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# County of Santa Cruz

## DEPARTMENT OF PUBLIC WORKS

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December 18, 2013  
via electronic mail

MICHAEL THOMAS  
ASSISTANT EXECUTIVE OFFICER  
Central Coast Regional Water Quality Control Board  
895 Aerovista Place, Suite 101  
San Luis Obispo, CA 93401

SUBJECT: RESPONSE TO NOTICE OF VIOLATION  
BOULDER CREEK GOLF AND COUNTY CLUB WWTP  
COUNTY SERVICE AREA NO. 7

Dear Mr. Thomas:

This is in response to your letter dated November 15, 2013, requesting additional information regarding two spills that occurred at the Fallen Leaf Pump station on September 10, 2012, and December 4, 2012.

General Overview and Layout (see Attachment "A")

The Lake Avenue pump station is located at the Boulder Creek Treatment Plant. Secondary treated effluent gravity flows from the plant to the pump station. From there, it is pumped approximately 4,500 feet to the Fallen Leaf pump station. The Fallen Leaf pump station then pumps the effluent 3,000 feet to leach pits.

A pressure sensor in the force main between the Fallen Leaf pump station and the leach pits is designed to detect breaks in the force main. If the pressure falls below a pre-set point, the pumps are shut down. If this happens, a signal is also sent to the Lake Avenue pump station activating a three-way valve that diverts the secondary treated effluent back into the digester at the Boulder Creek Plant.

Spill on September 10, 2012

On September 10, 2012, a low pressure alarm from the pressure sensor caused the pumps to shut down at Fallen Leaf as it was designed to do. A signal was sent and received at the three-way valve at Lake Avenue; however, the valve stuck and failed to divert effluent back into the treatment plant. The Lake Avenue pump station continued to send effluent to Fallen Leaf which filled the wet well and spilled.

At approximately 3:54 p.m., Bud Galipeaux, Electrical Instrument Technician II, was working at the Lake Avenue Pump station and noticed that a low pressure and high wet well alarm were occurring at the Fallen Leaf station and were recorded in the control panel at 8:15 a.m. These alarms were not received at our dispatch location due to poor communications at that time. This is discussed further later in this response.

Maurice Cornblatt, Senior Treatment Plant Operator, and Bud Galipeaux, manually turned the three-way valve to the "divert" position, stopping the spill and sending flow back into the digester at the treatment plant. They then investigated the cause of the spill and discovered that it was the pressure sensor that malfunctioned. They were not able to recreate the failure of the sensor, so as a precaution, they lowered the alarm point on the sensor to 20 psi. Also, after trying to re-align the three-way valve unsuccessfully, the valve was replaced.

That morning, during routine maintenance, Maurice Cornblatt recorded the pump readings (gallons) at the station at 8:00 a.m., and the spill was diverted at 4:36 p.m. The spill volume of secondary treated effluent was calculated to be 15,050 gallons by subtracting the pump readings taken at 4:36 p.m. from the reading taken at 8:00 a.m. and adjusting for the fifteen minutes between the last reading and the time of the high well alarm.

At the time of this spill, there had not been any significant rainfall recorded within the District. It was noted during the spill, that all the secondary treated effluent flowing from the Fallen Leaf station soaked into the ground and did not reach Boulder Creek. On line 22 of the official spill report submitted to the State Water Resources Control Board, the District reported that the spill did not reach a separate storm drain; however, on line 46b, we listed Boulder Creek as an "impacted surface water." The entry on line 46b was in error and should have been left blank.

Several corrective measures were taken as a result of this spill, and the three-way valve at the Lake Avenue pump station was replaced. The alarm point on the pressure sensor in the force to the leach fields was lowered to 20 psi, and a 7-day/week inspection program was implemented.

#### Spill on December 4, 2012

On December 4, 2013, another low pressure cutoff alarm from the pressure sensor caused the pumps to shut down at Fallen Leaf. The signal was sent to the three-way valve at Lake Avenue; however, because the signal was not received at the valve, it failed to divert effluent back into the treatment plant digester.

