

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

TENTATIVE INVESTIGATIVE ORDER NO. R9-2018-0021

AN ORDER DIRECTING THE CITY OF SAN DIEGO, THE CITY OF SANTEE, THE CITY OF EL CAJON, THE CITY OF LA MESA, THE COUNTY OF SAN DIEGO, THE SAN DIEGO COUNTY SANITATION DISTRICT, THE PADRE DAM MUNICIPAL WATER DISTRICT, THE RAMONA MUNICIPAL WATER DISTRICT, SAN DIEGO STATE UNIVERSITY, METROPOLITAN TRANSIT SYSTEM, AND THE CALIFORNIA DEPARTMENT OF TRANSPORTATION

TO SUBMIT TECHNICAL AND MONITORING REPORTS TO IDENTIFY AND QUANTIFY THE SOURCES AND TRANSPORT PATHWAYS OF HUMAN FECAL MATERIAL TO THE SAN DIEGO RIVER WATERSHED

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

Legal Authority

1. The San Diego Water Board regulates the discharge of waste to surface waters and groundwaters in the San Diego Region through various regulatory measures, including but not limited to, the issuance and enforcement of waste discharge requirements (WDRs), National Pollutant Discharge Elimination System (NPDES) permits, and waivers of WDRs. These regulatory measures impose conditions which protect water quality by implementing the Water Quality Control Plan for Ocean Waters of California (Ocean Plan), the Water Quality Control Plan for the San Diego Basin – Region 9 (Basin Plan), and other applicable State and federal regulations and policies.
2. The Ocean Plan contains provisions designed to protect the quality of the ocean waters for use and enjoyment by the people of the State. The Ocean Plan states that the beneficial uses of the ocean waters that shall be protected include 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; rare and endangered species; marine habitat; fish migration; fish spawning and shellfish harvesting. The Ocean Plan includes numeric water quality objectives for indicator bacteria (total coliform, fecal coliform, and enterococcus) for ocean waters that are designed to protect the water contact and non-contact recreation and shellfish harvesting beneficial uses. The Ocean Plan contains implementation provisions for bacterial characteristics that include water quality monitoring at specified water-contact recreation zones.
3. The Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the Basin Plan: (1) designates beneficial uses for surface waters and groundwaters; (2) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's antidegradation policy; (3) describes implementation programs to protect the beneficial uses of

all waters in the Region; and (4) describes surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan.

4. According to the Basin Plan, Pacific Ocean shorelines at the mouth of the San Diego River (Hydraulic Unit Number 907.11) have designated beneficial uses including, but not limited to, Contact (REC-1) and Non-Contact (REC-2) Water Recreation and Shellfish Harvesting (SHELL). The San Diego River has designated beneficial uses including, but not limited to, REC-1 and REC-2. REC-1 includes uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, whitewater activities, fishing, or use of natural hot springs. REC-2 includes the uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities. SHELL includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sport purposes. The Basin Plan includes numeric water quality objectives for indicator bacteria (total coliform, fecal coliform, *E. coli*, and enterococcus) that are designed to protect the REC-1, REC-2, and SHELL beneficial uses.

Bacteria Impairment and Total Maximum Daily Load (TMDL)

5. In 2002, a significant number of waterbodies throughout the San Diego Region, including the San Diego River, were identified and listed on the Clean Water Act section 303(d) List of Water Quality Impaired Segments as impaired by indicator bacteria. The bacteria concentrations in these waters were impairing or threatening to impair the water quality needed to support the REC-1, REC-2, and SHELL beneficial uses. Although indicator bacteria do not necessarily pose a health risk, their presence is correlated to the presence of human pathogens. Indicator bacteria have been historically used as indicators of human pathogens because bacteria are easier and less costly to measure than the pathogens themselves. Pathogenic viruses, bacteria, and protozoan cysts associated with human fecal material are known to cause illnesses in humans when exposed during contact recreation.
6. On February 10, 2010, the San Diego Water Board adopted a Resolution Amending the Water Quality Control Plan for the San Diego Basin (9) to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek; Bacteria TMDL). The Bacteria TMDL was subsequently approved by the State Water Resources Control Board (State Water Board) on December 14, 2010, the Office of Administrative Law on April 4, 2011, and the United States Environmental Protection Agency (USEPA) on June 22, 2011. Forester Creek (tributary to the San Diego River), the lower six miles of the San Diego River, and the shoreline at the river mouth (aka Dog Beach) are included in the Bacteria TMDL.
7. Resolution No. R9-2010-0001 identifies Responsible Municipalities for complying with the Bacteria TMDL in the San Diego River Watershed as described in Table 1:

Table 1. Responsible Municipalities

| Watershed | Waterbody | Segment or Area | Responsible Municipalities |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mission San Diego Hydrologic Subarea, 907.11 (Mission San Diego HSA) and Santee Hydrologic Subarea, 907.12 (Santee HSA) | Forrester Creek | Lower 1 mile | <ul style="list-style-type: none"> • City of El Cajon • City of Santee • County of San Diego • Caltrans • Owners/operators of small Municipal Storm Separate Sewer Systems* |
| | San Diego River, Lower | Lower 6 miles | <ul style="list-style-type: none"> • City of El Cajon • City of La Mesa • City of San Diego • City of Santee • County of San Diego • Caltrans • Owners/operators of small Municipal Storm Separate Sewer Systems* |
| | Pacific Ocean Shoreline | At San Diego River Mouth at Dog Beach | <ul style="list-style-type: none"> • City of El Cajon • City of La Mesa • City of San Diego • City of Santee • County of San Diego • Caltrans • Owners/operators of small Municipal Storm Separate Sewer Systems* • Padre Dam Municipal Water District |

*Resolution No. R9-2010-0001 includes "Owners/operators of small MS4s" as Responsible Municipalities for complying with the TMDL. As of the date of issuance of this Investigative Order, this list includes San Diego State University and the Metropolitan Transit System.

8. The Bacteria TMDL establishes waste load allocations (WLAs) for point source dischargers of fecal coliform, total coliform, and enterococcus. This includes the owners and operators of municipal separate storm sewer systems (MS4s), the California Department of Transportation (Caltrans), and Padre Dam Municipal Water District (for fecal coliform only). The Bacteria TMDL establishes load allocations (LAs) for non-point sources of fecal coliform, total coliform, and enterococcus, including agricultural and open space land uses (open space land use is considered uncontrollable, i.e., not subject to regulation, and therefore the LA was set equal to current mass loading). In order to account for seasonal variations, the Bacteria TMDL establishes seasonal WLAs and LAs. Wet weather WLAs and LAs were based on the REC-1 single sample maximum water quality objectives and contain an allowable exceedance frequency, and dry weather WLAs and LAs were based on REC-1 geometric mean water quality objectives, with no exceedance frequency allowed. The compliance date to achieve the dry weather TMDLs is April 4, 2021 and the compliance date to achieve the wet weather TMDLs is April 4, 2031. The WLAs and LAs are demonstrated in Tables 2A, 2B, and 2C.

**Bacteria Existing Loads, TMDLs, WLAs, and LAs
Expressed as Monthly Loads
(Billion MPN/month)**

Table 2A. Total - Watershed

| Watershed | Indicator Bacteria | Total Watershed | |
|--------------------------------------|--------------------|----------------------------------|----------------------------------|
| | | Existing Load | TMDL ² |
| | | Wet Weather | |
| Mission San Diego HSA and Santee HSA | Fecal Coliform | 4,932,380 +1,302 ³ | 4,680,838 +1,302 ² |
| | Enterococci | 7,255,759 | 6,590,966 ² |
| | Dry Weather | | |
| | Fecal Coliform | 4,928 +461 ³ | 1,506 +461 ² |
| | Enterococci | 4,106 | 248 ⁴ |

Table 2B. Point Sources – Municipal MS4 and Caltrans

| Watershed | Indicator Bacteria | Point Sources ¹ | | | | | |
|--------------------------------------|--------------------|----------------------------|------------------|--------------------|---------------|------------------|--------------------|
| | | Municipal MS4 | | | Caltrans | | |
| | | Existing Load | WLA ² | Reduction Required | Existing Load | WLA ² | Reduction Required |
| Mission San Diego HSA and Santee HSA | Wet Weather | | | | | | |
| | Fecal Coliform | 472,660 | 221,117 | 53.22% | 1,009 | 1,009 | 0.00% |
| | Enterococci | 1,555,411 | 890,617 | 42.74% | 2,430 | 2,430 | 0.00% |
| | Dry Weather | | | | | | |
| | Fecal Coliform | 4,928 | 1,506 | 69.44% | 0 | 0 | 0.00% |
| | Enterococci | 4,106 | 248 | 93.96% | 0 | 0 | 0.00% |

