

Agenda Item No. 6

Supporting Document No. 6

Technical Analysis to Administrative Civil Liability Complaint No. R9-2011-0023

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

TECHNICAL ANALYSIS

**Proposed Administrative Civil Liability
Contained in Complaint No. R9-2011-0023
Santa Margarita Water District
Plano Force Main Sewer Spill to Tijeras Creek and to the
Pacific Ocean, Orange County**

**Noncompliance with
State Water Resources Control Board Order No. 2006-0003-DWQ,
Statewide General Waste Discharge Requirements for Sanitary Sewer Systems
and San Diego Water Board Order No. R9-2007-0005, *Waste Discharge
Requirements for Sewage Collection Agencies in the San Diego Region.***

March 10, 2011

By

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Compliance Assurance Unit**

A. INTRODUCTION

This technical analysis provides a summary of factual and analytical evidence that support the findings in Complaint No. R9-2011-0023 and the recommended administrative assessment of civil liability in the amount of **\$1,731,970** against Santa Margarita Water District (SMWD) for violations State Water Board Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems* and San Diego Water Board Order No. R9-2007-0005, *Waste Discharge Requirements for Sewage Collection Systems in the San Diego Region*, as alleged in Complaint No. R9-2011-0103.

The complaint was issued to SMWD because it spilled 2.293 million gallons of raw sewage into Tijeras Creek between March 23 and March 26, 2010. Approximately 871,259 gallons of the spill flowed downstream into Arroyo Trabuco Creek, then to San Juan Creek and finally to the Pacific Ocean at Doheny State Beach. The remaining 1.395 million gallons of raw sewage was impounded within Tijeras Creek behind an earthen berm from March 24 through March 30, 2010.

SMWD owns and operates approximately 600 miles of sewer pipe, 19 sewer lift stations, and three sewage treatment plants, providing wastewater treatment services to 150,000 residents and businesses within southern Orange County. SMWD provides sewer service to portions of the cities of Rancho Santa Margarita, Mission Viejo, and San Clemente, as well as unincorporated county areas within its sphere of influence. The Plano Lift Station facility, located at 21384 Antonio Parkway, Rancho Santa Margarita (see Exhibit 1) and the 24-inch force sewer main associated with it are key facilities which transmit wastewater from portions of the Cities of Lake Forest and Rancho Santa Margarita and unincorporated County areas to the Chiquita Wastewater Treatment Plant.

On March 23, 2010 at approximately 4:03 p.m., SMWD staff detected a leak in the Plano force sewer main when it received two alarms on its System Control and Data Acquisition (SCADA) system. The Plano force main is a 24-inch diameter polyethylene encased ductile iron pipe. The force main starts at the Plano lift station near Antonio Parkway and descends 68 feet to Tijeras Creek, passing under the creek bed, then ascends the other side of the creek approximately 50 feet (see Exhibit 2). The pipe break occurred just above a 22.5 degree elbow after the creek crossing.

Approximately 871,259 gallons of raw sewage was uncontained and flowed from Tijeras Creek to Arroyo Trabuco Creek to San Juan Creek to where it discharged into the Pacific Ocean at Doheny State Beach. Doheny State Beach, located in the City of Dana Point, is one of the most highly used beaches in the State.¹

¹ Kidlow, J. and Colgan, C. 2005. California's Ocean Economy, Report to the Resources Agency, State of California. Prepared by the National Ocean Economics Program.

This uncontained sewage flow resulted in the closure of a three mile stretch of beach from the Dana Point Harbor breakwater downcoast to the end of the park at Doheny State Beach, to the Capistrano County Beach and to all of Capistrano Bay Community beach. The three beach closures were in effect from 5:35 p.m. on March 23, 2010 to 3:35 p.m. on March 29, 2010. At the time of the spill Tijeras Creek, Arroyo Trabuco Creek and San Juan Creek had low flow conditions.

On March 24, 2010 the County of Orange assisted SMWD in containing the extent of the ongoing spill by constructing an earthen berm and containment pond 150 yards upstream of the confluence of Tijeras Creek and Arroyo Trabuco Creek. The remaining 1,395,000 gallons of sewage discharge was contained within a 1.5 mile stretch of Tijeras Creek. A second smaller berm was constructed 0.25 mile upstream of the containment pond on March 27, 2010 to prevent native water from entering the containment site. SMWD used vector trucks to pump out the containment pond, and eventually pumped 2.5 million gallons of creek water and sewage back into the sewer system.

The pipe break was repaired and the raw sewage stopped spilling into Tijeras Creek on March 26, 2010. By March 30, 2010 the in-stream containment pond was pumped dry. In all, the spill resulted in a total discharge of 2.293 million gallons of raw untreated sewage to Tijeras Creek, Arroyo Trabuco Creek, San Juan Creek and the Pacific Ocean.

As detailed further in this analysis, the cause of the pipe failure was determined to be internal erosion corrosion of the 24-inch force main. Internal erosion corrosion allowed grit and other debris (e.g. small rocks, pennies, nails and screws) trapped in the pipe to cycle back and forth in the pipe and degrade the pipe from the interior, causing the pipe to rupture.

A timeline of significant events detailed in this analysis is provided in Figure 1 below.

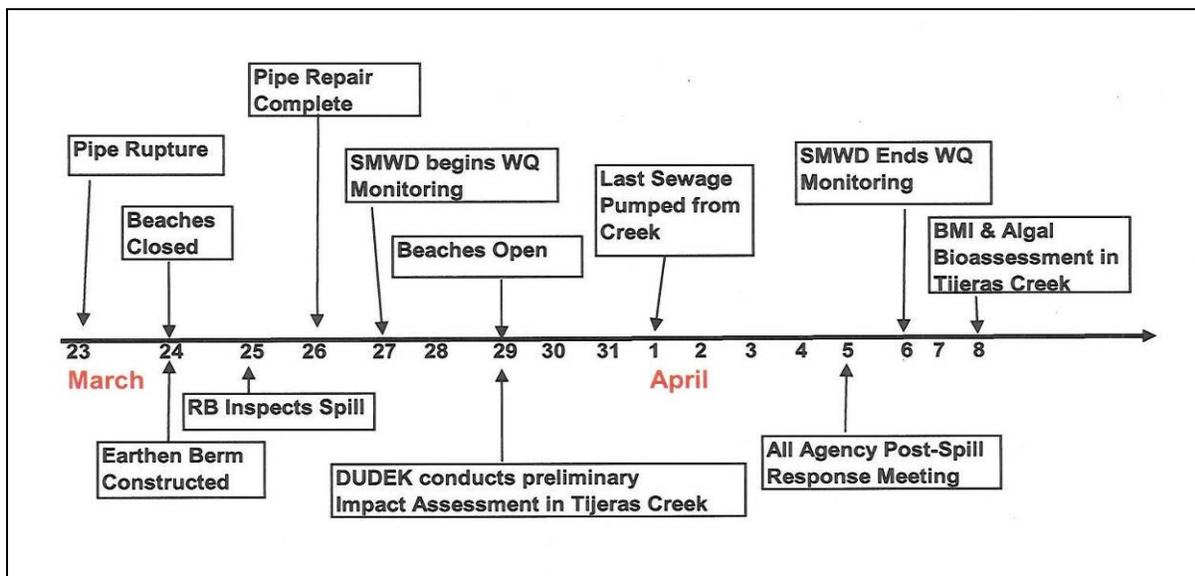


Figure 1. Timeline of significant events

B. VIOLATIONS SUBJECT TO THE COMPLAINT

SMWD is required to operate and maintain its collection system in compliance with requirements contained in State Water Board Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, and San Diego Water Board Order No. R9-2007-0005, *Waste Discharge Requirements for Sewage Collection Systems in the San Diego Region*.

The following violations of Prohibitions contained in Order Nos. 2006-0003-DWQ and R9-2007-0005, Section 301 of the Clean Water Act and California Water Code (Water Code) section 13376 are the basis for assessing administrative civil liability pursuant to Water Code section 13350.²

1. SMWD Discharged Untreated Sewage to Waters of the State

SMWD violated Prohibition C.1 of Order No. 2006-0003-DWQ which states "Any SSO (sanitary sewer overflow) that results in the discharge of untreated or partially treated wastewater to waters of the United States is prohibited."

