CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

2375 Northside Drive, Suite 100, San Diego, CA 92108
(619) 516-1990 – Fax (619) 516-1994
https://www.waterboards.ca.gov/sandiego

CEASE AND DESIST ORDER NO. R9-2023-0016 (TENTATIVE)

CITY OF SAN DIEGO SANITARY SEWER COLLECTION SYSTEM

WHEREAS the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) finds the following:

BACKGROUND

1. The City of San Diego (City) owns and operates the sanitary sewer system of the City and provides wastewater conveyance and treatment services to 15 other cities and special districts. The sanitary sewer system serves approximately 1.3 million residents over 340 square miles and includes approximately 3,000 miles of sewer mains and 73 pump stations.

2. Pump Station 1 (PS1) is located at 3550 East Harbor Drive in National City, California, and transports wastewater from the South Bay region northward through a major pipeline known as the South Metropolitan Interceptor (SMI). PS1 was put into operation in 1963 and has six vertical shaft-driven centrifugal pumps. On average during dry weather, PS1 transports 40-50 million gallons a day (MGD) of wastewater using two pumps. PS1 is the City's second largest wastewater pump station and has a maximum pumping capacity of 160 MGD.

3. The City's collection system includes 12 major siphons (larger than 30 inches in diameter) in five locations that allow wastewater to traverse waterbodies. The major siphons are located at the Otay River, Tecolote Creek, San Diego River, Sweetwater River, and Chollas Creek.

4. The siphon at the Sweetwater River allows the SMI to traverse the river underground. The siphon was constructed in 1971 and consists of two transition structures, one on each riverbank, and four elliptical barrels, roughly 400 feet long, encased in concrete. Should PS1 fail, the siphon has an emergency overflow structure on the south riverbank, allowing wastewater to overflow into the Sweetwater River.

5. The Sweetwater River discharges into lower San Diego Bay at its terminus. The Water Quality Control Plan for the San Diego Basin (9) (Basin Plan) designates the following existing and potential beneficial uses for the Sweetwater River:

    a. Industrial Service Supply (IND) – Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.

    b. Water Contact Recreation (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, white water activities, fishing, or use of natural hot springs.

    c. Non-Contact Water Recreation (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, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

    d. Warm Freshwater Habitat (WARM) – Includes uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

    e. Wildlife Habitat (WILD) – Includes uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

6. In addition to the IND, REC-1, REC-2, WARM, and WILD beneficial uses as described above, the Basin Plan designates the following existing and potential beneficial uses for San Diego Bay:

    a. Preservation of Biological Habitats of Special Significance (BIOL) – Includes uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection.

    b. Commercial and Sport Fishing (COMM) – Includes the uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

    c. Estuarine Habitat (EST) – Includes uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of

estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).

d. Marine Habitat (MAR) – Includes uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).

e. Migration of Aquatic Organisms (MIGR) – Includes uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish.

f. Navigation (NAV) – Includes uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

g. Rare, Threatened, or Endangered Species (RARE) – Includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

h. Shellfish Harvesting (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.

i. Spawning, Reproduction, and/or Early Development (SPWN) – Includes uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish. This use is applicable only for the protection of anadromous fish.

7. On April 10-11, 2020, after rainfall totaling almost 6 inches over 7 days (as measured by the County of San Diego's Bonita rain gauge station), the City's collection system failed, resulting in a sanitary sewer overflow (SSO) discharge of 11.23 million gallons directly into the Sweetwater River. The spill release point is located approximately one-quarter mile upstream of the mouth of the Sweetwater River, where it joins the lower San Diego Bay. The spill began on a Friday, but the City was unaware that it had occurred until the following Monday, when hydraulic modeling staff reviewed wastewater flow meter data from participating agencies, a routine practice following rain events. Seeing a discrepancy with the flow measured upstream of the south siphon transition structure (located at the south end of the Sweetwater River) and the flow measured at PS1, City staff determined that an SSO must have occurred.

