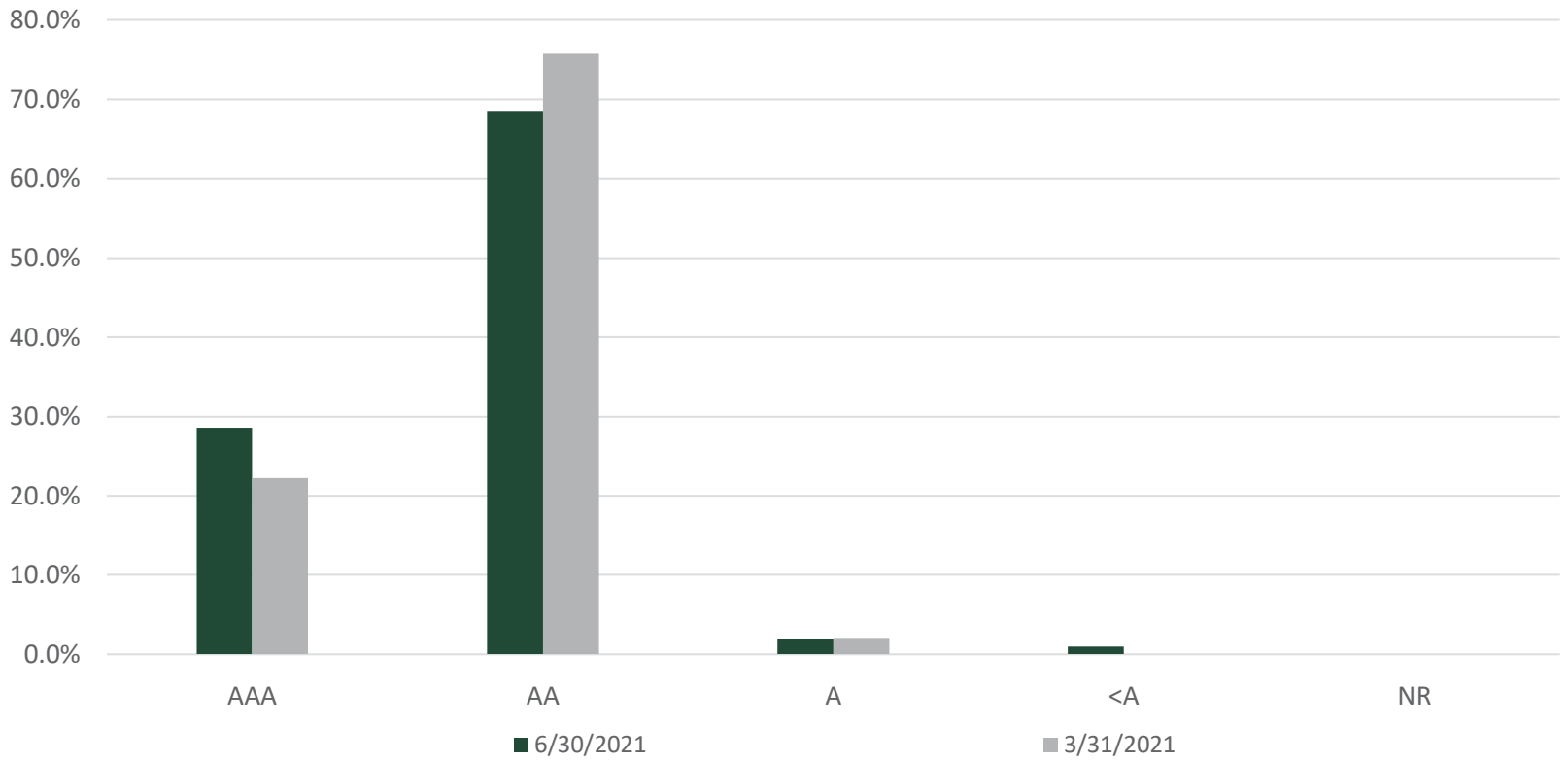
Issue Name	Investment Type	% Portfolio
Government of United States	US Treasury	78.83%
First American Govt Obligation Fund Class-Z	Money Market Fund	6.90%
Federal Home Loan Bank	Agency	3.62%
Toyota Motor Corp	Commercial Paper	1.92%
Bank of Nova Scotia Houston	Negotiable CD	1.44%
Nordea Bank ABP New York	Negotiable CD	1.44%
Caterpillar Inc	Corporate	0.99%
Morgan Stanley	Corporate	0.99%
Honda Motor Corporation	Corporate	0.98%
Toronto Dominion Holdings	Negotiable CD	0.96%
Rabobank Nederland NV NY	Commercial Paper	0.96%
MUFG Bank Ltd/NY	Commercial Paper	0.96%
TOTAL		**100.00%**

Quality Distribution

As of June 30, 2021

Orange County Sanitation District Liquid

June 30, 2021 vs. March 31, 2021



	AAA	AA	A	<A	NR
06/30/21	28.6%	68.5%	2.0%	1.0%	0.0%
03/31/21	22.2%	75.7%	2.1%	0.0%	0.0%

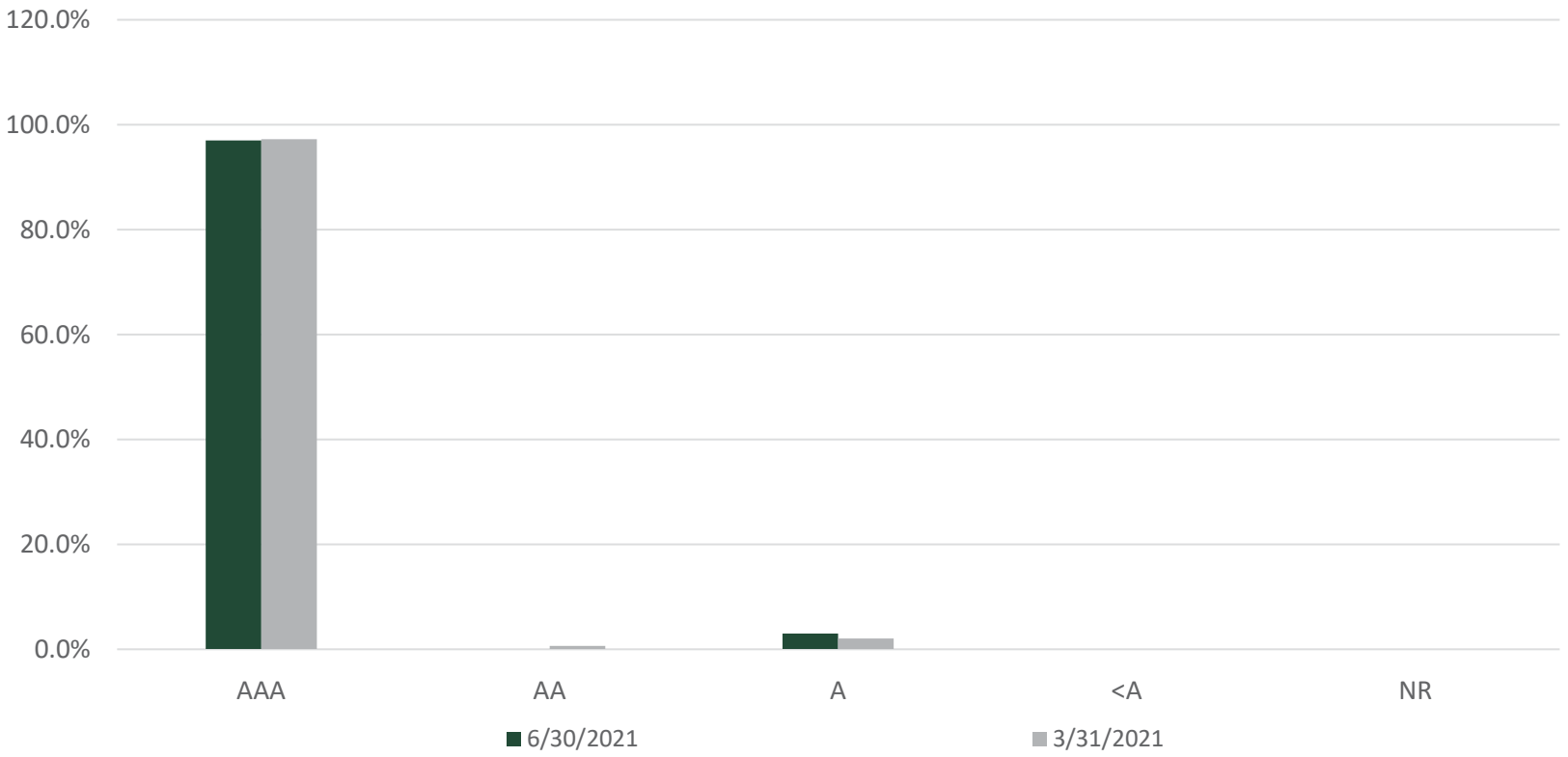
Source: S&P Ratings

Quality Distribution

As of June 30, 2021

Orange County Sanitation District Liquid

June 30, 2021 vs. March 31, 2021

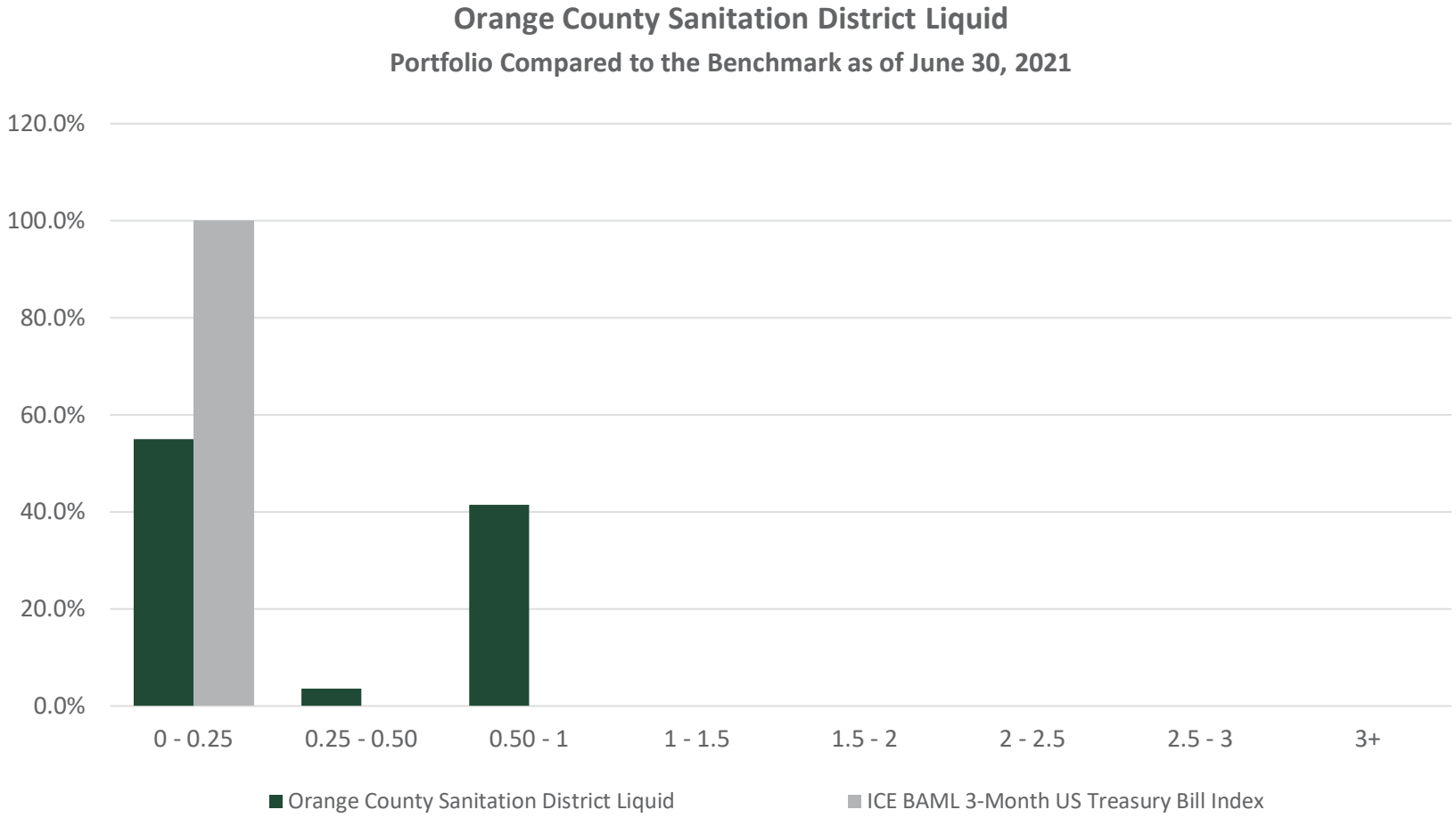


	AAA	AA	A	<A	NR
06/30/21	97.0%	0.0%	3.0%	0.0%	0.0%
03/31/21	97.2%	0.7%	2.1%	0.0%	0.0%

Source: Moody's Ratings

Duration Distribution

As of June 30, 2021



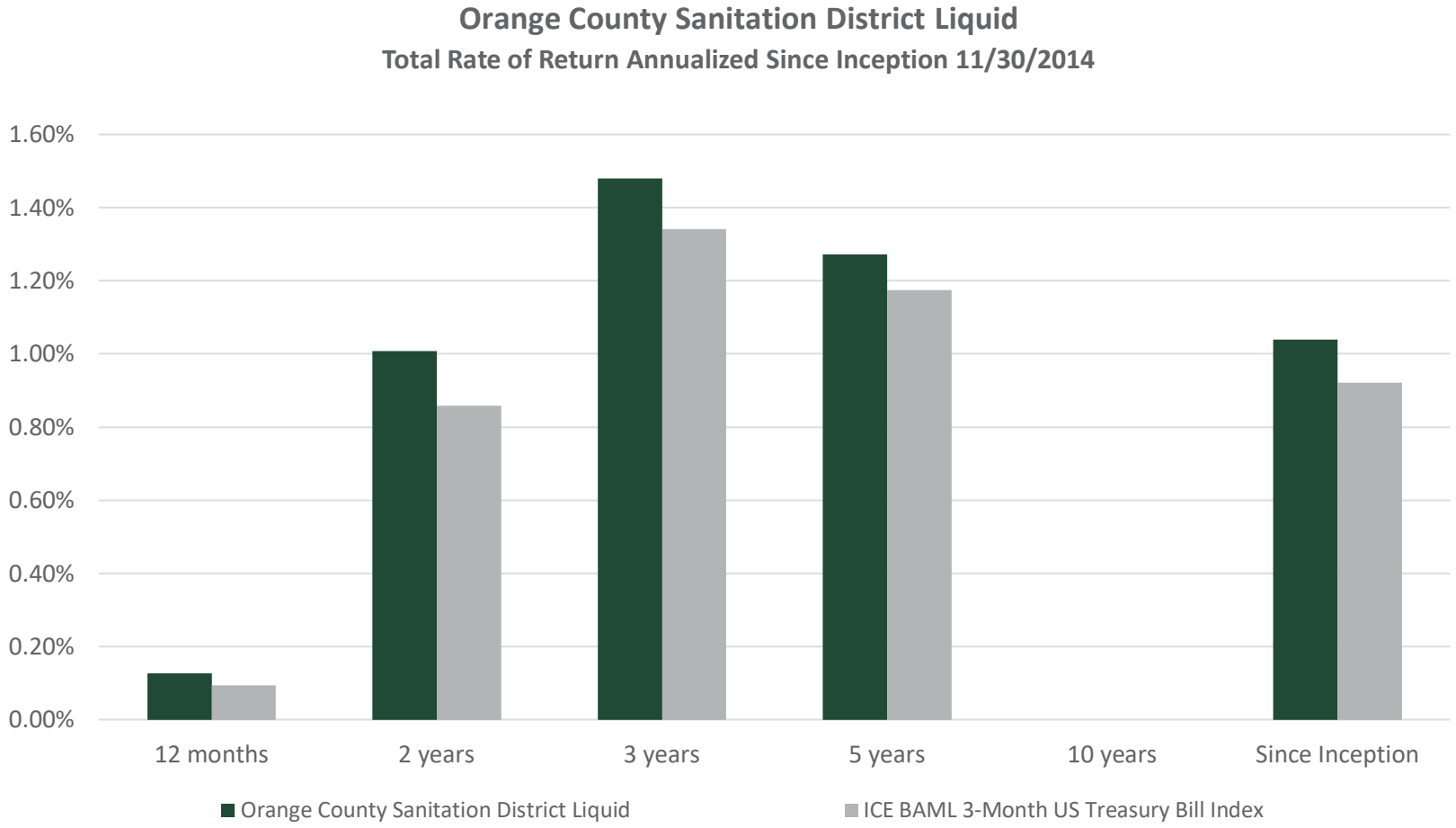
	0 - 0.25	0.25 - 0.50	0.50 - 1	1 - 1.5	1.5 - 2	2 - 2.5	2.5 - 3	3+
Portfolio	55.0%	3.6%	41.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Benchmark*	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

**ICE BAML 3-Month US Treasury Bill Index*

The duration of the portfolio increased moderately to 0.35 compared to the prior quarter's 0.30. The Chandler team will continue to look for opportunities to lengthen the duration of the portfolio consistent with the upcoming cash flow needs of OC Sanitation

Investment Performance

As of June 30, 2021



			Annualized				
TOTAL RATE OF RETURN	**3 months**	**12 months**	**2 years**	**3 years**	**5 years**	**10 years**	**Since Inception**
Orange County Sanitation District Liquid	0.01%	0.13%	1.01%	1.48%	1.27%	N/A	1.04%
ICE BAML 3-Month US Treasury Bill Index	0.00%	0.09%	0.86%	1.34%	1.17%	N/A	0.92%

Total rate of return: A measure of a portfolio's performance over time. It is the internal rate of return, which equates the beginning value of the portfolio with the ending value; it includes interest earnings, realized and unrealized gains and losses in the portfolio.

Compliance

As of June 30, 2021

OC San Lehman Exposure

Assets managed by Chandler Asset Management are in full compliance with state law and with the investment policy

Category	Standard	Comment
Treasury Issues	5 years maximum maturity	*Complies*
Supranational	"AA" or better by 1 of 3 NRSROs; 30% maximum; 5% max; 5 years maturity; Includes only: IADB, IBRD, and IFC per CGC	*Complies*
U.S. Agencies	20% max issuer; 5 years maximum maturity	*Complies*
U.S. Corporate (MTNs)	"A" or better long term rating by 1 of 3 NRSROs; 30% maximum; 5% max issuer; 5 years max maturity	*Complies**
Municipal Securities	"A" or higher by 1 of 3 NRSROS; 10% maximum; 5% max issuer; 5 years maximum maturity	*Complies*
Asset Backed/ CMOs/ Mortgage-backed	"AA" or better by 1 of 3 NRSROs; "A" or higher issuer rating by 1 of 3 NRSROs; 20% maximum; 5% max issuer (excluding MBS/govt agency); 5 years max maturity	*Complies*
Negotiable CDs	"A" or better on its long term debt by 1 of 3 NRSROs ; "A1/P1" or highest short term ratings by 1 of 3 NRSROs; 30% maximum; 5% max issuer; 5 years max maturity	*Complies*
CDs/ TDS	5% max issuer; 5 years max maturity	*Complies*
Banker's Acceptances	A-1, or equivalent highest short term rating by 1 of 3 NRSROS; 40% maximum; 5% max issuer; 180 days max maturity	*Complies*
Commercial Paper	A-1, or equivalent by 1 of 3 NRSROS; "A" or better by 1 of 3 NRSROs, if long term debt issued; 25% maximum; 5% max issuer; 270 days max maturity	*Complies*
Money Market Fund	Highest rating by 2 of 3 NRSROs; 20% maximum; 10% max issuer	*Complies*
Repurchase Agreements	102% collateralization	*Complies*
Reverse Repurchase Agreements	5% maximum, 90 days max maturity	*Complies*
LAIF	Not used by investment adviser	*Complies*
Avg Duration	Not to exceed 60 months - (80% to 120% of the benchmark)	*Complies*
Maximum Maturity	5 years maximum maturity	*Complies*

** Account holds $2 million face value (cusip 525ESC0Y6) and $600,000 face value (cusip 525ESC1B7) of defaulted Lehman Bros Holdings that were purchased by the previous manager. Complied at time of purchase.*