Table 2C. Nonpoint Sources – Agriculture and Open

| Watershed | Indicator Bacteria | Nonpoint Sources ¹ | | | | | |
|--------------------------------------|--------------------|-------------------------------|-----------------|--------------------|---------------|-----------------|--------------------|
| | | Agriculture | | | Open | | |
| | | Existing Load | LA ² | Reduction Required | Existing Load | LA ² | Reduction Required |
| Mission San Diego HSA and Santee HSA | Wet Weather | | | | | | |
| | Fecal Coliform | 414,721 | 414,721 | 0.00% | 4,043,991 | 4,043,991 | 0.00% |
| | Enterococci | 213,149 | 213,149 | 0.00% | 5,484,770 | 5,484,770 | 0.00% |
| | Dry Weather | | | | | | |
| | Fecal Coliform | 0 | 0 | 0.00% | 0 | 0 | 0.00% |
| | Enterococci | 0 | 0 | 0.00% | 0 | 0 | 0.00% |

- Sources that are not identified are assumed to be assigned a zero-allowable load as part of the mass load based TMDL (i.e., WLA = 0 or LA = 0). In other words, discharges of pollutant loads from these sources are not expected or allowed as part of the TMDLs.
- Wet Weather - TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum water quality objective for fecal coliform (400 MPN/100mL), enterococcus (104 MPN/100mL or 61 MPN/100mL) and a 22 percent allowable exceedance frequency. Dry Weather - TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean water quality objective for fecal coliform (200 MPN/100mL) enterococcus (35 MPN/100mL or 33 MPN/100mL) and a zero percent allowable exceedance frequency for dry weather. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.
- Permitted existing fecal coliform bacteria load from Padre Dam Municipal Water District, assigned as a separate point source wasteload allocation for discharges from Padre Dam Municipal Water District equal to the permitted existing load.
- Total Maximum Daily Load calculated using an enterococcus numeric target of 33 MPN/100mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches.

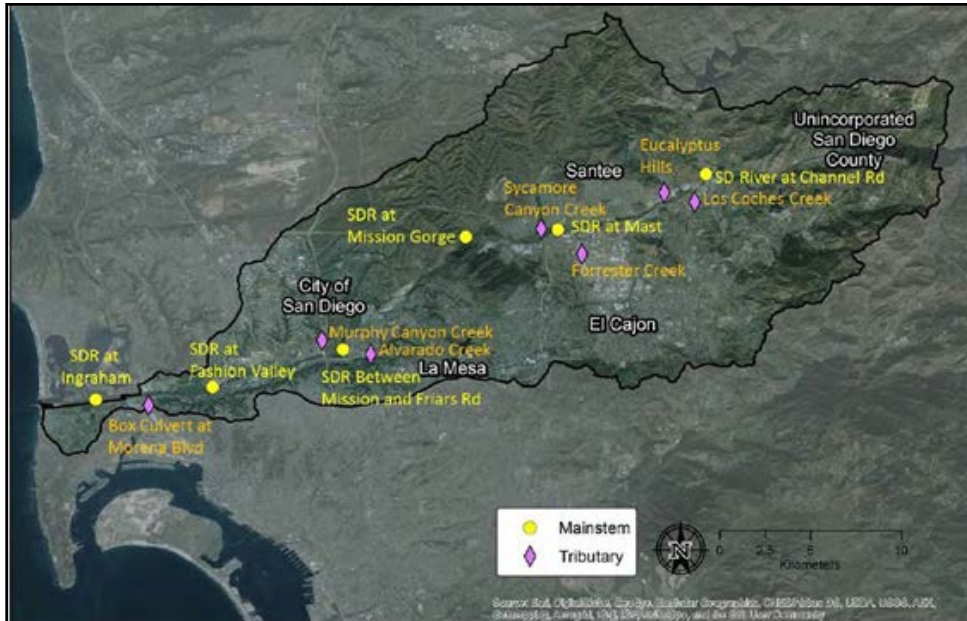
9. At its most recent Basin Plan Triennial Review in May 2015, the San Diego Water Board identified an evaluation of the REC-1 water quality objectives and Methods for Quantifying Exceedances as one of the Board's priority projects. The goal of the project is to (1) determine whether and to what extent data supports amending the implementation provisions for applicable TMDLs, or the TMDLs themselves, and (2) develop recommendations for carrying out such amendments. Results of the evaluation may include amendments to the Bacteria TMDL. At the request of the San Diego Water Board, a Cost-Benefit Analysis, funded by the City of San Diego, the County of San Diego and the County of Orange, was performed to determine the impact of regulations related to improvement of beneficial uses versus best management practices costs.

Presence of Human Fecal Material in the San Diego River Watershed

10. As part of the San Diego Water Board's effort to evaluate water quality objectives and existing TMDLs, including the Bacteria TMDL, the Board considers relevant studies related to pathogenic viruses and emerging technologies for detecting sources of human fecal material, particularly those regarding the protection of the REC-1, REC-2, and SHELL beneficial uses. Recent research suggests that viral pathogens associated with human fecal material, in particular, norovirus, are the primary etiologic agents of swimming associated gastrointestinal illness in the United States. In recent years, the use of "genetic human markers" has proven valuable in detecting human sources of fecal material in receiving waters. Genetic human markers include gene segments of the bacteria that are mostly associated with human feces, not other (i.e., non-human) sources. In recent years, the detection of human markers, especially HF183, has been increasingly used in microbial source tracking studies to provide evidence for a human origin of detected fecal material.
11. In the winters of 2013/2014 and 2014/2015, a Surfer Health Study (SHS) was conducted by the City of San Diego and County of San Diego, in partnership with the Southern California Coastal Water Research Project (SCCWRP), at Ocean Beach (located at the mouth of the San Diego River) and Tourmaline Beach to determine if the REC-1 beneficial use was supported in wet weather by measuring illness rates of surfers after their ocean exposure. Results indicated an increased rate of gastrointestinal illness following ocean exposure compared with not entering the water (25 illnesses/1000 swimmers, vs. 18 illnesses/1000 swimmers). This illness rate increased even further following wet weather (up to 30 illnesses/1000 swimmers). The SHS results do not exceed the most recent USEPA guidance for recreational beaches from 2012, which recommends no more than an average 32 to 36 gastrointestinal illnesses per 1,000 swimmers.
12. Based on the results of the SHS, the Upstream Microbial Source Tracking Study was conducted by SCCWRP during two rain events in January-February 2016 and February 2017, respectively, to evaluate the presence of pathogens and HF183 at five mainstem stations and seven tributary stations in the San Diego River Watershed¹ (Figure 1).

¹ Complete results of these two studies can be found online at http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/943_SurferHealthStudy.pdf

Figure 1 –Surfer Health Study Wet Weather Sampling Locations in the San Diego River



13. Multiple lines of evidence pointed towards human fecal contamination in San Diego River wet weather discharges. During the SHS, actual human pathogens (including norovirus, adenovirus, *Campylobacter*, and *Salmonella*) and HF183 were observed in the San Diego River. In particular, norovirus was detected in 96 percent of the samples and HF183 was detected in 100 percent of the samples. In the upstream source tracking study, norovirus was detected at four stations in 2016 and three stations in 2017, and in both years, HF183 was detected in 100 percent of samples at all 12 stations in the San Diego River Watershed. The maximum concentrations of norovirus and HF183 observed in these studies were up to 495 copies/100ml and 16,240 copies/100ml, respectively (see Table 3). The high frequencies of pathogen and HF183 detections, together with their relatively high concentrations, point towards broadly distributed human fecal contamination in the San Diego River Watershed, with wet weather discharges presenting an ongoing risk to the health of surfers and shellfish consumers at Ocean Beach following storm events.