8. The City's ability to learn of and respond to the SSO as it was occurring was compromised by a dead solar battery in the level sensor and alarm at the south siphon transition structure. The battery was designed to hold charge for about three days; but with the ongoing storm event (seven days), there was little sunlight to charge the battery. This resulted in a jumbled signal and a delay in knowledge that the spill had occurred.

9. According to a report commissioned by the City to determine the cause of the SSO, several factors contributed to the SSO: 1) higher than normal rainfall spanning several days, 2) reduction in siphon capacity due to a blockage in one barrel, 3) debris buildup in all four siphon barrels, and 4) inoperability of one or more pumps at PS1. There is evidence that concrete corrosion around the emergency release valve at the south siphon transition structure may have allowed tidal surge to enter the collection system, also contributing to the SSO. City assets at PS1, the siphon barrels, and the north and south siphon transition structures are collectively referred to as "the Facilities" in this Cease and Desist Order (CDO).

10. The City is enrolled in the Statewide Waste Discharge Requirements General Order for Sanitary Sewer Systems, Order No. 2022-0103-DWQ (Statewide General Order), which regulates all entities that own or operate a sanitary sewer system greater than one mile in length that collects or conveys untreated or partially treated wastewater to a publicly owned treatment facility in the State of California. Section 5.19 of the Statewide General Order states, "To prevent discharges to the environment, the Enrollee shall maintain in good working order, and operate as designed, any facility or treatment and control system designed to contain sewage and convey it to a treatment plant."

11. In an effort to avoid a future SSO at the Sweetwater River location, the City has proactively addressed some Facility deficiencies and also made some improvements in the alarm notification system. For improvements at PS1, the City initiated a multi-million-dollar capital improvement project (CIP)[1] that requires planning, design, approvals, and installation. The operation and maintenance items that have been completed by the City's Public Utilities Department are described in Table 1.

Table 1. Corrective Measures Completed by the City

Item	Reason	Date Completed
Replaced water softener at PS1	Asset was non-functional	October 2020
Repaired corroded concrete at emergency release valve	Corroded concrete allowed tidal surge to enter collection system during high tide	November 2020

[1] The City's CIP project is known as "PS 1 & 2 Improvements & Modernization (WBS# L-23000)."

Item	Reason	Date Completed
Increased siphon cleaning frequency in standard operating procedures to no less than once every five years	Minimum cleaning frequency required to maintain optimal capacity	December 2020
Replaced cooling towers and ducts at PS1	Asset was severely corroded and leaking	January 2021
Installed redundant water level indicator system at the south transition structure with radio telemetry and digital cellular communication	Redundant system needed to improve alarm system at overflow site	May 2021
Updated SSO protocol for SSOs reaching south San Diego Bay to include direct contact with the National Wildlife Refuge	Refuge managers need to know firsthand of SSOs to be able to make independent assessments	November 2021
Updated SSO response protocol to include biological assessment following suspected Category 1 SSO	Biological assessment of SSO impacts needed to understand harm to beneficial uses	March 2022
Installed ultrasonic level sensor with cellular modem communication at north transition structure	System improvement	May 2022

12. Despite the items identified in Table 1, the San Diego Water Board finds an ongoing threat of a discharge of waste to the Sweetwater River in the form of an SSO from the City's sanitary sewer collection system, specifically at the Facilities. The San Diego Water Board finds the City in violation of section 5.19 of the Statewide General Order for failing to properly operate and maintain all parts of the sanitary sewer system.

14. CDO AUTHORITY

13. Water Code section 13301 authorizes the San Diego Water Board to issue a CDO when it finds that a waste discharge is taking place, or threatening to take place, in violation of San Diego Water Board requirements or discharge prohibitions prescribed by the San Diego Water Board. The San Diego Water Board may, in a CDO, direct that those persons not complying with the requirements or discharge prohibitions to a) comply forthwith, b) comply in accordance with a time schedule set by the Board, or c) in the event of a threatened violation, take appropriate remedial or preventive action.