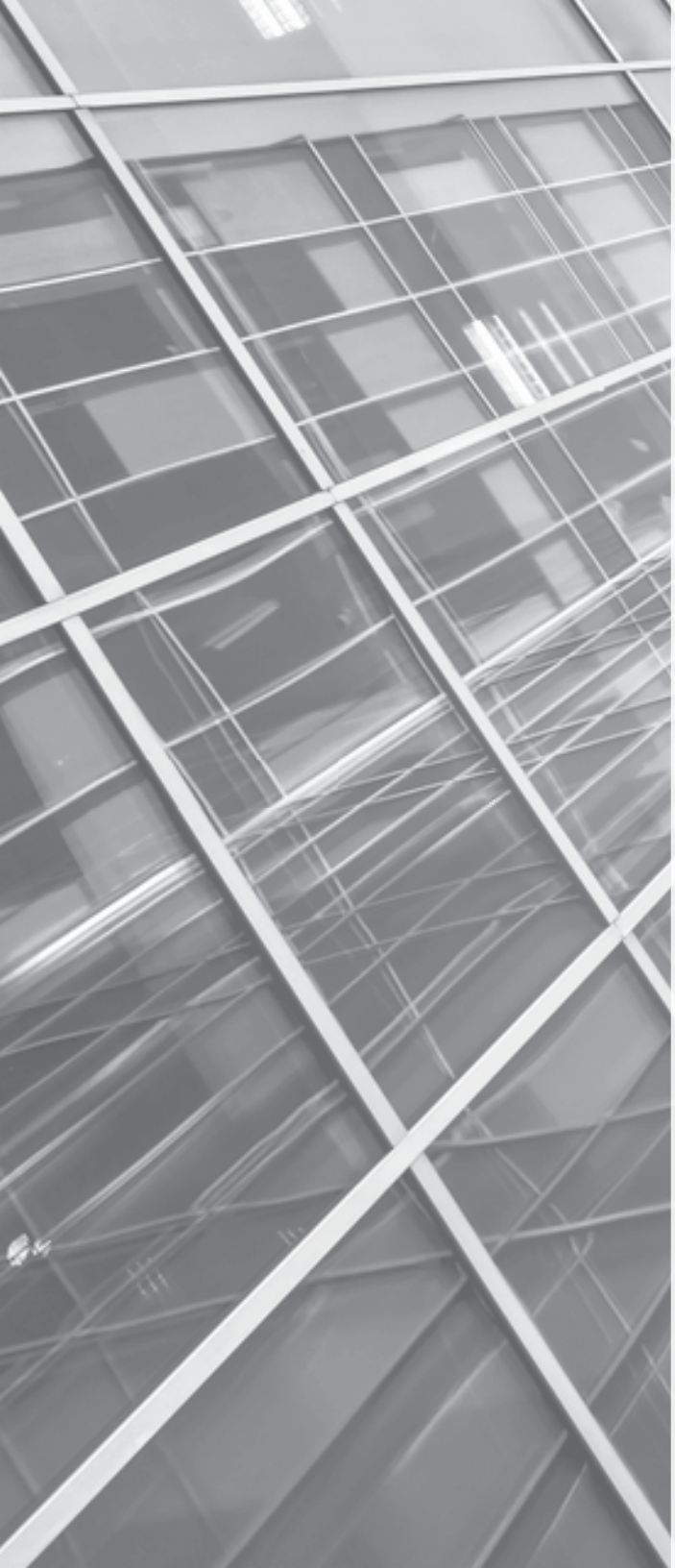
Portfolio Characteristics

As of June 30, 2021

OC SAN Lehman Exposure

	6/30/2021 Portfolio	3/31/2021 Portfolio
Average Maturity (yrs)	9.11	11.28
Modified Duration	0.00	0.00
Average Purchase Yield	0.00%	0.00%
Average Market Yield	0.00%	0.00%
Average Quality*	NR/NR	NR/NR
Total Market Value	43,821	52,141

**Portfolio is S&P and Moody's, respectively.*



Section 3 | Consolidated Information

Portfolio Characteristics

As of June 30, 2021

Orange County Sanitation District Consolidated

	6/30/2021 Portfolio	3/31/2021 Portfolio
Average Maturity (yrs)	2.20	2.25
Modified Duration	2.04	2.10
Average Purchase Yield	1.19%	1.34%
Average Market Yield	0.35%	0.34%
Average Quality*	AA+/Aa1	AA+/Aa1
Total Market Value	893,836,506	820,222,903

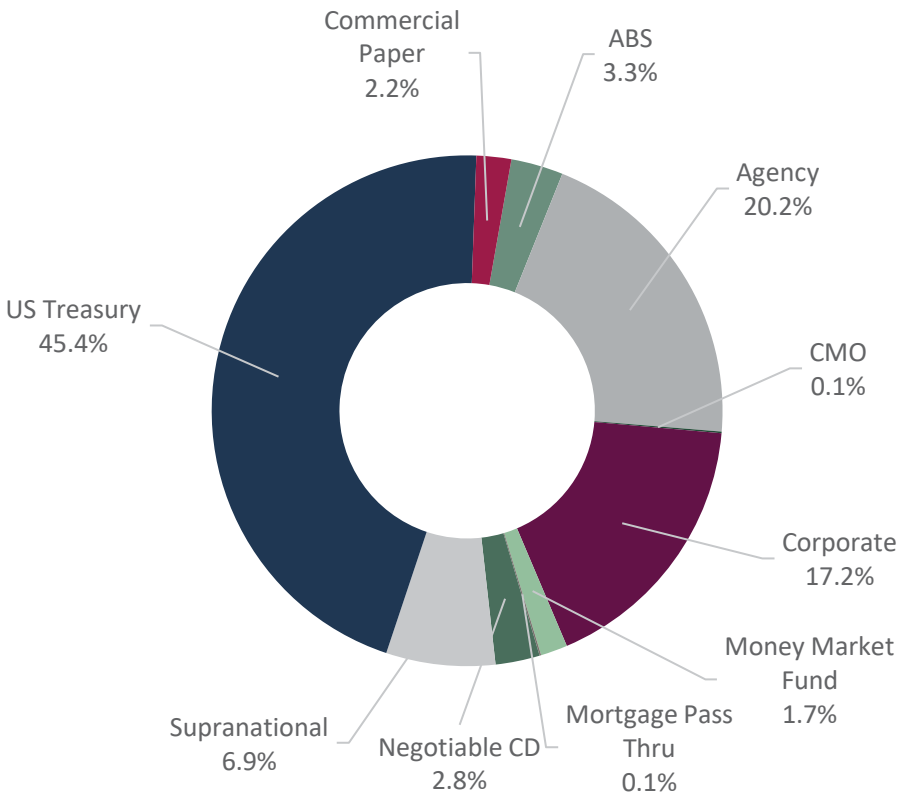
** Portfolio is S&P and Moody's respectively.*

Sector Distribution

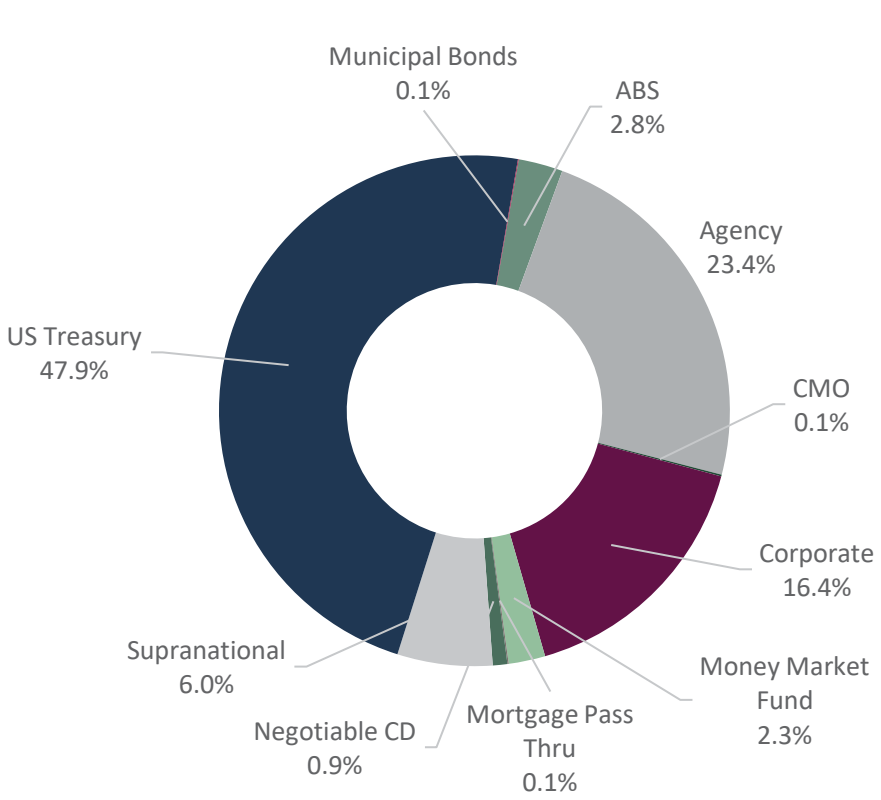
As of June 30, 2021

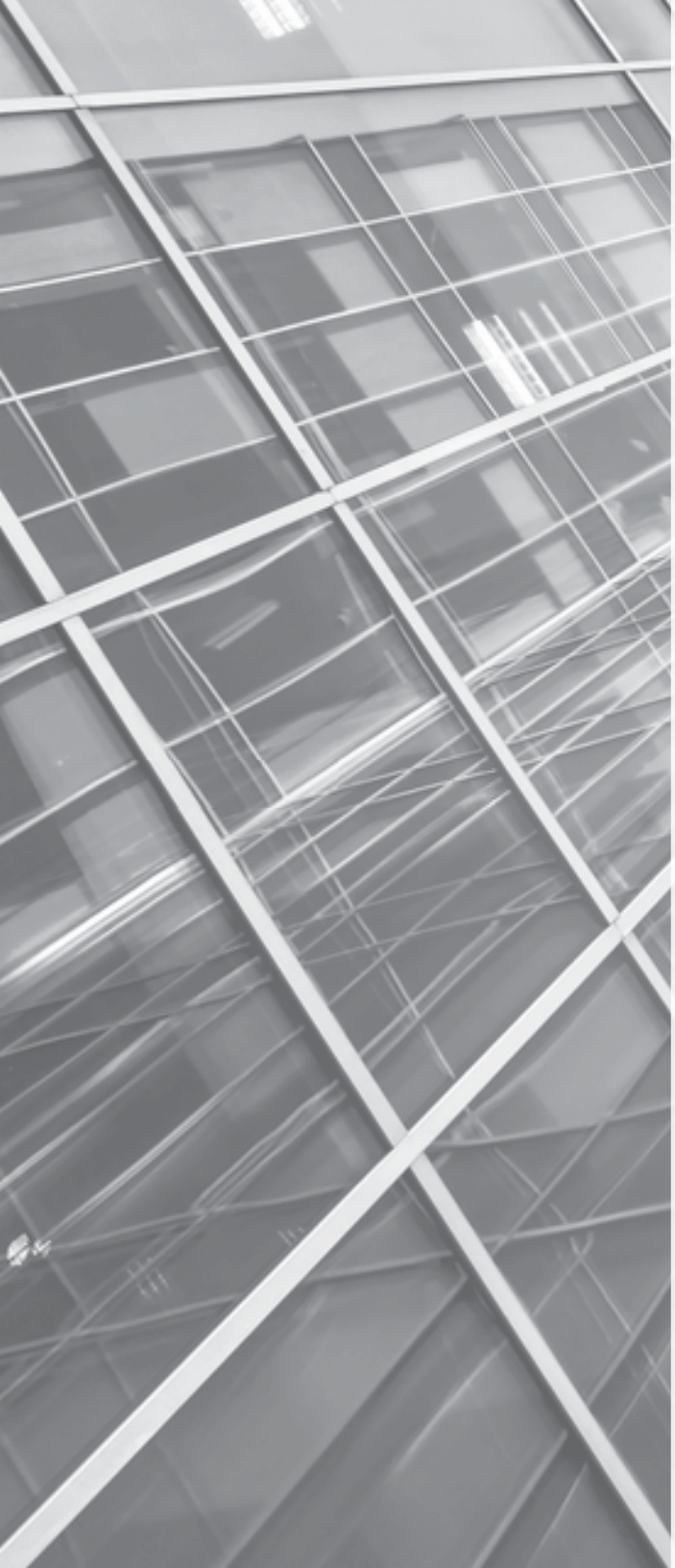
Orange County Sanitation District Consolidated

June 30, 2021



March 31, 2021





Section 4 | Portfolio Holdings

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
ABS									
43814UAG4	Honda Auto Receivables Trust 2018-2 A3	97,302.18	05/22/2018	97,300.06	100.20	97,497.07	0.01%	NR / AAA	0.88
	3.010% Due 05/18/2022		3.03%	97,301.71	0.16%	105.76	195.36	AAA	0.07
43815HAC1	Honda Auto Receivables Trust 2018-3 A3	659,157.51	08/21/2018	659,067.07	100.52	662,577.22	0.10%	Aaa / NR	1.15
	2.950% Due 08/22/2022		2.98%	659,131.59	0.30%	540.14	3,445.63	AAA	0.20
47788EAC2	John Deere Owner Trust 2018-B A3	536,545.01	07/18/2018	536,504.34	100.51	539,304.99	0.08%	Aaa / NR	1.38
	3.080% Due 11/15/2022		3.10%	536,532.04	0.14%	734.47	2,772.95	AAA	0.17
58770FAC6	Mercedes Benz Auto Lease Trust 2020-A A3	2,050,000.00	01/21/2020	2,049,729.81	100.73	2,065,012.15	0.30%	Aaa / AAA	1.46
	1.840% Due 12/15/2022		1.85%	2,049,863.23	0.20%	1,676.44	15,148.92	NR	0.45
65479GAD1	Nissan Auto Receivables Trust 2018-B A3	1,144,976.47	07/17/2018	1,144,939.38	100.79	1,154,055.78	0.17%	Aaa / AAA	1.71
	3.060% Due 03/15/2023		3.08%	1,144,969.94	0.37%	1,557.17	9,085.84	NR	0.29
78445JAA5	SLM Student Loan Trust 2008-9 A	10,118.65	08/22/2008	10,077.59	100.84	10,204.08	0.00%	Baa3 / B	1.82
	1.681% Due 04/25/2023		1.74%	10,113.56	1.32%	31.66	90.52	B	0.05
44891VAC5	Hyundai Auto Lease Trust 2021-B A3	4,155,000.00	06/08/2021	4,154,376.75	99.82	4,147,425.44	0.60%	Aaa / AAA	2.97
	0.330% Due 06/17/2024		0.34%	4,154,388.14	0.43%	571.31	(6,962.70)	NR	1.89
65479JAD5	Nissan Auto Receivables Owner 2019-C A3	4,185,000.00	10/16/2019	4,184,779.03	101.24	4,237,048.85	0.62%	Aaa / AAA	3.04
	1.930% Due 07/15/2024		1.94%	4,184,857.98	0.29%	3,589.80	52,190.87	NR	0.76
89237VAB5	Toyota Auto Receivables Trust 2020-C A3	2,960,000.00	07/21/2020	2,959,772.08	100.24	2,967,139.52	0.43%	Aaa / AAA	3.30
	0.440% Due 10/15/2024		0.44%	2,959,822.22	0.24%	578.84	7,317.30	NR	1.18
43813KAC6	Honda Auto Receivables Trust 2020-3 A3	3,235,000.00	09/22/2020	3,234,524.78	100.13	3,239,160.21	0.47%	NR / AAA	3.30
	0.370% Due 10/18/2024		0.38%	3,234,638.92	0.28%	432.23	4,521.29	AAA	1.43
47787NAC3	John Deere Owner Trust 2020-B A3	1,480,000.00	07/14/2020	1,479,774.45	100.25	1,483,671.88	0.22%	Aaa / NR	3.38
	0.510% Due 11/15/2024		0.52%	1,479,835.45	0.29%	335.47	3,836.43	AAA	1.13
58769KAD6	Mercedes-Benz Auto Lease Trust 2021-B A3	3,315,000.00	06/22/2021	3,314,749.72	99.95	3,313,362.39	0.48%	NR / AAA	3.38
	0.400% Due 11/15/2024		0.40%	3,314,750.26	0.42%	73.67	(1,387.87)	AAA	2.06
43813GAC5	Honda Auto Receivables Trust 2021-1 A3	1,605,000.00	02/17/2021	1,604,970.63	99.93	1,603,866.87	0.23%	Aaa / NR	3.81
	0.270% Due 04/21/2025		0.27%	1,604,973.96	0.32%	120.38	(1,107.09)	AAA	1.49
47788UAC6	John Deere Owner Trust 2021-A A3	2,300,000.00	03/02/2021	2,299,557.94	99.87	2,297,021.52	0.33%	Aaa / NR	4.21
	0.360% Due 09/15/2025		0.37%	2,299,595.93	0.43%	368.00	(2,574.41)	AAA	1.92
44933LAC7	Hyundai Auto Receivables Trust 2021-A A3	2,100,000.00	04/20/2021	2,099,779.08	99.97	2,099,342.72	0.31%	NR / AAA	4.21
	0.380% Due 09/15/2025		0.38%	2,099,791.78	0.40%	354.67	(449.06)	AAA	2.11
				29,829,902.71		**29,916,690.69**	**4.36%**	**Aaa / AAA**	**3.11**
TOTAL ABS		**29,833,099.82**	**0.92%**	**29,830,566.71**	**0.33%**	**11,070.01**	**86,123.98**	**Aaa**	**1.35**

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
Agency									
3135G0S38	FNMA Note 2.000% Due 01/05/2022	3,000,000.00	01/30/2017 2.04%	2,994,570.00 2,999,432.87	100.98 0.09%	3,029,409.00 29,333.33	0.45% 29,976.13	Aaa / AA+ AAA	0.52 0.51
3135G0T45	FNMA Note 1.875% Due 04/05/2022	5,000,000.00	05/05/2017 1.99%	4,972,500.00 4,995,736.20	101.37 0.08%	5,068,430.00 22,395.83	0.74% 72,693.80	Aaa / AA+ AAA	0.76 0.76
3133ELYR9	FFCB Note 0.250% Due 05/06/2022	8,850,000.00	04/30/2020 0.31%	8,838,760.50 8,845,242.46	100.11 0.12%	8,860,115.55 3,380.21	1.29% 14,873.09	Aaa / AA+ AAA	0.85 0.85
3135G0T94	FNMA Note 2.375% Due 01/19/2023	5,000,000.00	Various 2.78%	4,910,990.00 4,971,038.29	103.37 0.20%	5,168,565.00 53,437.50	0.76% 197,526.71	Aaa / AA+ AAA	1.56 1.52
313383QR5	FHLB Note 3.250% Due 06/09/2023	5,000,000.00	08/28/2018 2.87%	5,083,350.00 5,033,817.65	105.78 0.26%	5,289,010.00 9,930.56	0.77% 255,192.35	Aaa / AA+ NR	1.94 1.89
3137EAEN5	FHLMC Note 2.750% Due 06/19/2023	10,000,000.00	Various 2.84%	9,956,500.00 9,982,686.03	104.91 0.25%	10,490,670.00 9,166.66	1.53% 507,983.97	Aaa / AA+ AAA	1.97 1.93
3135G05G4	FNMA Note 0.250% Due 07/10/2023	6,775,000.00	07/08/2020 0.32%	6,760,433.75 6,765,169.44	99.99 0.26%	6,774,227.65 8,045.31	0.99% 9,058.21	Aaa / AA+ AAA	2.03 2.02
313383YJ4	FHLB Note 3.375% Due 09/08/2023	10,000,000.00	Various 2.88%	10,211,831.00 10,099,602.37	106.58 0.35%	10,657,900.00 105,937.50	1.57% 558,297.63	Aaa / AA+ NR	2.19 2.11
3130A0F70	FHLB Note 3.375% Due 12/08/2023	10,000,000.00	Various 2.79%	10,269,043.75 10,132,881.51	107.34 0.35%	10,734,440.00 21,562.51	1.57% 601,558.49	Aaa / AA+ AAA	2.44 2.36
3135G0V34	FNMA Note 2.500% Due 02/05/2024	5,000,000.00	02/27/2019 2.58%	4,980,850.00 4,989,920.49	105.46 0.38%	5,273,070.00 50,694.44	0.78% 283,149.51	Aaa / AA+ AAA	2.60 2.50
3130A1XJ2	FHLB Note 2.875% Due 06/14/2024	11,110,000.00	Various 1.96%	11,589,031.30 11,393,526.19	106.99 0.49%	11,886,644.55 15,083.37	1.73% 493,118.36	Aaa / AA+ NR	2.96 2.85
3133EKWV4	FFCB Note 1.850% Due 07/26/2024	5,000,000.00	08/13/2019 1.65%	5,048,280.00 5,029,934.67	104.16 0.48%	5,208,015.00 39,826.39	0.77% 178,080.33	Aaa / AA+ AAA	3.07 2.97
3130A2UW4	FHLB Note 2.875% Due 09/13/2024	2,500,000.00	09/12/2019 1.73%	2,635,950.00 2,587,061.58	107.44 0.53%	2,686,000.00 21,562.50	0.39% 98,938.42	Aaa / AA+ AAA	3.21 3.06
3135G0X24	FNMA Note 1.625% Due 01/07/2025	10,000,000.00	Various 1.28%	10,157,936.40 10,116,545.62	103.56 0.60%	10,356,270.00 78,541.66	1.52% 239,724.38	Aaa / AA+ AAA	3.53 3.40
3137EAEP0	FHLMC Note 1.500% Due 02/12/2025	12,335,000.00	Various 1.20%	12,510,182.05 12,463,344.23	103.21 0.60%	12,730,682.13 71,440.21	1.87% 267,337.90	Aaa / AA+ AAA	3.62 3.51
3130A4CH3	FHLB Note 2.375% Due 03/14/2025	5,225,000.00	03/19/2020 1.18%	5,526,848.25 5,449,230.13	106.34 0.64%	5,556,364.28 36,883.42	0.82% 107,134.15	Aaa / AA+ AAA	3.71 3.54
3135G03U5	FNMA Note 0.625% Due 04/22/2025	14,000,000.00	Various 0.63%	13,996,711.60 13,997,523.26	99.91 0.65%	13,987,764.00 16,770.84	2.04% (9,759.26)	Aaa / AA+ AAA	3.81 3.76

