

## Penalty Calculation Summary

### INTRODUCTION:

The City of San Diego owns and operates a municipal sanitary sewer system, comprised of the municipal sub-system and the metropolitan sub-system, which transports and treats an average of 160 million gallons of sewage every day. The municipal sub-system serves the residents of the City and includes approximately 3,000 miles of sewer lines, 59,000 sewer manholes, and 73 municipal pump stations. Approximately 250 miles of these sewer lines are located in 42 canyons and other non-right-of-way areas throughout the City.

From January 5, 2016 to January 10, 2016, a damaged sewer line in Tecolote Canyon discharged **6,750,734 gallons** of untreated sewage into Tecolote Creek and ultimately Mission Bay. The discharge occurred due to high velocity flows in Tecolote Creek from an intense rain event which eroded the creek bank and undermined, exposed, and led to the collapse of a 30-foot section of the 15-inch vitrified clay Tecolote Canyon trunk sewer. The City recovered 3,996,000 gallons of creek and sewage water by use of pumps downstream. Additionally, 9,180,480 gallons of creek water and sewage was recovered by way of bypass through the interceptor pump station. The City, in its certified SSO report estimates that 188,640 gallons of the discharged sewage was recovered as a result of pumping combined storm water and sewage from Tecolote Creek back into the collection system, but only after it had reached receiving waters, so this volume does not qualify for any reduction in the gallons spilled. On January 5, 2016, flow at the location of the sewage spill reached 100-year one-hour storm levels, and was estimated to be about 13.9 feet deep, with a velocity of 8.12 feet per second. The resultant force on the bank of the creek at this time was calculated by the City staff to be 1,409 K-lbs. force.<sup>1</sup> The City's sewer pipelines are designed and installed per its Sewer Design Guide. This particular installation didn't include any additional protection as it was intended to remain buried in accordance with guidelines.

The Tecolote Creek Watershed (Hydrologic Unit No. 906.50) is located in central San Diego in the neighborhood of Clairemont (see Figure 1). The Basin Plan for the San Diego Region designates the following Beneficial Uses for Tecolote Creek: Contact Water Recreation (**REC-1**, Potential), Non-contact Water Recreation (**REC-2**), Warm Freshwater Habitat (**WARM**) and Wildlife Habitat (**WILD**). Additionally, Tecolote Creek is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments.

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<sup>1</sup> Supplemental Information Request Response (ECM Doc. No. 2852896), page 3.

At its southern terminus, Tecolote Creek discharges into Mission Bay. The Basin Plan designates the following Beneficial Uses for Mission Bay: Industrial Service Supply (**IND**), **REC-1**, **REC-2**, Commercial and Sport Fishing (**COMM**), Estuarine Habitat (**EST**), **WILD**, Rare Threatened or Endangered Species (**RARE**), Marine Habitat (**MAR**), Migration of Aquatic Organisms (**MIGR**), Spawning, Reproduction and/or Early Development (**SPWN**), and Shellfish Harvesting (**SHELL**). Mission Bay is considered, in accordance with Resolution No. R9-2017-0030, a key area for three key beneficial use categories: recreation, consumption of fish and shellfish, and habitats and ecosystems. Discharges of sewage into Mission Bay can negatively impact all three of these key uses.

The following penalty calculation is based on the penalty calculation methodology contained in the 2009 State Water Resources Control Board Water Quality Enforcement Policy (2009 Enforcement Policy or Policy)<sup>2</sup> except where otherwise noted and with the agreement of the Discharger.

### **STEP 1 - Potential for Harm for Discharge Violations**

Potential for Harm for Discharge Violations is calculated by factoring: (1) the potential for harm to beneficial uses; (2) the physical, chemical, biological, or thermal characteristics of the discharge; and (3) the discharge's susceptibility to cleanup or abatement.

### **Factor 1: Harm or Potential Harm to Beneficial Uses**

Factor one was scored a **5 (Major)**. Major is defined by the 2009 Enforcement Policy as:

*“Major - high threat to beneficial uses (i.e., significant impacts to aquatic life or human health, long term restrictions on beneficial uses (e.g., more than five days), high potential for chronic effects to human or ecological health).”*

- The sewer overflow occurred for six days and subsequently closed down Mission Bay to recreational uses for a period of 11 days from January 10, 2016 to January 21, 2016, and Tecolote Creek for 22 days from January 10, 2016 to February 1, 2016, thus imposing long term restrictions on recreational beneficial uses in a key area.
- A high volume of sewage containing elevated concentrations of bacteria and nutrients was discharged to 303(d) listed impaired water bodies for bacteria, nutrients, and heavy metals (Mission Bay and Tecolote Creek). Because these water bodies have minimal assimilative capacity for these pollutants the discharge poses a high threat to beneficial uses.