Table 3. Pathogen and Human Marker Results of Surfer Health Study and Upstream Microbial Source Tracking Study

| Category | | Surfer Health Study | | Upstream Source Tracking | | | |
|--------------|--------------------------|-------------------------------------|-------------------------|-------------------------------------|-------------------------|-------------------------------------|----------------------------|
| | | | | 2016 | | 2017 | |
| | | Detection Frequency ^{a, f} | Max. Conc. ^d | Detection Frequency ^{a, b} | Max. e. ^{c, d} | Detection Frequency ^{a, b} | Max. Conc. ^{d, e} |
| Pathogen | Norovirus | 96 | 495 | 33 | 280 | 25 | 168 |
| | Adenovirus | 22 | 42 | N/A | N/A | N/A | N/A |
| | <i>Campylobacter sp.</i> | 100 | 1,136 | N/A | N/A | N/A | N/A |
| | <i>Salmonella</i> | 25 | 14 | N/A | N/A | N/A | N/A |
| | Enterovirus | 0 | N/A | 16 | 470 | N/A | N/A |
| Human Marker | HF183 | 100 | 3,363 | 100 | 16, 240 | 100 | 5,971 |

a Method Detection Limits are 3 copies/100 ml.

b Percent, n = 12 stations.

c Maximum concentrations were observed at the Morena Boulevard outfall.

d Gene copies/100 mL.

e Maximum concentrations were observed at the Morena Boulevard outfall for Norovirus and the Los Coches tributary for HF183.

f. Percent, n = 23 samples from one station.

14. The discharge of human fecal material to the environment likely originates from various sources and may occur through a number of transport pathways, including but not limited to:

- Sanitary sewer overflows from publicly-owned sewer collection systems;
- Sewage spills from privately-owned lateral sewer lines;
- Exfiltration from publicly-owned sanitary sewer collection systems, privately-owned lateral sewer lines, and privately-owned on-site wastewater treatment systems (OWTS);
- Illegal connections to MS4s;
- Illicit discharges to MS4s; and
- Direct deposition from homeless encampments.

To a lesser extent, pathogens and human fecal material (as measured by HF183) may also be present in treated effluent from wastewater treatment plants discharging to land or surface waters in the San Diego River Watershed.

The San Diego Water Board’s regulatory oversight over these possible sources and pathways of human fecal material to the San Diego River are described in the following Findings.

Efforts to Protect Human Health and the San Diego River Watershed

15. In an ongoing effort to reduce human health risk associated with human pathogens and comply with the Bacteria I Total Maximum Daily Load (Bacteria I TMDL), the City of San Diego, in coordination with the County of San Diego, has taken, or is planning, actions to identify and

quantify the sources and transport pathways of human fecal material in the San Diego River Watershed. This includes conducting the SHS with the County of San Diego and in partnership with SCCWRP. In addition, the City of San Diego completed the first wet weather epidemiology and quantitative microbial risk assessment (QMRA) in the Tecolote Creek Watershed that led to follow-up studies that identified and eliminated some sources of human fecal material.

16. In 2017, the City of San Diego increased efforts to remove trash and human pathogens throughout the City of San Diego through its “Clean SD” program and in response to the hepatitis A outbreak emergency. Under the Clean SD program, the City of San Diego increased the frequency of waste abatements and removal of trash and debris, including some with human fecal material, from the San Diego River and its tributaries and in nine other areas in the City. Streets, sidewalks and other public areas were regularly cleaned and disinfected in an effort designed to reduce potential exposure to public health. The City reports that these efforts are ongoing and will continue in the future.

Similar efforts by the City of Santee, City of El Cajon, City of La Mesa, County of San Diego, and Caltrans were taken to remove trash and human pathogens in response to the hepatitis A outbreak emergency.

17. Also in 2017, following completion of the SHS, the Upstream Microbial Source Tracking Study in the San Diego River Watershed, and the City of San Diego’s QMRA study in the Tecolote Creek Watershed, the City of San Diego and the County of San Diego with SCCWRP initiated a 3-year study to identify potential sources of human fecal material from a variety of sources in the San Diego River Watershed. The San Diego Water Board supports the City of San Diego and County of San Diego efforts to proactively initiate this study.
18. The activities of the City of San Diego, the City of Santee, the City of El Cajon, the City of La Mesa, the County of San Diego and Caltrans, as described in Findings 14-16 above, represent initial steps towards compliance with the technical and monitoring reporting requirements of Investigative Order No. R9-2018-0021 (Investigative Order).

Sanitary Sewer Collection Systems

19. Sanitary sewer collection systems are designed to collect raw domestic and industrial wastewater from various sources and to convey that wastewater to treatment facilities. Because domestic wastewater is primarily comprised of human waste, it contains human fecal material, bacteria, and illness-causing pathogens. Sanitary sewer collection systems are subject to the following Basin Plan waste discharge prohibitions:
- The discharge of waste to waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in Water Code section 13050, is prohibited.
 - The discharge of waste to land, except as authorized by WDRs or the terms described in Water Code section 13264 is prohibited.
 - The unauthorized discharge of treated or untreated sewage to waters of the State or to a storm water conveyance system is prohibited.

20. Sanitary sewer collection systems are regulated by Order No. R9-2007-0005, *Waste Discharge Requirements for Sewage Collection Agencies in the San Diego Region*, and by Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*. All or a portion of the sanitary sewer collection systems for the following entities are located within the San Diego River Watershed: the City of San Diego, the San Diego County Sanitation District, the City of El Cajon, the City of La Mesa, San Diego State University, and Padre Dam Municipal Water District. Waste discharges from these entities are therefore subject to the requirements of Order Nos. R9-2007-0005 and 2006-0003-DWQ.
21. Order No. R9-2007-0005, adopted by the San Diego Water Board on February 14, 2007, prohibits the discharge of waste to land, except as authorized by WDRs or Water Code section 13264. Provision B.1. of Order No. R9-2007-0005 states that the discharge of sewage from a sanitary sewer system at any point upstream of a sewage treatment plant is prohibited.
22. Order No. 2006-0003-DWQ, adopted by the State Water Board on May 2, 2006, and amended on September 9, 2013, contains the following prohibitions:
- Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.
 - Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in Water Code section 13050(m) is prohibited.
23. Order No. 2006-0003-DWQ requires Sewer Collection Agencies² to develop and implement a Sewer System Management Plan (SSMP) to reduce or eliminate Sanitary Sewer Overflows (SSOs). Sanitary sewer collection systems are designed to collect wastewater from a variety of sources and to convey that wastewater to treatment facilities. Although SSMPs are implemented by Sewer Collection Agencies, sanitary sewer systems are nonetheless susceptible to exfiltration³ and SSOs⁴, both of which allow pathogens and other pollutants to enter the environment and discharge into downstream receiving waters.

² Sewer Collection Agencies are federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California.

³ Exfiltration refers to the migration of wastewater from the sanitary sewer collection system to the surrounding environment through joints or breaks in the collection system or through the material making up the system itself (e.g. vitrified clay pipe (VCP)). Exfiltration may be related to construction practices, infrastructure deterioration, inadequate preventive maintenance programs, or insufficient planned system rehabilitation or replacement programs which have resulted in deteriorated pipes, manholes, and pump stations that allow sewage containing high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oil, and grease to exit the systems and contaminate adjacent ground and surface waters, and/or enter the storm drain.

⁴ A SSO is any unintended release of wastewater from a sanitary sewer collection system to the surrounding environment (e.g. onto land or into storm drains or surface waters). SSOs are typically caused by blockages in the collection system (e.g. grease or root blockages), damages to the collection system (e.g. failure of a slope causing exposure and breakage of the collection system), structural or material failures, pump station mechanical failures or power outage, lack of capacity (e.g. inflow and infiltration), and vandalism.