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
3135G04Z3	FNMA Note 0.500% Due 06/17/2025	9,905,000.00	06/17/2020 0.54%	9,884,496.65 9,888,734.46	99.41 0.65%	9,846,679.36 1,925.97	1.44% (42,055.10)	Aaa / AA+ AAA	3.97 3.92
3137EAEU9	FHLMC Note 0.375% Due 07/21/2025	5,030,000.00	07/21/2020 0.48%	5,004,950.60 5,009,661.10	98.63 0.72%	4,961,094.03 8,383.33	0.72% (48,567.07)	Aaa / AA+ AAA	4.06 4.01
3135G05X7	FNMA Note 0.375% Due 08/25/2025	7,945,000.00	08/25/2020 0.47%	7,907,817.40 7,914,096.04	98.56 0.73%	7,830,401.32 10,427.81	1.14% (83,694.72)	Aaa / AA+ AAA	4.16 4.10
3137EAEX3	FHLMC Note 0.375% Due 09/23/2025	7,660,000.00	09/23/2020 0.44%	7,636,943.40 7,640,470.15	98.47 0.74%	7,543,139.04 7,819.58	1.10% (97,331.11)	Aaa / AA+ AAA	4.24 4.18
3135G06G3	FNMA Note 0.500% Due 11/07/2025	8,255,000.00	11/09/2020 0.57%	8,225,447.10 8,229,195.99	98.91 0.75%	8,165,259.90 6,191.25	1.19% (63,936.09)	Aaa / AA+ AAA	4.36 4.29
TOTAL Agency		**167,590,000.00**	**1.46%**	**169,103,423.75** **168,534,850.73**	**0.47%**	**172,104,150.81** **628,740.18**	**25.18%** **3,569,300.08**	**Aaa / AA+** **Aaa**	**2.93** **2.86**
CMO									
03215PFN4	AMRESCO Residential Securities 1999-1 A 1.036% Due 06/25/2029	119,021.64	05/20/2011 4.49%	89,377.81 105,938.33	97.70 2.17%	116,287.71 20.55	0.02% 10,349.38	NR / BBB BBB	7.99 0.01
3133TCE95	FHLMC FSPC E3 A 3.849% Due 08/15/2032	3,982.90	03/11/1998 3.81%	3,987.08 3,984.26	100.80 2.08%	4,014.76 12.78	0.00% 30.50	Aaa / AA+ AAA	11.13 0.90
31397QRE0	FNMA FNR 2011-3 FA 0.776% Due 02/25/2041	111,677.65	12/20/2010 0.78%	111,642.77 111,654.86	101.98 0.33%	113,888.86 14.45	0.02% 2,234.00	Aaa / AA+ AAA	19.67 0.15
31394JY35	FHLMC FSPC T-58 2A 6.500% Due 09/25/2043	521,023.30	06/09/2011 5.40%	590,058.88 568,571.26	109.48 2.52%	570,437.15 564.44	0.08% 1,865.89	Aaa / AA+ AAA	22.25 2.44
TOTAL CMO		**755,705.49**	**4.62%**	**795,066.54** **790,148.71**	**2.16%**	**804,628.48** **612.22**	**0.12%** **14,479.77**	**Aaa / AA** **Aaa**	**19.77** **1.76**
Commercial Paper									
62479LUS2	MUFG Bank Ltd Discount CP 0.100% Due 07/26/2021	12,000,000.00	04/27/2021 0.10%	11,997,000.00 11,999,166.67	99.99 0.10%	11,999,166.67 0.00	1.75% 0.00	P-1 / A-1 NR	0.07 0.07
TOTAL Commercial Paper		**12,000,000.00**	**0.10%**	**11,997,000.00** **11,999,166.67**	**0.10%**	**11,999,166.67** **0.00**	**1.75%** **0.00**	**P-1 / A-1** **NR**	**0.07** **0.07**
Corporate									
61747WAL3	Morgan Stanley Note 5.500% Due 07/28/2021	2,800,000.00	06/06/2014 3.24%	3,200,848.00 2,804,156.26	100.38 0.55%	2,810,752.00 65,450.00	0.42% 6,595.74	A1 / BBB+ A	0.08 0.08
594918BP8	Microsoft Callable Note Cont 7/8/2021 1.550% Due 08/08/2021	3,045,000.00	Various 1.57%	3,041,385.15 3,044,924.77	100.02 0.49%	3,045,715.58 18,747.89	0.45% 790.81	Aaa / AAA AAA	0.11 0.02

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
06406RAA5	Bank of NY Mellon Corp Callable Note Cont 1/7/2022 2.600% Due 02/07/2022	2,500,000.00	02/08/2017 2.56%	2,504,475.00 2,500,475.27	101.25 0.19%	2,531,257.50 26,000.00	0.37% 30,782.23	A1 / A AA-	0.61 0.51
69353RFB9	PNC Bank Callable Note Cont 1/18/2022 2.625% Due 02/17/2022	1,000,000.00	03/26/2018 3.32%	974,940.00 995,929.07	101.31 0.23%	1,013,083.00 9,770.83	0.15% 17,153.93	A2 / A A+	0.64 0.54
084664BT7	Berkshire Hathaway Note 3.000% Due 05/15/2022	4,000,000.00	05/23/2017 2.30%	4,131,120.00 4,022,973.09	102.37 0.29%	4,094,604.00 15,333.33	0.60% 71,630.91	Aa2 / AA A+	0.87 0.87
00440EAU1	Chubb INA Holdings Inc Callable Note Cont 9/3/2022 2.875% Due 11/03/2022	4,169,000.00	Various 2.54%	4,232,453.17 4,184,496.87	102.96 0.35%	4,292,235.64 19,310.58	0.63% 107,738.77	A3 / A A	1.35 1.16
90331HNL3	US Bank NA Callable Note Cont 12/23/2022 2.850% Due 01/23/2023	2,000,000.00	01/29/2018 2.93%	1,992,640.00 1,997,688.36	103.74 0.32%	2,074,756.00 25,016.67	0.31% 77,067.64	A1 / AA- AA-	1.57 1.44
808513AT2	Charles Schwab Corp Callable Note Cont 12/25/2022 2.650% Due 01/25/2023	6,750,000.00	05/21/2019 2.74%	6,729,480.00 6,741,245.00	103.36 0.38%	6,977,036.25 77,512.50	1.03% 235,791.25	A2 / A A	1.57 1.45
06406RAE7	Bank of NY Mellon Corp Callable Note Cont 12/29/2022 2.950% Due 01/29/2023	2,500,000.00	Various 3.03%	2,489,555.00 2,496,953.70	103.95 0.31%	2,598,660.00 31,138.89	0.38% 101,706.30	A1 / A AA-	1.58 1.46
00440EAP2	Chubb INA Holdings Inc Note 2.700% Due 03/13/2023	2,000,000.00	05/24/2018 3.42%	1,937,000.00 1,977,667.24	103.98 0.36%	2,079,526.00 16,200.00	0.31% 101,858.76	A3 / A A	1.70 1.66
084670BR8	Berkshire Hathaway Callable Note Cont 1/15/2023 2.750% Due 03/15/2023	2,500,000.00	04/20/2018 3.28%	2,440,950.00 2,479,434.99	103.77 0.30%	2,594,222.50 20,243.06	0.38% 114,787.51	Aa2 / AA A+	1.71 1.51
58933YAF2	Merck & Co Note 2.800% Due 05/18/2023	2,000,000.00	10/26/2018 3.41%	1,948,640.00 1,978,788.10	104.67 0.31%	2,093,484.00 6,688.89	0.31% 114,695.90	A1 / A+ A+	1.88 1.84
46625HRL6	JP Morgan Chase Callable Note Cont 3/18/2023 2.700% Due 05/18/2023	5,000,000.00	Various 3.59%	4,821,910.00 4,923,519.73	103.96 0.38%	5,198,110.00 16,125.00	0.76% 274,590.27	A2 / A- AA-	1.88 1.68
69353RFL7	PNC Bank Callable Note Cont 5/9/2023 3.500% Due 06/08/2023	5,000,000.00	Various 3.53%	4,993,318.05 4,997,408.91	105.83 0.34%	5,291,650.00 11,180.56	0.77% 294,241.09	A2 / A A+	1.94 1.81
166764AH3	Chevron Corp Callable Note Cont 3/24/2023 3.191% Due 06/24/2023	3,500,000.00	11/08/2018 3.59%	3,441,095.00 3,474,710.03	104.98 0.31%	3,674,342.00 2,171.65	0.54% 199,631.97	Aa2 / AA- NR	1.98 1.70
931142EK5	Wal-Mart Stores Callable Note Cont 5/26/2023 3.400% Due 06/26/2023	3,880,000.00	Various 3.41%	3,878,991.40 3,879,599.33	105.98 0.25%	4,111,853.28 1,832.22	0.60% 232,253.95	Aa2 / AA AA	1.99 1.86
02665WCJ8	American Honda Finance Note 3.450% Due 07/14/2023	845,000.00	07/11/2018 3.49%	843,538.15 844,404.52	106.18 0.40%	897,204.95 13,523.52	0.13% 52,800.43	A3 / A- NR	2.04 1.96
89114QC48	Toronto Dominion Bank Note 3.500% Due 07/19/2023	5,000,000.00	02/26/2019 3.04%	5,094,200.00 5,043,983.52	106.31 0.41%	5,315,685.00 78,750.00	0.79% 271,701.48	Aa1 / AA- AA	2.05 1.97

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
02665WCQ2	American Honda Finance Note 3.625% Due 10/10/2023	2,000,000.00	Various 3.64%	1,998,320.00 1,999,224.42	107.11 0.48%	2,142,252.00 16,312.50	0.31% 143,027.58	A3 / A- NR	2.28 2.19
24422EUM9	John Deere Capital Corp Note 3.650% Due 10/12/2023	1,250,000.00	11/28/2018 3.64%	1,250,237.50 1,250,111.33	107.46 0.37%	1,343,193.75 10,012.15	0.20% 93,082.42	A2 / A A	2.28 2.20
06051GHF9	Bank of America Corp Callable Note 1X 3/5/2023 3.550% Due 03/05/2024	6,675,000.00	Various 2.76%	6,770,625.75 6,727,118.32	105.06 0.52%	7,012,835.10 76,354.59	1.03% 285,716.78	A2 / A- AA-	2.68 1.63
09247XAL5	Blackrock Inc Note 3.500% Due 03/18/2024	1,000,000.00	05/09/2019 2.69%	1,036,330.00 1,020,329.21	108.04 0.52%	1,080,359.00 10,013.89	0.16% 60,029.79	Aa3 / AA- NR	2.72 2.59
808513BN4	Charles Schwab Corp Callable Note Cont 2/18/2024 0.750% Due 03/18/2024	2,785,000.00	03/16/2021 0.77%	2,783,607.50 2,783,740.91	100.57 0.53%	2,800,949.70 5,976.15	0.41% 17,208.79	A2 / A A	2.72 2.60
458140BD1	Intel Corp Callable Note Cont 3/11/2024 2.875% Due 05/11/2024	5,000,000.00	05/09/2019 2.76%	5,025,900.00 5,014,447.62	106.35 0.50%	5,317,610.00 19,965.28	0.78% 303,162.38	A1 / A+ A+	2.87 2.60
037833CU2	Apple Inc Callable Note Cont 3/11/2024 2.850% Due 05/11/2024	3,000,000.00	05/17/2019 2.72%	3,017,760.00 3,009,952.07	106.14 0.55%	3,184,071.00 11,875.00	0.47% 174,118.93	Aa1 / AA+ NR	2.87 2.60
023135BW5	Amazon.com Inc Callable Note Cont 11/12/2021 0.450% Due 05/12/2024	5,490,000.00	05/10/2021 0.50%	5,481,984.60 5,482,350.27	99.81 0.52%	5,479,733.70 3,362.63	0.80% (2,616.57)	A1 / AA AA-	2.87 2.84
89114QCA4	Toronto Dominion Bank Note 2.650% Due 06/12/2024	3,000,000.00	06/12/2019 2.65%	3,000,570.00 3,000,336.38	105.86 0.64%	3,175,662.00 4,195.83	0.46% 175,325.62	Aa3 / A AA-	2.95 2.85
02665WCZ2	American Honda Finance Note 2.400% Due 06/27/2024	1,219,000.00	07/10/2019 2.49%	1,213,843.63 1,215,892.52	105.00 0.71%	1,279,941.47 325.07	0.19% 64,048.95	A3 / A- NR	2.99 2.90
78013XZU5	Royal Bank of Canada Note 2.550% Due 07/16/2024	6,500,000.00	09/10/2019 2.28%	6,581,445.00 6,551,150.59	105.46 0.73%	6,855,108.00 75,968.75	1.01% 303,957.41	A2 / A AA	3.05 2.91
46647PAU0	JP Morgan Chase & Co Callable Note 1X 7/23/2023 3.797% Due 07/23/2024	2,500,000.00	09/12/2019 2.10%	2,632,175.00 2,583,392.58	106.54 0.60%	2,663,507.50 41,661.53	0.39% 80,114.92	A2 / A- AA-	3.07 1.97
90331HPL1	US Bank NA Callable Note Cont 12/21/2024 2.050% Due 01/21/2025	7,270,000.00	01/16/2020 2.10%	7,254,514.90 7,258,981.59	104.44 0.75%	7,593,027.91 66,237.78	1.12% 334,046.32	A1 / AA- AA-	3.56 3.33
00440EAS6	Chubb INA Holdings Inc Note 3.150% Due 03/15/2025	2,000,000.00	10/28/2020 0.78%	2,203,740.00 2,172,611.28	108.13 0.92%	2,162,594.00 18,550.00	0.32% (10,017.28)	A3 / A A	3.71 3.49
61747YEA9	Morgan Stanley Callable Note Cont 5/30/2024 0.790% Due 05/30/2025	8,885,000.00	05/26/2021 0.73%	8,889,710.25 8,889,613.39	99.60 0.93%	8,849,637.70 5,849.29	1.29% (39,975.69)	A1 / BBB+ A	3.92 2.87
438516CB0	Honeywell Intl Callable Note Cont 5/1/2025 1.350% Due 06/01/2025	5,000,000.00	06/23/2020 0.85%	5,119,000.00 5,094,071.15	101.94 0.84%	5,096,935.00 5,625.00	0.74% 2,863.85	A2 / A A	3.92 3.73
78015K7H1	Royal Bank of Canada Note 1.150% Due 06/10/2025	2,500,000.00	Various 0.90%	2,527,720.00 2,523,701.17	100.57 1.00%	2,514,280.00 1,677.08	0.37% (9,421.17)	A2 / A AA	3.95 3.85

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
06051GHY8	Bank of America Corp Callable Note Cont 2/13/2025	2,500,000.00	03/04/2021	2,583,450.00	103.14	2,578,480.00	0.38%	A2 / A-	4.63
	2.015% Due 02/13/2026		1.08%	2,578,127.34	1.13%	19,310.42	352.66	AA-	3.47
46647PBH8	JP Morgan Chase & Co Callable Note Mthly 3/13/2025	3,500,000.00	Various	3,602,345.00	103.28	3,614,639.00	0.53%	A2 / A-	4.70
	2.005% Due 03/13/2026		1.24%	3,595,727.35	1.10%	21,052.50	18,911.65	AA-	3.55
91324PEC2	United Health Group Inc Callable Note Cont 4/15/2026	1,755,000.00	Various	1,760,683.15	100.05	1,755,903.83	0.26%	A3 / A+	4.88
	1.150% Due 05/15/2026		1.08%	1,760,635.81	1.14%	2,354.63	(4,731.98)	A	4.64
89236TJK2	Toyota Motor Credit Corp Note	7,285,000.00	06/15/2021	7,281,794.60	99.77	7,268,594.18	1.06%	A1 / A+	4.97
	1.125% Due 06/18/2026		1.13%	7,281,817.42	1.17%	2,959.53	(13,223.24)	A+	4.81
06051GJD2	Bank of America Corp Callable Note Cont 6/19/2025	2,250,000.00	06/24/2021	2,254,432.50	100.26	2,255,755.50	0.33%	A2 / A-	4.97
	1.319% Due 06/19/2026		1.26%	2,254,425.18	1.25%	989.25	1,330.32	AA-	3.85
				142,966,728.30		**146,719,248.04**	**21.52%**	**A1 / A+**	**2.69**
TOTAL Corporate		**141,853,000.00**	**2.23%**	**142,436,116.66**	**0.60%**	**875,624.44**	**4,283,131.38**	**A+**	**2.37**
Money Market Fund									
31846V567	First American Govt Obligation MMKT Class-Z	1,155,352.34	Various	1,155,352.34	1.00	1,155,352.34	0.17%	Aaa / AAA	0.00
			0.03%	1,155,352.34	0.03%	0.00	0.00	AAA	0.00
				1,155,352.34		**1,155,352.34**	**0.17%**	**Aaa / AAA**	**0.00**
TOTAL Money Market Fund		**1,155,352.34**	**0.03%**	**1,155,352.34**	**0.03%**	**0.00**	**0.00**	**Aaa**	**0.00**
Mortgage Pass Thru									
36225CAZ9	GNMA Pool# G2 80023	10,094.95	08/08/1997	10,262.13	103.61	10,458.97	0.00%	Aaa / AA+	5.48
	1.610% Due 12/20/2026		1.51%	10,126.14	0.18%	13.54	332.83	AAA	2.34
36225CC20	GNMA Pool# G2 80088	7,835.88	08/11/1997	8,007.29	101.88	7,982.89	0.00%	Aaa / AA+	5.98
	1.670% Due 06/20/2027		1.54%	7,870.19	1.16%	10.90	112.70	AAA	2.33
31348SWZ3	FHLMC FH 786064	1,449.20	02/18/2000	1,413.90	100.65	1,458.62	0.00%	Aaa / AA+	6.51
	2.257% Due 01/01/2028		2.44%	1,440.96	1.92%	2.73	17.66	AAA	0.56
31371NUC7	FNMA FN 257179	8,856.88	12/05/2011	9,367.03	107.60	9,530.07	0.00%	Aaa / AA+	6.76
	4.500% Due 04/01/2028		3.72%	9,068.14	1.08%	33.21	461.93	AAA	2.26
31417YAY3	FNMA Pool# FN MA0022	9,914.92	12/05/2011	10,486.00	107.65	10,673.00	0.00%	Aaa / AA+	7.76
	4.500% Due 04/01/2029		3.76%	10,170.73	1.33%	37.18	502.27	AAA	2.45
3138EG6F6	FNMA FN AL0869	5,809.67	12/05/2011	6,144.31	107.62	6,252.27	0.00%	Aaa / AA+	7.93
	4.500% Due 06/01/2029		3.77%	5,961.34	1.39%	5.08	290.93	AAA	2.49

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
36225CNM4	GNMA Pool# G2 80395 1.670% Due 04/20/2030	4,188.99	03/15/2000 1.73%	4,151.00 4,177.81	103.87 0.34%	4,351.08 5.83	0.00% 173.27	Aaa / AA+ AAA	8.81 2.87
36225CN28	GNMA Pool# G2 80408 1.670% Due 05/20/2030	33,224.27	03/15/2000 1.73%	32,886.82 33,124.30	103.88 0.65%	34,512.91 46.24	0.01% 1,388.61	Aaa / AA+ AAA	8.89 3.75
31403GXF4	FNMA Pool# FN 748678 5.000% Due 10/01/2033	811.97	06/10/2013 4.16%	872.86 848.88	110.53 1.90%	897.51 3.38	0.00% 48.63	Aaa / AA+ AAA	12.26 3.41
36225DCB8	GNMA Pool# G2 80965 1.620% Due 07/20/2034	27,536.50	07/19/2004 1.62%	27,519.30 27,528.99	104.23 0.24%	28,702.29 37.17	0.00% 1,173.30	Aaa / AA+ AAA	13.06 2.99
31406XWT5	FNMA Pool# FN 823358 1.988% Due 02/01/2035	70,004.88	01/11/2006 2.04%	69,457.96 69,748.81	105.36 1.03%	73,759.94 115.95	0.01% 4,011.13	Aaa / AA+ AAA	13.60 0.61
31406PQY8	FNMA Pool# FN 815971 5.000% Due 03/01/2035	91,918.01	06/10/2013 4.21%	98,811.87 96,273.91	114.62 0.98%	105,356.79 382.99	0.02% 9,082.88	Aaa / AA+ AAA	13.68 3.62
31407BXH7	FNMA Pool# FN 826080 5.000% Due 07/01/2035	12,322.61	06/10/2013 4.22%	13,246.79 12,911.73	114.63 0.99%	14,125.52 51.34	0.00% 1,213.79	Aaa / AA+ AAA	14.01 3.64
31376KT22	FNMA FN 357969 5.000% Due 09/01/2035	68,798.61	06/10/2013 4.22%	73,958.49 72,102.13	114.75 1.03%	78,943.58 66.89	0.01% 6,841.45	Aaa / AA+ AAA	14.18 3.70
31403DJZ3	FNMA Pool #745580 5.000% Due 06/01/2036	61,567.49	06/10/2013 4.26%	66,185.04 64,578.26	114.59 1.07%	70,548.34 256.53	0.01% 5,970.08	Aaa / AA+ AAA	14.93 3.70
31410F4V4	FNMA Pool# FN 888336 5.000% Due 07/01/2036	109,827.30	06/10/2013 4.25%	118,064.36 115,208.35	114.63 1.03%	125,899.21 457.61	0.02% 10,690.86	Aaa / AA+ AAA	15.01 3.67
TOTAL Mortgage Pass Thru		**524,162.13**	**3.53%**	**550,835.15** **541,140.67**	**0.96%**	**583,452.99** **1,526.57**	**0.09%** **42,312.32**	**Aaa / AA+** **Aaa**	**13.28** **3.14**
Negotiable CD									
06417MMB8	Bank of Nova Scotia Houston Yankee CD 0.280% Due 11/24/2021	5,000,000.00	11/24/2020 0.28%	5,000,000.00 5,000,000.00	100.00 0.28%	5,000,000.00 8,477.78	0.73% 0.00	P-1 / A-1 F-1+	0.40 0.40
65558UBJ0	Nordea Bank APB New York Yankee CD 0.210% Due 05/16/2022	7,000,000.00	05/19/2021 0.20%	7,000,702.07 7,000,618.67	100.02 0.19%	7,001,239.00 1,960.00	1.02% 620.33	P-1 / A-1+ F-1+	0.88 0.88
06417MQL2	Bank of Nova Scotia Houston Yankee CD 0.200% Due 06/23/2022	5,000,000.00	06/29/2021 0.20%	4,999,999.61 4,999,999.61	99.99 0.21%	4,999,650.00 222.22	0.73% (349.61)	P-1 / A-1 F-1+	0.98 0.98
TOTAL Negotiable CD		**17,000,000.00**	**0.22%**	**17,000,701.68** **17,000,618.28**	**0.22%**	**17,000,889.00** **10,660.00**	**2.48%** **270.72**	**Aaa / AA+** **Aaa**	**0.77** **0.77**
Supranational									
45950KCJ7	International Finance Corp Note 1.125% Due 07/20/2021	2,500,000.00	11/09/2016 1.64%	2,441,600.00 2,499,352.25	100.06 0.12%	2,501,400.00 12,578.13	0.37% 2,047.75	Aaa / AAA NR	0.05 0.06