At approximately 3:10 p.m., Michael Murphy, Electrical Instrument Technician II, was working in the area and noticed that the Fallen Leaf pump station was spilling. Michael reset the pumps and noted that a low pressure and high wet well alarm were recorded at the station control panel at 5:45 a.m. These alarms were not received at our dispatch location due to poor communications at that time. Communication improvements are discussed further in this response. Michael Murphy and Scott St Denis, Chief Plant Operator, took the low pressure cutoff alarm out of service.

Spill volumes were calculated by duration of outage and average flow of approximately 28 gallons/minute through the time period of 8 hours and 45 minutes between 6:30 a.m. and 3:10 p.m. The control panel logged the high well alarm at 5:45 a.m.; however, the remaining capacity in the wet well would have lasted another 45 minutes before spilling occurred. This spill was reported as entering Boulder Creek.

The corrective measure taken as a result of this spill was disabling the low pressure cutoff alarm. Both spills were a result of the low pressure alarm malfunctioning and after it was disabled, no further spills have occurred at this location. This alarm was originally installed as a precaution to detect force main leaks or breaks due to poor pipe conditions. Since then, the force main has been replaced by a Capitol Improvement Project completed on December 9, 2009. Even though this detector is no longer required, we still plan to install a new pressure sensor by March 31, 2014.

#### Remote Communication and Long Response Times During to the Spills

As your Board correctly noted, there were "long periods of time between the incidents' occurrences and their discoveries." The District currently employs a Supervisory Control and Data Acquisition (SCADA) system that constantly monitors critical functions at over 72 locations throughout the County, including County Service Area No. 7, Boulder Creek. However, the mountainous topography of the area surrounding Boulder Creek makes SCADA communications challenging. We are currently sending and receiving a signal from six different locations that comprise the Boulder Creek sewer collection and treatment system, and each of these signals has to be repeated up to four times before it arrives at our dispatch location.

To prevent future occurrences and improve overall communication speeds and reliability, we have upgraded several components of our SCADA system. First, we have added an additional antenna at the Lode Street Facility that essentially split the system of 72 locations in half and greatly increased communication speeds. We are also planning to add two more antennas which will split the system in quarters and increase speeds even more. Specific to Boulder Creek, all of the antennas in the system have been re-aimed and/or their signals re-routed to different repeaters.

We now believe that there is reliable communications with Boulder Creek, and the District will continue to make more improvements.

#### Testing and Reporting

After both incidents, water quality samples were taken from Boulder Creek, and test results were submitted to your Board. These samples were taken at locations upstream and downstream and are shown on the map entitled "Attachment B." Due to inaccessible terrain, we were not able to safely take samples at the "point source."

It was of interest that the District reported no secondary treated effluent entered Boulder Creek during the September 10, 2012, spill; however, tests indicated higher downstream levels of coliform and enterococcus. Yet, after the event on December 4, 2012, test results showed that levels were lower downstream. To confirm these test results, control samples were taken on December 6, 2013, at the same upstream and downstream locations. These results from these samples again showed that downstream levels were higher than upstream, with no recent spill from Fallen Leaf.

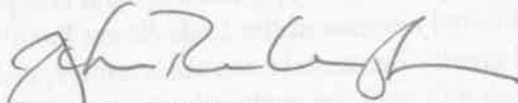
We feel that these test results show that the spills on September 10, 2012, and December 10, 2012, had little to no impact on Boulder Creek. Due to the lack of rainfall, all of the secondary treated effluent from September 10, 2012, soaked into the ground and did not reach the creek. We could not calculate what percentage of the December 10, 2012, spill soaked into the ground compared to how much entered the creek; however, test results showed lower levels of coliform and enterococcus downstream after the event.

#### Upgrades to Operational Manuals

Both spills were caused by equipment failure; no modifications were made to the operations manuals.

The District is continually looking for ways to improve technology or procedures that will help reduce sewer spills in remote areas. If you have any questions regarding this report, please contact John Swenson, Operations Manager, at (831) 477-3945 or Rachel Lather, Senior Civil Engineer, at (831) 454-2637.

Yours truly,



JOHN J. PRESLEIGH  
Director of Public Works

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Attachments