24. Consistent with Order No. 2006-0003-DWQ, any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system that results in a discharge of untreated or partially treated wastewater to waters of the United States or creates a nuisance as defined in Water Code section 13050(m) is prohibited.
25. The City of San Diego owns and operates a sanitary sewer collection system comprised of approximately 3,000 miles of gravity sewers in total; the collection system is located in the following watersheds: San Dieguito River, Peñasquitos, Mission Bay/La Jolla, San Diego River, San Diego Bay, and Tijuana River.
- Exfiltration* - The City of San Diego has not reported, to the San Diego Water Board, any estimation regarding the exfiltration of wastewater from the sanitary sewer collection system to the San Diego River Watershed.
 - SSOs - Between October 1, 2013 and October 1, 2017, the City of San Diego reported 136 SSOs totaling 7,677,091 gallons of sewage from the sewage collection system and 191 private lateral spills totaling 77,819 gallons of sewage from private laterals. The data reported by the City of San Diego represents SSOs and private lateral spills over the entire sewer collection system in all six watersheds.
26. The San Diego County Sanitation District owns and operates a sanitary sewer collection system comprised of approximately 400 miles of gravity sewers in total; the collection system is located in the San Diego River, San Diego Bay, and Tijuana River Watersheds.
- Exfiltration* - The San Diego County Sanitation District has not reported, to the San Diego Water Board, any estimation regarding the exfiltration of wastewater from the sanitary sewer collection system to the San Diego River Watershed.
 - SSOs - Between October 1, 2013 and October 1, 2017, the San Diego County Sanitation District reported 9 SSOs totaling 908,311 gallons of sewage from the sewage collection system occurring in the San Diego River Watershed. The San Diego County Sanitation District did not report any spills from private laterals occurring in the San Diego River Watershed during this time frame.
27. The City of El Cajon owns and operates a sanitary sewer collection system comprised of approximately 200 miles of gravity sewers within the San Diego River Watershed. The system is located entirely within the San Diego River Watershed.
- Exfiltration* - The City of El Cajon has not reported, to the San Diego Water Board, any estimation regarding the exfiltration of wastewater from the sanitary sewer collection system to the San Diego River Watershed.
 - SSOs - Between October 1, 2013 and October 1, 2017, the City of El Cajon reported 8 SSOs totaling 1,760 gallons of sewage from the sewage collection system and 49 spills from private laterals totaling 28,602 gallons of sewage from private laterals.
28. The City of La Mesa owns and operates a sanitary sewer collection system comprised of approximately 150 miles of gravity sewers located within the San Diego Bay and San Diego River Watersheds.

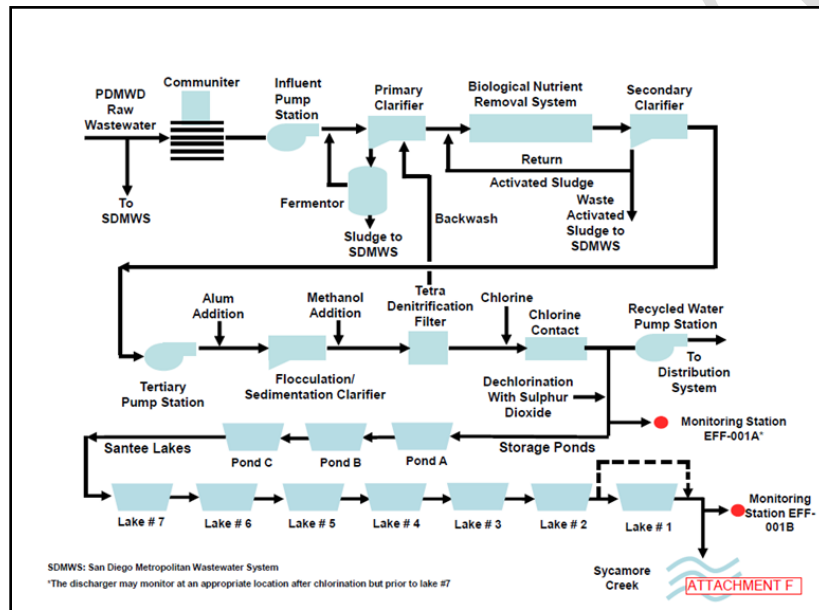
- a. *Exfiltration* - The City of La Mesa has not reported, to the San Diego Water Board, any estimation regarding the exfiltration of wastewater from the sanitary sewer collection system to the San Diego River Watershed.
 - b. SSOs - Between October 1, 2013 and October 1, 2017, the City of La Mesa reported 73 SSOs totaling 12,910 gallons of sewage from the sewage collection system and 35 spills from private laterals totaling 3,088 gallons of sewage. The data reported by the City of La Mesa represents SSOs and sewage spills from private laterals over the entire sewer collection system in both watersheds.
29. San Diego State University owns and operates a sanitary sewer collection system comprised of approximately 6 miles of gravity sewers, located entirely in the San Diego River Watershed.
- a. *Exfiltration* – San Diego State University has not reported, to the San Diego Water Board, any estimation regarding the exfiltration of wastewater from the sanitary sewer collection system to the San Diego River Watershed.
 - b. SSOs - Between October 1, 2013 and October 1, 2017, San Diego State University reported 4 SSOs totaling 5,920 gallons of sewage from its sewage collection system, all of which occurred in the San Diego River Watershed.
30. Padre Dam Municipal Water District owns and operates a sanitary sewer collection system comprised of approximately 160 miles of gravity sewers in the City of Santee, the City of El Cajon, and the unincorporated community of Lakeside in the San Diego River Watershed. The collection system is located entirely within the San Diego River Watershed.
- a. *Exfiltration* - Padre Dam Municipal Water District has not reported, to the San Diego Water Board, any estimation regarding the exfiltration of wastewater from the sanitary sewer collection system to the San Diego River Watershed.
 - b. SSOs -Between October 1, 2013 and October 1, 2017, Padre Dam Municipal Water District reported 7 SSOs totaling 654 gallons of sewage from the sewage collection system and 28 spills from private laterals totaling 10,395 gallons of sewage from private laterals occurring within the San Diego River Watershed.
31. All of the permittees discharging to the San Diego River and named in Order Nos. R9-2007-0005 and 2006-0003-DWQ have developed and implemented a SSMP. The SSMPs include routine line cleaning and cyclic inspection programs, including the use of closed circuit television to identify repairs or maintenance needs. Despite implementation of these preventative measures, SSOs are known to occur as described in Findings 25-30.

Publicly-Owned Treatment Works

32. Publicly-owned treatment works (POTWs) refer to wastewater treatment plants owned by a government agency. The term includes systems used for the storage, treatment, and recycling of municipal wastewater. In the San Diego River Watershed, there is one POTW that is authorized to discharge to receiving waters: the Ray Stoyer Water Recycling Facility (Ray Stoyer WRF), and one POTW that is authorized to discharge to land (where the effluent is not intended to be reused): Julian Water Pollution Control Facility, owned and operated by the San Diego County Sanitation District.

Order No. R9-2015-0002, *Waste Discharge Requirements for the Padre Dam Municipal Water District, Ray Stoyer Water Recycling Facility Discharge to Sycamore Creek*, was adopted by the San Diego Water Board on May 13, 2015, and amended by Order No. R9-2016-0099 on June 22, 2016. Padre Dam Municipal Water District is the owner and operator of the Ray Stoyer WRF, a tertiary POTW that discharges up to 2 million gallons per day of effluent to Sycamore Creek. The treatment process at the Ray Stoyer WRF consists of primary clarification, a five-stage Bardenpho process, secondary clarification, alum and polymer addition, flocculation, sedimentation, denitrification, chlorine disinfection, and dechlorination. After dechlorination, effluent flows through a series of three holding ponds and Santee Lakes, which are considered a continuation of the treatment system (stabilizing the quality of the effluent by reducing the total nitrogen concentrations). This process is shown in Figure 2.

Figure 2. Schematic of Treatment Processes at Ray Stoyer Water Recycling Facility



33. Order No. R9-2015-0002 (as amended) contains effluent limitations for total coliform, fecal coliform, enterococci, and E-coli at Monitoring Location EFF-001A (the discharge from the chlorination system to the first holding pond). Monitoring for total coliform, fecal coliform, enterococci, and E-coli occurs at Monitoring Location EFF-001A and Monitoring Location EFF-001B (the discharge from Santee Lakes to Sycamore Creek). Order No. R9-2015-0002 (as amended) also contains receiving water limitations for total coliform, fecal coliform, enterococci, and E-coli. Monitoring for total coliform, fecal coliform, and enterococci is required upstream and downstream of the discharge point in Sycamore Creek.
34. In accordance with its permit, if effluent and receiving water monitoring data demonstrates that the Ray Stoyer WRF is causing or contributing to exceedances of indicator bacteria, then the Padre Dam Municipal Water District must develop an Action Plan to detail the causes of the exceedances and operational changes to minimize the impact of these causes. An Action Plan must be implemented and submitted to the San Diego Water Board within six months of the first determination that the Facility is causing or contributing to downstream exceedances of receiving water limitations for indicator bacteria.