2. SMWD Created a Condition of Nuisance

SMWD violated Prohibition C.2 of Order No. 2006-0003-DWQ which states "Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m) is prohibited."³

3. SMWD Discharged Untreated Sewage Upstream of a Sewage Treatment Plant

SMWD violated Prohibition B.1 of Order No. R9-2007-0005 which states "The discharge of sewage from a sanitary sewer system at any point upstream of a sewage treatment plant is prohibited"

4. SMWD Discharged Pollutants to Surface Waters without a NPDES Permit

SMWD violated section 301 of the Clean Water Act (33 U.S.C. § 1311) and Water Code section 13376 which prohibit the discharge of pollutants to surface

² While Water Code statutes allow for prosecution under section 13350 and/or section 13385, the San Diego Water Board has historically imposed civil liability associated with sewage spills under section 13350 except in cases of direct discharges to the Pacific Ocean.

³ "Nuisance" means anything which meets all of the following requirements:

(1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to

interfere with the comfortable enjoyment of life or property.

(2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

(3) Occurs during, or as a result of, the treatment or disposal of wastes.

waters except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The discharge of untreated sewage to Tijeras Creek was not in compliance with a NPDES permit.

C. DETERMINATION OF ADMINISTRATIVE CIVIL LIABILITY

Administrative civil liability (ACL) may be imposed pursuant to the procedures described in Water Code section 13323. The complaint alleges the act or failure to act that constitutes a violation of law, the provision of law authorizing civil liability to be imposed, and the proposed civil liability.

Pursuant to Water Code section 13350(a), any person or entity who, in violation of any Waste Discharge Requirements issued by a Regional Water Board, discharges waste, or causes or permits waste to be deposited where it is discharged into waters of the state, is subject to administrative civil liability pursuant to Water Code section 13350(e), either (1) on a daily basis not to exceed five thousand dollars (\$5,000) for each day the violation occurs; or (2) on a per gallon basis in an amount not to exceed ten dollars (\$10) per gallon of waste discharged.

Water Code section 13327 requires the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) to consider several factors when determining the amount of civil liability to impose. These factors include: "...the nature, circumstance, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on ability to continue in business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation, and other matters that justice may require."

The 2009 State Water Resources Control Board Water Quality Enforcement Policy⁴, Section VI, provides a methodology for Regional Water Boards to use in calculating administrative civil liability for ACL cases. The civil liability calculation methodology enables the water boards to fairly and consistently implement liability provisions of the Water Code for maximum enforcement impact to address, correct, and deter water quality violations. The calculation methodology provides a consistent approach and analysis of factors to determine liability based on the applicable Water Code section.

The violations alleged in the Complaint and described in this technical analysis are all "discharge violations" for purposes of considering Water Code section 13350(e) (2) and the Policy's civil liability calculation methodology. Therefore, this analysis skips step three of the methodology, which applies only to "non-discharge violations."

⁴ The Enforcement Policy may be found at:
http://www.waterboards.ca.gov/water_issues/programs/enforcement/docs/enf_policy_final111709.pdf

1. Step 1: Potential for Harm for Discharge Violations

Pursuant to the Enforcement Policy, water boards shall calculate actual or threatened impacts to beneficial uses using a three-factor scoring system to determine a final score for potential for harm. The three factors utilized in the determination of the potential for harm score include; (a) the potential for harm to beneficial uses; (b) the degree of toxicity of the discharge; and (c) the discharges' susceptibility to cleanup or abatement for any violation or group of violations. The scores for these factors are then added to give a final Potential for Harm score.

Based on the recommended range of scores for harm to the environment, risk to potential receptors, and susceptibility to cleanup, and as further detailed below, a score of **7.5** (seven and one half) is assigned to Step 1 of the civil liability calculation.

a. Factor 1: Harm or Potential Harm to Beneficial Uses

This factor evaluates direct or indirect harm or potential for harm from the violation. A score between 0 (negligible) and 5 (major) is assigned in accordance with the statutory factors of the nature, circumstances, extent and gravity of the violation.

The discharge of 2.29 million gallons of untreated sewage resulted in substantial harm to the beneficial uses of Tijeras Creek, Arroyo Trabuco Creek, San Juan Creek and the Pacific Ocean. A score of **4.5** (four and one half) is assigned to Factor 1 of the civil liability calculation. This score falls between the scores for "above moderate" and "major" defined in the Policy.

The Enforcement Policy defines the "above moderate" and "major" benchmarks as:

"Above moderate – more than moderate threat to beneficial uses (i.e., impacts are observed or likely substantial, temporary restrictions on beneficial uses (e.g., less than five days), and human or ecological health concerns)."

"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 facts in this case, as detailed within this section, suggest the “major” score could apply, especially because at least four designated beneficial uses (contact and non-contact recreation and warm and cold freshwater habitat) were restricted for greater than five days. However, the circumstances and complexity of the case weigh in favor of a slight reduction from “major,” while strongly supporting a score greater than “above moderate.” Multiple beneficial uses were adversely affected for a prolonged period; however, chronic effects resulting from this violation are unlikely, and significant public health effects were likely avoided because the public was notified to avoid exposure to the sewage-contaminated waters.

The discharge of sewage may cause a public nuisance, particularly when raw untreated wastewater is discharged to areas with high public exposure, such as streets or surface waters used for drinking, fishing, or body contact recreation. SSOs may pollute surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.

As detailed further in this technical analysis, SMWD’s discharge had direct and negative impacts on the beneficial uses of Tijeras Creek, Arroyo Trabuco Creek, San Juan Creek and the Pacific Ocean.

Sewage Discharge and Spill Response

SMWD reports that on March 23, 2010, at 4:03 p.m., SMWD staff received a “Surge Tank Low” from the Supervisory Control and Data Acquisition (SCADA) system indicating that pressure in the surge tank at the Plano Lift Station was below normal operating range. The surge tank modulates pressure in the Plano 24-inch force main with a combination of air and water to avoid pressure surges which could damage the system or the pumps. The Plano Lift Station facility, located at 21384 Antonio Parkway, Rancho Santa Margarita, is directly west and adjacent to Tijeras Creek. (See Figure 2)



Figure 2. Plano lift station above Tijeras Creek

Upon arrival at the station at 4:14 p.m. staff began troubleshooting the alarm by reviewing operation of all the station equipment. Staff found that the surge tank and control valves were functioning properly and contacted a Senior Maintenance Mechanic for additional help in resolving the alarm. Staff then noticed pump P-4 was air bound. Staff bled the air from the pump and restarted it, resulting in a "High Flow" alarm from the SCADA system. High Flow alarms are caused when the pumping flow rate exceeds the normal rate by ten percent. When pumping head pressure is reduced (as in the case of a pipeline failure) the flow rate increases - triggering the alarm.

Around 5:00 pm SMWD staff then investigated the forcemain alignment crossing Tijeras Creek, discovered raw sewage coming out of the hillside directly across the creek from the lift station, and notified SMWD upper management of an apparent break in the force main.

At 5:30 p.m. SMWD staff began diverting raw sewage flows from upgradient lift stations to the Irvine Ranch Water District Los Alisos Water Reclamation Plant. SMWD staff dispatched their vector trucks and then began coordinating with neighboring districts to utilize their vector and pumper trucks to respond to the spill. All operations crews were mobilized to begin setting up pumping stations on Antonio Parkway. Through the night the pumps were operated periodically to prevent sewage from discharging onto public streets. A total of thirteen vector trucks and eight pumper trucks were utilized throughout the spill response. By 9:00 p.m. SMWD had met with contractors and instructed them to begin pipeline repairs the following day.

On Wednesday March 24, in an effort to isolate the ruptured force main for repairs, SMWD started periodically pumping untreated raw sewage from a 6-inch trash pump directly into Tijeras Creek (see Figure 3). This action was used when peak sewage flow rates exceeded the capacity of the vector trucks to keep up with the spill. This episodic discharge of sewage occurred on the slopes above Tijeras Creek and resulted in erosion of native coastal sage scrub habitat above the creek.



Figure 3. Periodic SMWD discharge of sewage to Tijeras Creek

Beginning at 9:00 a.m. on Wednesday March 24, 2010, The County of Orange Watershed Department provided assistance to SMWD by constructing an earthen berm within Tijeras Creek. The berm was located within O'Neill Regional Park, approximately one mile downstream from the Plano pump station and 100 yards upstream of the confluence with Arroyo Trabuco Creek (see Figure 4).

The berm construction was completed by 3:00 p.m. Construction of the berm prevented the ongoing discharge of untreated sewage from continuing to Arroyo Trabuco Creek, San Juan Creek and ultimately the Pacific Ocean at Doheny Beach. The County of Orange restricted access to O' Neill Park allowing pumper trucks to begin pumping sewage from the berm location and dumping into the Los Flores sewer system (see Figure 5).



