

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

**Staff Report
Buena Vista Lagoon Sewage Discharge
City of Vista & City of Carlsbad**

For

**Proposed Administrative Civil Liability
Contained in Complaint No. R9-2007-0099
City of Vista & City of Carlsbad**

Noncompliance with

**State Water Resources Control Board (SWRCB)
Order No. 2006-0003-DWQ, Statewide General Waste Discharge
Requirements for Sanitary Sewer Systems**

September 28, 2007

**by
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without attachments

1. Introduction

This report provides a summary of factual and analytical evidence supporting administrative assessment of civil liability in the amount of \$ 1,095,000 against the Cities of Vista and Carlsbad (Dischargers) for violations of State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems as alleged in Complaint No. R9-2007-0099.

2. Background

Both Dischargers independently own and operate approximately 412 miles of sewer lines within their municipal jurisdictions. However, the Dischargers jointly own and operate a 24-inch diameter ductile iron pipe (DIP) force sewer main that conveys sewage from the Buena Vista Pump Station to the Encina Wastewater Authority's treatment plant in Carlsbad. The Buena Vista Pump Station is located on Jefferson Street south of Highway 78 within the City of Carlsbad. Installed in 1982, the City of Vista owns 90% of this force sewer main, and the City of Carlsbad owns the remaining 10%. The location and alignment of the force sewer main is illustrated in the Buena Vista Forcemain Alignment figure in Appendix A.

From March 31, 2007 to April 3, 2007, a total of 7.3 million gallons of untreated sewage discharged from the force sewer main into Buena Vista Lagoon.

The Dischargers are required to operate and maintain their sewage collection systems to prevent sanitary sewer overflows and spills in compliance with requirements of State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

Prohibition C.1 of Order No. 2006-0003-DWQ states that the discharge of wastewater to waters of the United States is prohibited. The Buena Vista Lagoon is a water of the United States. Prohibition C.1 of Order No. 2006-0003-DWQ states that 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.

As established in the Water Quality Control Plan for the San Diego Region (9), the designated beneficial uses of Buena Vista Lagoon include contact and non-contact water recreation, estuarine habitat, wildlife habitat, rare threatened or endangered species, marine habitat, and warm fresh water habitat.

The Buena Vista Lagoon, a fresh water body, is owned and maintained by the California Department of Fish & Game (CDFG) and is located near the intersection of I-5 and Highway 78, within the City of Carlsbad and City of Oceanside as illustrated in Figure 1 and the Incident Area Map (Figure 1, Keith Merkel & Associates, Inc., primary environmental consultant for the Dischargers) in Appendix A. Because of the lagoon's unique and highly valued coastal wildlife habitat, the CDFG has designated the Buena Vista Lagoon as an ecological reserve. Based upon available water quality data, the lagoon is considered impaired for bacteria, nutrients, and sediment and is on the Clean Water Act Section 303d list for impaired waterbodies. Untreated sewage is comprised of high concentrations of bacteria levels, biochemical oxygen demand (BOD), nutrients, heavy metals, and synthetic organics. These pollutants adversely affect the quality of water needed to support and sustain the beneficial uses of surface waters in the Buena Vista Lagoon, particularly contact and non-contact recreation and aquatic life beneficial uses. Any discharge of untreated sewage to this sensitive, freshwater habitat adds significantly to the bacteria and nutrient impairment of Buena Vista Lagoon.

Staff from the Northern Core Regulatory Unit inspected the discharge location on April 2, 3, and 4, 2007. The San Diego Regional Board (Regional Board) issued Investigative Order No. R9-2007-0060 on April 6, 2007. In response to the Order, the Dischargers submitted an April 23, 2007 technical report entitled *Discharger Response to Investigative Order No. R9-2007-0060, Discharge of Untreated Sewage Into Buena Vista Lagoon Within the City of Carlsbad, San Diego County*. A copy of the report is available to the public for review at the Regional Board office.

3. Allegations

The Dischargers violated Prohibition C.1 of Order No. 2006-0003-DWQ by discharging 7.3 million gallons of untreated sewage into the Buena Vista Lagoon, a water of the United States. The discharge of untreated sewage from their 24-inch diameter force sewer main, located at the Buena Vista Pump Station, occurred from March 31, 2007 through April 3, 2007.

4. Determination of Administrative Civil Liability

An administrative civil liability (ACL) is imposed pursuant to the procedures described in California Water Code (CWC) Section 13323. The procedures specify that the Regional Board Executive Officer issues a complaint to any person on whom the civil liability may be imposed. 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.