35. Order No. 83-09, *Waste Discharge Requirements for Julian Sanitation District, County of San Diego*, was adopted on July 18, 1983. The County of San Diego Department of Public Works owns and operates the Julian Water Pollution Control Facility (Julian WPCF). Order No. 83-09 establishes requirements for the treatment and disposal of up to 40,000 gallons of secondary treated wastewater from the Julian WPCF.
36. Treated wastewater from the Julian WPCF is discharged to a spray irrigation/disposal field. The Julian WPCF is located in the Inaja Hydrologic Subarea (907.41) which is located within the San Diego River Watershed.
37. Section A. 1 of Order No. 83-09 prohibits the disposal of wastewater in a manner that would result in ponding or surfacing of wastewater on lands beyond the disposal area as defined in the Report of Waste Discharge. Section A.6.h of Order No. 83-09 also specifies that the discharge of wastewater or sludge shall not cause a surface flow in the San Diego River or its tributaries.
38. Effluent from the Ray Stoyer Water Recycling Facility and the Julian WPCF is not measured for the presence of the HF183 human genetic marker. Therefore, the degree to which effluent from these facilities may be causing or contributing to measurable levels of HF183 in the San Diego River or its tributaries is unknown.

Municipal Separate Storm Sewer Systems (MS4s)

39. During rain events, urban storm water runoff is transported by gravity flow through a vast network of roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, storm drains, concrete channels and underground pipes referred to as storm water conveyance systems, also known as storm drain systems or MS4s. Such systems ultimately discharge the runoff, which carries pollutants, into receiving waters often with little or no treatment. Storm water runoff typically carries pollutants such as sediment, nutrients, oxygen-demanding substances (e.g., decaying vegetation), heavy metals, pesticides, and illness-causing bacteria and pathogens. The San Diego Water Board regulates the quality of discharges from MS4s through issuance of NPDES permits to the owners and operators of MS4s. The overall objective of the storm water permitting program is to reduce or eliminate the discharge of pollutants into and out of the storm water conveyance system.
40. Owners and operators of MS4s in the San Diego River Watershed that are identified in the Bacteria TMDL as responsible for complying with WLAs, as described in Table 1, include the cities of El Cajon, La Mesa, San Diego, Santee, the County of San Diego, Caltrans, and owners and operators of small MS4s (at the time of issuance of this Investigative Order, this includes San Diego State University and Metropolitan Transit System). These dischargers are regulated by Order No. R9-2013-0001 (as amended), Order No. 2013-0001-DWQ, and Order No. 2012-0011-DWQ (as amended).
41. Order No. R9-2013-0001 (as amended), *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region*, was adopted by the San Diego Water Board on May 8, 2013, and amended on February 11, 2015 and November 18, 2015. Order No. R9-2013-0001 (as amended) is issued to the following municipalities in the San Diego River Watershed: the Cities of San Diego, Santee, El Cajon, and La Mesa, and the County of San Diego (Copermittees).

42. Order No. R9-2013-0001 (as amended) requires Copermittees to effectively prohibit non-storm water discharges into the Copermittees' MS4s, and reduce pollutants in storm water discharges from the Copermittees' MS4s to the maximum extent practicable (MEP). Provision E.1.a.(1) states that "Each Copermittee must establish, maintain, and enforce adequate legal authority to control pollutant discharges into and from its MS4... [and that] this legal authority must authorize the Copermittee to prohibit and eliminate all illicit discharges and illicit connections to its MS4." Provision E.2 describes requirements related to the detection and elimination of illicit discharges to the MS4:

- Provision E.2.b.(4): "Each Copermittee must implement practices and procedures (including a notification mechanism) to prevent, respond to, contain, and clean up any spills that may discharge into the MS4 within its jurisdiction from any source. The Copermittee must coordinate, to the extent possible, with spill response teams to prevent entry of spills into the MS4, and prevent contamination of surface water, ground water, and soil. The Copermittee must coordinate spill prevention, containment, and response activities throughout all appropriate Copermittee departments, programs, and agencies.
- Provision E.2.b.(5): "Each Copermittee must implement practices and procedures to prevent and limit infiltration of seepage from sanitary sewers (including private laterals and failing septic systems) to the MS4."
- Provision E.2.b.(6): "Each Copermittee must coordinate, when necessary, with upstream Copermittees and/or entities to prevent illicit discharges from upstream sources into the MS4 within its jurisdiction."

These provisions require that Copermittees implement controls and measures to prevent infiltration of sewage into the MS4 from leaking sanitary sewers and to prevent illegal dumping. This can be particularly challenging because identifying and locating certain illicit connections to the MS4, such as from private sewer laterals, are difficult to detect. Similarly, instances of illegal dumping are difficult to predict and prevent. Copermittees that do not operate both a sewage collection system and a MS4 must coordinate with Sewage Collection Agencies to keep themselves informed of relevant and appropriate maintenance activities and other improvement projects taking place in their jurisdiction that may cause or contribute to seepage of sewage into the MS4.

43. Order No. 2013-0001-DWQ, *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)* was adopted by the State Water Board on February 5, 2013. San Diego State University enrolled under Order No. 2013-0001-DWQ on October 7, 2013. On February 8, 2017, the San Diego Water Board designated Metropolitan Transit System as a discharger subject to Order No. 2013-0001-DWQ, and as a result, Metropolitan Transit System is in the process of obtaining permit coverage. Both of these dischargers are located in the San Diego River Watershed.

44. Provision C of Order No. 2013-0001-DWQ states that "[p]ermittees shall implement controls...to reduce the discharge of pollutants from their MS4s to waters of the United States to the MEP." Provisions F.5.a.1.(ii)(a) and F.5.a.1.(ii)(b) require permittees to have adequate legal authority to 1) effectively prohibit non-storm water discharges through the MS4, and 2) detect and eliminate illicit discharges and illegal connections to the MS4. As owners and operators of small MS4s that are responsible for complying with the Bacteria TMDL WLAs, San

Diego State University and Metropolitan Transit System must reduce bacteria loading to the San Diego River Watershed using their legal authority described above by the compliance schedule described in the Bacteria TMDL.

45. Order No. 2012-0011-DWQ (as amended), *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements (WDRs) for State of California Department of Transportation*, was adopted by the State Water Board on September 19, 2012, and amended on January 17, 2014, May 20, 2014, and April 7, 2015. Order No. 2012-0011-DWQ (as amended) requires storm water discharges from Caltrans' MS4 containing pollutants that have not been reduced to the MEP, be prohibited. Provision B.1 of Order No. 2012-0011-DWQ requires that [Caltrans] shall effectively prohibit non-storm water discharges into its storm water conveyance system unless such discharges are either: a) authorized by a separate NPDES permit; or b.) conditionally exempt in accordance with provision B.2. of this NPDES permit.

Homeless Encampments

46. Although not specifically identified in San Diego Water Board or State Water Board-issued MS4 permits, the presence of illegal homeless encampments and transient populations in public spaces such as parks, under transportation overpasses, and riparian area corridors present a challenge to MS4 permittees. According to the San Diego River Park Foundation's 2016 survey, there were approximately 116 encampments, or 290 individuals living along the mainstem of the San Diego River from the City of Santee to western Mission Valley.⁵ The encampments from the 2016 survey are demonstrated in Figures 3 and 4. Many encampments exist on public right-of-way areas, including those owned by Caltrans. Encampments may also exist on property owned by San Diego State University and Metropolitan Transit System.

Assuming that individuals living in the San Diego River are not regularly using restroom facilities, they are likely defecating outdoors, resulting in a discharge of human fecal material to the watershed tributary to the San Diego River or directly into the San Diego River. This is an illicit discharge that must be eliminated per Provision E.2.d of Order No R9-2013-0001, Provision C of Order No. 2013-0001-DWQ, and Provision B.1 of Order No. 2012-0011-DWQ. The Copermitees regulated by Order No. R9-2013-0001, San Diego State University, Metropolitan Transit System, and Caltrans must use their land use and enforcement authority to prevent and eliminate illicit discharges to the MS4, including discharges from homeless encampments. This requirement pertains to the San Diego River because urban streams such as the San Diego River are considered both an MS4 and a receiving water per Finding 11 of Order No. R9-2013-0001. Municipalities typically have the legal authority to prevent habitation of public open space areas in their municipal code and can thus prevent such illicit discharges.