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<sup>2</sup> A copy of the policy is available at:

[https://www.waterboards.ca.gov/water\\_issues/programs/enforcement/docs/enf\\_policy\\_final111709.pdf](https://www.waterboards.ca.gov/water_issues/programs/enforcement/docs/enf_policy_final111709.pdf)

- Many pollutants in the unrecovered discharge are likely to bind to sediment and settle or resuspend into Mission Bay, supporting a high potential for chronic effects to human and ecological health. The City's own response to the San Diego Water Board's investigative order detailed potential long-term impacts as: "In the event of future rain storms, residual pollutants potentially trapped in creek sediment and surrounding vegetation may be released back into the water causing a depletion of dissolved oxygen levels. Such an occurrence could lead to algal blooms and a eutrophication effect that could result in fish die-off downstream."
- Biological monitoring was done post spill and documented a number of wildlife species like turtles and frogs present downstream of the spill. However, six dead green sunfish were also observed in Tecolote Creek indicating direct impacts to ecosystem health beneficial uses, and there is a reasonable potential that more aquatic dependent wildlife were negatively impacted during the active spill window.

### **Factor 2: The Physical, Chemical, Biological or Thermal Characteristics of the Discharge**

Factor 2 was scored a **3 (Above Moderate)**. Above Moderate is defined in the Policy as:

*"Discharged material poses an above-moderate risk or a direct threat to potential receptors (i.e., the chemical and/or physical characteristics of the discharged material exceed known risk factors and /or there is substantial concern regarding receptor protection)."*

- Untreated sewage contains high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen-demanding organic compounds, oil and grease, and other pollutants known to exceed existing water quality standards. These pollutants exert varying levels of impacts to beneficial uses of receiving waters. The high degree of toxicity in untreated sewage poses a direct threat to human and ecological receptors which supports a score of **3**.

### **Factor 3: Susceptibility to Cleanup or Abatement**

A score of 0 is assigned for this factor if 50 percent or more of the discharge is susceptible to cleanup or abatement. A score of 1 is assigned for this factor if less than 50% of the discharge is susceptible to cleanup or abatement. This factor is evaluated regardless of whether the discharge was actually cleaned up or abated.

- Less than 50% of the discharge was susceptible to clean up. This factor was scored a **1**.

**TOTAL SCORE FOR STEP 1 = 9**

**STEP 2 - Assessments for Discharge Violations****Deviation from Requirement**

The Deviation from Requirement reflects the extent to which the violation deviates from the specific requirement (effluent limitation, prohibition, monitoring requirement, construction deadline, etc.) that was violated. A designation of **Major** has been applied.

The Policy defines a **major** deviation as follows:

*“The requirement has been rendered ineffective (e.g. discharger disregarded the requirement, and/or the requirement is rendered ineffective in its essential functions).”*

- The discharge of 6,750,734 gallons of untreated sewage to surface waters is a major deviation from Clean Water Act section 301 and California Water Code section 13376, which prohibit the discharge of pollutants to surface waters except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The discharge was a major deviation of Basin Plan Waste Discharge Prohibition No. 9, which states that “The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.”

**Per Gallon Assessment**

- Based on Table 1 of the Policy, the Per Gallon Factor is calculated to be **0.8**
- Water Code section 13385, subdivision (c), states that “Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed ten dollars (\$10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.”
- The 2009 Enforcement Policy allows for the application of \$2/gallon for certain high-volume discharges. The Prosecution Team and Discharger are willing to stipulate to using the \$1/gallon as described in the State Water Board’s revised Enforcement Policy adopted in 2017 (2017 Enforcement Policy) as a settlement consideration. The 2017 Enforcement Policy allows for the Prosecution Team to use \$1/gallon for discharges greater than 2,000,000 gallons.
- The Per Gallon assessment is calculated at:  
 $(6,750,734 \text{ gallons} - 1,000 \text{ gallons}) \times (0.8) \times (\$1/\text{gal}) = \mathbf{\$5,399,787}$