Persons or entities that discharge waste in violation of Waste Discharge requirements are subject to an ACL pursuant to California Water Code Section 13350, either on a daily basis not to exceed five thousand dollars (\$ 5,000) for each day the violation occurs, or on a per gallon basis, not to exceed ten dollars (\$ 10) for each gallon of waste discharged, but not both. The statutory maximum ACL amount for the March 31, 2007 to April 3, 2007 sewage discharges therefore is \$ 73,000,000. The amount of the ACL is based upon consideration of the following factors:

4.1 Nature, Extent, & Gravity of the Sewage Discharge

The Discharger's report dated April 23, 2007 states the discharge of untreated sewage from the 24-inch force sewer main into the Buena Vista Lagoon started sometime Friday March 30, 2007 or Saturday March 31, 2007. At approximately 7:00 PM on Sunday April 1, 2007, a private citizen observed the discharge and reported it to the police. The City of Carlsbad was notified and responded immediately to the report. By 8:00 PM, the City of Carlsbad confirmed the discharge (estimated at 1,000 to 2,000 gallons per minute). The Dischargers initially used a small backhoe in an attempt to excavate and repair the damaged force sewer main. Due to the location, depth, and lack of available force sewer main construction plans, the City of Carlsbad's initial efforts to repair the leak were inadequate. Because the City of Carlsbad could not locate the pipeline as-built plans to ensure the exact location of the pipeline, the needed work to uncover and repair the pipeline was delayed.

By the next day, April 2, 2007, the Dischargers contracted with a private pipeline company that was qualified to repair the pipe. Repair of the pipe included constructing a sheet piling coffer dam, dewatering the area around the leak, cutting out the damaged section, and installing a repair coupling. All repair work was completed by 12:00 on April 3, 2007 and the force sewer main was returned to service.

The Dischargers hired Schiff Associates (a corrosion engineer) to assess the condition of the failed pipe. Schiff Associates, in a report dated April 17, 2007, responded that the likely cause of the pipe failure was external corrosion, caused by damage to a protective polyethylene encasement. The report concluded the initial damage to the encasement may have occurred during installation of the force sewer main. The report recommends additional testing of the pipe material, testing of the encasement material, and testing of other sections of the pipe for external corrosion. The testing recommended is an electromagnetic conductivity survey of the pipe to identify potential areas of corrosion. The report also recommends the pipe be evaluated for the feasibility of installing cathodic protection to protect against further corrosion.

The sewage discharge had significant short term impacts to both water quality and beneficial uses. Bacterial samples collected from Buena Vista Creek and Lagoon indicated public contact was unsafe. Warning signs were posted around the lagoon from April 2 through April 19 for a loss of 17 days of recreation. The coastal area 600 feet south and 1200 feet north of the Buena Vista Lagoon outlet were also posted with warning signs as a precautionary measure, from April 2, 2007 until April 9, 2007, for an additional loss of 7 days of recreation. Water quality sampling results indicated that the untreated sewage plume migrated throughout the eastern basin of the Buena Vista Lagoon and under the I-5 Freeway into the western basin, but it appears that the waste plume did not to reach the Pacific Ocean. The approximate extent of the sewage discharge in the Buena Vista Lagoon is illustrated on the Incident Area Map (Figure 1, Keith Merkel & Associates, Inc.) in Appendix A.

The discharge of untreated sewage significantly impacted beneficial uses of surface waters by sensitive ecological receptors in the lagoon. The Dischargers' reported a fish kill of approximately 1,700 individuals with some bird, bullfrog, and crayfish kills. The California Department of Fish and Game and United States Fish and Wildlife Services reported that the sewage discharge and subsequent repair work impacted the Light-footed Clapper Rail, a Federal and State endangered species. Potential long-term impacts to the lagoon continue to be assessed under the direction of the California Department of Fish and Game and the United States Fish and Wildlife Service.

4.2 Degree of Culpability

4.2.1 Quantity of Sewage Discharge

The Dischargers could have implemented measures to reduce the amount of the discharge. The discharge was not discovered for almost 2 days because the Dischargers failed to have the capability to monitor the flow or pressure in the force sewer main. Capability to monitor the force main flow could have alerted the Dischargers of a reduction of flow through the sewage system.

The Dischargers reported that the Buena Vista Pump Station is inspected daily. The Dischargers also reported that when a call was received alerting them to a possible sewage spill, the spill was confirmed by a visual observation. While the better option would be for the Dischargers to install a redundant force main to be used for emergency situations, at the very least visual observations of the force main at various times of the day in the vicinity of the lagoon should be conducted to ensure that a sewage spill is not occurring.