⁵ Email from Shannon Quigley-Raymond, San Diego River Park Foundation, to Helen Yu, San Diego Water Board, dated November 3, 2017.

Figure 3. Map of Homeless Encampments in San Diego River

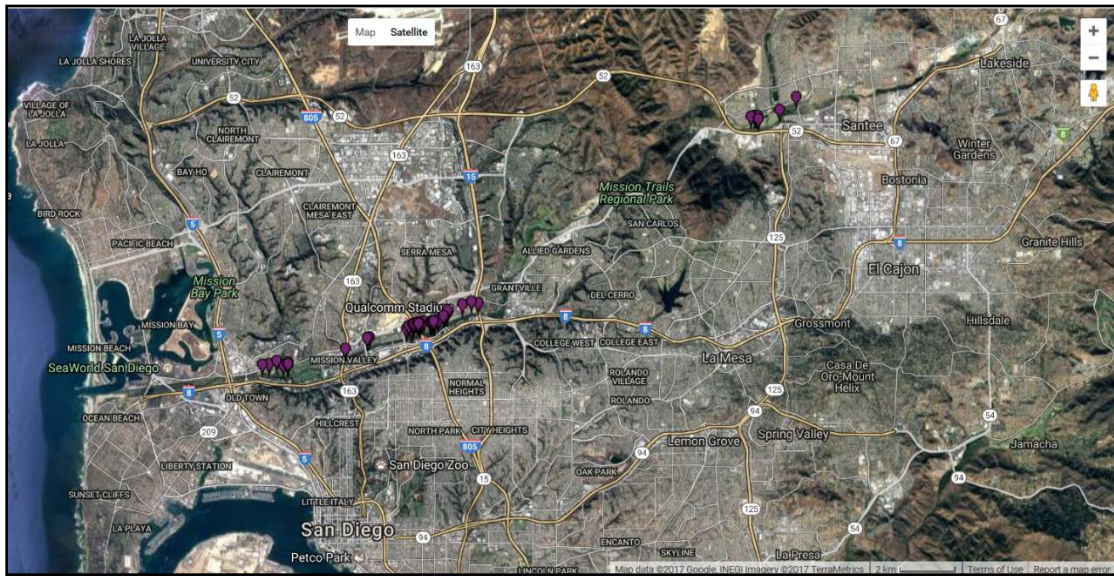
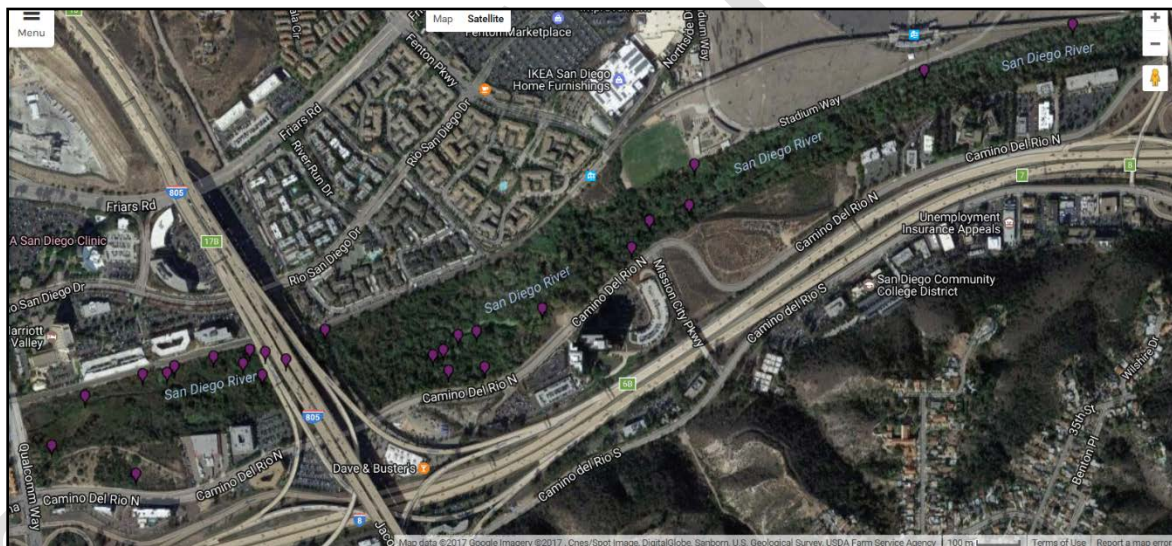


Figure 4. Close-up of Encampments located between I-15 and Qualcomm Way



Source: www.immapler.com/sandiego16

Recycled Water Systems

47. Recycled water means water which, because of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource. (Water Code section 13050(n)). In the San Diego River Watershed, recycled water is primarily used for landscape irrigation. The San Diego Water Board has issued WDRs to three recycled water purveyors in the San Diego River Watershed, as described in the following Findings. These WDRs implement statewide water recycling criteria contained in California Code of Regulations, title 22, division 4, chapter 3 (hereafter title 22). The WDRs allow the discharge of recycled water to land, but prohibit the discharge of recycled water runoff from end use application areas to surface waters.
48. The Padre Dam Municipal Water District is regulated under Order No. 97-49, *Waste Discharge Requirements and Water Recycling Requirements for the Production and Purveyance of Recycled Water for Padre Dam Municipal Water District*, adopted by the San Diego Water Board on December 10, 1997. Order No. 97-49 establishes WDRs for the treatment and distribution of up to 2.0 million gallons per day of disinfected tertiary recycled water⁶ from the Ray Stoyer WRF. Disinfected tertiary recycled water produced from the Ray Stoyer WRF is used mainly for landscape irrigation at use sites within the Santee HSA and the El Cajon Hydrologic Subarea, 907.13 (El Cajon HSA) which are located within the San Diego River Watershed. Padre Dam Municipal Water District also discharges recycled water to Santee Lakes which flows to Sycamore Creek (a tributary of the San Diego River). Padre Dam Municipal Water District reported that about 642 acre-feet of recycled water was used for landscape irrigation at use sites located in Santee and El Cajon HSAs in 2015.
49. The Ramona Municipal Water District is regulated under Order No. R9-2009-0005 (as amended), *Master Reclamation Permit for Ramona Municipal Water District San Vicente Wastewater Treatment Plant*, adopted by the San Diego Water Board on March 11, 2009. Order No. R9-2009-0005 establishes requirements for the treatment and distribution of recycled water from the San Vicente Water Reclamation Facility (San Vicente WRF). Recycled water produced from the San Vicente WRF is used for landscape irrigation at the San Vicente Golf Course and for irrigation of groves at Spangler Peak Ranch. The San Vicente Golf Course and Spangler Peak Ranch are located in the Gower Hydrologic Subarea, 907.23 which is in the San Diego River Watershed. Disinfected tertiary recycled water is used for landscape irrigation at the San Vicente Golf Course. Disinfected tertiary recycled water is typically used for irrigation of groves at Spangler Peak Ranch, however, pursuant to Order No. R9-2009-0005 disinfected secondary-2.2 recycled water⁷ can be used for irrigation at the Spangler Peak Ranch. Ramona

⁶ Disinfected tertiary recycled water is filtered and disinfected to meet criteria specified in section 6031.230 of title 22. Section 60301.230 of title 22 also specifies that the median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an Most Probable Number of 2.2 per 100 milliliters (mL) utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 mL in more than one sample in any 30-day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 mL.

⁷ Pursuant to section 60301.220 of title 22, "disinfected secondary-2.2 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a MPN of 2.2 per 100 mL utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period.

Municipal Water District reported that about 425 acre-feet of recycled water was used for irrigation at San Vicente Golf Course and Spangler Peak Ranch in 2015.