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
4581X0CW6	Inter-American Dev Bank Note 2.125% Due 01/18/2022	3,000,000.00	01/10/2017 2.15%	2,996,310.00 2,999,593.82	101.06 0.19%	3,031,908.00 28,864.58	0.45% 32,314.18	Aaa / NR AAA	0.55 0.54
459058FY4	Intl. Bank Recon & Development Note 2.000% Due 01/26/2022	10,000,000.00	Various 1.99%	10,006,350.00 10,000,548.99	101.04 0.18%	10,103,750.00 86,111.12	1.49% 103,201.01	Aaa / NR AAA	0.58 0.57
4581X0CZ9	Inter-American Dev Bank Note 1.750% Due 09/14/2022	6,500,000.00	Various 2.65%	6,249,655.00 6,433,999.21	101.88 0.19%	6,622,421.00 33,809.02	0.97% 188,421.79	Aaa / AAA AAA	1.21 1.19
459058JB0	Intl. Bank Recon & Development Note 0.625% Due 04/22/2025	6,245,000.00	04/15/2020 0.70%	6,220,831.85 6,226,589.32	99.68 0.71%	6,224,828.65 7,480.99	0.91% (1,760.67)	Aaa / AAA NR	3.81 3.75
4581X0DN5	Inter-American Dev Bank Note 0.625% Due 07/15/2025	5,050,000.00	01/13/2021 0.53%	5,071,967.50 5,069,733.29	99.58 0.73%	5,029,007.15 14,553.82	0.74% (40,726.14)	Aaa / AAA NR	4.04 3.97
459058JL8	Intl. Bank Recon & Development Note 0.500% Due 10/28/2025	15,000,000.00	Various 0.55%	14,964,951.60 14,968,081.39	98.81 0.78%	14,821,425.00 13,125.00	2.16% (146,656.39)	Aaa / AAA AAA	4.33 4.27
4581X0DV7	Inter-American Dev Bank Note 0.875% Due 04/20/2026	13,370,000.00	04/13/2021 0.97%	13,308,765.40 13,311,179.91	100.04 0.87%	13,374,826.57 23,072.53	1.95% 63,646.66	Aaa / AAA AAA	4.81 4.69
TOTAL Supranational		**61,665,000.00**	**1.23%**	**61,260,431.35 61,509,078.18**	**0.57%**	**61,709,566.37 219,595.19**	**9.03% 200,488.19**	**Aaa / AAA Aaa**	**3.05 2.99**
US Treasury									
912828U65	US Treasury Note 1.750% Due 11/30/2021	6,500,000.00	12/28/2016 2.06%	6,407,599.90 6,492,184.30	100.70 0.09%	6,545,194.50 9,634.56	0.96% 53,010.20	Aaa / AA+ AAA	0.42 0.42
912828V72	US Treasury Note 1.875% Due 01/31/2022	3,000,000.00	02/27/2017 1.84%	3,004,814.74 3,000,573.06	101.05 0.09%	3,031,407.00 23,463.40	0.45% 30,833.94	Aaa / AA+ AAA	0.59 0.58
912828J76	US Treasury Note 1.750% Due 03/31/2022	5,000,000.00	04/25/2017 1.85%	4,976,383.94 4,996,418.23	101.24 0.10%	5,062,110.00 21,994.54	0.74% 65,691.77	Aaa / AA+ AAA	0.75 0.75
912828XW5	US Treasury Note 1.750% Due 06/30/2022	5,000,000.00	07/25/2017 1.86%	4,973,454.25 4,994,631.86	101.64 0.11%	5,081,835.00 237.77	0.74% 87,203.14	Aaa / AA+ AAA	1.00 1.00
912828L24	US Treasury Note 1.875% Due 08/31/2022	6,000,000.00	09/27/2017 1.92%	5,987,832.60 5,997,117.18	102.04 0.13%	6,122,346.00 37,601.90	0.90% 125,228.82	Aaa / AA+ AAA	1.17 1.15
912828L57	US Treasury Note 1.750% Due 09/30/2022	16,000,000.00	Various 1.98%	15,822,656.25 15,955,938.33	102.01 0.14%	16,321,872.00 70,382.52	2.39% 365,933.67	Aaa / AA+ AAA	1.25 1.24
912828M80	US Treasury Note 2.000% Due 11/30/2022	8,000,000.00	12/22/2017 2.25%	7,907,500.00 7,973,431.94	102.59 0.17%	8,207,504.00 13,551.91	1.20% 234,072.06	Aaa / AA+ AAA	1.42 1.40
912828N30	US Treasury Note 2.125% Due 12/31/2022	5,000,000.00	01/24/2018 2.44%	4,926,562.50 4,977,654.78	102.91 0.18%	5,145,705.00 288.72	0.75% 168,050.22	Aaa / AA+ AAA	1.50 1.48
91282CBG5	US Treasury Note 0.125% Due 01/31/2023	10,000,000.00	03/29/2021 0.14%	9,998,046.88 9,998,317.18	99.90 0.19%	9,990,230.00 5,214.09	1.46% (8,087.18)	Aaa / AA+ AAA	1.59 1.58

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
9128284D9	US Treasury Note 2.500% Due 03/31/2023	10,000,000.00	Various 2.75%	9,887,265.63 9,960,123.90	103.98 0.22%	10,398,440.00 62,841.53	1.53% 438,316.10	Aaa / AA+ AAA	1.75 1.71
912828R69	US Treasury Note 1.625% Due 05/31/2023	5,000,000.00	05/30/2018 2.67%	4,757,226.56 4,907,065.37	102.64 0.25%	5,131,835.00 6,881.83	0.75% 224,769.63	Aaa / AA+ AAA	1.92 1.89
912828U57	US Treasury Note 2.125% Due 11/30/2023	15,000,000.00	Various 2.53%	14,723,632.81 14,861,816.41	104.32 0.33%	15,647,460.00 26,997.95	2.28% 785,643.59	Aaa / AA+ AAA	2.42 2.36
91282CBA8	US Treasury Note 0.125% Due 12/15/2023	6,500,000.00	12/29/2020 0.17%	6,491,367.19 6,492,829.97	99.48 0.34%	6,465,979.00 355.19	0.94% (26,850.97)	Aaa / AA+ AAA	2.46 2.45
912828V80	US Treasury Note 2.250% Due 01/31/2024	7,500,000.00	Various 2.27%	7,491,503.91 7,495,404.09	104.85 0.36%	7,863,577.50 70,390.20	1.16% 368,173.41	Aaa / AA+ AAA	2.59 2.50
912828W48	US Treasury Note 2.125% Due 02/29/2024	10,000,000.00	04/24/2019 2.32%	9,911,718.75 9,951,497.65	104.63 0.38%	10,462,500.00 71,025.82	1.54% 511,002.35	Aaa / AA+ AAA	2.67 2.59
912828WJ5	US Treasury Note 2.500% Due 05/15/2024	7,000,000.00	06/10/2019 1.91%	7,193,046.88 7,112,503.43	105.93 0.42%	7,415,352.00 22,350.54	1.08% 302,848.57	Aaa / AA+ AAA	2.88 2.78
912828XX3	US Treasury Note 2.000% Due 06/30/2024	5,000,000.00	07/12/2019 1.88%	5,028,710.94 5,017,350.15	104.59 0.46%	5,229,295.00 271.74	0.76% 211,944.85	Aaa / AA+ AAA	3.00 2.92
912828WU0	US Treasury Inflation Index Note 0.125% Due 07/15/2024	11,693,656.00	Various 0.22%	11,582,252.04 11,659,655.88	107.53 (2.25%)	12,573,872.57 6,743.22	1.83% 914,216.69	Aaa / AA+ AAA	3.04 3.07
912828YH7	US Treasury Note 1.500% Due 09/30/2024	14,000,000.00	Various 1.72%	13,859,296.88 13,904,417.93	103.18 0.51%	14,445,704.00 52,786.88	2.11% 541,286.07	Aaa / AA+ AAA	3.25 3.17
9128283J7	US Treasury Note 2.125% Due 11/30/2024	16,500,000.00	Various 1.76%	16,783,886.72 16,695,958.33	105.34 0.55%	17,381,067.00 29,697.75	2.54% 685,108.67	Aaa / AA+ AAA	3.42 3.30
912828ZL7	US Treasury Note 0.375% Due 04/30/2025	12,000,000.00	Various 0.38%	11,998,515.63 11,998,818.22	98.96 0.65%	11,874,840.00 7,581.52	1.73% (123,978.22)	Aaa / AA+ AAA	3.84 3.80
91282CAM3	US Treasury Note 0.250% Due 09/30/2025	6,500,000.00	10/16/2020 0.32%	6,477,656.25 6,480,809.35	97.93 0.75%	6,365,177.00 4,084.70	0.93% (115,632.35)	Aaa / AA+ AAA	4.25 4.21
91282CBC4	US Treasury Note 0.375% Due 12/31/2025	10,000,000.00	Various 0.49%	9,943,320.32 9,946,502.28	98.14 0.80%	9,814,450.00 101.90	1.43% (132,052.28)	Aaa / AA+ AAA	4.51 4.45
91282CBH3	US Treasury Note 0.375% Due 01/31/2026	18,000,000.00	Various 0.63%	17,781,875.00 17,795,983.99	98.04 0.81%	17,646,336.00 28,156.08	2.58% (149,647.99)	Aaa / AA+ AAA	4.59 4.52
91282CBT7	US Treasury Note 0.750% Due 03/31/2026	10,000,000.00	Various 0.87%	9,943,359.37 9,946,092.64	99.60 0.84%	9,959,770.00 18,852.46	1.45% 13,677.36	Aaa / AA+ AAA	4.75 4.65

Holdings Report

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
91282CCF6	US Treasury Note 0.750% Due 05/31/2026	7,500,000.00	06/18/2021 0.91%	7,443,750.00 7,444,061.63	99.48 0.86%	7,460,745.00 4,764.34	1.09% 16,683.37	Aaa / AA+ AAA	4.92 4.81
TOTAL US Treasury		**236,693,656.00**	**1.48%**	**235,303,235.94** **236,057,158.08**	**0.29%**	**241,644,603.57** **596,253.06**	**35.31%** **5,587,445.49**	**Aaa / AA+** **Aaa**	**2.77** **2.72**
TOTAL PORTFOLIO		**669,069,975.78**	**1.53%**	**669,962,677.76** **669,854,197.03**	**0.43%**	**683,637,748.96** **2,344,081.67**	**100.00%** **13,783,551.93**	**Aa1 / AA** **Aaa**	**2.76** **2.55**
TOTAL MARKET VALUE PLUS ACCRUALS						**685,981,830.63**			

Holdings Report

As of June 30, 2021

Orange County Sanitation District Liquid - Account #10282

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
Agency									
313385KW5	FHLB Discount Note	7,525,000.00	02/25/2021	7,523,032.66	99.99	7,524,402.19	3.62%	P-1 / A-1+	0.15
	0.052% Due 08/25/2021		0.05%	7,524,402.19	0.05%	0.00	0.00	F-1+	0.15
				7,523,032.66		**7,524,402.19**	**3.62%**	**Aaa / AAA**	**0.15**
TOTAL Agency		**7,525,000.00**	**0.05%**	**7,524,402.19**	**0.05%**	**0.00**	**0.00**	**Aaa**	**0.15**
Commercial Paper									
21687AYV9	Rabobank Nederland NV NY Discount CP	2,000,000.00	04/27/2021	1,997,978.89	99.93	1,998,573.89	0.96%	P-1 / A-1	0.42
	0.170% Due 11/29/2021		0.17%	1,998,573.89	0.17%	0.00	0.00	NR	0.42
62479MAM5	MUFG Bank Ltd/NY Discount CP	2,000,000.00	04/27/2021	1,997,907.78	99.92	1,998,413.34	0.96%	P-1 / A-1	0.56
	0.140% Due 01/21/2022		0.14%	1,998,413.34	0.14%	0.00	0.00	NR	0.56
89233HAU8	Toyota Motor Credit Discount CP	4,000,000.00	05/24/2021	3,995,866.67	99.91	3,996,483.34	1.92%	P-1 / A-1+	0.58
	0.150% Due 01/28/2022		0.15%	3,996,483.34	0.15%	0.00	0.00	F-1	0.58
				7,991,753.34		**7,993,470.57**	**3.85%**	**P-1 / A-1**	**0.53**
TOTAL Commercial Paper		**8,000,000.00**	**0.15%**	**7,993,470.57**	**0.15%**	**0.00**	**0.00**	**F-1**	**0.53**
Corporate									
14913Q2T5	Caterpillar Finl Service Note	2,000,000.00	05/06/2021	2,043,700.00	101.80	2,036,068.00	0.99%	A2 / A	0.66
	2.950% Due 02/26/2022		0.20%	2,035,917.81	0.20%	20,486.11	150.19	A	0.65
61744YAH1	Morgan Stanley Note	2,000,000.00	06/15/2021	2,047,260.00	102.23	2,044,544.00	0.99%	A1 / BBB+	0.88
	2.750% Due 05/19/2022		0.19%	2,045,156.44	0.23%	6,416.67	(612.44)	A	0.88
02665WDF5	American Honda Finance Note	2,000,000.00	06/16/2021	2,032,780.00	101.50	2,029,994.00	0.98%	A3 / A-	0.89
	1.950% Due 05/20/2022		0.17%	2,031,511.73	0.26%	4,441.67	(1,517.73)	NR	0.88
				6,123,740.00		**6,110,606.00**	**2.96%**	**A2 / A-**	**0.81**
TOTAL Corporate		**6,000,000.00**	**0.19%**	**6,112,585.98**	**0.23%**	**31,344.45**	**(1,979.98)**	**A**	**0.80**
Money Market Fund									
31846V567	First American Govt Obligation MMKT Class-Z	14,334,524.14	Various	14,334,524.14	1.00	14,334,524.14	6.90%	Aaa / AAA	0.00
			0.03%	14,334,524.14	0.03%	0.00	0.00	AAA	0.00
				14,334,524.14		**14,334,524.14**	**6.90%**	**Aaa / AAA**	**0.00**
TOTAL Money Market Fund		**14,334,524.14**	**0.03%**	**14,334,524.14**	**0.03%**	**0.00**	**0.00**	**Aaa**	**0.00**
Negotiable CD									
06417MNK7	Bank of Nova Scotia Houston Yankee CD	3,000,000.00	04/09/2021	3,000,000.00	100.04	3,001,053.00	1.44%	P-1 / A-1	0.77
	0.220% Due 04/08/2022		0.22%	3,000,000.00	0.18%	1,521.67	1,053.00	F-1+	0.77

Holdings Report

As of June 30, 2021

Orange County Sanitation District Liquid - Account #10282

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
89114W7M1	Toronto Dominion Yankee CD 0.240% Due 04/28/2022	2,000,000.00	04/29/2021 0.24%	1,999,999.94 1,999,999.95	100.04 0.20%	2,000,734.00 853.33	0.96% 734.05	P-1 / A-1 F-1+	0.83 0.83
65558UBJ0	Nordea Bank APB New York Yankee CD 0.210% Due 05/16/2022	3,000,000.00	05/19/2021 0.20%	3,000,300.89 3,000,265.15	100.02 0.19%	3,000,531.00 840.00	1.44% 265.85	P-1 / A-1+ F-1+	0.88 0.88
TOTAL Negotiable CD		**8,000,000.00**	**0.22%**	**8,000,300.83** **8,000,265.10**	**0.19%**	**8,002,318.00** **3,215.00**	**3.85%** **2,052.90**	**Aaa / AA+** **Aaa**	**0.83** **0.82**
US Treasury									
912796C49	US Treasury Bill 0.093% Due 07/22/2021	5,000,000.00	01/20/2021 0.09%	4,997,661.81 4,999,730.21	99.99 0.09%	4,999,730.21 0.00	2.41% 0.00	P-1 / A-1+ F-1+	0.06 0.06
912796C56	US Treasury Bill 0.077% Due 07/29/2021	7,000,000.00	01/27/2021 0.08%	6,997,275.06 6,999,580.78	99.99 0.08%	6,999,580.78 0.00	3.37% 0.00	P-1 / A-1+ F-1+	0.08 0.08
912828WY2	US Treasury Note 2.250% Due 07/31/2021	8,000,000.00	Various 0.12%	8,144,296.88 8,014,015.50	100.18 0.12%	8,014,616.00 75,082.88	3.89% 600.50	Aaa / AA+ AAA	0.08 0.09
912828S76	US Treasury Note 1.125% Due 07/31/2021	43,000,000.00	Various 0.10%	43,267,968.77 43,036,473.19	100.09 0.08%	43,038,485.00 201,785.24	20.81% 2,011.81	Aaa / AA+ AAA	0.08 0.09
9128287F1	US Treasury Note 1.750% Due 07/31/2021	2,000,000.00	02/25/2021 0.05%	2,014,531.25 2,002,812.50	100.14 0.10%	2,002,826.00 14,599.45	0.97% 13.50	Aaa / AA+ AAA	0.08 0.09
912828RC6	US Treasury Note 2.125% Due 08/15/2021	5,000,000.00	03/30/2021 0.04%	5,039,453.13 5,012,959.06	100.26 0.09%	5,012,925.00 39,917.13	2.43% (34.06)	Aaa / AA+ AAA	0.13 0.13
912796D55	US Treasury BIll 0.057% Due 08/26/2021	13,000,000.00	02/25/2021 0.06%	12,996,273.41 12,998,847.02	99.99 0.06%	12,998,847.02 0.00	6.26% 0.00	P-1 / A-1+ F-1+	0.16 0.16
912828YC8	US Treasury Note 1.500% Due 08/31/2021	9,000,000.00	12/28/2020 0.09%	9,084,726.56 9,021,095.18	100.24 0.07%	9,021,699.00 45,122.28	4.36% 603.82	Aaa / AA+ AAA	0.17 0.17
912796M22	US Treasury Bill 0.046% Due 10/05/2021	5,500,000.00	06/28/2021 0.05%	5,499,304.25 5,499,325.33	99.99 0.05%	5,499,325.33 0.00	2.65% 0.00	P-1 / A-1+ F-1+	0.27 0.27
912828H86	US Treasury Note 1.500% Due 01/31/2022	7,500,000.00	04/29/2021 0.05%	7,582,031.25 7,563,603.94	100.84 0.07%	7,562,692.50 46,926.80	3.66% (911.44)	Aaa / AA+ AAA	0.59 0.58
912828Z60	US Treasury Note 1.375% Due 01/31/2022	20,000,000.00	Various 0.05%	20,174,609.38 20,154,362.62	100.76 0.08%	20,151,560.00 114,709.94	9.75% (2,802.62)	Aaa / AA+ AAA	0.59 0.58
912828J43	US Treasury Note 1.750% Due 02/28/2022	7,500,000.00	04/29/2021 0.05%	7,606,054.69 7,584,425.12	101.11 0.09%	7,583,205.00 43,868.89	3.67% (1,220.12)	Aaa / AA+ AAA	0.67 0.66
9128286H8	US Treasury Note 2.375% Due 03/15/2022	7,500,000.00	04/29/2021 0.06%	7,651,757.81 7,622,262.56	101.62 0.09%	7,621,290.00 52,275.82	3.69% (972.56)	Aaa / AA+ AAA	0.71 0.70
9128286M7	US Treasury Note 2.250% Due 04/15/2022	7,500,000.00	04/29/2021 0.06%	7,657,324.22 7,629,455.36	101.70 0.10%	7,627,732.50 35,502.05	3.69% (1,722.86)	Aaa / AA+ AAA	0.79 0.79