The Dischargers reported that the Buena Vista Pump Station is inspected daily. However, it was a member of the public that initially called the City of Carlsbad Police Department to notify the City of the ongoing sewage discharge. The police

then notified the City of Carlsbad on-duty person. The on-duty personnel notified City of Carlsbad Public Works personnel, who inspected the location and confirmed the spill. More reliable options exist to determine when a spill has occurred or is ongoing, such as alarms and monitoring devices that send an alarm when pressure drops, and/or installation of a redundant force main to be used for emergency situations. As this spill incident reveals, reliance on limited daily visual observation of the force main in the vicinity of the lagoon is not a sufficient tool that can be relied upon to ensure that a sewage spill is not occurring.

Further delays to the timely response to the spill occurred when the Dischargers did not initially have copies of the construction details of the force sewer main, leading to the delay in deploying the appropriate equipment to complete the repair. Lack of adequate construction details resulted in the Dischargers hiring a contractor that did not have the equipment capable of doing the repair work. These preventable delays resulted in greater volume of untreated sewage discharged to the lagoon.

4.2.2 Prevention of Discharge

The Dischargers failed to implement measures that could have prevented the discharge. This sewage spill occurred in the same area and from similar cause attributed to a 1.7 million gallon sewage spill, during January 2000, into Buena Vista Lagoon from a force main owned by the City of Oceanside. In May of 2000, the Regional Board assessed civil liability against the City of Oceanside in the amount of \$334,615. In 2000, the City of Oceanside's concluded that their spill resulted from a corroded ductile iron pipe force main. The force main was installed in 1980 under similar conditions and in the same general vicinity of the Discharger's failed force main pipeline. The City of Oceanside's corrosion engineer determined that the May 2000 spill was caused by exterior corrosion. Corroded portions of the City of Oceanside's pipeline were identified, repaired, and reported to the City as being in good condition. The City returned the pipeline back into service, during February 2000, only to have it fail again twelve days later, resulting in a discharge approximately 200,000 gallons of sewage into the Buena Vista Lagoon.

With knowledge of the condition of Oceanside's failed force main in 2000 and the extremely corrosive soil in the vicinity of their force main, the Dischargers failed to implement any additional measures to evaluate the condition of their force sewer main and identify potential problem areas. The Dischargers failed to conduct an internal survey or conduct other inspections of the force sewer main. Even though the Dischargers were fully aware of potential risks to the force sewer main, the Dischargers chose not to implement adequate preventative measures, such as, replacing or relining the pipe, installing a backup system, or at a minimum installing monitors and alarms that could have all reduced the

volume of sewage discharge if not eliminate the discharge from occurring in March and April 2007.

The Dischargers recognized that the force sewer main needed improvement and/or replacement. As part of the City of Carlsbad's 2003 Sewer Master Plan, the City of Carlsbad included a project to install a parallel force main from the Buena Vista Pump Station to I-5 likely using a high-density polyethylene pipe that is not susceptible to corrosion, but the City of Carlsbad failed to construct the parallel force main before the discharge. As with Oceanside, the Dischargers have reported that the sections of pipeline on either side of the corroded area were in good condition. Yet the Dischargers have put the potentially corroded force sewer main back into service without upgrades or new lining.

On September 19, 2007, the Dischargers submitted, to the Regional Board, a final corrosion report by Schiff Associates identifying the existing force sewer main as being at risk for further failure and recommending lining or replacing the pipe. Based on recommendations in the report and potential for future failure, the Dischargers now propose to install a new parallel force sewer main and line the existing pipe within 3 years, instead of in 2017 that was originally scheduled. The Dischargers propose to monitor the existing force sewer with weekly inspections and install flow and pressure meters.

4.2.3 Buena Vista Lagoon

The Discharger's force main runs along the edge of the Buena Vista Lagoon, which is owned and maintained by the California Department of Fish & Game (CDFG). Because of the lagoon's unique and highly valued coastal wildlife habitat, the CDFG has designated the Buena Vista Lagoon as an ecological reserve. Based upon available water quality data, the lagoon is listed on the Clean Water Act section 303(d) impaired waterbody.

Due to the unique qualities of the lagoon, the dischargers should have implemented additional measures to prevent sewage spills to this enclosed coastal lagoon.

4.2.4 Response to Discharge

The Discharger's report dated April 23, 2007 states the discharge of untreated sewage from the 24-inch force sewer main into the Buena Vista Lagoon began sometime Friday March 30, 2007 or Saturday March 31, 2007. At approximately 7:00 PM on Sunday April 1, 2007, a private citizen observed the discharge and reported it to police. Sometime after receiving a call from a private citizen about a sewage spill on April 1, 2007, the Dischargers diverted 2 million gallons of sewage to the City of Oceanside's sanitary sewer system for treatment, thereby

reducing the potential volume of the untreated sewage being discharged into the Buena Vista Lagoon.