50. The City of San Diego is regulated under Order No. R9-2015-0091, *Master Recycling Permit for the City of San Diego North City Water Reclamation Plant*, adopted by the San Diego Water Board on December 16, 2015. Order No. R9-2015-0091 establishes requirements for the treatment and distribution of disinfected tertiary recycled water from the North City Water Reclamation Plant. Order No. R9-2015-0091 identifies the Mission San Diego HSA as one of the hydrologic subareas in which recycled water from the North City Water Reclamation Plant could potentially be used; however, the City of San Diego has not reported any recycled water use within the Mission San Diego HSA.
51. Recycled water produced and distributed by Padre Dam, the Ramona Municipal Water District, and the City of San Diego is typically in compliance with discharge specifications for total coliform bacteria specified in Master Recycling Permits and treatment criteria for total coliform bacteria specified in title 22. Disinfection and filtration requirements specified in title 22 are intended to ensure treatment, removal, and inactivation of bacteria and other pathogens to levels protective of human health. Recycled water, including residual levels of bacteria or pathogens, is primarily intended for landscape irrigation and is prohibited from being discharged to surface waters, including the San Diego River.
52. The Master Recycling Permits issued to the aforementioned recycled water agencies require the agencies to conduct periodic inspections of end use areas and prevent overwatering and excessive runoff from the end use areas. These measures are intended to ensure recycled water is used in a manner that is protective of public health and water quality, and to ensure compliance with the discharge prohibition to surface waters.
53. Disinfection and treatment to tertiary standards, as required by the Master Recycling Permits, results in the removal and inactivation of bacteria and pathogens to levels protective of human health, as measured by the presence or absence of total coliform. However, the effluent is not measured for the presence of the HF183 human genetic marker. Therefore, the degree to which effluent from these facilities may be causing or contributing to measurable levels of HF183 in the San Diego River or its tributaries is unknown.

On-site Wastewater Treatment Systems (OWTS)

54. OWTS, also known as septic systems, are used to treat domestic wastewater from residences and commercial establishments in the San Diego River Watershed that are not connected to community sewer systems and municipal wastewater treatment plants. Because domestic wastewater is primarily comprised of human waste, it contains human fecal material, bacteria, and illness-causing pathogens.
55. The State Water Board adopted the *Water Quality Control Plan for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy)* on June 19, 2012. The OWTS Policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS installations and replacements, and establishes the level of performance and protection expected from OWTS. The San Diego Water Board adopted Resolution No. R9-2015-0008 on April 15, 2015, *a Basin Plan amendment which incorporated the OWTS Policy into the Basin Plan*. The Basin Plan amendment was approved by the State

Water Board on November 17, 2015, and approved by the Office of Administrative Law on May 17, 2016, and became effective on the same day.

56. The OWTS Policy includes a conditional waiver of WDRs, which allows the San Diego Water Board to waive WDRs for qualifying OWTS and defer regulation of qualifying OWTS in San Diego County to the County of San Diego Department of Environmental Health (County DEH). According to County DEH, there are approximately 17,000 OWTS located in the San Diego River Watershed that are regulated under the conditional waiver of WDRs.
57. Pursuant to the OWTS Policy, the County DEH has developed a Local Agency Management Plan (LAMP).⁸ The LAMP contains the County DEH's criteria for design, siting, installation, and management of OWTS. OWTS with design flows of 10,000 gallons per day or less are regulated by the County DEH under the LAMP. Projects proposing OWTS with design flows greater than 10,000 gallons per day are required to submit a report of waste discharge to the San Diego Water Board to obtain WDRs. As of the date of this Investigative Order, the San Diego Water has not issued WDRs to any OWTS within the San Diego River Watershed.
58. The OWTS Policy and LAMP both establish setback distances to be maintained between wastewater treatment components and wastewater dispersal areas and surface waters. Setbacks are included as a means of reducing pathogenic risks by coupling pathogen inactivation rates with groundwater travel time to a well or other potential exposure route (e.g. water contact activities). Setbacks also provide attenuation of other wastewater constituents through physical, chemical, and biological processes. Section 11.4 of the OWTS Policy specifies that any OWTS that has affected, or will affect, groundwater or surface water to a degree that makes it unfit for drinking or other uses, or is causing a human health or other public nuisance condition shall be modified or upgraded to abate its impact. Section 11.1 of the OWTS Policy also requires property owners to repair or replace any OWTS that has pooling effluent or that discharges effluent to the ground surface.
59. Similarly, to sanitary sewage collection systems, OWTS are susceptible to exfiltration of untreated sewage to the surrounding environment due to material age and deterioration, and inadequate preventative maintenance.

Expectations for Interim Remedial Actions

60. The Dischargers shall continue to take all steps necessary to reduce, eliminate or prevent the unauthorized discharges described in this Investigative Order within their jurisdiction through compliance with applicable WDRs and NPDES permits, including the full use of their separate legal authorities, statutes, ordinances, permits, contracts or similar means to require compliance.

Basis for Requiring Technical and Monitoring Reports

61. Water Code section 13267 provides that the San Diego Water Board may require dischargers, past dischargers, or suspected dischargers to furnish those technical or monitoring reports as the San Diego Water Board may specify, provided that the burden, including costs, of these

⁸ The County DEH's LAMP was approved by the San Diego Water Board by letter dated, April 29, 2015.

reports, must bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

62. The technical and monitoring reports required under this Investigative Order are needed because human fecal material, as indicated by HF183 and pathogens, are present in surface waters of the San Diego River Watershed. Information is needed to: (1) identify and quantify the relative contributions of suspected sources of human fecal material to the San Diego River, and (2) determine if the management measures in use by the various dischargers in their respective programs are adequately addressing the REC-1, REC-2, and SHELL beneficial use impairments caused by the presence of human fecal material in the San Diego River, its tributaries, and the downstream beach coastal waters. With the required information, the San Diego Water Board expects to be able to effectively evaluate the need and scope necessary to consider, if appropriate, amendments to the Bacteria TMDL and modify permits issued by the San Diego Water Board, to reduce instances of human fecal material reaching surface waters, thereby reducing water quality impairments. While the costs of this investigation, which is anticipated to include complex and resource-intensive studies, cannot be known with any certainty, the burden of incurred costs are expected to be reasonable and bears a reasonable relationship to the benefits to water quality and human health to be gained considering the significant sources and serious health risks. In large part, the monitoring required under this Investigated Order is consistent with the scope of what is required in the NPDES permits, and WDRs cited in previous Findings.

Water Code section 13383, subdivision (a), authorizes the San Diego Water Board to establish monitoring and reporting requirements, for persons who discharge or propose to discharge waste to surface waters or to owners/operators of POTWs that treat domestic sewage.

California Environmental Quality Act

63. The issuance of this Investigative Order is an enforcement action taken by a regulatory agency and is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to section 15321(a) (2), chapter 3, title 14 of the California Code of Regulations (CCR). This action is also exempt from the provisions of CEQA in accordance with section 15061(b)(3) of chapter 3, title 14 CCR because it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment. Issuance of this Investigative Order is also exempt from CEQA under section 13389 of the Water Code.

Qualified Professionals

64. The Dischargers' reliance on qualified professionals promotes proper planning, implementation, and long-term cost-effectiveness of investigations. Professionals should be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under direction of licensed professionals.

Order Directives

IT IS HEREBY ORDERED, pursuant to Water Code section 13267 and 13383,⁹ that the Cities of San Diego, Santee, El Cajon, La Mesa, the County of San Diego, the San Diego County Sanitation District, the Padre Dam Municipal Water District, the Ramona Municipal Water District, San Diego State University, Metropolitan Transit System, and the California Department of Transportation (Dischargers) must submit to the San Diego Water Board:

Technical and Monitoring Reports

1. **Investigation to Identify Sources of Human Fecal Material Discharges in the San Diego River Watershed.** No later than **June 30, 2022**, the Dischargers must submit the results (Final Investigative Study Report) of an investigative study, or studies, to identify and quantify sources of human fecal material discharges to the San Diego River and its tributaries.

Suspected sources or pathways of human fecal material discharges to the San Diego River are described in Finding 14 and restated below:

- Sanitary sewer overflows from publicly-owned sewer collection systems;
- Sewage spills from privately-owned lateral sewer lines;
- Exfiltration from publicly-owned sanitary sewer collection systems, privately-owned lateral sewer lines, and privately-owned OWTS;
- Illegal connections to MS4s;
- Illicit discharges to MS4s;
- Direct deposition from homeless encampments; and
- Treated effluent from wastewater treatment plants.