Holdings Report

As of June 30, 2021

Orange County Sanitation District Liquid - Account #10282

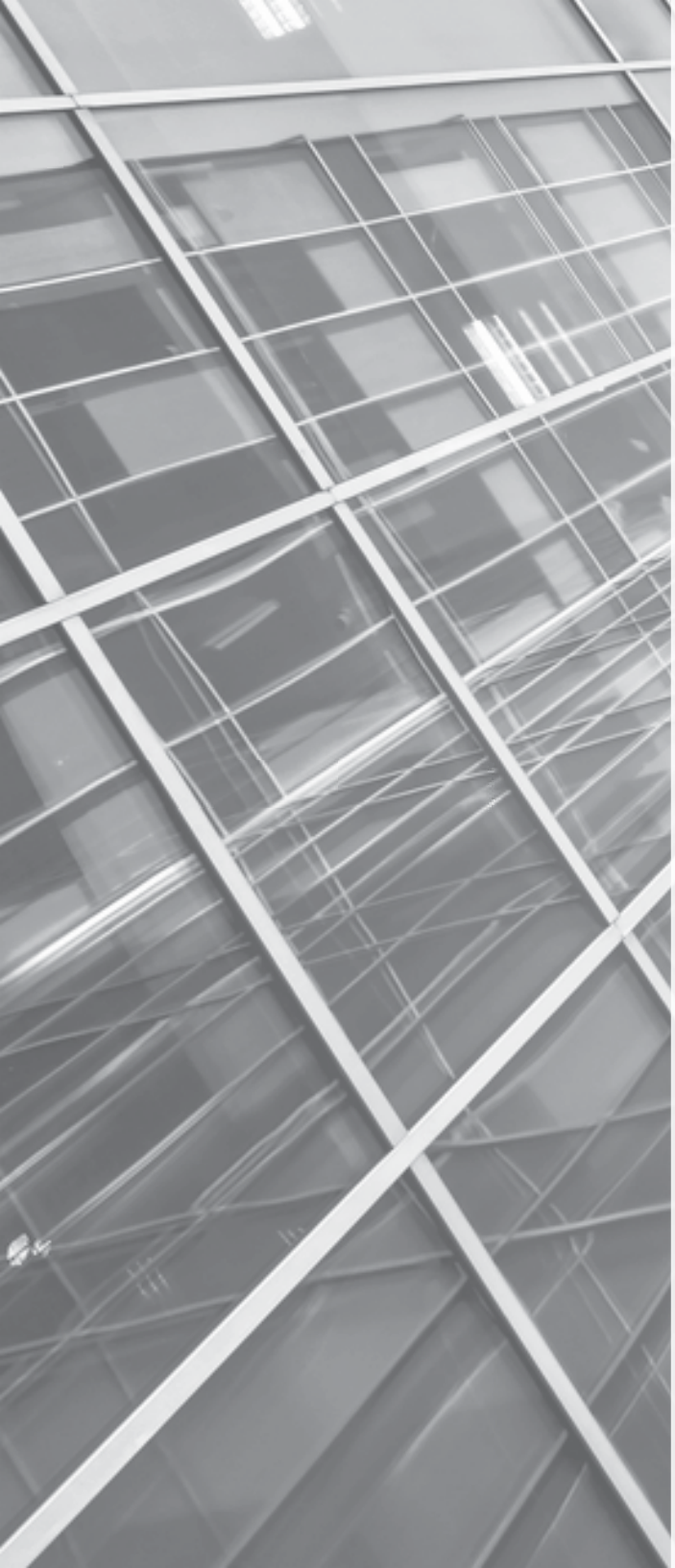
CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
912828ZM5	US Treasury Note 0.125% Due 04/30/2022	15,000,000.00	Various 0.05%	15,010,839.85 15,009,688.02	100.02 0.10%	15,003,510.00 3,158.96	7.22% (6,178.02)	Aaa / AA+ AAA	0.83 0.83
TOTAL US Treasury		**162,500,000.00**	**0.07%**	**163,724,108.32** **163,148,636.39**	**0.08%**	**163,138,024.34** **672,949.44**	**78.83%** **(10,612.05)**	**Aaa / AA+** **Aaa**	**0.35** **0.34**
TOTAL PORTFOLIO		**206,359,524.14**	**0.08%**	**207,697,459.29** **207,113,884.37**	**0.09%**	**207,103,345.24** **707,508.89**	**100.00%** **(10,539.13)**	**Aaa / AA+** **Aaa**	**0.35** **0.35**
TOTAL MARKET VALUE PLUS ACCRUALS						**207,810,854.13**			

Holdings Report

As of June 30, 2021

OC SAN Lehman Exposure - Account #10284

CUSIP	Security Description	Par Value/Units	Purchase Date Book Yield	Cost Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port. Gain/Loss	Moody/S&P Fitch	Maturity Duration
Common Stock									
SLHOPNTA4	Lehman Brothers, Inc Open Position Long Exposure	60,641.49	11/21/2014	57,842.64	0.42	25,621.03	58.47%	NR / NR	0.00
	0.000% Due 06/30/2021		0.00%	57,842.64	0.00%	0.00	(32,221.61)	NR	0.00
				57,842.64		**25,621.03**	**58.47%**	**NR / NR**	**0.00**
TOTAL Common Stock		**60,641.49**	**0.00%**	**57,842.64**	**0.00%**	**0.00**	**(32,221.61)**	**NR**	**0.00**
Corporate									
525ESCIB7	Lehman Brothers Note-Defaulted	600,000.00	09/19/2008	316,428.27	0.70	4,200.00	9.58%	NR / NR	0.57
	0.000% Due 01/24/2022		0.00%	316,428.27	0.00%	0.00	(312,228.27)	NR	0.00
525ESC0Y6	Lehman Brothers Note-Defaulted	2,000,000.00	09/18/2008	1,019,380.10	0.70	14,000.00	31.95%	NR / NR	28.33
	0.000% Due 10/22/2049		0.00%	1,019,380.10	0.00%	0.00	(1,005,380.10)	NR	0.00
				1,335,808.37		**18,200.00**	**41.53%**	**NR / NR**	**21.92**
TOTAL Corporate		**2,600,000.00**	**0.00%**	**1,335,808.37**	**0.00%**	**0.00**	**(1,317,608.37)**	**NR**	**0.00**
				1,393,651.01		**43,821.03**	**100.00%**	**NR / NR**	**9.11**
TOTAL PORTFOLIO		**2,660,641.49**	**0.00%**	**1,393,651.01**	**0.00%**	**0.00**	**(1,349,829.98)**	**NR**	**0.00**
TOTAL MARKET VALUE PLUS ACCRUALS						**43,821.03**			



Section 5 | Transactions

Transaction Ledger

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

March 31, 2021 through June 30, 2021

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Loss
ACQUISITIONS										
Purchase	04/20/2021	4581X0DV7	13,370,000.00	Inter-American Dev Bank Note 0.875% Due: 04/20/2026	99.542	0.97%	13,308,765.40	0.00	13,308,765.40	0.00
Purchase	04/27/2021	62479LUS2	12,000,000.00	MUFG Bank Ltd Discount CP 0.1% Due: 07/26/2021	99.975	0.10%	11,997,000.00	0.00	11,997,000.00	0.00
Purchase	04/28/2021	44933LAC7	2,100,000.00	Hyundai Auto Receivables Trust 2021-A A3 0.38% Due: 09/15/2025	99.989	0.38%	2,099,779.08	0.00	2,099,779.08	0.00
Purchase	04/30/2021	46647PBH8	1,000,000.00	JP Morgan Chase & Co Callable Note Mthly 3/13/2025 2.005% Due: 03/13/2026	103.027	1.20%	1,030,270.00	2,617.64	1,032,887.64	0.00
Purchase	05/12/2021	023135BW5	5,490,000.00	Amazon.com Inc Callable Note Cont 11/12/2021 0.45% Due: 05/12/2024	99.854	0.50%	5,481,984.60	0.00	5,481,984.60	0.00
Purchase	05/19/2021	65558UBJ0	7,000,000.00	Nordea Bank APB New York Yankee CD 0.21% Due: 05/16/2022	100.010	0.20%	7,000,702.07	204.17	7,000,906.24	0.00
Purchase	05/28/2021	91282CBT7	3,000,000.00	US Treasury Note 0.75% Due: 03/31/2026	99.871	0.78%	2,996,132.81	3,565.57	2,999,698.38	0.00
Purchase	05/31/2021	912828WU0	81,016.00	US Treasury Inflation Index Note 0.125% Due: 07/15/2024	100.000	0.13%	81,016.00	0.00	81,016.00	0.00
Purchase	06/01/2021	61747YEA9	4,735,000.00	Morgan Stanley Callable Note Cont 5/30/2024 0.79% Due: 05/30/2025	100.000	0.74%	4,735,000.00	0.00	4,735,000.00	0.00
Purchase	06/01/2021	61747YEA9	2,075,000.00	Morgan Stanley Callable Note Cont 5/30/2024 0.79% Due: 05/30/2025	100.109	0.71%	2,077,261.75	0.00	2,077,261.75	0.00
Purchase	06/01/2021	61747YEA9	2,075,000.00	Morgan Stanley Callable Note Cont 5/30/2024 0.79% Due: 05/30/2025	100.118	0.71%	2,077,448.50	0.00	2,077,448.50	0.00
Purchase	06/16/2021	44891VAC5	4,155,000.00	Hyundai Auto Lease Trust 2021-B A3 0.33% Due: 06/17/2024	99.985	0.34%	4,154,376.75	0.00	4,154,376.75	0.00
Purchase	06/16/2021	91324PEC2	1,180,000.00	United Health Group Inc Callable Note Cont 4/15/2026 1.15% Due: 05/15/2026	100.333	1.08%	1,183,929.40	1,017.75	1,184,947.15	0.00
Purchase	06/17/2021	91324PEC2	575,000.00	United Health Group Inc Callable Note Cont 4/15/2026 1.15% Due: 05/15/2026	100.305	1.08%	576,753.75	514.31	577,268.06	0.00

Transaction Ledger

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

March 31, 2021 through June 30, 2021

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Loss
Purchase	06/18/2021	89236TJK2	7,285,000.00	Toyota Motor Credit Corp Note 1.125% Due: 06/18/2026	99.956	1.13%	7,281,794.60	0.00	7,281,794.60	0.00
Purchase	06/21/2021	91282CCF6	7,500,000.00	US Treasury Note 0.75% Due: 05/31/2026	99.250	0.91%	7,443,750.00	3,227.46	7,446,977.46	0.00
Purchase	06/28/2021	06051GJD2	2,250,000.00	Bank of America Corp Callable Note Cont 6/19/2025 1.319% Due: 06/19/2026	100.197	1.26%	2,254,432.50	741.94	2,255,174.44	0.00
Purchase	06/29/2021	58769KAD6	3,315,000.00	Mercedes-Benz Auto Lease Trust 2021-B A3 0.4% Due: 11/15/2024	99.992	0.40%	3,314,749.72	0.00	3,314,749.72	0.00
Purchase	06/30/2021	06417MQL2	5,000,000.00	Bank of Nova Scotia Houston Yankee CD 0.2% Due: 06/23/2022	100.000	0.20%	4,999,999.61	194.44	5,000,194.05	0.00
Subtotal			**84,186,016.00**				**84,095,146.54**	**12,083.28**	**84,107,229.82**	**0.00**
Security Contribution	04/30/2021	912828WU0	62,192.00	US Treasury Inflation Index Note 0.125% Due: 07/15/2024	100.000		62,192.00	22.55	62,214.55	0.00
Security Contribution	06/30/2021	912828WU0	94,848.00	US Treasury Inflation Index Note 0.125% Due: 07/15/2024	100.000		94,848.00	54.37	94,902.37	0.00
Subtotal			**157,040.00**				**157,040.00**	**76.92**	**157,116.92**	**0.00**
TOTAL ACQUISITIONS			**84,343,056.00**				**84,252,186.54**	**12,160.20**	**84,264,346.74**	**0.00**
DISPOSITIONS										
Sale	04/16/2021	68389XBK0	3,000,000.00	Oracle Corp Callable Note Cont 8/15/2021 1.9% Due: 09/15/2021	100.539	3.08%	3,016,170.00	4,908.33	3,021,078.33	30,121.89
Sale	06/16/2021	912828T34	1,600,000.00	US Treasury Note 1.125% Due: 09/30/2021	100.320	1.86%	1,605,125.00	3,786.89	1,608,911.89	8,467.90
Sale	06/17/2021	912828T34	1,400,000.00	US Treasury Note 1.125% Due: 09/30/2021	100.316	1.86%	1,404,429.69	3,356.56	1,407,786.25	7,327.13

Transaction Ledger

As of June 30, 2021

Orange County Sanitation District Long Term - Account #10268

March 31, 2021 through June 30, 2021

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Loss
Sale	06/21/2021	912828T34	1,500,000.00	US Treasury Note 1.125% Due: 09/30/2021	100.297	1.86%	1,504,453.13	3,780.74	1,508,233.87	7,439.27
Sale	06/21/2021	912828T67	6,000,000.00	US Treasury Note 1.25% Due: 10/31/2021	100.430	1.92%	6,025,781.25	10,597.83	6,036,379.08	39,581.84
Sale	06/23/2021	912828T34	2,500,000.00	US Treasury Note 1.125% Due: 09/30/2021	100.297	1.86%	2,507,421.88	6,454.92	2,513,876.80	12,300.22
Sale	06/23/2021	912828U65	500,000.00	US Treasury Note 1.75% Due: 11/30/2021	100.754	2.06%	503,769.53	549.86	504,319.39	4,402.38
Subtotal			**16,500,000.00**				**16,567,150.48**	**33,435.13**	**16,600,585.61**	**109,640.63**
Maturity	05/11/2021	369550BE7	3,160,000.00	General Dynamics Corp Note 3% Due: 05/11/2021	100.000		3,160,000.00	0.00	3,160,000.00	0.00
Maturity	05/15/2021	913366EJ5	400,000.00	Univ of California Rgts Med TE-REV 5.035% Due: 05/15/2021	100.000		400,000.00	0.00	400,000.00	0.00
Maturity	05/16/2021	166764BG4	2,500,000.00	Chevron Corp Callable Note Cont 4/15/2021 2.1% Due: 05/16/2021	100.000		2,500,000.00	0.00	2,500,000.00	0.00
Maturity	06/11/2021	313379RB7	4,000,000.00	FHLB Note 1.875% Due: 06/11/2021	100.000		4,000,000.00	0.00	4,000,000.00	0.00
Maturity	06/22/2021	3135G0U35	7,500,000.00	FNMA Note 2.75% Due: 06/22/2021	100.000		7,500,000.00	0.00	7,500,000.00	0.00
Subtotal			**17,560,000.00**				**17,560,000.00**	**0.00**	**17,560,000.00**	**0.00**
TOTAL DISPOSITIONS			**34,060,000.00**				**34,127,150.48**	**33,435.13**	**34,160,585.61**	**109,640.63**

Transaction Ledger

As of June 30, 2021

Orange County Sanitation District Liquid - Account #10282

March 31, 2021 through June 30, 2021

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Loss
ACQUISITIONS										
Purchase	04/09/2021	06417MNK7	3,000,000.00	Bank of Nova Scotia Houston Yankee CD 0.22% Due: 04/08/2022	100.000	0.22%	3,000,000.00	0.00	3,000,000.00	0.00
Purchase	04/27/2021	62479MAM5	2,000,000.00	MUFG Bank Ltd/NY Discount CP 0.14% Due: 01/21/2022	99.895	0.14%	1,997,907.78	0.00	1,997,907.78	0.00
Purchase	04/29/2021	21687AYV9	2,000,000.00	Rabobank Nederland NV NY Discount CP 0.17% Due: 11/29/2021	99.899	0.17%	1,997,978.89	0.00	1,997,978.89	0.00
Purchase	04/30/2021	89114W7M1	2,000,000.00	Toronto Dominion Yankee CD 0.24% Due: 04/28/2022	100.000	0.24%	1,999,999.94	26.67	2,000,026.61	0.00
Purchase	04/30/2021	9128286H8	7,500,000.00	US Treasury Note 2.375% Due: 03/15/2022	102.023	0.06%	7,651,757.81	22,265.63	7,674,023.44	0.00
Purchase	04/30/2021	9128286M7	7,500,000.00	US Treasury Note 2.25% Due: 04/15/2022	102.098	0.06%	7,657,324.22	6,915.98	7,664,240.20	0.00
Purchase	04/30/2021	912828H86	7,500,000.00	US Treasury Note 1.5% Due: 01/31/2022	101.094	0.05%	7,582,031.25	27,658.84	7,609,690.09	0.00
Purchase	04/30/2021	912828J43	7,500,000.00	US Treasury Note 1.75% Due: 02/28/2022	101.414	0.05%	7,606,054.69	21,756.11	7,627,810.80	0.00
Purchase	05/07/2021	912828Z60	10,000,000.00	US Treasury Note 1.375% Due: 01/31/2022	100.973	0.05%	10,097,265.63	36,464.09	10,133,729.72	0.00
Purchase	05/10/2021	14913Q2T5	2,000,000.00	Caterpillar Finl Service Note 2.95% Due: 02/26/2022	102.185	0.20%	2,043,700.00	12,127.78	2,055,827.78	0.00
Purchase	05/19/2021	65558UBJ0	3,000,000.00	Nordea Bank APB New York Yankee CD 0.21% Due: 05/16/2022	100.010	0.20%	3,000,300.89	87.50	3,000,388.39	0.00
Purchase	05/25/2021	89233HAU8	4,000,000.00	Toyota Motor Credit Discount CP 0.15% Due: 01/28/2022	99.897	0.15%	3,995,866.67	0.00	3,995,866.67	0.00
Purchase	05/25/2021	912828ZM5	7,500,000.00	US Treasury Note 0.125% Due: 04/30/2022	100.074	0.05%	7,505,566.41	636.89	7,506,203.30	0.00
Purchase	05/27/2021	912828ZM5	7,500,000.00	US Treasury Note 0.125% Due: 04/30/2022	100.070	0.05%	7,505,273.44	687.84	7,505,961.28	0.00
Purchase	06/16/2021	61744YAH1	2,000,000.00	Morgan Stanley Note 2.75% Due: 05/19/2022	102.363	0.19%	2,047,260.00	4,125.00	2,051,385.00	0.00
Purchase	06/18/2021	02665WDF5	2,000,000.00	American Honda Finance Note 1.95% Due: 05/20/2022	101.639	0.17%	2,032,780.00	3,033.33	2,035,813.33	0.00

Transaction Ledger

As of June 30, 2021

Orange County Sanitation District Liquid - Account #10282

March 31, 2021 through June 30, 2021

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Loss
Purchase	06/28/2021	912796M22	5,500,000.00	US Treasury Bill 0.046% Due: 10/05/2021	99.987	0.05%	5,499,304.25	0.00	5,499,304.25	0.00
Purchase	06/30/2021	912828Z60	10,000,000.00	US Treasury Note 1.375% Due: 01/31/2022	100.773	0.05%	10,077,343.75	56,975.14	10,134,318.89	0.00
Subtotal			**92,500,000.00**				**93,297,715.62**	**192,760.80**	**93,490,476.42**	**0.00**
TOTAL ACQUISITIONS			**92,500,000.00**				**93,297,715.62**	**192,760.80**	**93,490,476.42**	**0.00**
DISPOSITIONS										
Maturity	04/21/2021	55380TMD9	2,500,000.00	MUFG Bank Yankee CD 0.24% Due: 04/21/2021	100.000		2,500,000.00	2,016.67	2,502,016.67	0.00
Maturity	05/06/2021	037833AR1	1,155,000.00	Apple Inc Note 2.85% Due: 05/06/2021	100.000		1,155,000.00	0.00	1,155,000.00	0.00
Maturity	05/17/2021	89236TBJ3	2,000,000.00	Toyota Motor Credit Corp Note 2.75% Due: 05/17/2021	100.000		2,000,000.00	0.00	2,000,000.00	0.00
Maturity	05/21/2021	808513AW5	1,385,000.00	Charles Schwab Corp Callable Note Cont 4/21/2021 3.25% Due: 05/21/2021	100.000		1,385,000.00	0.00	1,385,000.00	0.00
Maturity	05/24/2021	459058FH1	1,000,000.00	Intl. Bank Recon & Development Note 1.375% Due: 05/24/2021	100.000		1,000,000.00	0.00	1,000,000.00	0.00
Maturity	06/30/2021	9128287A2	19,000,000.00	US Treasury Note 1.625% Due: 06/30/2021	100.000		19,000,000.00	0.00	19,000,000.00	0.00
Maturity	06/30/2021	912828S27	27,000,000.00	US Treasury Note 1.125% Due: 06/30/2021	100.000		27,000,000.00	0.00	27,000,000.00	0.00

Transaction Ledger

As of June 30, 2021

Orange County Sanitation District Liquid - Account #10282

March 31, 2021 through June 30, 2021

Transaction Type	Settlement Date	CUSIP	Quantity	Security Description	Price	Acq/Disp Yield	Amount	Interest Pur/Sold	Total Amount	Gain/Loss
Maturity	06/30/2021	912828WR7	8,000,000.00	US Treasury Note 2.125% Due: 06/30/2021	100.000		8,000,000.00	0.00	8,000,000.00	0.00
Subtotal			**62,040,000.00**				**62,040,000.00**	**2,016.67**	**62,042,016.67**	**0.00**
TOTAL DISPOSITIONS			**62,040,000.00**				**62,040,000.00**	**2,016.67**	**62,042,016.67**	**0.00**

Important Disclosures

As of June 30, 2021

Information contained herein is confidential. Prices are provided by IDC, an independent pricing source. In the event IDC does not provide a price or if the price provided is not reflective of fair market value, Chandler will obtain pricing from an alternative approved third party pricing source in accordance with our written valuation policy and procedures. Our valuation procedures are also disclosed in Item 5 of our Form ADV Part 2A.

Performance results are presented gross-of-advisory fees and represent the client's Total Return. The deduction of advisory fees lowers performance results. These results include the reinvestment of dividends and other earnings. Past performance may not be indicative of future results. Therefore, clients should not assume that future performance of any specific investment or investment strategy will be profitable or equal to past performance levels. All investment strategies have the potential for profit or loss. Economic factors, market conditions or changes in investment strategies, contributions or withdrawals may materially alter the performance and results of your portfolio.

Index returns assume reinvestment of all distributions. Historical performance results for investment indexes generally do not reflect the deduction of transaction and/or custodial charges or the deduction of an investment management fee, the incurrence of which would have the effect of decreasing historical performance results. It is not possible to invest directly in an index.

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This report is provided for informational purposes only and should not be construed as a specific investment or legal advice. The information contained herein was obtained from sources believed to be reliable as of the date of publication, but may become outdated or superseded at any time without notice. Any opinions or views expressed are based on current market conditions and are subject to change. This report may contain forecasts and forward-looking statements which are inherently limited and should not be relied upon as indicator of future results. Past performance is not indicative of future results. This report is not intended to constitute an offer, solicitation, recommendation or advice regarding any securities or investment strategy and should not be regarded by recipients as a substitute for the exercise of their own judgment.

Fixed income investments are subject to interest, credit and market risk. Interest rate risk: the value of fixed income investments will decline as interest rates rise. Credit risk: the possibility that the borrower may not be able to repay interest and principal. Low rated bonds generally have to pay higher interest rates to attract investors willing to take on greater risk. Market risk: the bond market in general could decline due to economic conditions, especially during periods of rising interest rates.

Ratings information have been provided by Moody's, S&P and Fitch through data feeds we believe to be reliable as of the date of this statement, however we cannot guarantee its accuracy.