**Per Day Assessment**

- Based on a potential for harm score of 9 and Major deviation from requirements, and using Table 2 of the Policy, the Per Day Factor is calculated to be **0.8**.
- The discharge occurred from January 5 to January 10, 2016 for a total of 6 days of discharge.
- The maximum per day penalty per Water Code section 13385 for an unauthorized discharge to Waters of the United States is \$10,000.
- The Per Day assessment is calculated at:  
(6 days) X (0.8) X (\$10,000/day) = **\$48,000**

**Initial Liability for Discharge Violations**

- The per gallon and per day amounts are added together to create the initial liability amount.
- The Initial Liability Amount is calculated at:  
\$5,399,787 + \$48,000 = **\$5,447,787**

**STEP 3 – Not Applicable for Discharge Violations****STEP 4 – Violator’s Conduct Factors**

There are three additional factors that should be considered for modification of the amount of the initial liability: the violator’s culpability, the violator’s efforts to clean-up or cooperate with regulatory authorities after the violation, and the violator’s compliance history.

**Culpability:** Culpability is scored at **0.8**.

- A lower culpability multiplier is being applied based on the fact that an exceptional precipitation event was a contributing factor to the pipe failure caused by stream velocity and bank erosion.

**Cleanup and Cooperation:** Cleanup and Cooperation is scored as a neutral **1.0**

- High flows in Tecolote Canyon preceding the storm posed safety concerns to City staff and made the discovery of the exact location and repair of the damaged pipeline difficult. Thus, the City’s eventual response that resulted in the end of the discharge was delayed until the pipe break could be safely located.
- After locating the spill location, the City’s response was reasonable, and in line with its existing Sewer System Management Plan (SSMP) guidelines.

**History of Violations:** History of Violations is scored at **1.1**.

Where there is a history of repeat violations, the Policy suggests a minimum multiplier of 1.1 should be used to reflect this. The Discharger has a history of violations:

- The 2016 sanitary sewer overflow (SSO) is not the first high volume SSO in Tecolote Canyon, nor the first time a pipe failure has occurred which resulted in a discharge of sewage to surface waters.

- From February 19 to February 28, 2001, the City discharged 1,500,000 gallons of raw sewage to Tecolote Creek. The spill was a result of debris in the trunk sewer and was prolonged as a result of the City's failure to adequately respond to initial spill reports. The San Diego Water Board adopted Administrative Civil Liability Order No. 2001-174 in the amount of \$1,589,000 for the 2001 SSO.
- On June 25, 2007, the City discharged 5,650 gallons of raw sewage to Tecolote Creek (SSO Event ID 652788). The spill was a result of the failure of an exposed pipe in the canyon.

**STEP 5 – Total Base Liability**

Total base liability is calculated by multiplying the initial liability amount by the adjustment factors:

$$(5,447,787) \times (0.8) \times (1.0) \times (1.1) = \mathbf{\$4,794,053}$$

**STEP 6 – Ability to Pay and Continue in Business**

The City of San Diego is a public entity with the ability to leverage fees and/or taxes. The San Diego Water Board is not aware of, and the City of San Diego has not provided, any evidence of inability to pay.

**STEP 7- Other Factors as Justice May Require**

If the Water Board believes that the amount determined using the above factors is inappropriate, the amount may be adjusted under the provision for "other factors as justice may require," but only if express findings are made to justify this. Examples of circumstances warranting an adjustment under this step are:

- a. The discharger has provided, or Water Board staff has identified, other pertinent information not previously considered that indicates a higher or lower amount is justified.
- b. A consideration of issues of environmental justice indicates that the amount would have a disproportionate impact on a particular disadvantaged group.
- c. The calculated amount is entirely disproportionate to assessments for similar conduct made in the recent past using the same Enforcement Policy.

The Prosecution Team has identified other pertinent information that merits a reduction in the calculated total base liability amount. Additional information includes efforts by the City of San Diego that were prior to and not directly related to the discharge violation.

