

## ***STAFF REPORT***

**To:** David R. Dickson, General Manager  
**From:** Joe Guistino, Superintendent of Operations  
**Agenda:** May 13, 2008

Report

Date: May 7, 2008

**Subject:** Denniston CT/System Chlorination Violation

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### **Recommendation:**

Information only.

### **Discussion:**

This report details a chlorine contact time violation which occurred at Denniston Treatment Plant on April 28, 2008.

In the early morning of 28 April, the ton container feeding the disinfection process at Denniston WTP stopped delivering chlorine. The filtered water chlorine analyzer alarmed at 02:15 when the finished water dropped to 1.0 mg/l but failed to call out the on-call operator. The chlorine residual in the finished water dropped below 0.75 mg/l at 03:15, at which point the plant was not producing water that met the CT requirements of the Enhanced Surface Water Treatment Rule. The plant continued to produce water, which, because of low system demand, was directed into the Denniston Storage Tank. At 05:45 the system demand increased, causing water to be drawn out of the Denniston Tank.

At 06:15, the Denniston distribution chlorine analyzer went into low residual alarm. The On Call Operator Steve Twitchell was notified at 06:25 and arrived at District Office at 06:45 where he discovered that the alarm was for Denniston High/Low Residual. He dispatched a Treatment/Distribution Operator to Denniston who promptly opened the Filter-To-Waste Valve, preventing further non-chlorinated water from entering the system. The Treatment Operator arrived shortly thereafter and together they switched chlorine cylinders to bring the plant back on-line with 1.8 mg/l chlorine residual at 07:35.

It is estimated that 31,500 gallons of treated but unchlorinated water was delivered to the distribution system between 06:15 and 07:40, a period of 85 minutes.

That morning, staff surveyed the chlorine residuals at various locations in El Granada, Clipper Ridge and Princeton Harbor and found all residuals to be within normal parameters. Since most of the water had been sent to Denniston Tank, staff conducted depth profiling and found the chlorine residual to be 0.5 – 0.68 mg/l. The tank normally carries a residual of over 1 mg/l, so these results are consistent with mixing with unchlorinated water. Subsequent bacteriological testing of the tank and distribution system did not show any evidence of bacteriological activity.

### **Preventing Future Violations:**

An investigation into this event revealed that the chlorine analyzer failed to send out a signal to the auto-dialer due to a wire that had come loose from its terminal. We had our instrumentation contractor out that same day to investigate, inspect and repair this fault.

According to the scale and staff records of usage, the ton container feeding chlorine should have contained 250 pounds of chlorine. This scale's accuracy is questionable and we have relied on accurate cylinder tare weight and careful documentation of daily usage to determine when to switch tanks. We will be switching to a temporary sodium hypochlorite system by 1 July, so purchase of a new scale is not prudent at this time.

Since the incident, we have had our instrumentation contractor install automated controls which shut off the Denniston high lift pumps in the event of high turbidity or low chlorine residual. This automated shutdown capability was included as an element of the short-term improvements for Denniston, which are still under design.

In addition to the temporary hypochlorite system and the automated plant shutdown, staff will be taking the following measures to prevent similar problems in the future:

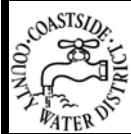
- Preparation of written Standard Operating Procedures (SOP's) for testing and documenting the proper functioning of critical alarms.
- Implementation of an alarm testing schedule
- Review of emergency response procedures to be used in the event of contaminated or non-compliant water being released into the system.
- Training and practicing on system emergency response procedures.

**Public Notification Requirements**

We notified the Department of Public Health of the violation at 14:30 on April 28. We are required by law to notify the public through a mailing to all District customers as well as through a notice in the local newspaper. We have worked with the Department of Public Health to craft the attached notice.

## IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Este informado continece información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.



**Coastside County Water District did not meet a treatment requirement.  
Disinfection: contact time.**

The District recently violated a drinking water standard and as required by law, we are providing this notification to all District customers. **This is not an emergency and you do NOT need to boil your water or take other actions.** This notice will provide you with information about the violation and what we are doing to correct the situation.

As a result of equipment failure at the Denniston Water Treatment Plant on the morning of April 28, 2008, the District failed to meet the chlorine contact time requirement for treated water. In order to ensure proper disinfection, water in the treatment plant must be in contact with chlorine or a similar disinfectant for a minimum amount of time. Although chlorine quickly kills most bacteria, it is less effective against organisms such as viruses and parasites. For this reason, water needs to mix with chlorine for a longer time period to kill such organisms. The amount of time necessary, or the "contact time", depends on the amount of disinfectant in the water and the temperature of the water.

The Denniston Water Treatment Plant serves El Granada and Princeton in the north section of our service area. Based on the times and the volumes involved, the District believes that only a limited area of our distribution system near the Denniston plant may have been affected by the low-chlorine water. Samples taken subsequent to the incident throughout the system showed normal chlorine residuals and no bacterial contamination.

District personnel have identified and corrected the cause of the equipment failure at the Denniston Water Treatment Plant. In addition, we are implementing a number of equipment modifications, alarms, automated shutdown systems, and operational procedures to make the operation more fail-safe and to ensure against similar problems in the future.

Please note the following:

- **This is not an emergency.** If it had been, you would have been notified immediately.
- Inadequately disinfected water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. People with severely compromised immune systems, infants, and some elderly may be at increased risk. These symptoms, however, are not caused only by organisms in drinking water, but also by other factors. If you experience any of these symptoms and they persist, you may want to seek medical advice.

**Secondary Notification Requirements:** Please share this information with all the other people who drink this water, especially those who may not have received this notice directly. You can do this by posting this public notice in a public place or distributing copies by hand or mail. Upon receipt of this notification from Coastside County Water District, notification must be given or forwarded within 10 days [Health and Safety Code Section 116450(g)] to the following:

- **Schools:** Schools must notify school employees, students, and parents (if the students are minors).
- **Residential rental property owners/managers** (including nursing homes and care facilities): Property owners and managers must notify tenants.
- **Business property owners, managers, or operators:** Business property owners, managers and operators must notify employees of businesses located on the property.

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This notice is being sent to you by Coastside County Water District. For more information, please contact Joe Guistino at 650-726-4405. This notice has been translated into Spanish and copies are available at the District's Offices at 766 Main Street, Half Moon Bay, CA 94019.

State Water System ID#: 4110011

Date distributed: May 21, 2008.



Coastside County Water District  
766 Main Street  
Half Moon Bay, CA 94019

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