14. This CDO establishes a time schedule for the City to conduct and perform the necessary replacement and repairs to the Facilities and conduct maintenance consistent with industry standards.

15. The time schedule in Table 2 is as short as possible, based on reasonably expected times needed to select contractors, and for new or modified control measures to be designed, installed, and put into operation. The San Diego Water Board may modify the tasks and time schedule for completing the tasks if it receives new information.

16. Water Code section 13267(b)(1) provides that:

> "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or, discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports."

17. This CDO requires the City to submit semi-annual reports. The burden, including costs, of these reports bears a reasonable relationship to the need for the reports and the benefits to be obtained. Specifically, the semi-annual reports are necessary for the San Diego Water Board to determine the City's compliance with the requirements of the Statewide General Order and this CDO. In the Stipulation for Entry of Cease and Desist Order No. R9-2023-0016, the City stipulated to the burden, including the costs of these reports, being outweighed by the needs and benefits to be obtained from the reports.

18. As an enforcement action, this CDO is exempt from the provisions of the California Environmental Quality Act (Public Resources Code § 21000 et seq.) in accordance with Title 14 of the California Code of Regulations, section 15321.

19. The San Diego Water Board notified the City and interested persons of its intent to consider adoption of this CDO and provided an opportunity to appear and provide comments in writing and/or at a public hearing.

20. The San Diego Water Board, at a public hearing, heard and considered all comments on this matter.

IT IS HEREBY ORDERED, in accordance with Water Code sections 13301 and 13267, that the City shall cease and desist from discharging and threatening to discharge wastes in violation of the Statewide General Order by complying with the following requirements:

21. The San Diego Water Board incorporates Stipulation for Entry of Cease and Desist Order No. R9-2023-0016 by reference as if set forth fully herein.

22. The City will complete operational and maintenance tasks at PS1 as identified in Table 2. PS1 need repairs as described in the *Wastewater Facilities Condition Assessment* dated May 11, 2018. These tasks are included in the CIP project that the City initiated in the months following the April 2020 SSO. These tasks include repairs to assets with imminent safety issues, assets with a high risk of failure, or maintenance items that otherwise severely compromise system performance. The City shall complete all items in Table 2 by December 31, 2028.

Table 2. Pump Station 1 Corrective Measures to be Completed by December 31, 2028

Item	Category	Asset	Action	Reason
1	Headwork	Bar Screens	Repair	Rags and debris accumulation in channel; Impacts pump life
2	Headwork	Mechanical Screen No. 1 and No. 2	Repair or replace	Not functional; rags and debris accumulation in channel impacts pump life
3	Headwork	Conveyors	Replace. Conveyors need to be in closed area with odor control	Not functional

Item	Category	Asset	Action	Reason
4	Headwork	Solids hopper	Repair	Not functional
5	Headwork	Wet Well No. 1. and No. 2	Repair or use liner for concrete, clean up wet well	Concrete loss and heavy layer of rags and debris
6	Buildings and Structures	Pump Building	Repair, clean and monitor structural cracks	Wastewater ponding on pump level. Structural cracks, improper lighting, leaks through ceiling, accumulation of rubbish and deferred maintenance
7	Buildings and Structures	Mechanical room	Repair leak	Water and chemical leakage; safety hazard
8	Buildings and Structures	Chemical Storage	Replace door, provide receptacles for pump power supply, remove debris	Occupational Safety and Health Administration and the National Electrical Code noncompliance
9	Buildings and Structures	Pipe gallery	Repair concrete	Chipped, cracked concrete, exposed rebar, open joints, cracked pipe supports
10	Auxiliary Facilities	Odor control	Repair and provide regular maintenance	Leaks, clogged atomizer nozzle pipes and supports corroded, damaged pads,