In December 2014, the City of San Diego began development of a Capital Improvement Project (CIP) to rehabilitate and upgrade the Tecolote sewer pipeline. The CIP will rehabilitate 1.2 miles of trunk sewer, replace and upsize 5 miles of trunk sewer, and replace 600 feet of 16-inch water main. The project includes all manholes and appurtenances in addition to access improvements and mitigation for impacts. Additional elements of the project include manhole protections, widening of the existing maintenance access paths, clearing and grubbing, grading and stream crossings including bridge replacements, a new stream crossing and upgrades to the existing stream crossings. As of April 2020, the project status is as follows:

- Currently the design team is in the 100 percent design phase, reviewing and addressing comments and finalizing contract documents for advertisement. The team has begun CEQA and started permit applications needed for construction.
- Construction start is scheduled for January 2022.
- Substantial completion is scheduled for January 2024.
- Total Cost of the CIP is \$35,000,000 and funded in the City's CIP budget.

The Prosecution Team believes a reduction in overall liability is warranted due to the City having been proactive in addressing known deficiencies in the Canyon prior to the SSO occurring. This project will reduce the likelihood of similar SSOs occurring in the future. The agreed upon liability also considers other factors as justice may require including the litigation risks associated with the Prosecution Team proceeding to a contested evidentiary hearing, equitable factors, and other evidentiary and deliberative considerations discussed in consultation with the Prosecution Team's counsel.

#### **Cost of Investigation**

As of August 14, 2019, San Diego Water Board expended **\$41,874** in staff costs in investigation and negotiation of settlement with the City. The City has agreed to pay the costs of investigation incurred by the San Diego Water Board as part of the agreed upon Final Liability Amount.

#### **STEP 8 – Economic Benefit**

Using the USEPA BEN Model,<sup>3</sup> it is estimated that the City benefitted economically from delaying repair/maintenance activities of the Tecolote Canyon sewer line. Realignment construction costs were estimated by the City to be \$866,565, and the economic benefit of delaying these costs was calculated to be **\$125,648**.

#### **STEP 9 – Maximum and Minimum Penalties**

For all violations, the statute sets a maximum liability amount that may be assessed for each violation. For some violations, the statute also requires the assessment of a liability at no less than a specified amount. The maximum and minimum amounts for each violation must be determined for comparison to the amounts being proposed and shall be described in any ACL complaint and in any order imposing liability.

#### **Minimum Liability**

The 2009 Policy states that "The adjusted Total Base Liability Amount shall be at least 10 percent higher than the Economic Benefit." The minimum liability amount is:

$$(\$125,648) \times (1.1) = \mathbf{\$138,213}$$

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<sup>3</sup> The BEN Model is available at: <https://www.epa.gov/enforcement/penalty-and-financial-models>

**Maximum Liability**

Water Code Section 13385 states that “Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed ten dollars (\$10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.” Additionally, Section 13385 allows for a maximum liability of ten thousand dollars (\$10,000) per day in which the violation occurs. The maximum liability amount is:

$$[(6,750,734 \text{ gallons} - 1,000 \text{ gallons}) \times (\$10/\text{gal})] + [(6 \text{ days of violation}) \times (\$10,000/\text{day})]$$

= **\$67,557,340**

**Agreed Upon Liability**

In consideration of “Other Factors” as described above, the litigation risks associated with the Prosecution Team proceeding to a contested evidentiary hearing, equitable factors, and other evidentiary and deliberative considerations discussed in consultation with the Prosecution Team’s counsel, the Parties have agreed on the proposed liability of \$2,541,874. This amount is greater than the minimum liability and less than the maximum liability.

**STEP 10: Final Liability Amount**

**\$2,541,874**

**Documents Relied Upon:**

The following supporting documents are available upon request to [rb9\\_records@waterboards.ca.gov](mailto:rb9_records@waterboards.ca.gov) or:

California Regional Water Quality Control Board  
Attention: File Review Request  
2375 Northside Drive, Suite 100  
San Diego, CA 92108

1. City of San Diego Sewer System Management Plan (ECM Doc. No. 4603784)
2. CIWQS SSO Report (ECM Doc. No. 4603806)
3. Notice of Violation /Investigative Order No. R9-2016-0049 (ECM Doc. No. 2265118)
4. City Response to Order No. R9-2016-0049 (ECM Doc. No. 2280005)
5. Supplemental Information Request Response (ECM Doc. No. 2852896)
6. BEN Calculation (ECM Doc. No. 4603777)
7. Staff Costs Report (ECM Doc. No. 4603808)



Figure 1: Spill location Map