Figure 4. Earthen berm construction on March 25, 2010 to contain raw sewage within Tijeras Creek



Figure 5. Pumper truck at O'Neill Park earthen berm on March 26, 2010

While the berm was effective in isolating the impacts of the discharge to an approximately one mile section of Tijeras Creek, it essentially turned the creek into a large “open air” sewage holding pond, with untreated sewage and creek flow backing up behind the berm (see Figure 6)



Figure 6. Sewage backed up in Tijeras Creek north of containment berm

By 10:00 a.m. on March 24, 2010 SMWD contractors had excavated and exposed the 24-inch pipeline at the joint below the point in the creek bank where the discharge was first observed (see Figure 7). SMWD believed that it was close to locating the break, and that repairs would be completed by midnight that day. Unfortunately the leak was not at the exposed joint and further excavation was required. The area of the pipe rupture was not uncovered until 1:00 p.m. on March 25, 2010.



Figure 7. Pipe repair excavation Tijeras Creek on March 25, 2010

Repairs to the ruptured pipe did not commence until March 26, 2010 (see Figure 8) and were completed at 10:00 p.m. on that day. By midnight the forcemain was loaded and functioning, cleanup of the pump station was commenced, and emergency crews were relieved from their stations.



Figure 8. Force main rupture repair work on March 26, 2010

Although repairs to the 24-inch forcemain were complete on March 26, 2010, large amounts of untreated sewage remained impounded behind the berm constructed in Tijeras Creek, and pumping trucks continued to remove sewage from behind the berm for an additional four days until March 30, 2010 (see Figure 9).



Figure 9. Sewage containment area pumped dry on April 1, 2010

Investigation into Cause of Forcemain Failure

The Plano lift station conducts untreated sewage into a 24-inch polyethylene encased iron ductile force main. The original force main was constructed in the mid 1980's. The force main proceeds east from the lift station, crosses Tijeras Creek and continues east until it connects to the Chiquita trunk sewer. The forcemain has been relocated twice since the original construction. The latest relocation occurred to accommodate the SR 241 Toll Road and was constructed in the late 1990's. The forcemain is approximately 1800 feet in length. The pipeline is cathodically protected from exterior corrosion with a pulse type rectifier located in the pump station. Test stations are located on both sides of the creek.

SMWD retained Tetra Tech as engineering consultants to investigate the cause of the failure of the Plano forcemain and design a solution to forcemain protection within the creek. Tetra Tech retained V & A Engineering to do the initial investigation of the pipe failure. V & A personnel performed a visual examination of the pipe on April 8, 2010.

The rupture in the force main was in the form of a 69-inch perforation (see Figure 10). The exterior of the pipe seemed in good condition and was protected with a polyethylene encasement and cathodic protection.

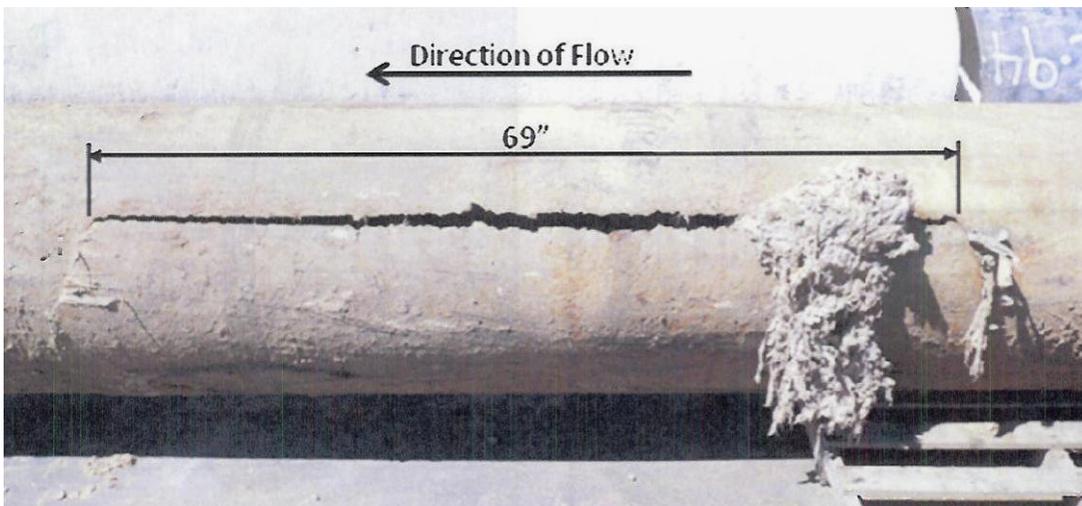


Figure 10. Pipe Rupture

The V & A analysis stated that “the interior of the pipe was lined with a material of unknown origin which was damaged near the rupture. The interior lining was delaminated from approximately the 4:00 position to the 8:00 position, and the pipe wall was progressively thinned as it neared the rupture site” (see Figure 11).

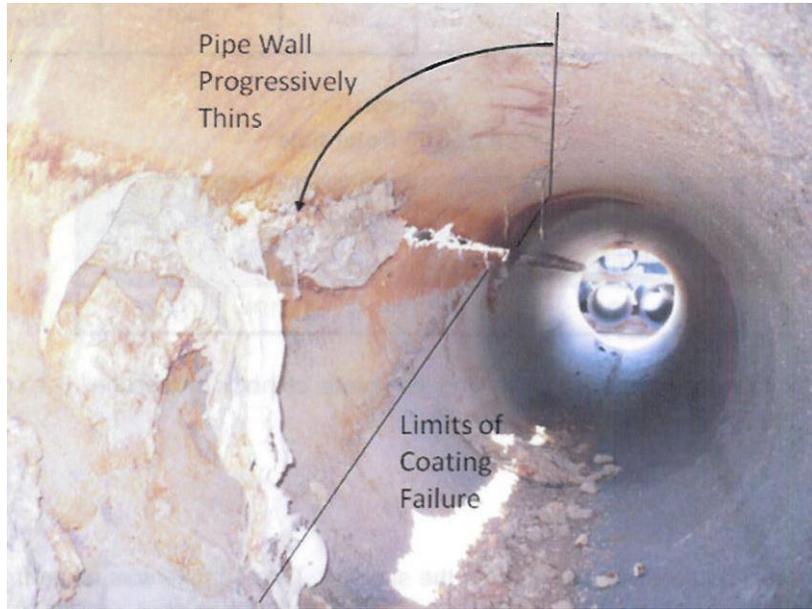


Figure 11. Interior of ruptured forcemain

Loose debris including nails, screws, rocks and pennies were found in the bottom of the elbow in the forcemain before it rises out of Tijeras Creek (see Figure 12).



Figure 12. Debris found inside forcemain

The results of the initial investigation into the pipe failure concluded that external corrosion did not appear to be the cause of the failure. The interior lining was either abraded away or was damaged from grit and other debris forced up and down the pipe from the operation of the lift station pipes cycling back and forth. This constant abrasion resulted in the interior coating failure, and exposed the pipe to the wastewater. This led to internal erosion corrosion of the pipe wall and over time to the eventual failure of the forcemain.

Beneficial Uses of Affected Waters

The Water Quality Control Plan for the San Diego Basin (9) (Basin Plan) designates the beneficial uses for all surface and ground waters in the San Diego Region. These beneficial uses “form the cornerstone of water quality protection under the Basin Plan” (Basin Plan, Chapter 2). Beneficial uses are defined in the Basin Plan as “the uses of water necessary for the survival or well being of man, plants and wildlife.”

The Basin Plan goes on to designate water quality objectives to protect the beneficial uses designated in Chapter 2. Water Code Section 13050(h) defines “water quality objectives” as follows”

“The limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.”

Water quality objectives may be numerical values for water quality constituents or narrative descriptions and must be based on sound water quality criteria needed to protect the most sensitive beneficial uses designated for a water body.

The Basin Plan has designated the existing beneficial uses of surface waters in Tijeras Creek, Arroyo Trabuco Creek and San Juan Creek to include water uses for agricultural (AGR), industrial service supply (IND), contact water recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD) and wildlife habitat (WILD). Arroyo Trabuco Creek is listed under the 2010 Clean Water Act Section 303(D) List of Water Quality Impaired Segments as being impaired for Diazinon, phosphorus, total nitrogen and toxicity. Additionally, San Juan Creek is listed as being impaired for DDE (pesticide), indicator bacteria, phosphorus, selenium, total nitrogen, and toxicity.

