

SmartCover® Monitoring for Regulatory Compliance Relief

Who: Oceanside, CA

Problem: In late December 2010, a weather pattern dubbed the "Pineapple Express" resulted in heavy rainfall in Southern California. In one week, many cities in the region received as much rain as normally falls in a year. Not surprisingly, this weather pattern created massive inflow and infiltration and placed enormous pressure on the sewer lines.



Haymar area before and after rainfall in December 2010

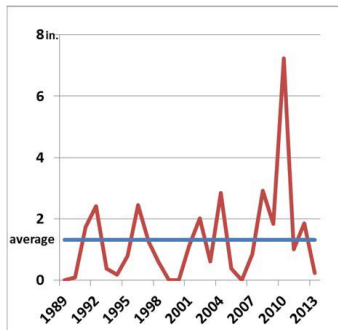
Between December 23 and December 28, 2010, a pipe burst near Oceanside, CA and 2.5 million gallons of raw sewage spilled from the Haymar sewage line into Buena Vista Creek, Buena Vista Lagoon and the Pacific Ocean.

Imposed Liabilities:

\$83,000 for SmartLevel units (22%)
\$302,000 for cured-in-place pipe lining (78%)
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\$385,000 total for remediation
\$385,000 in fines
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\$770,000 overall

The spill led to a Civil Liability Complaint in February 2012 against the City of Oceanside. The complaint was made by the San Diego Regional Water Quality Control Board, an environmental regulator for the State of California. The parties settled on two Enhanced Compliance Actions (see Imposed Liabilities box to the left). The first Compliance Action involving lining 4,200 feet of sewer pipe to prevent rupture. The second Compliance Action was deploying 20

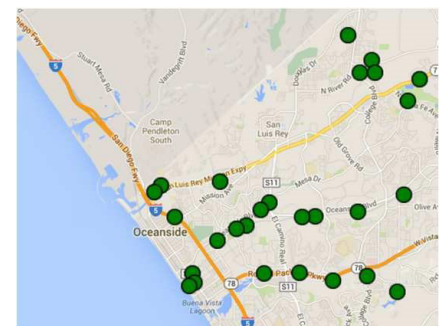
SmartLevel units in priority areas to monitor sewage collection. "The Regional Board was very supportive of using the SmartCover solution for compliance and long term spill reduction in lieu of a variety of other options," said Cari Dale, Water Utilities Director for Oceanside.



Details: Based on a risk assessment analysis (RAPPORTS™) provided by SmartCover, Oceanside strategically chose 20 locations for the SmartLevel units using criteria negotiated with the Water Quality Control Board. The overall purpose of the sewer monitoring was to reduce bacteria in local waterways and ultimately eliminate sanitary sewer overflows. The plan was approved on March 14, 2013, as order R9-2013-0004, and was completed in October 2013.

Results: The plan signed by the Water Quality Control Board explains:

December rainfall in Oceanside "The SmartCover is a self-contained, wireless monitoring system with immediate alarming and historical data logging capabilities. One of the primary uses of the SmartCover system is the prevention and advanced notification of SSOs. When the water level rises above the customers predetermined threshold due to a constriction or capacity issues, an alarm is sent directly to emergency response personnel. This enables the Respondent to receive advanced notice of an issue in the collection system so that corrective action can be taken before an overflow occurs."



SmartCover technology has been recognized by regulators for preventing SSO events by the ocean