Security level ratings for U.S. Agency issued mortgage-backed securities ("MBS") reflect the issuer rating because the securities themselves are not rated. The issuing U.S. Agency guarantees the full and timely payment of both principal and interest and carries a AA+/Aaa/AAA by S&P, Moody's and Fitch respectively.

Benchmark Disclosures

As of June 30, 2021

ICE BAML 3-Month US Treasury Bill Index

The ICE BAML US 3-Month Treasury Bill Index is comprised of a single issue purchased at the beginning of the month and held for a full month. At the end of the month that issue is sold and rolled into a newly selected issue. The issue selected at each month-end rebalancing is the outstanding Treasury Bill that matures closest to, but not beyond, three months from the rebalancing date. (Index: G0O1. Please visit www.mlindex.ml.com for more information)

ICE BAML 1-5 Yr US Corp/Govt Rated AAA-A Index

The ICE BAML US Issuers 1-5 Year AAA-A US Corporate & Government Index tracks the performance of US dollar denominated investment grade debt publicly issued in the US domestic market, including US Treasury, US agency, foreign government, supranational and corporate securities. Qualifying securities must issued from US issuers and be rated AAA through A3 (based on an average of Moody's, S&P and Fitch). In addition, qualifying securities must have at least one year remaining term to final maturity and less than five years remaining term to final maturity, at least 18 months to final maturity at point of issuance, a fixed coupon schedule and a minimum amount outstanding of $1 billion for US Treasuries and $250 million for all other securities. (Index: BV10. Please visit www.mlindex.ml.com for more information)

ICE BAML US 1-5 Yr US Corp/Govt Rated AAA-BBB Indx

The ICE BAML 1-5 Year US Corporate & Government Index tracks the performance of US dollar denominated investment grade debt publicly issued in the US domestic market, including US Treasury, US agency, foreign government, supranational and corporate securities. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch). In addition, qualifying securities must have at least one year remaining term to final maturity and less than five years remaining term to final maturity, at least 18 months to final maturity at point of issuance, a fixed coupon schedule and a minimum amount outstanding of $1 billion for US Treasuries and $250 million for all other securities. (Index: BVA0. Please visit www.mlindex.ml.com for more information)

Rating Agency Comparisons

A summary of investment grade ratings are listed below. More complete descriptions of Moody's and Standard & Poor's ratings are included in the following pages.

Quality/Grade	Moody's	Standard & Poor's	Fitch
Best Quality	Aaa	AAA	AAA
High Quality	Aa1 Aa2 Aa3	AA+ AA AA-	AA+ AA AA-
Upper Medium Grade	A1 A2 A3	A+ A A-	A+ A A-
Medium Grade	Baa1 Baa2 Baa3	BBB+ BBB BBB-	BBB+ BBB BBB1

Moody's - Investment Grade

"Aaa" - Bonds rated Aaa are judged to be of the best quality. They carry the smallest degree of investment risk. Interest payments are protected by a large or by an exceptionally stable margin and principal is secure. While the various protective elements are likely to change, such changes as can be visualized are most unlikely to impair the fundamentally strong position of such issues.

"Aa" - Bonds which are rated Aa are judged to be of high quality by all standards. Together with the Aaa group they comprise what are generally known as high grade bonds. They are rated lower than the best bonds because margins of protection may not be as large as in Aaa securities or fluctuation of protective elements may be of greater amplitude or there may be other elements present which make the long-term risks appear somewhat larger than in Aaa securities.

"A" - Bonds which are rated A possess many favorable investment attributes and are to be considered as upper medium grade obligations. Factors giving security to principal and interest are considered adequate, but elements may be present which suggest a susceptibility to impairment sometime in the future.

"Baa" - Bonds which are rated Baa are considered as medium grade obligations; i.e., they are neither highly protected nor poorly secured. Interest payments and principal security appear adequate for the present but certain protective elements may be lacking or may be characteristically unreliable over any great length of time. Such bonds lack outstanding investment characteristics and in fact have speculative characteristics as well.

Bonds in the Aa, A, and Baa are also assigned "1", "2", or "3" based on the strength of the issue within each category. Accordingly, "A1" would be the strongest group of A securities and "A3" would be the weakest A securities.

Ba, B, Caa, Ca, and C - Bonds that possess one of these ratings provide questionable protection of interest and principal ("Ba" indicates some speculative elements; "B" indicates a general lack of characteristics of desirable investment; "Caa" represents a poor standing; "Ca" represents obligations which are speculative in a high degree; and “C” represents the lowest rated class of bonds). "Caa”, "Ca" and “C” bonds may be in default.

Standard and Poor's - Investment Grade

AAA - Debt rated "AAA" has the highest rating assigned by S&P. Capacity to pay interest and repay principal Is extremely strong.

AA - Debt rated “AA” has a very strong capacity to pay interest and repay principal and differs from the highest rated issues only in small degree.

A - Debt rated "A" has a strong capacity to pay interest and repay principal although it is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than debt in higher rated categories.

BBB - Debt rated "BBB" is regarded as having an adequate capacity to pay interest and repay principal. Whereas it normally exhibits adequate protection parameters, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity to pay interest and repay principal for debt in this category than in higher rated categories.

Standard and Poor's - Speculative Grade Rating

Debt rated "BB", "B", "CCC", “CC" and "C" is regarded as having predominantly speculative characteristics with respect to capacity to pay interest and repay principal. "BB" indicates the least degree of speculation and "C" the highest. While such debt will likely have some quality and protective characteristics these are outweighed by major uncertainties or major exposures to adverse conditions.

BB - Debt rated "BB" has less near-term vulnerability to default than other speculative issues. However, it faces major ongoing uncertainties or exposure to adverse business, financial, or economic conditions which could lead to inadequate capacity to meet timely interest and principal payments. The "BB" rating category is also used for debt subordinated to senior debt that is assigned an actual or implied "BBB" rating.

B - Debt rated "B" has a greater vulnerability to default but currently has the capacity to meet interest payments and principal repayments. Adverse business, financial, or economic conditions will likely impair capacity or willingness to pay interest and repay principal. The "B" rating category is also used for debt subordinated to senior debt that is assigned an actual or implied "BB" or "BB" rating.

CCC - Debt rated "CCC" has a currently identifiable vulnerability to default, and is dependent upon favorable business, financial, and economic conditions to meet timely payment of interest and repayment of principal. In the event of adverse business, financial, or economic conditions, it is not likely to have the capacity to pay interest and repay principal. The "CCC" rating category is also used for debt subordinated to senior debt that is assigned an actual or implied "B" or "B" rating.

CC - The rating "CC" typically is applied to debt subordinated to senior debt that is assigned an actual or implied "CCC" debt rating.

C - The rating “C” typically is applied to debt subordinated to senior debt which is assigned an actual or implied “CCC” debt rating. The “C” rating may be used to cover a situation where a bankruptcy petition has been filed, but debt service payments are continued.

CI - The rating "CI" is reserved for income bonds on which no interest is being paid.

D - Debt rated “D” is in payment default. The "D" rating category is used when interest payments or principal payments are not made on the date due even if the applicable grace period has not expired, unless S&P believes that such payments will be made during such grace period. The “D” rating also will be used upon the filing of a bankruptcy petition if debt service payments are jeopardized.

Plus (+) or Minus (-) - The ratings from "AA" to "CCC" may be modified by the addition of a plus or minus sign to show relative standing within the major rating categories.

NR - Indicates no rating has been requested, that there is insufficient information on which to base a rating, or that S&P does not rate a particular type of obligation as a matter of policy.

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1815 **Agenda Date:** 8/25/2021 **Agenda Item No:** 12.

FROM: John B. Withers, Board Chairman

SUBJECT:

GENERAL MANAGER'S COMPENSATION AND BENEFITS

BOARD CHAIR'S RECOMMENDATION

RECOMMENDATION:

Approve a performance-based non-base building lump sum merit payment of 2.5% for the General Manager based on Fiscal Year 2020/2021 job performance, as authorized in Resolution No. OCSD 19-12.

BACKGROUND

The General Manager of the Orange County Sanitation District (OC San) is employed on an At-Will basis and serves at the pleasure of the Board of Directors.

According to Section 6 of the General Manager's At-Will Employment Agreement, the "District's Steering Committee shall meet with the General Manager in August of each year during the term of this Agreement to review and evaluate his performance over the prior year. The Steering Committee shall make its recommendation(s) to the Board concerning adjustment to the compensation and/or benefits paid or provided to the General Manager, to be effective in July of the year of the review".

The General Manager is in the third year of a three-year employment contract. In September 2019, OC San's Board of Directors adopted Resolution No. OCSD 19-12 entitled, "A Resolution of the Board of Directors of the Orange County Sanitation District approving salary increases and salary range adjustments for the General Manager for Fiscal Year 2019/2020, Fiscal Year 2020/2021, and Fiscal Year 2021/2022". The resolution authorizes the Board Chairperson to implement a 3% salary range adjustment and corresponding salary increase for each year of the contract years annually and allows for up to a 2.5% merit increase annually based on job performance as determined by the Board of Directors.

The Steering Committee reviewed the General Manager's job performance for Fiscal Year 2020/2021 in closed session in June and July 2021 and recommends that the Board of Directors approve a non-base building lump sum merit payment in the amount of 2.5% for the General Manager.

RELEVANT STANDARDS

- Offer competitive compensation and benefits

- Maintain positive employer-employee relations
- Cultivate a highly qualified, well-trained, and diverse workforce
- Comply with OC San policy (Policy 6.1 Appraisal of Performance) and the General Manager's At-Will Employment Agreement

PROBLEM

The General Manager's current salary market position is at the 81st percentile, slightly above OC San's targeted 75th percentile for its overall market position. Therefore, the Steering Committee recommends a one-time lump sum merit payment of 2.5% rather than a base-building salary increase to avoid outpacing the comparison agencies. The merit payment is intended to recognize the General Manager's excellent performance over the past fiscal year during the pandemic crisis and to help retain OC San's top executive.

Fiscal Year 2021/2022 salary increases for OC San's Executive Management and Managers took effect in July 2021 as approved by the Board of Directors in September 2019. With these increases, the General Manager's salary would be 8.4% above his highest paid direct reports for FY 2021/2022.

PROPOSED SOLUTION

Approve a performance-based non-base building lump sum merit payment of 2.5% for the General Manager based on Fiscal Year 2020/2021 job performance, as authorized in Resolution No. OCSD 19-12.

TIMING CONCERNS

In accordance with the General Manager's At-Will Employment Agreement, the Steering Committee shall meet with the General Manager annually to review and evaluate his performance over the prior year. The Steering Committee then reports out on the General Manager's performance evaluation and recommends, for the Board's consideration, any adjustment to compensation. The Board makes the final determination on the compensation payable to the General Manager, which becomes effective retroactively to the first pay period in July.

RAMIFICATIONS OF NOT TAKING ACTION

Potential retention issue of highly skilled and experienced executive staff and salary compaction issues between General Manager and Executives (direct reports).

PRIOR COMMITTEE/BOARD ACTIONS

June & July 2021 - Steering Committee reviewed the General Manager's performance evaluation in closed session.

September 2019 - Board of Directors adopted Resolution No. OCSD 19-12, specifying annual salary range adjustments, corresponding salary increases, and maximum merit increase for the General Manager for Fiscal Years 2019/2020, 2020/2021, and 2021/2022.

ADDITIONAL INFORMATION

The agency's accomplishments during the past year include the following:

- Continuing to operate at a high level of organizational performance during the COVID-19 pandemic
- Achieving successful negotiation and implementation of six (6) agreements with various other public agencies, including agreement for the construction of the Headquarters Complex with the City of Fountain Valley
- Maintaining OC San's AAA credit ratings
- Achieving the service level goal of no more than 2.3 spills per 100 miles with three (3) sewer spills equating to 0.26 per 100 miles this year
- Maintaining 100% compliance with its ocean discharge permit over a continuous eight-year period (a first for OC San)
- Updating the Asset Management Plan with asset inventory, condition, and performance; and an updated implementation plan
- Executing a contingency biosolids disposal agreement for emergencies
- Maintaining focus on preparedness, contingency planning, rules and regulations, and healthy working relationships internally and externally to lead the agency during the pandemic crisis and recovery
- Engaged with the Board to develop the strategic plan update to ensure that the General Manager's goals align with the Board's policy direction and priorities
- Maintaining major projects on track, including Headquarters Complex, GWRS Expansion projects, Plant No. 1 Headworks Rehabilitation, and Seal Beach Force Main Replacement
- Preparing and submitting the Cal/OSHA Voluntary Protection Program (VPP) safety application, with eligibility achieved based on OC San's accident rate below the industry benchmark

CEQA

N/A

FINANCIAL CONSIDERATIONS

This item has been budgeted.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Resolution No. OCSD 19-12
- General Manager Salary Schedules (FY 2019/2020 to FY 2021/2022)
- At-Will Employment Agreement, James D. Herberg (eff. 7/1/19)

RESOLUTION NO. OCSD 19-12

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE ORANGE COUNTY SANITATION DISTRICT APPROVING SALARY INCREASES AND SALARY RANGE ADJUSTMENTS FOR THE GENERAL MANAGER FOR FISCAL YEAR 2019/2020, FISCAL YEAR 2020/2021, AND FISCAL YEAR 2021/2022.

WHEREAS, the General Manager provides organizational leadership, strategic direction, and District oversight for Orange County Sanitation District (OCSD); and

WHEREAS, the General Manager serves in an at-will employment capacity, which may be terminated at any time by the Board with or without cause; and

WHEREAS, it is OCSD's philosophy to compensate employee classifications competitively, which currently can be achieved through alignment with the salary market; and

WHEREAS, the July 1, 2018, At-Will Agreement with the General Manager provides that, "District's Steering Committee shall meet with General Manager in August of each year during the term of this Agreement to review and evaluate his performance over the prior year. The Steering Committee shall make its recommendation(s) to the Board concerning adjustment to the compensation and/or benefits paid or provided to General Manager, to be effective in July of the year of review. After consideration of the recommendation(s) of the Steering Committee, the Board shall determine and approve the compensation, including benefits, payable to General Manager, which generally becomes effective July of the fiscal year of the review"; and

WHEREAS, the Steering Committee commenced its review of the General Manager's performance in June 2019, finalized its review and made its recommendation to the Board on September 25, 2019.

NOW, THEREFORE, the Board of Directors of the Orange County Sanitation District, DOES HEREBY RESOLVE, DECLARE, DETERMINE, AND ORDER:

1. That the At-Will Agreement with the General Manager (Attached hereto as Exhibit 1) setting forth the terms and conditions of his employment, including a salary increase in the first pay period of July 2019, consisting of a 3.0% salary range adjustment and corresponding salary increase and 2.5% merit increase as determined by the Board of Directors, not to exceed 5.5% total, is hereby approved to be effective retroactively to the first pay period of July 2019;

2. A salary increase in the first pay period of July 2020, consisting of a 3.0%

salary range adjustment and corresponding salary increase and up to 2.5% merit increase to be determined by the Board of Directors based on job performance, not to exceed 5.5% total;

3. A salary increase in the first pay period of July 2021, consisting of a 3.0% salary range adjustment and corresponding salary increase and up to 2.5% merit increase to be determined by the Board of Directors based on job performance, not to exceed 5.5% total; AND

4. That the Board Chair, or his designee, is authorized to implement the changes to salary range and salary items approved herein.

PASSED AND ADOPTED at a regular meeting of the Board of Directors held September 25, 2019.

David John Shawver
Board Chairman

ATTEST:

Kelly A. Lore, MMC
Clerk of the Board

STATE OF CALIFORNIA)
) ss
COUNTY OF ORANGE)

I, Kelly A. Lore, Clerk of the Board of Directors of the Orange County Sanitation District, do hereby certify that the foregoing Resolution No. OCSD 19-12 was passed and adopted at a regular meeting of said Board on the 25th day of September 2019, by the following vote, to wit:

AYES:	Avery; Beamish (Alternate); Bernstein; Berry (Alternate); Chaffee; Collacott; Ferryman; Kim; Kring; Massa-Lavitt; R. Murphy; Nguyen; O'Neill (Alternate); Shawver; Shea; Silva; F. Smith; Wanke; and Withers
NOES:	Iglesias
ABSTENTIONS:	Harper (Alternate)
ABSENT:	B. Jones (Alternate); M. Murphy; Parker and Peterson

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of Orange County Sanitation District this 25th day of September 2019.

Kelly A. Lore
Clerk of the Board of Directors
Orange County Sanitation District

General Manager Salary Schedule

Orange County Sanitation District
Classification and Compensation Plan

Current

GENERAL MANAGER, FY 2018-19

Pay Grade		Step 1	Step 2	Step 3	Step 4	Step 5
EM37	Annual	$ 255,778	$ 268,861	$ 282,610	$ 297,066	$ 312,250
	Monthly	$ 21,315	$ 22,405	$ 23,551	$ 24,755	$ 26,021
	Hourly	$ 122.97	$ 129.26	$ 135.87	$ 142.82	$ 150.12

Proposed Salary Range Adjustment 3.0%

GENERAL MANAGER, Proposed FY 2019-20

Pay Grade		Step 1	Step 2	Step 3	Step 4	Step 5
EM37	Annual	$ 263,453	$ 276,931	$ 291,096	$ 305,968	$ 321,610
	Monthly	$ 21,954	$ 23,078	$ 24,258	$ 25,497	$ 26,801
	Hourly	$ 126.66	$ 133.14	$ 139.95	$ 147.10	$ 154.62

Proposed Salary Range Adjustment 3.0%

GENERAL MANAGER, Proposed FY 2020-21

Pay Grade		Step 1	Step 2	Step 3	Step 4	Step 5
EM37	Annual	$ 271,357	$ 285,230	$ 299,832	$ 315,141	$ 331,261
	Monthly	$ 22,613	$ 23,769	$ 24,986	$ 26,262	$ 27,605
	Hourly	$ 130.46	$ 137.13	$ 144.15	$ 151.51	$ 159.26

Proposed Salary Range Adjustment 3.0%

GENERAL MANAGER, Proposed FY 2021-22

Pay Grade		Step 1	Step 2	Step 3	Step 4	Step 5
EM37	Annual	$ 279,490	$ 293,779	$ 308,818	$ 324,605	$ 341,203
	Monthly	$ 23,291	$ 24,482	$ 25,735	$ 27,050	$ 28,434
	Hourly	$ 134.37	$ 141.24	$ 148.47	$ 156.06	$ 164.04

AT-WILL EMPLOYMENT AGREEMENT

James D. Herberg
General Manager

ORANGE COUNTY SANITATION DISTRICT

THIS AT- WILL EMPLOYMENT AGREEMENT ("Agreement") is entered into, to be effective the **1st day of July, 2019**, by and between:

ORANGE COUNTY SANITATION DISTRICT, hereinafter referred to as "District";

AND

JAMES D. HERBERG, sometimes hereinafter referred to as "General Manager"; collectively referred to herein as ("the Parties")

RECITALS

WHEREAS, District desires to continue to employ James D. Herberg ("Mr. Herberg"), as General Manager of District, pursuant to the terms and conditions as set forth in this Agreement; and

WHEREAS, Mr. Herberg, by virtue of his education, training and experience, is fully qualified to fill the position of General Manager and desires to continue to serve the District as its General Manager, pursuant to the terms and conditions of this Agreement; and

WHEREAS, per Resolution No. 19-XX adopted on September 25, 2019, the District's Board of Directors has approved and authorized the Board Chair to execute this "At-Will Employment Agreement" to include a base building salary increase of 5.5% of his current salary.

WHEREAS, at the beginning of negotiations of a new Employment Agreement, the

parties agreed that any salary changes agreed to would take effect retroactively to the first pay period of July 2019, which is the first pay period in the current fiscal year.

NOW, THEREFORE, the Parties hereto agree as follows:

Section 1: District hereby continues to employ Mr. Herberg to serve as General Manager of the Orange County Sanitation District, commencing on the effective date hereof, and continuing until termination by either Party, as provided in this Agreement.

In that capacity, Mr. Herberg agrees to perform the functions and duties of General Manager, the administrative head of the District, as prescribed by the laws of the State of California, and by the rules, regulations, decisions, and directions of the Board of Directors of District (hereinafter referred to as "Board"). The General Manager's duties may involve expenditures of time in excess of the regularly established workday or in excess of a forty-hour work week and may also include time outside normal office hours (including attendance at Board and Committee meetings). General Manager is classified as an exempt employee under the Fair Labor Standards Act ("FLSA") and shall not be entitled to any additional compensation for hours worked in excess of forty in a work week.

Section 2: Mr. Herberg shall be employed in an "at-will" capacity serving at the sole pleasure of the Board. Either party to this Agreement may terminate the Agreement at any time for any reason with or without cause, and without hearing, upon 30 days' notice to the other party. Mr. Herberg is advised and acknowledges that he has none of the termination rights of a Regular employee of the District. Except as expressly provided herein, and as a condition of employment, Mr. Herberg knowingly, willingly and voluntarily gives up, waives, and disclaims any and all rights he may have, express or implied, to any notice and/or hearing before or after termination, and/or to any continued employment with the District after termination.

As an "at-will" employee, Mr. Herberg understands that he may be subject to termination with or without cause at the sole discretion of the Board, notwithstanding that the other provisions of the District's Personnel Policies and Procedures Manual (hereinafter referred to as "Manual") apply to Mr. Herberg. If the District terminates employment without cause, Mr. Herberg shall be given a thirty (30) day Notice of Termination and severance pay in an amount equal to six (6) months of his then current annual base salary upon Mr. Herberg's execution of a valid written release of legal claims.