The existing beneficial uses of ground waters in Tijeras Creek, Arroyo Trabuco Creek, and San Juan Creek include municipal and domestic supply (MUN), agricultural (AGR), and industrial service supply (IND).

The existing beneficial uses of coastal waters in the Pacific Ocean include water uses for industrial service supply (IND), navigation (NAV), contact water recreation (REC-1), non-contact water recreation (REC-2), commercial and sport fishing (COMM), preservation of biological habitats of special significance (BIOL), wildlife habitat (WILD), rare, threatened and endangered species (RARE), marine habitat (MAR), aquaculture (AQUA), migration of aquatic organisms (MIGR), spawning, reproduction and/or early development (SPWN), and shellfish harvesting (SHELL).

Impacts to Contact Water Recreation (REC-1) Beneficial Use

REC-1 beneficial uses were adversely impacted from the beginning of the spill on March 23 until the cleanup was complete on March 30, 2010. A particularly significant impact to the REC-1 beneficial use occurred along three miles of the Orange County coastline which was closed for six days.

From the onset of the initial sewage spill on March 23, 2010, until the County of Orange constructed an earthen berm and containment area on March 24, 2010, 871,259 gallons of untreated sewage flowed unabated into Tijeras Creek, Arroyo Trabuco Creek, San Juan Creek and eventually to the Pacific Ocean.

The discharge of the initial 871,259 gallons of the total 2.29 million gallons of sewage discharged had a direct negative impact on the Contact Water Recreation (REC-1) beneficial uses on Tijeras Creek, Arroyo Trabuco Creek, San Juan Creek and the Pacific Ocean.

The Basin Plan defines the REC-1 beneficial use as follows:

“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.”

SMWD notified the County of Orange Health Care Agency of the sewage spill on March 23, 2010, and as a result, the County closed a three mile section of beach from the Dana Point Harbor breakwater downcoast to the end of the park at Doheny State Beach, Capistrano County Beach and all of Capistrano Bay Community Beach (see Figure 13).



Figure 13. Beach Closure Area due to spill

The County of Orange Health Agency's beach closure was in effect for six days until the beaches were re-opened on March 29, 2010. This closure directly impacted the public's use and enjoyment of a large section of the California coastline and negatively impacted the REC-1 beneficial uses of the Pacific Ocean for six days. The negative effect this closure had on REC-1 beneficial uses was exacerbated by the fact that the beach closure from March 23 – 29, 2010 coincided with some area colleges' spring break. For example UC Irvine's 2010 spring break was scheduled from March 22-26, 2010. It would be expected that beach usage would be well above the normal attendance during this time, and that closing the beaches would have an economic impact on local businesses surrounding the beach as well.

The six days of direct negative impacts to the REC-1 beneficial uses of the Pacific Ocean resulting in the closure of three miles of beach during college spring break justify the Prosecution Team's scoring of above moderate harm to the REC-1 beneficial uses of the Pacific Ocean.

Tijeras Creek, Arroyo Trabuco Creek and San Juan Creek are also designated as having REC-1 beneficial uses by the Basin Plan. All along these Creeks there are public access points and trails that allow and encourage the public to come into contact with the water.

San Diego Water Board staff inspected the sewage spill on March 25, 2010. As part of that inspection, staff accessed Arroyo Trabuco Creek from a public trail in San Juan Capistrano. As staff approached the creek, they encountered two young boys wading in the creek and splashing each other. There were no posted signs warning these children about the health risks associated with contact with raw sewage. Staff advised the boys to stay out of the creek and to go home and clean up.

SMWD had no procedures in their Overflow Emergency Response Plan addressing the need to post contaminated waterways with warning signs in the event of a major spill like the one at issue. Although the three miles of beach were posted with warning signs alerting the public to the health risks inherent to the discharged sewage, no such posting was made along all the creeks leading to the ocean.

Subsequent to the Plano forcemain spill, SMWD developed signs for posting waterways affected by sewage spills and has a supply of these signs in reserve with its other emergency response gear (see Figure 14).



Figure 14. New SMWD warning signs

Impacts to Non- contact Water Recreation (REC-2) Beneficial Use

Tijeras Creek, Arroyo Trabuco Creek, San Juan Creek and the Pacific Ocean are all designated in the Basin Plan as waters with the Non-contact Water Recreation (REC-2) beneficial use. The Basin Plan defines the REC-2 beneficial uses as follows:

“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 studying, hunting, sightseeing, or aesthetic enjoyment with the above activities.”

The earthen berm constructed within Tijeras Creek by the County of Orange to limit the impacts of the sewage spill on downstream receiving waters was located within the County of Orange O’Neill Regional Park. The park serves both as an overnight camping facility and has picnic/day use facilities and hiking/biking trails for public use. Restrictions were put on the use of certain areas of the park immediately after the County of Orange began constructing the berm. User access was prohibited from the Antonio Parkway access point to allow pumper trucks access to the berm to begin removing the impounded raw sewage. Two miles of the Tijeras Creek trail, which is popular with local mountain biking clubs and hikers, were closed on March 24, 2010. The Tijeras Creek Trail adjacent to the spill location remained closed because of the spill, cleanup activities, and restoration activities until December 2010.

San Juan Creek outlets to the Pacific Ocean at Doheny Beach State Park. The campground at the park was at capacity at the time of the spill. The ocean contamination postings for six days undoubtedly had a negative impact on the public's enjoyment of the REC-2 activities at the park.

At least eight months of restricted access of two miles of trails associated with Tijeras Creek and contamination warnings for six days at Doheny Beach State Park had a direct negative impact on the REC-2 beneficial uses of these waters and further justify the score of 4.5 (between "above moderate" and "major" impacts) assigned to Step 1, Factor 1 potential for harm to beneficial uses score.

Impacts to Warm and Cold Freshwater Habitat Beneficial Uses

Benthic macroinvertebrate and Stream algal assessments conducted eight days after the last raw sewage was pumped out of Tijeras Creek provide inconclusive data regarding the sewage's impacts to warm and cold freshwater habitat beneficial uses. It is also unknown how many fish, amphibians, reptiles and other aquatic-dependant species were harmed by the spill and cleanup activities (e.g. pumping).

The Basin Plan designates Tijeras Creek with existing warm and cold freshwater habitat beneficial uses. The Basin Plan defines these beneficial uses as follows:

"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.

"Cold Freshwater Habitat (COLD) - Includes uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

SMWD contacted DUDEK, an environmental consulting firm, soon after the spill began to provide assistance with the evaluation of the habitat and potential impacts of the spill. DUDEK staff met with SMWD staff the morning of March 24, 2010 for the first time. On March 29, 2010 DUDEK biologists documented the extent of the vegetation impacts.

The initial assessment of the impacts was reported to SMWD on April 15, 2010 and noted that impacts to vegetation and land cover from the response and repair work associated with the spill were estimated to include an area of approximately 3.43 acres, including 1.97 acres of riparian habitat (coast live oak woodland and southern willow riparian forest) along a 1.5 mile section of Tijeras Creek behind the earthen berm.

In their initial assessment of the site, SMWD's biologists did not observe any special status species within the impact area. However, determining the presence or absence of special status species would have required the completion of focused survey protocols at the appropriate time of year, and these were not conducted. It is therefore unknown if the impact area was occupied by any special status species during the spill and response timeframe.

The discharge of 2.29 million gallons of untreated sewage to Tijeras Creek, and the storage of 1.395 million gallons of sewage within the 1.5 mile stretch of creek had a great potential to harm avifauna, mammals, reptiles, amphibians and fish within the impact area. Untreated sewage contains a mixture of contaminants including a variety of bacteria, protozoans viruses, and toxic chemicals and high concentrations of nitrogen and phosphorous. Viruses and bacteria are a potential vehicle for disease transmission to ecological receptors. Wildlife exposure to untreated sewage can result in suppression of the immune response system, alterations in defense mechanisms, and the depression of essential biological activity that can lead to susceptibility to disease and latent infections. Amphibians are especially sensitive to a number of bacteria found in raw sewage.

At the request of the California Department of Fish & Game on April 8, 2010 SMWD consultants conducted bioassessment analyses of benthic macroinvertebrates (BMI) and benthic algae (i.e. periphyton) in the receiving waters of Tijeras Creek. The goal of the study was to document impacts of the sewage discharge on the benthic biota of the creek.

BMI reside in streams for periods of time ranging from one month to several years and have varying sensitivities to physical, biological and chemical disturbances. BMI analysis provides a realistic long term measure of stream habitat health and ecological response and allows for comparison of relative habitat health between monitoring sites.