In the Final Investigative Study Report the Dischargers must describe the following information for each of the above suspected sources or pathways of human fecal material discharges to the San Diego River:

- a. Whether or not the suspected source or pathway is an *actual* source or pathway of human fecal material discharges to either the San Diego River or its tributaries;
- b. The loading rate(s) of each known source of human fecal material into the environment;
- c. The circumstances causing discharges of each known source of human fecal material; and

⁹ Water Code section 13383 provides that the San Diego Water Board may establish monitoring and reporting requirements for Dischargers (e.g., MS4 agencies) who discharge, or proposed to discharge, pollutants to navigable waters of the United States and as applicable, this section provides additional authority for the requirements in this Investigative Order. The San Diego Water Board recognizes that Water Code section 13383 may not be applicable to all Dischargers named as a responsible party in this Investigative Order.

- d. How the data obtained in this Investigation will be used to assess the effectiveness of the Discharger's programs in preventing discharges of human fecal material into the San Diego River, its tributaries, and downstream beaches.
2. **Conceptual Watershed Model.** The Dischargers shall begin the Investigative Study by first constructing a conceptual watershed model (CWM) based on available data applicable to the San Diego River Watershed on the occurrence of human fecal material discharges from the suspected sources or pathways of human fecal material described in Directive 1 of this Investigative Order. The CWM shall identify sources of human fecal material discharges; the waste constituent composition and concentration; affected media (soil and water), three-dimensional spatial extent and temporal variability of the waste constituents; routes of waste constituent migration; and the location of actual and potential points of release to the San Diego River Watershed.

The CWM shall be refined and updated as the Investigative Study data becomes available. The initial CWM shall include a discussion of the level of uncertainty of conclusions, outline data gaps in the initial CWM, and describe additional work needed to complete the CWM. Updates to the CWM shall be included in all future reports submitted. The initial CWM shall be submitted with the Investigative Study Work Plan described in Directive 3 of this Investigative Order.

3. **Investigative Study Work Plan Describing Investigative Study Milestones.** No later than **January 7, 2019**, the Dischargers must submit an Investigative Study Work Plan describing the proposed actions to be conducted to complete the investigative study described in Directive 1. The Dischargers must implement the Investigative Study Work Plan within 60 days of submittal, unless otherwise directed by the San Diego Water Board. The Investigative Study Work Plan must include, but not be limited to, the following:

- a. A Quality Assurance Project Plan (QAPP) describing the objectives and organization of the Investigative Study, functional activities, and quality assurance/quality control to be conducted. The purpose of the QAPP is to ensure that the data collection and analysis is consistent with the type and quality of data needed to meet the goals and objectives of the Investigative Study. The QAPP shall include at least the five sections listed below. A QAPP template is available at:

http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml

- (1) Project management including Discharger roles and responsibilities;
 - (2) Data generation and acquisition including sample process design (i.e., monitoring locations, frequencies, as well as sample matrixes and target compounds) and contingencies for collecting additional samples;
 - (3) Standard operating procedures for field sampling methods and laboratory analytical methods;
 - (4) Data Assessment and Oversight;
 - (5) Data Validation and Usability.
- b. The initial CWM described in Directive 2 of this Investigative Order.

- c. A description of how each of the Investigative Study Work Plan activities will accomplish the goal of identifying and quantifying sources and pathways of human fecal material discharges in the San Diego River Watershed as described in Directive 1;
 - d. A schedule for completion of activities, including annual and final reporting; and
 - e. Modifications as required by the San Diego Water Board upon Investigative Study Work Plan review.
4. The Dischargers shall prepare and provide written semiannual progress reports as provided below.
 - a. Semiannual progress reports must: (1) describe the actions taken toward achieving compliance with this Investigative Order during the previous six months; (2) include all results of sampling, tests, and all other verified or validated data received or generated by or on behalf of the Dischargers during the previous six months in the implementation of the actions required by this Investigative Order; (3) describe all activities including, data collection and other field activities which are scheduled for the next six months and provide other information relating to the progress of work, including, but not limited to, a graphical depiction of the progress of the investigative study; (4) identify any modifications to the Investigative Study Work Plan or other work plan(s) that the Dischargers proposed to the San Diego Water Board or that have been approved by San Diego Water Board during the previous six months; and (5) include information regarding all delays encountered or anticipated that may affect the future schedule for completion of the actions required, and a description of all efforts made to mitigate those delays or anticipated delays.
 - b. All semiannual progress reports shall be submitted to the San Diego Water Board by the (15th) day of January and July of each year following the effective date of this Investigative Order. Submission of these progress reports shall continue until submittal of the Final Investigative Study Report verifying completion of the investigative study or studies required under Directive 1 of this Investigative Order.

Provisions

5. All reports, plans, and documents required under this Investigative Order must be prepared under the direction of appropriately qualified professionals. A statement of qualifications and license numbers, if applicable, of the responsible lead professional and all professionals making significant and/or substantive contributions must be included in reports submitted by the Dischargers. The lead professional performing the engineering and geologic evaluations and judgements must sign and affix their professional geologist or civil engineer registration stamp to all plans, technical reports, or documents submitted to the San Diego Water Board.
6. All samples must be analyzed by California State-certified laboratories using methods approved by the USEPA for the type of analysis to be performed.
7. Any report presenting new analytical data is required to include the complete Laboratory Analytical Report(s). The Laboratory Analytical Report(s) must be signed by the laboratory director and contain:
 - a. Complete sample analytical reports;

- b. Complete laboratory quality assurance and quality control (QA/QC) reports;
- c. A discussion of the sample and QA/QC data; and
- d. A transmittal letter that indicates if all the analytical work was supervised by the director of the laboratory, and contains the following statement:

“All analyses were conducted at a laboratory certified for such analyses by the California Department of Public Health in accordance with USEPA procedures.”

- 8. All documents submitted to the San Diego Water Board must be signed and certified.
 - a. All reports required by this Investigative Order must be signed as follows:
 - (1) For a corporation, by a principal executive officer of at least the level of vice-president;
 - (2) For a partnership or sole proprietorship, by a general partner or the proprietor, respectively;
 - (3) For a municipality, state, federal or other public agency, by either a principal executive or ranking elected official; or
 - (4) By a duly authorized representative, of a person designated above in Directive 8.a.(1), 8.a.(2), or 8.a.(3). A person is a duly authorized representative only if:
 - (a) The authorization is made in writing by a person described in paragraph 8.a above;
 - (b) The authorization specifies either an individual or position having responsibility for the overall operation of the regulated facility or activity; and
 - (c) The written authorization is submitted to the San Diego Water Board.
 - b. Any person signing a document required by this Investigative Order must 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.”

- 9. All documents submitted to the San Diego Water Board in compliance with this Investigative Order must be submitted in electronic, Portable Document Format (PDF), unless otherwise directed. All electronic format documents required under this Investigative Order must be submitted to:

Executive Officer
SanDiego@waterboards.ca.gov
California Regional Water Quality Control Board
San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108
Attn: Laurie Walsh, PE, Storm Water Management Unit
PIN No. 794853

- 10. This Investigative Order may be amended, rescinded, or updated by the Executive Officer. The Dischargers may propose changes or alternatives to the requirements in this Investigative Order if a valid rationale for the changes is shown. The filing of a request by a Discharger for amending, rescinding, or updating this Investigative Order, or notification of planned changes or anticipated noncompliance does not stay any condition of this Investigative Order.

Notifications

- 11. The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this Investigative Order.
- 12. Failure to comply with requirements of this Investigative Order may subject the Dischargers to enforcement action, including but not limited to administrative enforcement orders requiring the Dischargers to cease and desist from violations, imposition of administrative civil liability, pursuant to Water Code section 13268, not to exceed \$1,000 (one thousand dollars) per day if imposed administratively (\$5,000 (five thousand dollars) per day if imposed judicially) for each day in which the violation occurs and section 13385 in an amount not to exceed \$10,000 (ten thousand dollars) per day if imposed administratively (\$25,000 (twenty-five thousand dollars) per day if imposed judicially) for each day in which the violation occurs, referral to the State Attorney General for injunctive relief, and referral to the District Attorney for criminal prosecution.
- 13. Any person aggrieved by this Investigative Order may petition the State Water Board to review the Investigative Order in accordance with Water Code section 13320 and the title 23 CCR sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days following the date of this Investigative Order. Copies of the laws and regulations applicable to filing petitions may be found on the State Water Board website at http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

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

Ordered By: TENTATIVE

David W. Gibson
EXECUTIVE OFFICER
DATE