If the District terminates this Agreement (thereby terminating Mr. Herberg's employment) without cause, and Mr. Herberg executes a valid written release of legal claims, the severance pay is considered a cash settlement related to the termination of Mr. Herberg and waiver of legal claims and

shall be fully reimbursed to the District by Mr. Herberg if Mr. Herberg is convicted of a crime involving an abuse of his office or position. Abuse of office or position shall have the meaning set forth in Government Code 53243.4, as may be amended, of either (1) an abuse of public authority, including, but not limited to, waste, fraud and violation of the law under color of authority, or (2) a crime against public justice, including, but, not limited to, a crime described in Title 7 (commencing with Section 92 of Part 1 of the Penal Code). Mr. Herberg shall reimburse such severance pay to the District no later than six (6) months after such conviction. If Mr. Herberg terminates his employment with 30 days' notice, the Board shall have the right to accept his resignation effective the date notice is given. Such decision to accept his resignation earlier shall not be considered a termination without cause and shall not entitle Mr. Herberg to receive the severance pay noted above.

Section 3: The term of this Agreement shall commence on the effective date above and continue for an indefinite duration, until terminated by either Party pursuant to Section 2 above, or unless terminated or amended as provided herein.

Section 4: As compensation for the services to be performed hereunder, upon the effective date of this Agreement, District agrees to pay General Manager an annual base salary for services rendered of three hundred six thousand one hundred ninety-six dollars ($306,196), subject to all applicable deductions and withholdings of any and all sums required by then current state, federal or local law, along with deductions of applicable sums the General Manager is obligated to pay because of participation in plans and programs described in this Agreement, and paid biweekly in accordance with the District's established accounting and payroll practices at the same time and in the same manner as other employees of the District. No increase in salary may exceed the compensation permitted by the applicable salary range for the classification established by duly adopted Resolution of the Board.

For Years Two and Three of the employment contract, compensation will adjust as follows:

1. A salary increase in the first pay period of July 2020, consisting of a 3.0% salary range adjustment and corresponding salary increase and up to 2.5% merit increase to be determined by the Board of Directors based on job performance, not to exceed 5.5% total;

2. A salary increase in the first pay period of July 2021, consisting of a 3.0% salary range adjustment and corresponding salary increase and up to 2.5% merit increase to be determined by the Board of Directors based on job performance, not to exceed 5.5% total.

Section 5: For the period of this Agreement, District shall provide Mr. Herberg with a fixed benefit package that includes the following:

- Personal Leave – accrued based on years of service for all paid hours, including hours actually worked and hours in a paid-leave payroll status, on a biweekly basis in accordance with the Manual. Personal leave accruals shall not exceed four hundred forty (440) hours as of December 31 of each year. Any hours in excess of said limit, will be paid to Mr. Herberg in January in an amount equal to the hourly rate of compensation.
- Administrative Leave - 40 hours per fiscal year, granted and not eligible for annual cash out.
- Investment Incentive Salary (IIS) - 6% of base salary applied on a biweekly fiscal year basis, and a flat amount of one thousand two hundred fifty dollars ($1,250) annually.
- Deferred Compensation - OCSD-paid annual allocation for 2019, 2020, and 2021 of $11,000 allocated on a biweekly calendar year basis.
- Car Allowance – OCSD-paid annual allocation of $8,400.
- Added Medical Allowance – OCSD-paid annual allocation for 2019, 2020, and 2021 of six thousand dollars ($6,000).

Mr. Herberg's benefit package also shall include benefits consistent with the Manual for: holiday pay; medical, dental, vision and life insurance at three times base salary; long-term and short-term disability insurance; and employee assistance program. Additionally, Mr. Herberg's benefit package shall include executive disability insurance benefits, consistent with those provided to OCSD managers.

These benefits shall remain in full force and effect unless and until replaced by an amendment to this Agreement, signed by Mr. Herberg and approved by the Board, which amendment shall include the effective date thereof.

Section 6: District's Steering Committee shall meet with General Manager in August of each year during the term of this Agreement to review and evaluate his performance over the prior year. The Steering Committee shall make its recommendation(s) to the Board concerning adjustment to the compensation and/or benefits paid or provided to General Manager, to be effective in July of the year of review. After consideration of the recommendation(s) of the Steering Committee, the Board shall determine and approve the compensation, including benefits, payable to General Manager, which generally becomes effective July of the fiscal year of the review. Failure of the District to review and evaluate the performance of the General Manager pursuant to this section shall not affect the right of the District to terminate the General Manager's employment and shall not be considered a breach of this Agreement.

Section 7: Mr. Herberg shall be a Participant Member in the Orange County Employees Retirement System ("OCERS"). District shall pay the required employer's contribution and 0% of Mr. Herberg's required contribution towards membership in OCERS.

Section 8: District shall reimburse General Manager for all expenses paid by him and incurred for non-personal, job-related District business that are reasonably necessary to the General Manager's service to the District. The District agrees to either pay such expenses in advance or to reimburse the expenses, so long as the expenses are incurred and submitted according to the criteria established by District's budget and/or normal expense reimbursement procedures pursuant to applicable policy Resolutions. To be eligible for reimbursement, all expenses must be supported by documentation meeting the District's policies and requirements and must be submitted within time limits established by the District. Such reimbursement shall not be considered a benefit.

Section 9: During the period of this Agreement, it is agreed that General Manager shall devote his fulltime, skills, labor and attention to said employment. At no time may General Manager undertake outside activities consisting of consultant work, speaking engagements, writing, lecturing, or other similar professional activities for money or other consideration without prior approval of District's Steering Committee. However, the expenditure of reasonable amount of time for educational, charitable, or professional activities shall not be deemed a breach of this Agreement if those activities do not conflict or materially interfere with the services required under this Agreement, and shall not require the prior written consent of the Steering Committee.

This Agreement shall not be interpreted to prohibit General Manager from making passive personal investments or conducting private business affairs, provided those activities are not deemed to be a conflict of interest by state law nor do they conflict or materially interfere with the services required under this Agreement.

Section 10: The Board has the sole discretion to determine whether the District shall pay General Manager pending an investigation into any alleged misconduct by General Manager. In the event that the District's Board determines, in its sole discretion, that it is in the best interest of the District for General Manager to be placed on paid administrative leave pending such an investigation, General Manager shall fully reimburse any salary provided for that purpose if the misconduct for which the General Manager was under investigation results in the General Manager being convicted of a crime involving an abuse of his office or position as defined in

Section 2 of this Agreement. General Manager shall reimburse such salary to the District no later than six months after such conviction.

Section 11: In the event that the District provides funds for the legal criminal defense of General Manager, General Manager shall fully reimburse said funds to the District if the General Manager is convicted of a crime involving an abuse of his/her office or position as defined in Section 2 of this Agreement. General Manager shall reimburse such criminal legal defense fees to the District no later than six months after such conviction.

Section 12: The terms and conditions of employment for General Manager, including other employment benefits for the General Manager that are not specifically provided for in this Agreement, shall be governed by the Manual, to the extent that amendments to the Manual made after the effective date of this Agreement are not inconsistent with the provisions of this Agreement. In the event of any such inconsistency or conflict, the provisions of this Agreement shall govern.

Section 13: This Agreement supersedes any and all other prior agreements, either oral or in writing, between the Parties hereto with respect to the employment of Mr. Herberg by District, and contains all of the covenants and agreements between the Parties with respect to that employment in any manner whatsoever. Each Party to this Agreement acknowledges that no representation, inducement, promise, or agreement, orally or otherwise, has been made by any Party, or anyone acting on behalf of any Party, which is not embodied herein, and that no other agreement, statement, or promise not contained in this Agreement or Employment shall be valid or binding on either Party.

Section 14: Any notices to be given hereunder by either Party to the other shall be in writing and may be transmitted by personal delivery, or by mail, registered or certified, postage prepaid, with return receipt requested. Mailed notices shall be addressed to the Parties at the addresses maintained in the personnel records of District, but each Party may change that address by written notice in accordance with this Section. Notices delivered personally shall be deemed communicated as of the date of actual receipt; mailed notices shall be deemed communicated as of the date of mailing.

Section 15: Any modifications of this Agreement will be effective only if set forth in writing and signed by the Parties.

Section 16: The failure of either Party to insist on strict compliance with any of the terms, covenants, or conditions of this Agreement by the other Party, shall not be deemed a

waiver of that term, covenant, or condition, nor shall any waiver or relinquishment of any right or power at any one time or times be deemed a waiver or relinquishment of that right or power for all or any other times.

Section 17: If any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force without being impaired or invalidated in any way.

Section 18: This Agreement shall be governed by and construed in accordance with the laws of the State of California and all applicable ordinances, policies and resolutions.

Section 19: General Manager acknowledges that he has had the opportunity and has conducted an independent review of the financial and legal effects of this Agreement. General Manager acknowledges that he has made an independent judgment upon the financial and legal effects of the Agreement and has not relied upon representation of the District, its elected or appointed officers and officials, agents or employees other than those expressly set forth in this Agreement. General Manager acknowledges that he has been advised to obtain, and has availed himself of, legal advice with respect to the terms and provisions of this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this At-Will Employment Agreement as follows.

"DISTRICT"
ORANGE COUNTY SANITATION DISTRICT

"GENERAL MANAGER"

By: _____
James D. Herberg Date

APPROVED AS TO FORM:
BRADLEY R. HOGIN
GENERAL COUNSEL

"CHAIR, BOARD OF DIRECTORS"

_____
Bradley R. Hogin

By: _____
David John Shawver Date

Orange County Sanitation District
Classification and Compensation Plan

GENERAL MANAGER, FY 2019-20

Pay Grade		Step 1	Step 2	Step 3	Step 4	Step 5
EM37	Annual	$ 263,453	$ 276,931	$ 291,096	$ 305,968	$ 321,610
	Monthly	$ 21,954	$ 23,078	$ 24,258	$ 25,497	$ 26,801
	Hourly	$ 126.66	$ 133.14	$ 139.95	$ 147.10	$ 154.62

GENERAL MANAGER, FY 2020-21

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GENERAL MANAGER, FY 2021-22

Pay Grade		Step 1	Step 2	Step 3	Step 4	Step 5
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	Monthly	$ 23,291	$ 24,482	$ 25,735	$ 27,050	$ 28,434
	Hourly	$ 134.37	$ 141.24	$ 148.47	$ 156.06	$ 164.04

AT-WILL EMPLOYMENT AGREEMENT

James D. Herberg
General Manager

ORANGE COUNTY SANITATION DISTRICT

THIS AT- WILL EMPLOYMENT AGREEMENT ("Agreement") is entered into, to be effective the **1st day of July, 2019**, by and between:

ORANGE COUNTY SANITATION DISTRICT, hereinafter referred to as "District";

AND

JAMES D. HERBERG, sometimes hereinafter referred to as "General Manager"; collectively referred to herein as ("the Parties")

RECITALS

WHEREAS, District desires to continue to employ James D. Herberg ("Mr. Herberg"), as General Manager of District, pursuant to the terms and conditions as set forth in this Agreement; and

WHEREAS, Mr. Herberg, by virtue of his education, training and experience, is fully qualified to fill the position of General Manager and desires to continue to serve the District as its General Manager, pursuant to the terms and conditions of this Agreement; and

WHEREAS, per Resolution No. 19-12 adopted on September 25, 2019, the District's Board of Directors has approved and authorized the Board Chair to execute this "At-Will Employment Agreement" to include a base building salary increase of 5.5% of his current salary.

WHEREAS, at the beginning of negotiations of a new Employment Agreement, the

parties agreed that any salary changes agreed to would take effect retroactively to the first pay period of July 2019, which is the first pay period in the current fiscal year.

NOW, THEREFORE, the Parties hereto agree as follows:

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In that capacity, Mr. Herberg agrees to perform the functions and duties of General Manager, the administrative head of the District, as prescribed by the laws of the State of California, and by the rules, regulations, decisions, and directions of the Board of Directors of District (hereinafter referred to as "Board"). The General Manager's duties may involve expenditures of time in excess of the regularly established workday or in excess of a forty-hour work week and may also include time outside normal office hours (including attendance at Board and Committee meetings). General Manager is classified as an exempt employee under the Fair Labor Standards Act ("FLSA") and shall not be entitled to any additional compensation for hours worked in excess of forty in a work week.

Section 2: Mr. Herberg shall be employed in an "at-will" capacity serving at the sole pleasure of the Board. Either party to this Agreement may terminate the Agreement at any time for any reason with or without cause, and without hearing, upon 30 days' notice to the other party. Mr. Herberg is advised and acknowledges that he has none of the termination rights of a Regular employee of the District. Except as expressly provided herein, and as a condition of employment, Mr. Herberg knowingly, willingly and voluntarily gives up, waives, and disclaims any and all rights he may have, express or implied, to any notice and/or hearing before or after termination, and/or to any continued employment with the District after termination.

As an "at-will" employee, Mr. Herberg understands that he may be subject to termination with or without cause at the sole discretion of the Board, notwithstanding that the other provisions of the District's Personnel Policies and Procedures Manual (hereinafter referred to as "Manual") apply to Mr. Herberg. If the District terminates employment without cause, Mr. Herberg shall be given a thirty (30) day Notice of Termination and severance pay in an amount equal to six (6) months of his then current annual base salary upon Mr. Herberg's execution of a valid written release of legal claims.

If the District terminates this Agreement (thereby terminating Mr. Herberg's employment) without cause, and Mr. Herberg executes a valid written release of legal claims, the severance pay is considered a cash settlement related to the termination of Mr. Herberg and waiver of legal claims and

shall be fully reimbursed to the District by Mr. Herberg if Mr. Herberg is convicted of a crime involving an abuse of his office or position. Abuse of office or position shall have the meaning set forth in Government Code 53243.4, as may be amended, of either (1) an abuse of public authority, including, but not limited to, waste, fraud and violation of the law under color of authority, or (2) a crime against public justice, including, but, not limited to, a crime described in Title 7 (commencing with Section 92 of Part 1 of the Penal Code). Mr. Herberg shall reimburse such severance pay to the District no later than six (6) months after such conviction. If Mr. Herberg terminates his employment with 30 days' notice, the Board shall have the right to accept his resignation effective the date notice is given. Such decision to accept his resignation earlier shall not be considered a termination without cause and shall not entitle Mr. Herberg to receive the severance pay noted above.

Section 3: The term of this Agreement shall commence on the effective date above and continue for an indefinite duration, until terminated by either Party pursuant to Section 2 above, or unless terminated or amended as provided herein.

Section 4: As compensation for the services to be performed hereunder, upon the effective date of this Agreement, District agrees to pay General Manager an annual base salary for services rendered of three hundred six thousand one hundred ninety-six dollars ($306,196), subject to all applicable deductions and withholdings of any and all sums required by then current state, federal or local law, along with deductions of applicable sums the General Manager is obligated to pay because of participation in plans and programs described in this Agreement, and paid biweekly in accordance with the District's established accounting and payroll practices at the same time and in the same manner as other employees of the District. No increase in salary may exceed the compensation permitted by the applicable salary range for the classification established by duly adopted Resolution of the Board.

For Years Two and Three of the employment contract, compensation will adjust as follows:

1. A salary increase in the first pay period of July 2020, consisting of a 3.0% salary range adjustment and corresponding salary increase and up to 2.5% merit increase to be determined by the Board of Directors based on job performance, not to exceed 5.5% total;

2. A salary increase in the first pay period of July 2021, consisting of a 3.0% salary range adjustment and corresponding salary increase and up to 2.5% merit increase to be determined by the Board of Directors based on job performance, not to exceed 5.5% total.

Section 5: For the period of this Agreement, District shall provide Mr. Herberg with a fixed benefit package that includes the following:

- Personal Leave – accrued based on years of service for all paid hours, including hours actually worked and hours in a paid-leave payroll status, on a biweekly basis in accordance with the Manual. Personal leave accruals shall not exceed four hundred forty (440) hours as of December 31 of each year. Any hours in excess of said limit, will be paid to Mr. Herberg in January in an amount equal to the hourly rate of compensation.
- Administrative Leave - 40 hours per fiscal year, granted and not eligible for annual cash out.
- Investment Incentive Salary (IIS) - 6% of base salary applied on a biweekly fiscal year basis, and a flat amount of one thousand two hundred fifty dollars ($1,250) annually.
- Deferred Compensation - OCSD-paid annual allocation for 2019, 2020, and 2021 of $11,000 allocated on a biweekly calendar year basis.
- Car Allowance – OCSD-paid annual allocation of $8,400.
- Added Medical Allowance – OCSD-paid annual allocation for 2019, 2020, and 2021 of six thousand dollars ($6,000).

Mr. Herberg's benefit package also shall include benefits consistent with the Manual for: holiday pay; medical, dental, vision and life insurance at three times base salary; long-term and short-term disability insurance; and employee assistance program. Additionally, Mr. Herberg's benefit package shall include executive disability insurance benefits, consistent with those provided to OCSD managers.

These benefits shall remain in full force and effect unless and until replaced by an amendment to this Agreement, signed by Mr. Herberg and approved by the Board, which amendment shall include the effective date thereof.

Section 6: District's Steering Committee shall meet with General Manager in August of each year during the term of this Agreement to review and evaluate his performance over the prior year. The Steering Committee shall make its recommendation(s) to the Board concerning adjustment to the compensation and/or benefits paid or provided to General Manager, to be effective in July of the year of review. After consideration of the recommendation(s) of the Steering Committee, the Board shall determine and approve the compensation, including benefits, payable to General Manager, which generally becomes effective July of the fiscal year of the review. Failure of the District to review and evaluate the performance of the General Manager pursuant to this section shall not affect the right of the District to terminate the General Manager's employment and shall not be considered a breach of this Agreement.

Section 7: Mr. Herberg shall be a Participant Member in the Orange County Employees Retirement System ("OCERS"). District shall pay the required employer's contribution and 0% of Mr. Herberg's required contribution towards membership in OCERS.

Section 8: District shall reimburse General Manager for all expenses paid by him and incurred for non-personal, job-related District business that are reasonably necessary to the General Manager's service to the District. The District agrees to either pay such expenses in advance or to reimburse the expenses, so long as the expenses are incurred and submitted according to the criteria established by District's budget and/or normal expense reimbursement procedures pursuant to applicable policy Resolutions. To be eligible for reimbursement, all expenses must be supported by documentation meeting the District's policies and requirements and must be submitted within time limits established by the District. Such reimbursement shall not be considered a benefit.

Section 9: During the period of this Agreement, it is agreed that General Manager shall devote his fulltime, skills, labor and attention to said employment. At no time may General Manager undertake outside activities consisting of consultant work, speaking engagements, writing, lecturing, or other similar professional activities for money or other consideration without prior approval of District's Steering Committee. However, the expenditure of reasonable amount of time for educational, charitable, or professional activities shall not be deemed a breach of this Agreement if those activities do not conflict or materially interfere with the services required under this Agreement, and shall not require the prior written consent of the Steering Committee.

This Agreement shall not be interpreted to prohibit General Manager from making passive personal investments or conducting private business affairs, provided those activities are not deemed to be a conflict of interest by state law nor do they conflict or materially interfere with the services required under this Agreement.

Section 10: The Board has the sole discretion to determine whether the District shall pay General Manager pending an investigation into any alleged misconduct by General Manager. In the event that the District's Board determines, in its sole discretion, that it is in the best interest of the District for General Manager to be placed on paid administrative leave pending such an investigation, General Manager shall fully reimburse any salary provided for that purpose if the misconduct for which the General Manager was under investigation results in the General Manager being convicted of a crime involving an abuse of his office or position as defined in

Section 2 of this Agreement. General Manager shall reimburse such salary to the District no later than six months after such conviction.

Section 11: In the event that the District provides funds for the legal criminal defense of General Manager, General Manager shall fully reimburse said funds to the District if the General Manager is convicted of a crime involving an abuse of his/her office or position as defined in Section 2 of this Agreement. General Manager shall reimburse such criminal legal defense fees to the District no later than six months after such conviction.

Section 12: The terms and conditions of employment for General Manager, including other employment benefits for the General Manager that are not specifically provided for in this Agreement, shall be governed by the Manual, to the extent that amendments to the Manual made after the effective date of this Agreement are not inconsistent with the provisions of this Agreement. In the event of any such inconsistency or conflict, the provisions of this Agreement shall govern.

Section 13: This Agreement supersedes any and all other prior agreements, either oral or in writing, between the Parties hereto with respect to the employment of Mr. Herberg by District, and contains all of the covenants and agreements between the Parties with respect to that employment in any manner whatsoever. Each Party to this Agreement acknowledges that no representation, inducement, promise, or agreement, orally or otherwise, has been made by any Party, or anyone acting on behalf of any Party, which is not embodied herein, and that no other agreement, statement, or promise not contained in this Agreement or Employment shall be valid or binding on either Party.

Section 14: Any notices to be given hereunder by either Party to the other shall be in writing and may be transmitted by personal delivery, or by mail, registered or certified, postage prepaid, with return receipt requested. Mailed notices shall be addressed to the Parties at the addresses maintained in the personnel records of District, but each Party may change that address by written notice in accordance with this Section. Notices delivered personally shall be deemed communicated as of the date of actual receipt; mailed notices shall be deemed communicated as of the date of mailing.

Section 15: Any modifications of this Agreement will be effective only if set forth in writing and signed by the Parties.

Section 16: The failure of either Party to insist on strict compliance with any of the terms, covenants, or conditions of this Agreement by the other Party, shall not be deemed a

waiver of that term, covenant, or condition, nor shall any waiver or relinquishment of any right or power at any one time or times be deemed a waiver or relinquishment of that right or power for all or any other times.

Section 17: If any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force without being impaired or invalidated in any way.

Section 18: This Agreement shall be governed by and construed in accordance with the laws of the State of California and all applicable ordinances, policies and resolutions.

Section 19: General Manager acknowledges that he has had the opportunity and has conducted an independent review of the financial and legal effects of this Agreement. General Manager acknowledges that he has made an independent judgment upon the financial and legal effects of the Agreement and has not relied upon representation of the District, its elected or appointed officers and officials, agents or employees other than those expressly set forth in this Agreement. General Manager acknowledges that he has been advised to obtain, and has availed himself of, legal advice with respect to the terms and provisions of this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this At-Will Employment Agreement as follows.