Benthic algae are important primary producers in streams. Benthic algae, especially diatoms, respond quickly to changes in water quality and are particularly useful ecological indicators when populations are assessed and compared to established indices of biotic integrity. Changes in community compositions can be used to diagnose environmental stressors on a stream.

SMWD's consultants established two 150 meter monitoring reaches within Tijeras Creek, one upstream of the pipe failure and one below. The upstream site was considered to be unaffected by the sewage discharge. The downstream site was approximately 1,200 meters downstream of the discharge point. The physical habitat quality was similar for both sites, however the downstream site was marked by a film of silt with an organic odor that was presumed to indicate the stream height during the spill.

Results of the BMI analysis at the two sites indicated that both sites were in a degraded condition. The Index of Biotic Integrity (IBI) scores were 19 for the upstream site and 16 for the downstream site. Both scores fall within the poor rating. The IBI score gives a quantified score to a site based on a multi-metric evaluation technique, and the scores may be compared across seasons and years to give an indication of trends over time. These scores indicate a degraded benthic community typical of urbanized watersheds in Southern California. In 2009 the Stormwater Monitoring Coalition sampled a reach in Tijeras Creek approximately 600 meters downstream of the impact area and also found the IBI score (12.9) for that site to be of very poor quality, which would indicate the stream has consistently suffered the effects of urbanization.

Analysis of the benthic algae communities indicated that both sites had moderate conditions based on taxonomic richness and diversity. The analysis indicated that the diatom communities of both sites were dominated by species which indicated that organic materials and nutrients (nitrogen and phosphorous) might have been elevated to some extent. SMWD's report did note that particular diatom species recorded only at the downstream site indicated that this site had likely been affected by organic waste pollution.

While this bioassessment monitoring data provides a snapshot of the relative stream health of Tijeras Creek weeks after the spill began, it is inconclusive in finding hard evidence of impairment to the stream biota resulting from the discharge. It does serve to establish that the entire stream is in a degraded condition indicative of many Southern California urbanized watersheds. It is unknown what the stream conditions were prior to the discharge, and if the organisms at the downstream site had been in residence throughout the spill event, or if new recruitment from upstream occurred after the spill.

The construction of the Berm in Tijeras Creek turned a 1.5 mile section of the creek into a makeshift sewage holding pond for 9 days, from March 24 - April 1, 2010. This effectively removed any COLD or WARM beneficial uses from that section of the creek for at least eight days. The reduction in dissolved oxygen smothered any stream organisms that require it for their survival, and not withstanding any other negative impacts to other beneficial uses, supports a score greater than "above moderate" harm in Step 1.

Impacts to Wildlife Habitat Beneficial Use

The Basin Plan designates Tijeras Creek with existing wildlife habitat beneficial uses. The Basin Plan defines this beneficial use as follows:

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

Tijeras Creek and its riparian corridor support a variety of mammal, bird, amphibian and reptilian species. For example the spill occurred within essential habitat for the federally threatened coastal California gnatcatchers, and gnatcatchers have been observed within the vicinity of the spill site (see Exhibit 5).

Since no focused wildlife surveys were conducted, it is unknown what species may have been within the impact area, but it can be reasonably assumed that there was a potential for harm to the ecosystem and its inhabitants resulting from the discharge and storage of sewage within the creek and 3.5 acres of riparian habitat.

b. Factor 2 : Physical, Chemical, Biological or Thermal Characteristics of the Discharge

The characteristics of the discharged material posed an **above-moderate** risk or threat to potential receptors. The Enforcement Policy defines above-moderate as:

“Discharged material poses an above-moderate risk or 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).”

The high degree of toxicity in untreated sewage poses a direct threat to human and ecological receptors. Accordingly, a score of **3** (three) is assigned to Factor 2.

In its response to investigative Order R9-2010-0078, SMWD characterized the quality of its untreated sewage influent to the Chiquita Wastewater Reclamation Plant for a variety of pollutants. Table 1 below outlines that characterization:

Constituent	Unit of Measure	Test Results
Total Nitrogen	mg/L	71.2
Total Dissolved Solids	mg/L	797
Chloride	mg/L	159
Sulfate	mg/L	218
Iron	mg/L	0.35
Manganese	mg/L	0.05
Biological Oxygen Demand	mg/L	244
Methylene Blue Activiated Substances	mg/L	3.11

Table 1. Characterization of SMWD raw sewage influent

Untreated sewage contains high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen-demanding organic compounds, oil and grease and other pollutants.

The high BOD contained in the raw sewage stored within the 1.5 mile section of Tijeras Creek from March 24, 2010 to April 1, 2010 directly reduced the amount of dissolved oxygen available to the biota in the creek. Less oxygen was available for aquatic life, such as insects and fish. A high BOD measure, harms stream health in the same ways as low dissolved oxygen, aquatic organisms will become stressed, suffocate, and die. It can be assumed that any aquatic organisms within the impound area that required oxygen for their survival were negatively impacted by the storage of the untreated sewage within Tijeras Creek. The BOD measured in the raw sewage impounded in Tijeras Creek (244 mg/L) is approximately an order of magnitude higher than the amount of BOD allowed by the Chiquita Wastewater Treatment plants' effluent limitations (25 mg/L average monthly) contained in its WDR's for the plant.

Water Quality Monitoring

Order No. 2006-0003-DWQ requires sewerage agencies to develop a Sanitary Sewer System Management Plan (SSMP) to facilitate the proper funding and management of their sanitary sewer systems. Section 6 of that plan is the required Overflow Emergency Response Plan. This plan identifies measures to protect public health and the environment in response to a sanitary sewer overflow. As part of this plan, sewerage agencies must develop "... such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge."

SMWD's spill monitoring plan contained in Section 6 of its 2009 SSMP lacked any specific monitoring plan in event of a major spill. When San Diego Water Board staff enquired about ongoing monitoring of the spill on March 25, 2010, SMWD staff had not begun any water quality monitoring. SMWD provided a monitoring plan to San Diego Water Board staff on March 26, 2010, and monitoring of the spill site did not commence until 4 days into the discharge on March 27, 2010. A map of the sampling sites monitored by SMWD from March 27, 2010 to April 6, 2010 is provided as Exhibit 5.

Results of SMWD's monitoring for Fecal Coliform (see Figure 15) provided in response to Investigative Order No. R9-2010-0078 show that the entire impact area and areas downstream of the spill exceeded the Basin Plan's water quality objectives necessary to sustain the existing REC-1 and REC-2 beneficial uses of Tijeras Creek for the entire 11 day monitoring period.

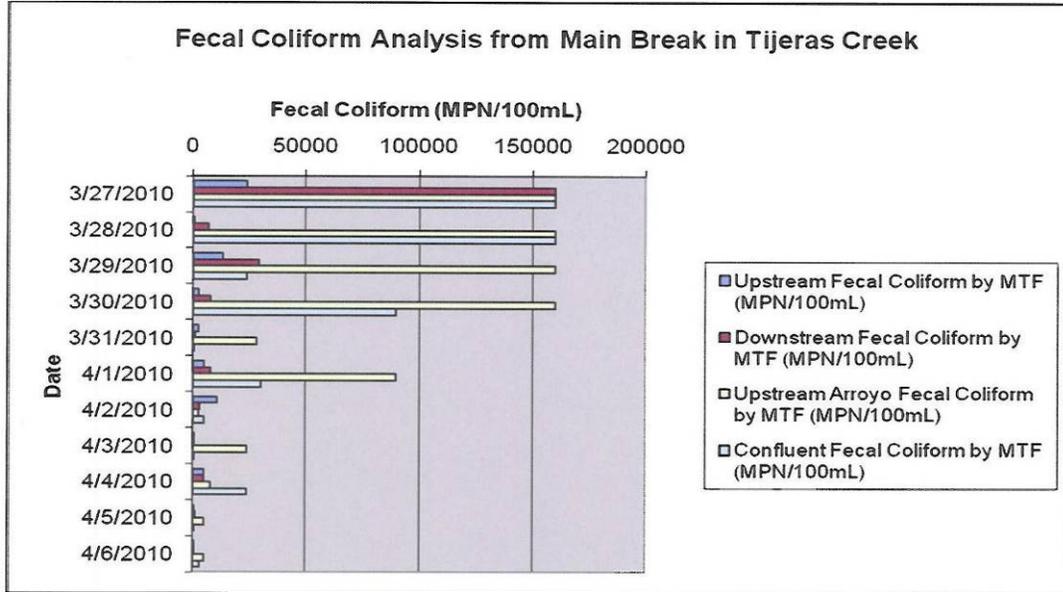


Figure 15. Fecal coliform monitoring results provided by SMWD

SMWD monitoring results for Enterococcus (See Figure 16) similarly show that the impact area and downstream sampling areas exceeded the Basin Plans water quality objective for Enterococcus for waters designated REC-1 (infrequently used freshwater area) for a period of at least 7 days at all sites sampled.