The City of Carlsbad was notified by the Carlsbad Police Department and responded immediately to the report. By 8:00 PM, the City of Carlsbad confirmed the discharge (estimated rate of ranged from 1,000 to 2,000 gallons per minute). The City of Carlsbad initial response was to bring a small backhoe to the site in an attempt to excavate and repair the damaged force sewer main. This proved to be wholly inadequate, due to the location, depth, and lack of available force sewer main construction plans. Compounding the delay was the City of Carlsbad could not locate the appropriate plans to ensure the exact location of the pipeline. Consequently, this further delayed the need to uncover and repair the pipeline.

By the next day, April 2, 2007, the Dischargers contracted with a private pipeline company that was qualified to repair the pipe. Repair of the pipe included constructing a sheet piling coffer dam, dewatering the area around the leak, cutting out the damaged section, and installing a repair coupling. All repair work was completed by 12:00 on April 3, 2007 and the force sewer main was returned to service.

After the initial delays, the Dischargers implemented reasonable steps to terminate, evaluate, and cleanup the discharge. The Dischargers immediately monitored part of the lagoon for dissolved oxygen and bacteria to determine the extent of the sewage plume. The Dischargers also began aerating the lagoon to increase dissolved oxygen and protect aquatic life. From April 3 through April 10, over 40 million gallons of a mixture of lagoon water and sewage was pumped into the sanitary sewer system for treatment at the Encina Water Pollution Control Facility in Carlsbad. These cleanup efforts by the Dischargers expedited the cleanup of the Buena Vista Lagoon.

4.3 Prior History of Violations

In 1994, a total 4.75 million gallons of untreated sewage was discharged from a force sewer main, into Buena Vista Lagoon. That reported cause was a ruptured pipe caused by a contractor. The spill resulted in a significant fish and shrimp kill. At that time, the Regional Board imposed a \$142,302 civil liability on the Dischargers.

In 1997, a failure at the Buena Vista Lift Station resulted in the discharge of 1.75 million gallons of untreated sewage into Buena Vista Lagoon. The Dischargers cleaned up the spill by pumping 4.7 million gallons of combined sewage and surface water from the lagoon into the sanitary sewer system for treatment. The Regional Board did not assess civil liability for the sewage discharge in 1997. From July 2006 through July 2007, the Dischargers have had a total of 21

overflows for a total of 7,725,707 gallons (including 7,300,000 to Buena Vista Lagoon) of raw sewage discharged from the Dischargers' sanitary sewer system.

4.4 Economic Savings

At this time, the Regional Board does not have information to determine the specific amount of economic benefit or savings of avoiding the cost of needed measures to prevent and reduce the sewage discharge.

4.5 Other Matters as Justice May Require

To date, the Regional Board has spent an estimated 140 hours to investigate and consider action regarding this matter. At an average rate of \$125 per hour, the staff costs at this time are no less than \$17,500.

4.6 Ability to Pay and Ability to continue in Business

At this time, the Regional Board does not have information that the Dischargers are unable to pay the proposed administrative civil liability or any information on how payment of the proposed administrative civil liability would affect the ability to provide required services.

5. Administrative Civil Liability

5.1 Maximum Civil Liability

Persons or entities that discharge waste in violation of Waste Discharge requirements are subject to civil liability pursuant to CWC Sections 13350, either on a daily basis not to exceed five thousand dollars (\$ 5,000) for each day the violation occurs, or on a per gallon basis, not to exceed ten dollars (\$ 10) for each gallon of waste discharged, but not both. The statutory maximum ACL amount for the March 31, 2007 through April 3, 2007 sewage discharges therefore is \$ 73,000,000.

5.2 Proposed Civil Liability

The proposed civil liability in this matter is \$1,095,000. The liability is calculated at \$ 0.15 per gallon and is substantially less than the statutory maximum. The proposed civil liability is appropriate for this sewage discharge for the following reasons:

1. The discharge significantly impacted water quality, including short and potentially long-term impacts to beneficial uses of the lagoon, and potential impacts to the Light-footed Clapper Rail, listed as a Federal and State endangered species.

2. The Dischargers failed to implement effective monitoring measures and/or inspections of the force sewer main that could have either prevented or greatly reduced the volume of the untreated sewage discharge.
3. The Dischargers failed to implement preventative measures, such as, replacing or relining the force sewer main, installing a backup system that could have reduced the volume of sewage discharge, if not eliminated a discharge from occurring.
4. The failure of the force sewer main was caused by external corrosion causing the discharge of sewage into Buena Vista Lagoon.
5. The Dischargers have a history of other significant discharges of untreated sewage from their sewage conveyance system into the Buena Vista Lagoon.
6. Once notified, the Dischargers made significant efforts to respond to and cleanup the discharge, therefore reducing the impacts to the lagoon.
7. The proposed civil liability is sufficient to recover costs incurred by the Regional Board.