"DISTRICT"
ORANGE COUNTY SANITATION DISTRICT

"GENERAL MANAGER"

By: James Herberg 10/03/2019
James D. Herberg Date

APPROVED AS TO FORM:
BRADLEY R. HOGIN
GENERAL COUNSEL

Bradley R. Hogin

"CHAIR, BOARD OF DIRECTORS"

By: _____
David John Shawver Date

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1813 **Agenda Date:** 8/25/2021 **Agenda Item No:** 13.

FROM: James D. Herberg, General Manager
Originator: Lorenzo Tyner, Assistant General Manager

SUBJECT:

2020-21 FISCAL YEAR BUDGET - FINANCIAL CLOSING UPDATE

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

Information Item.

BACKGROUND

The preliminary 2020-21 budget financial closing indicates that total expenditures will be approximately $2.6 million below the approved budget. There are three areas of note that warrant additional information: (1) GASB 68 Pension Liability recognition, (2) Capital Improvement Program expenditures, and (3) Other Operating expenditures.

1) **GASB Statement 68 - Pension Liability Recognition:**
GASB 68 requires governments providing defined benefit pensions to recognize their long-term obligation for pension benefits.

Orange County Sanitation District (OC San) is a member of the Orange County Employees Retirement System (OCERS). As part of its financial forecasting, OCERS assumes a 7.0% annual return. Returns below 7.0% would result in an additional pension obligation that OC San would be required to recognize on its financial statements.

However, the 2020 return was 12.8%, 5.8% above the assumed rate. This increase in return resulted in reducing OC San's pension liability by $11.5 million. GASB 68 requires that pension liability adjustments be recorded in the current fiscal year. This reduced OC San's fiscal year 2020-21 operating expenditures for 2020-21 by $11.5 million.

2) **Capital Improvement Program (CIP) Expenditures:**
Total 2020-21 CIP expenditures will exceed the approved CIP budget by approximately $10 million. This is a result of accelerated activity within the program, specifically equipment purchases that arrived in late June 2021 instead of the anticipated early July 2021. This required that these expenditures be in the 2021 fiscal year. These expenditures do not represent an overage, just an early receipt of equipment.

3) **Other Operating Expenses:**
Other operating expenditures were below the approved budget by approximately $1 million.

RELEVANT STANDARDS

- Sound engineering and accounting practices, complying with local, state, and federal laws
- Ensure the public's money is wisely spent

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

N/A

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1799 **Agenda Date:** 8/25/2021 **Agenda Item No:** 14.

FROM: James D. Herberg, General Manager

SUBJECT:

ORANGE COUNTY SANITATION DISTRICT LEVELS OF SERVICE

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

Information Only.

BACKGROUND

The Orange County Sanitation District (OC San) is in the process of updating its Strategic Plan. As part of this effort, OC San's Levels of Service (LOS), which are OC San's commitments to the public we serve, are being reevaluated to ensure consistency and relevance to our current operations.

The LOS are performance goals under four categories: Environmental Stewardship, Wastewater Management, Business Principles, and Workplace Environment.

The updated LOS will be included in the Strategic Plan which will be presented in draft to the Board in September and for adoption in November 2021. The adopted Strategic Plan will be the basis of Fiscal Year 2022-23 and 2023-24 budget development.

RELEVANT STANDARDS

- Maintain and adhere to appropriate internal planning documents: Strategic Plan
- Sustain 1, 5, 20-year planning horizons
- Build brand, trust, and support with policy makers and community leaders

PROBLEM

The current LOS are a recurring document incorporated into the adopted Budget book. As regulations change, new systems are in place, and operations change, the LOS must be reviewed and analyzed to remain relevant.

PROPOSED SOLUTION

Update the current LOS commitments based on regulatory and permit changes, updated industry standards, and resource recovery goals to ensure the efficient and effective operation of OC San facilities.

PRIOR COMMITTEE/BOARD ACTIONS

June 2021 - Adoption of FY 2021-2022 Budget.

November 2019 - Adoption of Strategic Plan.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Presentation

OC San's Levels of Service

Presented by:

Rob Thompson,
Asst. General Manager

Board Meeting

August 25, 2021

1

Our Commitment To…

- Rate payers
- Regulators
- Employees
- Board of Directors
- Stakeholders

2

2

Four Categories We Monitor

- Environmental Stewardship
- Wastewater Management
- Business Principles
- Workplace Environment

3

3

Environmental Stewardship

OC San will protect public health and the environment	LOS
Compliance with Ocean Discharge Permit	100%
Dry weather urban runoff collected and treated	Up to 10MGD
Major non-conformance audit findings	<5 per permit per audit
Respond to corrective actions within regulatory timeline for air, solids, and water compliance audits	100%
Comply with Fleet Air Emission Regulations	100%
Number of odor complaints under normal operations	<5 per treatment plant <12 for collection system
Sanitary Sewer Spills per 100 miles	<2.1
Compliance with core industrial pretreatment requirements	100%

4

4

Environmental Stewardship – cont.

OC San's effluent, solids and biogas will be recycled	LOS
Provide specification effluent to Groundwater Replenishment System	100%
Beneficially reuse biosolids during normal operations	100%

5

5

Wastewater Management

OC San will be a good neighbor and will be responsive to its customers	LOS
Respond to collection system spills within 1 hour of notification	100%
Respond to odor complaints	Within 1 hour in plants Within 24 hours in collections
Respond to public complaints or inquiries regarding construction within 24 hours	100%
Respond to biosolids contractor violations within one week of violation notice	100%
Respond to Public Records Act requests within the statutory requirements	<=10 days
Dig alert response within 48 hours	100%

6

6

Wastewater Management – cont.

OC San will manage its assets to ensure reliability and security	LOS
Cybersecurity event monitoring and incident handling, percent successful	>87%
Annual real property assessments/inspections	25%
Annual inspection, documentation, and evaluation of collection system	70 miles of sewers 880 manholes

7

7

Business Principles

OC San will exercise sound financial management	LOS
Annual user fees sufficient to cover 100% of O&M Budget	100%
Collection, treatment, and disposal costs per million gallons	within 10% of budget
Maintain Credit Rating (Moody's, Fitch, S&P)	AAA

8

8

Workplace Environment

OC San will provide a safe, productive workplace	LOS
Employee injury incident rate per 100 employees	<4.4
Annual days away from work, restricted activity, or job transfer resulting from a work-related injury	<2.5
Annual training hours per employee	45

9

9

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1817 **Agenda Date:** 8/25/2021 **Agenda Item No:** CS-1

FROM: James D. Herberg, General Manager

SUBJECT:

CONFERENCE WITH LEGAL COUNSEL RE ANTICIPATED LITIGATION - GOVERNMENT CODE SECTION 54956.9(D)(4)

RECOMMENDATION: Convene in Closed Session:

Number of Cases: 1

Potential initiation of eminent domain litigation regarding property owned by Bayside Village Marina, LLC.

BACKGROUND

During the course of conducting the business set forth on this agenda as a regular meeting of the Board, the Chairperson may convene the Board in closed session to consider matters of pending real estate negotiations, pending or potential litigation, or personnel matters.

Reports relating to (a) purchase and sale of real property; (b) matters of pending or potential litigation; (c) employment actions or negotiations with employee representatives; or which are exempt from public disclosure under the California Public Records Act, may be reviewed by the Board during a permitted closed session and are not available for public inspection. At such time the Board takes final action on any of these subjects, the minutes will reflect all required disclosures of information.

RELEVANT STANDARDS

- Government Code Sections 54956.8, 54956.9, 54957, or 54957.6, as noted

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Memorandum from General Counsel

WOODRUFF, SPRADLIN & SMART
A Professional Corporation

555 ANTON BOULEVARD, SUITE 1200
COSTA MESA, CA 92626-7670
(714) 558-7000

PRIVILEGED AND CONFIDENTIAL
ATTORNEY-CLIENT COMMUNICATION
NOT A PUBLIC RECORD

MEMORANDUM

TO: Hon. Chair and Members of the Orange County Sanitation District Board of Directors

FROM: Bradley R. Hogin, Esq.
General Counsel

DATE: August 18, 2021

RE: Closed Session Items

The Board of Directors desires to hold a closed session on August 25, 2021 for the purpose of conferring with its legal counsel regarding potential litigation. Based on existing facts and circumstances, the Board is deciding whether to initiate litigation against another party. The closed session will be held pursuant to the authority of California Government Code Section 54956.9(d)(4).

The facts and circumstances are as follows. The District is planning to construct the Bay Bridge Pump Station and Force Mains Rehabilitation Project. In order to construct the project, the District must acquire certain property and easements adjacent to the current pump station. Negotiations with the property owner have proven unsuccessful, so the Board of Directors must meet to consider possible initiation of an eminent domain action.

Respectfully submitted,

By _____
Bradley R. Hogin, General Counsel

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1818 **Agenda Date:** 8/25/2021 **Agenda Item No:** CS-2

FROM: James D. Herberg, General Manager

SUBJECT:

CONFERENCE WITH LEGAL COUNSEL RE EXISTING LITIGATION - GOVERNMENT CODE SECTION 54956.9(D)(1)

RECOMMENDATION: Convene in Closed Session:

Number of Cases: 1

Bayside Village Marina, LLC v. Orange County Sanitation District; Orange County Sanitation District Board of Directors; and Does 1-25, Inclusive, Superior Court of the State of California for the County of Orange - Central Justice Center Case No. 30-2021-01194238-CU-WM-CXC.

BACKGROUND

During the course of conducting the business set forth on this agenda as a regular meeting of the Board, the Chairperson may convene the Board in closed session to consider matters of pending real estate negotiations, pending or potential litigation, or personnel matters.

Reports relating to (a) purchase and sale of real property; (b) matters of pending or potential litigation; (c) employment actions or negotiations with employee representatives; or which are exempt from public disclosure under the California Public Records Act, may be reviewed by the Board during a permitted closed session and are not available for public inspection. At such time the Board takes final action on any of these subjects, the minutes will reflect all required disclosures of information.

RELEVANT STANDARDS

- Government Code Sections 54956.8, 54956.9, 54957, or 54957.6, as noted

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Memorandum from General Counsel

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A Professional Corporation

555 ANTON BOULEVARD, SUITE 1200
COSTA MESA, CA 92626-7670
(714) 558-7000

MEMORANDUM

TO: Hon. Chair and Members of the Orange County Sanitation District Board of Directors

FROM: Bradley R. Hogin, Esq.
General Counsel

DATE: August 18, 2021

RE: Closed Session Items

The Board of Directors desires to hold a closed session on August 25, 2021 for the purpose of conferring with its legal counsel regarding existing litigation to which the District is a party. The title of the case is *Bayside Village Marina, LLC v. Orange County Sanitation District et. al.*, Superior Court of the State of California for the County of Orange – Central Justice Center Case No. 30-2021-01194238-CU-WM-CXC. The closed session will be held pursuant to the authority of California Government Code Section 54956.9(d)(1).

Respectfully submitted,

By_____
Bradley R. Hogin, General Counsel

Administration Building
10844 Ellis Avenue
Fountain Valley, CA 92708
(714) 593-7433

File #: 2021-1823 **Agenda Date:** 8/25/2021 **Agenda Item No:** CS-3

FROM: James D. Herberg, General Manager

SUBJECT:

CONFERENCE WITH REAL PROPERTY NEGOTIATORS - GOVERNMENT CODE SECTION 54956.8

RECOMMENDATION: Convene in Closed Session:

Number of Cases: 1

Property: Portions of 300 East Coast Highway, Newport Beach, CA; APN No. 440-132-60.

Agency negotiators: General Manager Jim Herberg, Assistant General Manager Lorenzo Tyner, Assistant General Manager Rob Thompson, Director of Engineering Kathy Millea, and Controller Wally Richie.

Negotiating parties: Bayside Village Marina, LLC

Under negotiation: Price and terms of payment

BACKGROUND

During the course of conducting the business set forth on this agenda as a regular meeting of the Board, the Chairperson may convene the Board in closed session to consider matters of pending real estate negotiations, pending or potential litigation, or personnel matters.

Reports relating to (a) purchase and sale of real property; (b) matters of pending or potential litigation; (c) employment actions or negotiations with employee representatives; or which are exempt from public disclosure under the California Public Records Act, may be reviewed by the Board during a permitted closed session and are not available for public inspection. At such time the Board takes final action on any of these subjects, the minutes will reflect all required disclosures of information.

RELEVANT STANDARDS

- Government Code Sections 54956.8, 54956.9, 54957, or 54957.6, as noted

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Memorandum from General Counsel

WOODRUFF, SPRADLIN & SMART
A Professional Corporation

555 ANTON BOULEVARD, SUITE 1200
COSTA MESA, CA 92626-7670
(714) 558-7000

MEMORANDUM

TO: Hon. Chair and Members of the Orange County Sanitation District Board of Directors

FROM: Bradley R. Hogin, Esq.
General Counsel

DATE: August 19, 2021

RE: Closed Session Items

The Board of Directors will hold a closed session on August 25, 2021 for the purpose of conferring with its negotiators regarding the purchase of real property. The negotiating parties and property are as follows: portions of 300 East Coast Highway, Newport Beach, CA - APN No. 440-132-60. The District's negotiators are General Manager, Jim Herberg; Assistant General Manager, Lorenzo Tyner; Assistant General Manager, Rob Thompson; Director of Engineering, Kathy Millea; and Controller Wally Ritchie. Said closed session will be held pursuant to authority of California Government Code Section 54956.8.

Respectfully submitted,

By: _____
Bradley R. Hogin, General Counsel

ORANGE COUNTY SANITATION DISTRICT
COMMON ACRONYMS

ACWA	Association of California Water Agencies	**LOS**	Level Of Service	**RFP**	Request For Proposal
APWA	American Public Works Association	**MGD**	Million Gallons Per Day	**RWQCB**	Regional Water Quality Control Board
AQMD	Air Quality Management District	**MOU**	Memorandum of Understanding	**SARFPA**	Santa Ana River Flood Protection Agency
ASCE	American Society of Civil Engineers	**NACWA**	National Association of Clean Water Agencies	**SARI**	Santa Ana River Interceptor
BOD	Biochemical Oxygen Demand	**NEPA**	National Environmental Policy Act	**SARWQCB**	Santa Ana Regional Water Quality Control Board
CARB	California Air Resources Board	**NGOs**	Non-Governmental Organizations	**SAWPA**	Santa Ana Watershed Project Authority
CASA	California Association of Sanitation Agencies	**NPDES**	National Pollutant Discharge Elimination System	**SCADA**	Supervisory Control And Data Acquisition
CCTV	Closed Circuit Television	**NWRI**	National Water Research Institute	**SCAP**	Southern California Alliance of Publicly Owned Treatment Works
CEQA	California Environmental Quality Act	**O & M**	Operations & Maintenance	**SCAQMD**	South Coast Air Quality Management District
CIP	Capital Improvement Program	**OCCOG**	Orange County Council of Governments	**SOCWA**	South Orange County Wastewater Authority
CRWQCB	California Regional Water Quality Control Board	**OCHCA**	Orange County Health Care Agency	**SRF**	Clean Water State Revolving Fund
CWA	Clean Water Act	**OCSD**	Orange County Sanitation District	**SSMP**	Sewer System Management Plan
CWEA	California Water Environment Association	**OCWD**	Orange County Water District	**SSO**	Sanitary Sewer Overflow
EIR	Environmental Impact Report	**OOBS**	Ocean Outfall Booster Station	**SWRCB**	State Water Resources Control Board
EMT	Executive Management Team	**OSHA**	Occupational Safety and Health Administration	**TDS**	Total Dissolved Solids
EPA	US Environmental Protection Agency	**PCSA**	Professional Consultant/Construction Services Agreement	**TMDL**	Total Maximum Daily Load
FOG	Fats, Oils, and Grease	**PDSA**	Professional Design Services Agreement	**TSS**	Total Suspended Solids
gpd	gallons per day	**PFAS**	Per- and Polyfluoroalkyl Substances	**WDR**	Waste Discharge Requirements
GWRS	Groundwater Replenishment System	**PFOA**	Perfluorooctanoic Acid	**WEF**	Water Environment Federation
ICS	Incident Command System	**PFOS**	Perfluorooctanesulfonic Acid	**WERF**	Water Environment & Reuse Foundation
IERP	Integrated Emergency Response Plan	**POTW**	Publicly Owned Treatment Works	**WIFIA**	Water Infrastructure Finance and Innovation Act
JPA	Joint Powers Authority	**ppm**	parts per million	**WIIN**	Water Infrastructure Improvements for the Nation Act
LAFCO	Local Agency Formation Commission	**PSA**	Professional Services Agreement	**WRDA**	Water Resources Development Act

ORANGE COUNTY SANITATION DISTRICT
GLOSSARY OF TERMS

ACTIVATED SLUDGE PROCESS – A secondary biological wastewater treatment process where bacteria reproduce at a high rate with the introduction of excess air or oxygen and consume dissolved nutrients in the wastewater.

BENTHOS – The community of organisms, such as sea stars, worms, and shrimp, which live on, in, or near the seabed, also known as the benthic zone.

BIOCHEMICAL OXYGEN DEMAND (BOD) – The amount of oxygen used when organic matter undergoes decomposition by microorganisms. Testing for BOD is done to assess the amount of organic matter in water.

BIOGAS – A gas that is produced by the action of anaerobic bacteria on organic waste matter in a digester tank that can be used as a fuel.

BIOSOLIDS – Biosolids are nutrient rich organic and highly treated solid materials produced by the wastewater treatment process. This high-quality product can be recycled as a soil amendment on farmland or further processed as an earth-like product for commercial and home gardens to improve and maintain fertile soil and stimulate plant growth.

CAPITAL IMPROVEMENT PROGRAM (CIP) – Projects for repair, rehabilitation, and replacement of assets. Also includes treatment improvements, additional capacity, and projects for the support facilities.

COLIFORM BACTERIA – A group of bacteria found in the intestines of humans and other animals, but also occasionally found elsewhere, used as indicators of sewage pollution. E. coli are the most common bacteria in wastewater.

COLLECTIONS SYSTEM – In wastewater, it is the system of typically underground pipes that receive and convey sanitary wastewater or storm water.

CERTIFICATE OF PARTICIPATION (COP) – A type of financing where an investor purchases a share of the lease revenues of a program rather than the bond being secured by those revenues.

CONTAMINANTS OF POTENTIAL CONCERN (CPC) – Pharmaceuticals, hormones, and other organic wastewater contaminants.

DILUTION TO THRESHOLD (D/T) – The dilution at which the majority of people detect the odor becomes the D/T for that air sample.

GREENHOUSE GASES (GHG) – In the order of relative abundance water vapor, carbon dioxide, methane, nitrous oxide, and ozone gases that are considered the cause of global warming (“greenhouse effect”).

GROUNDWATER REPLENISHMENT SYSTEM (GWRS) – A joint water reclamation project that proactively responds to Southern California’s current and future water needs. This joint project between the Orange County Water District and OCSD provides 70 million gallons per day of drinking quality water to replenish the local groundwater supply.

LEVEL OF SERVICE (LOS) – Goals to support environmental and public expectations for performance.

N-NITROSODIMETHYLAMINE (NDMA) – A N-nitrosamine suspected cancer-causing agent. It has been found in the GWRS process and is eliminated using hydrogen peroxide with extra ultra-violet treatment.

NATIONAL BIOSOLIDS PARTNERSHIP (NBP) – An alliance of the NACWA and WEF, with advisory support from the EPA. NBP is committed to developing and advancing environmentally sound and sustainable biosolids management practices that go beyond regulatory compliance and promote public participation to enhance the credibility of local agency biosolids programs and improved communications that lead to public acceptance.

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) – A large group (over 6,000) of human-made compounds that are resistant to heat, water, and oil and used for a variety of applications including firefighting foam, stain and water-resistant clothing, cosmetics, and food packaging. Two PFAS compounds, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) have been the focus of increasing regulatory scrutiny in drinking water and may result in adverse health effects including developmental effects to fetuses during pregnancy, cancer, liver damage, immunosuppression, thyroid effects, and other effects.

PERFLUOROOCTANOIC ACID (PFOA) – An ingredient for several industrial applications including carpeting, upholstery, apparel, floor wax, textiles, sealants, food packaging, and cookware (Teflon).

PERFLUOROOCTANESULFONIC ACID (PFOS) – A key ingredient in Scotchgard, a fabric protector made by 3M, and used in numerous stain repellents.

PLUME – A visible or measurable concentration of discharge from a stationary source or fixed facility.

PUBLICLY OWNED TREATMENT WORKS (POTW) – A municipal wastewater treatment plant.

SANTA ANA RIVER INTERCEPTOR (SARI) LINE – A regional brine line designed to convey 30 million gallons per day of non-reclaimable wastewater from the upper Santa Ana River basin to the ocean for disposal, after treatment.

SANITARY SEWER – Separate sewer systems specifically for the carrying of domestic and industrial wastewater.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) – Regional regulatory agency that develops plans and regulations designed to achieve public health standards by reducing emissions from business and industry.

SECONDARY TREATMENT – Biological wastewater treatment, particularly the activated sludge process, where bacteria and other microorganisms consume dissolved nutrients in wastewater.

SLUDGE – Untreated solid material created by the treatment of wastewater.

TOTAL SUSPENDED SOLIDS (TSS) – The amount of solids floating and in suspension in wastewater.

TRICKLING FILTER – A biological secondary treatment process in which bacteria and other microorganisms, growing as slime on the surface of rocks or plastic media, consume nutrients in wastewater as it trickles over them.

URBAN RUNOFF – Water from city streets and domestic properties that carry pollutants into the storm drains, rivers, lakes, and oceans.

WASTEWATER – Any water that enters the sanitary sewer.

WATERSHED – A land area from which water drains to a particular water body. OCSD's service area is in the Santa Ana River Watershed.