This data confirms that the characteristics of the sewage discharge posed a direct threat to public health in Tijeras Creek. In addition, the closure of three miles of public beach demonstrates the direct threat to public health at those locations.

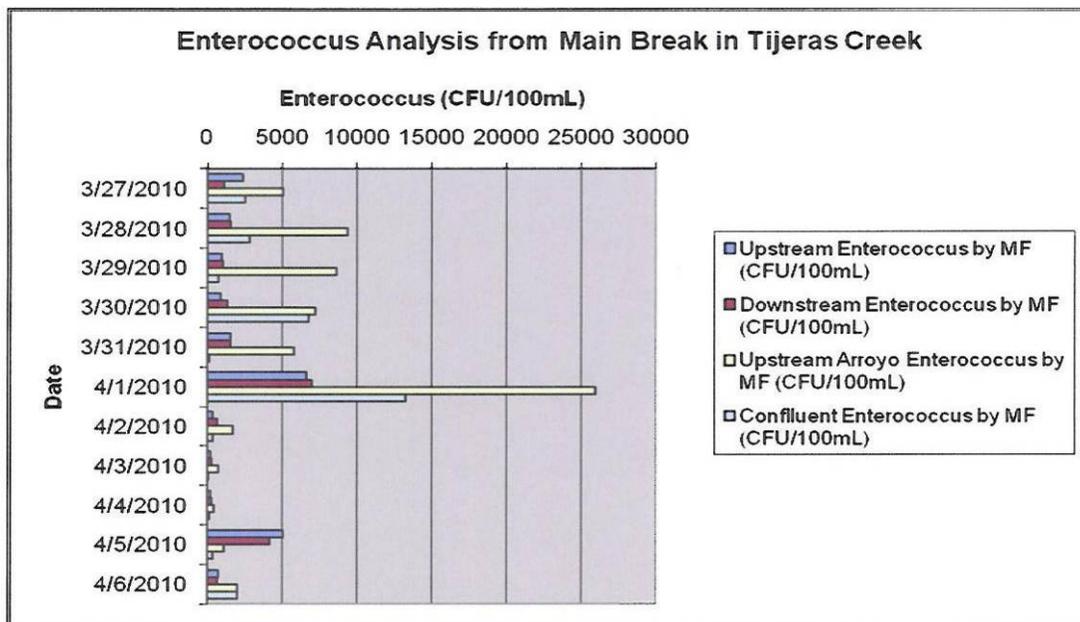


Figure 16. Enterococcus sampling data provided by SMWD

c. Factor 3: Susceptibility to Cleanup or Abatement

Pursuant to the Enforcement Policy 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 percent of the discharge is susceptible to cleanup or abatement.

Approximately 61 percent of the discharge (1,395,000 gallons) was susceptible to cleanup or abatement. Accordingly, a score of **0** (zero) is assigned to the penalty calculation methodology.

2. Step 2: Assessments for Discharge Violations

Water Code section 13350(e) states that a Regional Water Board may impose civil liability on either a daily basis or on a per gallon basis, but not both. In the case of a high volume discharge, the Enforcement Policy provides that the water boards shall determine an initial liability amount on a per gallon basis using the Potential for Harm score (step 1) and the Extent of Deviation from the Requirement of the violation.

a. Extent of Deviation from Requirement

The discharge of 2.293 million gallons of untreated sewage is a major deviation from required standards (Discharge Prohibitions).

The penalty calculation methodology defines a major deviation as:

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

SMWD is in violation of numerous discharge prohibitions contained in Orders Nos. 2006-0003-DWQ and R9-2007-0005. While SMWD did not consciously disregard these requirements, the magnitude and duration of the spill and the adverse impacts to the beneficial uses of Tijeras Creek, Arroyo Trabuco Creek, San Juan Creek and the Pacific Ocean rendered the essential functions the Discharge Prohibitions completely ineffective.

Accordingly, based on a “major deviation” and the Potential for Harm score of 7.5 calculated in Step 1, the per-gallon deviation factor is **0.455**. This factor is produced by calculating the average of the two scores for “major deviation” in “Table 1 - Per Gallon Factor for Discharges” of the Enforcement Policy that are identified for Potential for Harm scores of 7 and 8.⁵

⁵ For “major deviation,” Table 1 of the Enforcement Policy (p.14) identifies Per Gallon Factors of 0.310 and 0.600 for Potential for Harm scores of 7 and 8, respectively.

b. Initial Amount of the ACL

The maximum per gallon liability amount allowed under Water Code section 13350(e) is ten dollars (\$10) per gallon of waste discharged. Since the volume of sewage spills can be very large (as in this instance), however, the Enforcement Policy suggests limiting the maximum initial liability for high volume discharges to two dollars (\$2.00) per gallon in this step of the penalty calculation, unless that results in an inappropriately small penalty based on the unique facts of the case.

Calculating the initial base amount of the ACL for the discharge is achieved by multiplying:

(Per Gallon Deviation Factor) X (Gallons) X (Adjusted Maximum per Gallon) =
(Initial ACL Amount)

$$(0.455) \times (2,293,000) \times (\$2.00) = \mathbf{\$2,086,630}$$

3. Step 3: Per Day Assessments for Non-Discharge Violations

Non-discharge violations are not alleged in the ACL Complaint.

4. Step 4: Adjustment Factors

The Enforcement Policy describes three factors related to the violator's conduct that should be considered for modification of the amount of initial liability: the violator's culpability, the violator's efforts to cleanup or cooperate with regulatory authorities after the violation, and the violator's compliance history. After each of these factors is considered for the violations involved, the applicable factor should be multiplied by the proposed amount for each violation to determine the revised amount for that violation.

a. Adjustment for Culpability

For culpability, the Enforcement Policy suggests an adjustment resulting in a multiplier between 0.5 to 1.5, with the lower multiplier for accidental incidents, and the higher multiplier for intentional or negligent behavior. In this case a culpability multiplier of **1.0** has been selected as detailed below.

The portion of 24-inch ductile iron pipe that ruptured was well within its life expectancy, having been constructed in the 1980's. Corrosion from the outside of the pipe was monitored and prevented by utilization of a cathodic protection system. The force main, being a pressure pipeline was generally always full of sewage, which did not enable the interior of the pipe to be routinely inspected. SMWD reasonably expected that the pipe was

functioning as designed. Accordingly the culpability factor is assumed to be neutral and a multiplier of 1.0 is appropriate.

b. Adjustment for Cleanup and Cooperation

For cleanup and cooperation, the Enforcement Policy suggests an adjustment should result in a multiplier between 0.75 to 1.5, with the lower multiplier where there is a high degree of cleanup and cooperation. In this case a Cleanup and Cooperation multiplier of **0.75** has been selected due to the Dischargers' efforts to manage a difficult situation and their willingness to work with various the resource agencies involved.

Upon detecting the spill, SMWD responded quickly and coordinated effectively with nine other neighboring sewerage agencies, four pumping companies and the County of Orange to respond to the spill.

SMWD staff was cooperative in assisting San Diego Water Board Staff during the March 25, 2010 and April 1, 2010 inspections of the spill site. Additionally, SMWD was timely in its response to Investigative Order No. R9-2010-0078.

On April 5, 2010 SMWD conducted a post-spill response evaluation meeting with State, Federal and Municipal Agencies to solicit input regarding the effectiveness of the spill response. Input garnered from this meeting was used to draft improvements to SMWD's Sanitary Sewer Management Plan (SSMP), Sanitary Sewer Overflow Response Plan (SSORP), spill notification list and sampling protocol.

c. Adjustment for History of Violations

The Enforcement Policy suggests that where there is a history of repeat violations, a **minimum** multiplier of 1.1 should be used for this factor. In this case, a multiplier of **1.1** was selected because of SMWD's recent history of high volume sewage spills.