Item	Category	Asset	Action	Reason
				deferred maintenance
11	Auxiliary Facilities	Chemical storage tanks	Replace labels, re-coat and clean area	Faded labels, damaged containment coating and rubbish
12	Pumps and Drives	Pump	Clean and recoat. Schedule predictive regular maintenance.	Corroded and damaged coating.
13	Pumps and Drives	Casing/volute, impeller and rotating assembly	Conduct internal inspection of casing and volute using Flowserve or equal	Corroded, and damaged coating. Very low wire to water efficiencies
14	Pumps and Drives	Packing	Replace with mechanical seals	Severely leaking
15	Pumps and Drives	Shafts and cages	Repair	Some cages are loose or without bolts
16	Pumps and Drives	Cone valves	Repair and recoat	Leaking and corroded
17	Pumps and Drives	Motor	Repair nonfunctional motors	No. 2 and No. 5 not working
18	Pumps and Drives	Liquid rheostat	Repair and conduct internal inspection using Metso or equal. Long-term replace with variable frequency drives.	Leaking soda ash
19	Pumps and Drives	Pump supports	Repair	Cracked, chipped concrete with exposed rebar

Item	Category	Asset	Action	Reason
20	Piping System	Pipe supports	Repair	Several supports cracked, chipped with exposed rebar
21	Piping System	Suction valves	Repair	Leaking
22	Piping System	Suction pipe	Repair pipe and coating	Leaks, heavy corrosion to pipe, bolts and nuts
23	Instruments	Venturi flowmeters	Replace with strap-on ultrasonic flowmeters	Corroded, leaking and flow reading not reliable
24	Instruments	Pump suction and discharge pressure, bearing temperature, and seal water pressure	Replace with new instruments	Corroded, covered with sewage and non-functional

23. The City shall, upon recertification of its Sewer System Management Plan in 2024, memorialize procedures related to SSO response protocol to: 1) include biological assessments following suspected Category 1 SSOs, and 2) for SSOs reaching south San Diego Bay, to include direct notification with the National Wildlife Refuge.

24. The City will provide semi-annual reports detailing progress with the tasks identified in Table 2 and Finding 23. Reports will be due on January 31 and July 31, starting July 31, 2023 and ending January 31, 2029, in electronic format and emailed to: sandiego@waterboards.ca.gov with **CArias: PIN 631631** included in the subject line.

25. Any person signing a document submitted under this Order shall make the following certification:

> "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

26. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the City shall bear the professional's signature and stamp.

CONSEQUENCES OF NON-COMPLIANCE

27. If the City fails to comply with the provisions of this CDO, the San Diego Water Board Executive Officer is hereby authorized to take enforcement action or to request the Attorney General to take appropriate actions against the City in accordance with Water Code sections 13308, 13331, 13350, and 13268. Such actions may include injunctive and civil remedies, if appropriate, or the issuance of an Administrative Civil Liability Complaint for the San Diego Water Board's consideration.

NO LIMIT OF SAN DIEGO WATER BOARD AUTHORITY

28. This CDO in no way limits the authority of the San Diego Water Board to institute additional enforcement action or to require additional investigation and/or cleanup of the Facilities consistent with the Water Code and all other applicable laws and regulations. This Order may be revised as additional information becomes available.

COMPLIANCE WITH OTHER REGULATORY REQUIREMENTS

29. Nothing in this CDO shall excuse the City from meeting any additional regulatory requirement that may be imposed by other local, state, or federal regulatory entities for corrective actions taken by the City to comply with this CDO.

EFFECTIVE DATE

30. In accordance with Water Code section 13306, this CDO shall become effective and final upon issuance of this CDO by the San Diego Water Board.

I, David W. Gibson, do hereby certify the foregoing is a full, true, and correct copy of a CDO adopted by the California Regional Water Quality Control Board, San Diego Region on June 14, 2023.

TENTATIVE

David W. Gibson, Executive Officer