A review of the California Integrated Water Quality System (CIWQS) Sanitary Sewer Overflow (SSO) database and San Diego Water Board files shows that SMWD has a history of repeat violations of public sewage spills in recent years. On April 5-8, 2007, 392,000 gallons of untreated sewage was discharged by SMWD to San Juan Creek from the rupture of the 16-inch Ortega Force Main in unincorporated Orange County. On July 3-4, 2007, 495,934 gallons of untreated sewage was discharged by SMWD to Cristianitos Creek from the rupture of the Talega Force Main located within the Rancho Mission Viejo Land Conservancy. These two spills resulted in the San Diego Water Board assessing an administrative civil liability against SMWD in the amount of \$133,190.

Subsequent to the above incidents, in 2007, SMWD reported two more public sanitary sewer overflows (SSOs) totaling 30,700 gallons of sewage discharged to Cristianitos Creek due to pipe failures. In 2008, EMWD reported one public SSO totaling 900 gallons of sewage discharged to Tijeras Creek. In 2009, SMWD had two public sewage spills totaling 1,000 gallons. In 2010, prior to the March 23 spill, SMWD had no public sewage spills.

The above significant public sewage spills comprise a history of repeat violations and, accordingly, warrant the minimum adjustment upward directed by the Enforcement Policy. A table of SMWD sewage spill violations for the years 2007 – 2010, including the March 23, 2010 spill, is included as Exhibit 6.

d. Adjustment for Multiple Violations Resulting from the Same Incident

The Enforcement Policy provides that for situations not addressed by statute, a single base liability amount can also be assessed for multiple violations resulting from the same incident at the discretion of the Regional Water Boards under certain, specific circumstances. Except where statutorily required, however, multiple violations shall not be grouped and considered as a single base liability amount when those multiple violations each result in a distinguishable economic benefit to the violator.

Although the ACL Complaint alleges multiple violations of waste discharge requirements and the Clean Water Act, these violations stem from a single incident and therefore are being assessed with a single liability amount.

e. Adjustment for Multiple Day Violations

The Enforcement Policy provides that for violations lasting more than 30 days, the San Diego Water Board may adjust the per-day basis for civil liability if certain findings are made and provided that the adjusted per-day basis is no less than the per day economic benefit, if any, resulting from the violation.

The discharge of 2.39 million gallons of untreated sewage did not last more than 30 days, therefore, this adjustment factor does not apply.

5. Step 5: Determination of Total Base Liability Amount

The Total Base Liability amount of **\$1,721,470** is determined by adding the initial liability amounts for each violation and applying the adjustment factors in section 4.2. Accordingly, the Total Base Liability amount for the violations is calculated by multiplying the total base liability by the adjustment factors:

$$\begin{aligned} & (\text{Initial Base Liability}) \times (\text{Culpability}) \times (\text{History of Violations}) \times (\text{Cleanup}) = \\ & (\$2,086,630) \times (1.0) \times (1.1) \times (0.75) = \$1,721,470 \end{aligned}$$

6. Step 6: Ability to Pay and Ability to Continue Business

The Enforcement Policy provides that if the San Diego Water Board has sufficient financial information to assess the violator's ability to pay the Total Base Liability, or to assess the effect of the Total Base Liability on the violator's ability to continue in business, then the Total Base Liability amount may be adjusted downward. Similarly, if a violator's ability to pay is greater than similarly situated dischargers, it may justify an increase in the amount to provide a sufficient deterrent effect.

At this time the Prosecution Team does not have information demonstrating that SMWD is unable to pay the proposed administrative civil liability, or how the payment of the proposed liability would affect its ability to provide required services.

Accordingly, this penalty factor in this step is neutral and does not weigh either for or against adjustment of the Total Base Liability. SMWD may provide additional financial information in response to the Complaint to demonstrate that an adjustment is warranted.

7. Step 7: Other Factors as Justice May Require

The Enforcement Policy provides that if the San Diego Water Board believes that the amount determined using the above factors is inappropriate, the liability amount may be adjusted under the provision for "other factors as justice may require," if express, evidence-supported findings are made. In addition, the staff costs for investigating the violation should be added to the liability amount.

The staff costs for the San Diego Water Board investigation to date are \$10,500. As a result the liability amount is recommended to be adjusted upward by \$10,500, bringing the total proposed liability to **\$1,731,970**. No other factors are being considered in determining the proposed liability amount. This adjustment only includes staff time to prepare the ACL complaint. Staff costs for investigation of the incident and preparation of the Investigative Order have been invoiced and recovered through cost recovery.

8. Step 8: Economic Benefit

The Enforcement Policy directs the San Diego Water Board to determine any economic benefit of the violations based on the best available information, and suggests that the amount of the administrative civil liability should exceed this amount whether or not economic benefit is a statutory minimum. The economic benefit of the violations is estimated to be **\$667**.

SMWD derived economic benefit from not having to treat the 871,259 gallons of sewage that were not recovered. SMWD has provided documentation showing that for 2009/2010, the allocated cost for the Chiquita Treatment Facility to treat 1,000,000 gallons of sewage is \$766. Thus the SMWD derived an economic benefit of: 0.871259 million gallons X \$766/million gallons treated = \$667.

9. Step 9: Maximum and Minimum Liability Amounts

The maximum liability that the San Diego Water Board may assess pursuant to Water Code section 13350(e) is ten dollars (\$10.00) per gallon. Therefore, the maximum liability the San Diego Water board may assess is **\$22,930,000**.

Water Code section 13350(e) does not set a minimum liability when utilizing the per gallon option. The 2009 Enforcement Policy requires that:

“The adjusted Total Base Liability shall be at least 10 percent higher than the Economic Benefit Amount so that liabilities are not construed as the cost of doing business and that the assessed liability provides a meaningful deterrent to future violations.”

Therefore, the minimum liability amount the San Diego Water Board may assess is \$734. The recommended liability falls within the allowable statutory range for minimum and maximum amounts.

10. Step 10: Final Liability Amount

The total proposed civil liability in this matter is \$1,731,970, which corresponds to \$0.755 per gallon of raw sewage discharged to waters of the State.

The proposed amount of civil liability attributed to the discharge of 2.29 million gallons of untreated sewage in violation of Waste Discharge Prohibitions contained in State Water Board Order No. 2006-0003-DWQ and San Diego Water Board Order No. R9-2007-0005 was determined by taking into consideration the factors in Water Code sections 13327 and 13350(e), and the civil liability calculation methodology in the 2009 Enforcement Policy (Exhibit 5).

The proposed civil liability is appropriate for this untreated sewage discharge because:

- a. The discharge of large amounts of raw sewage into waters of the United States adversely affected beneficial uses of Tijeras Creek, Arroyo Trabuco Creek, San Juan Creek and the Pacific Ocean, including contact water recreation (REC-1), non-contact water recreation (REC-2), cold freshwater habitat, (COLD), warm freshwater habitat (WARM) and wildlife habitat (WILD).

- b. The high degree of toxicity in untreated sewage directly impacted beneficial uses.
- c. The proposed civil liability assessment is sufficient to recover costs incurred by staff of the San Diego and State Water Board, and it serves as deterrent for future violations.

Exhibits

Exhibit 1: Vicinity Map

Exhibit 2: Cross Section of Plano Forcemain Alignment

Exhibit 3: Location Map of Spill and Berm Location

Exhibit 4: Gnatcatcher Essential Habitat within Spill Area

Exhibit 5: Location Map of Water Quality Monitoring Sites

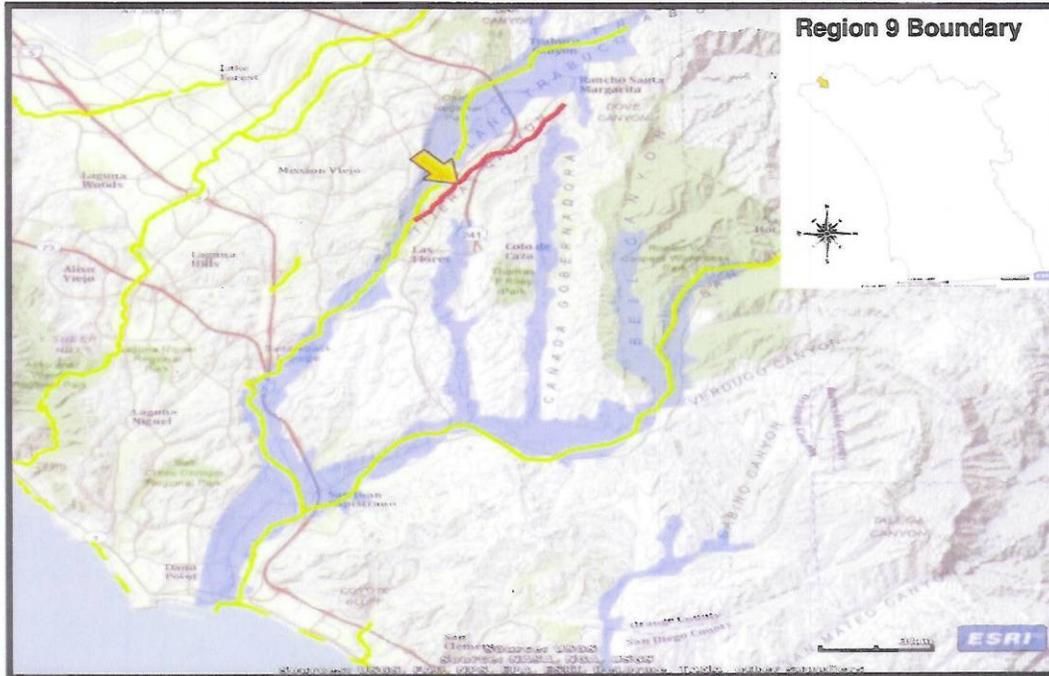
Exhibit 6: SMWD Category 1 Public SSO Spill History

Exhibit No. 1

Vicinity Map



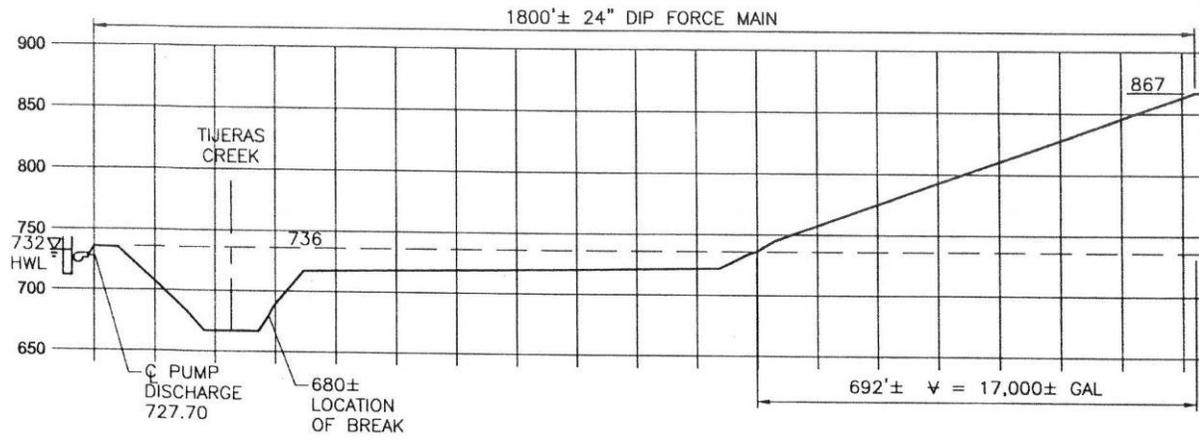
**Santa Margarita Water District
 Sanitary Sewer Overflow**



Impaired Water Bodies Downstream of Overflow	Pollutants
Arroyo Trabuco Creek	Diazinon Phosphorus Nitrogen
San Juan Creek	DDE Indicator Bacteria Phosphorus Selenium Nitrogen Toxicity
Pacific Ocean Shoreline	Indicator Bacteria Enterococcus Total Coliform Fecal Coliform

Key	
	Overflow Site
	Impaired Water Bodies
	San Juan Valley Groundwater Basin
	Tijeras Creek *not on 303d list

Exhibit No. 2 **Cross section of Plano Forcemain Alignment**



 TETRA TECH	SANTA MARGARITA WATER DISTRICT	
	PLANO FORCE MAIN JUNE 2010	FIGURE 1

Exhibit No. 3 **Spill and Berm Location Map**



Exhibit No. 4 Tijeras Creek California Gnatcatcher Essential Habitat



Exhibit No. 5

Location Map of Sample Sites
Plano Forcemain Failure

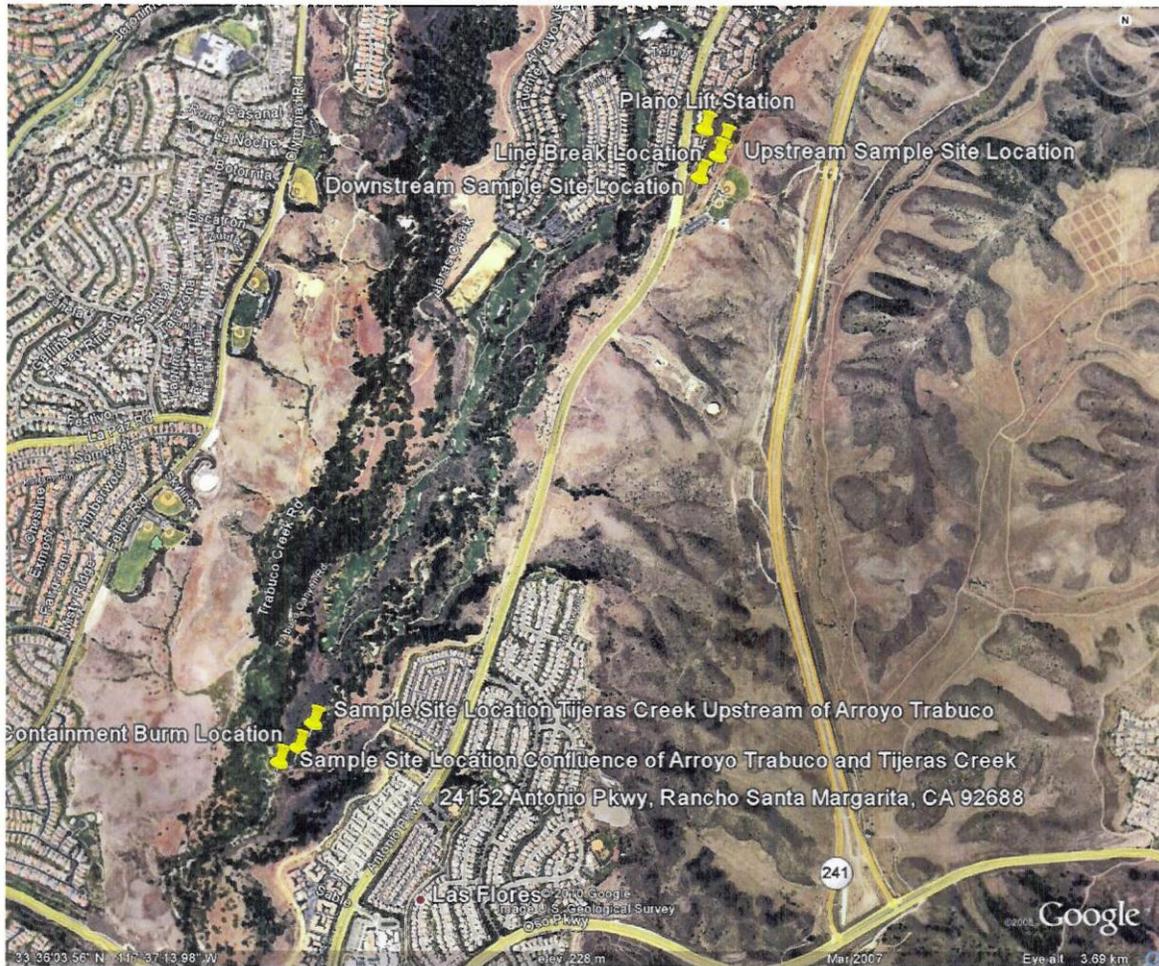


Exhibit No. 6 SMWD Category 1 Public Spill History 2007 - 2010

Spill Date	CIWQS Event ID	Gallons Spilled	Gallons Recovered	Destination	Cause
03/23/2010	751027	2,293,000	1,395,000	Tijeras Creek	Force Main Failure
07/08/2010	740829	900	900	Oso Creek	Root Blockage
04/26/2009	737029	100	0	Storm Drain	Debris Blockage
04/30/2008	716815	900	890	Tijeras Creek	Collection Truck Spill
09/14/2007	657556	10,000	50	Cristianitos Creek	Pipe Failure
08/20/2007	656109	20,700	100	Cristianitos Creek	Force Main Rupture
07/03/2007	653597	495,934	15,000	Cristianitos Creek	Force Main Rupture
04/05/2007	649189	392,000	0	San Juan Creek	Broken Pipe Flange
02/25/2007	647401	700	0	Gobernadoras Creek	Root Blockage
TOTALS		3,214,234	1,411,940		
Total Released to Environment	1,802,294 Gallons				