



GAIL FARBER, Director

# COUNTY OF LOS ANGELES

## DEPARTMENT OF PUBLIC WORKS

*"To Enrich Lives Through Effective and Caring Service"*

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March 11, 2009

TO: Each Supervisor

FROM: Gail Farber  
Director of Public Works

### **BOARD MOTION OF NOVEMBER 5, 2008, AGENDA ITEM 70-A PUBLIC OUTREACH EFFORT ON WATER DISINFECTION OPTIONS**

#### **Recommendations**

1. Initiate discussions with the Antelope Valley-East Kern Water Agency on the use of granular activated carbon (GAC) and chlorine for its treatment plants instead of chloramines to comply with the new regulatory standards for trihalomethanes (THMs).
2. Report back to your Board with an implementation action plan within 120 days.

#### **Background**

On November 5, 2008, your Board directed Public Works to conduct a public outreach effort (including hosting community meetings throughout the Antelope Valley, providing information about chloramines to the media, and enclosing information about chloramines in water bills to the Waterworks Districts' customers) and report back to your Board within 120 days.

The following is a report describing the public outreach effort and summarizing the feedback received from the community meetings.

### **Public Outreach Effort**

Community meetings were conducted in Acton, Lancaster, Palmdale, and Lake Los Angeles in late January. Presentations by the Los Angeles County Waterworks Districts' staff covered the following topics:

- Regulatory Requirements - The regulatory requirement to disinfect drinking water to protect the public's health and safety from potential microbial contamination.
- Health Effects - The health effects of THMs, known carcinogens, and by-products of the disinfection of drinking water with chlorine.
- Disinfection Options – The two applicable disinfection options identified by a study conducted for the Antelope Valley-East Kern Water Agency by a private engineering consultant in 2005 that were discussed are:
  1. Chloramines - Use of chloramines (a combination of chlorine and ammonia), instead of the currently used chlorine for disinfection.
  2. Granular Activated Carbon - Use of GAC filters to remove organic materials that produce THMs when chlorine is used to disinfect the water.
- Advantages and Disadvantages - The advantages and disadvantages of available disinfection options to comply with newly enacted, more stringent water quality standards for THMs (see attached).

In addition to the community meetings, the following public education actions were completed:

- Included educational materials in the Districts' Fall Splash newsletter sent to all customers with their bills.
- Presented to the Palmdale Chamber of Commerce on November 19, 2009, that included an interview with the local television station.
- Provided information to the Antelope Valley Press for an article published on January 23, 2009.
- Conducted a telephone interview with Jim Crockett for the Agua Dulce/Rosamond/Lake Los Angeles News.

- Responded to numerous correspondences and emails and provided the individuals with information related to chloramines.

**Meeting Attendees** - There were 206 community members who signed the attendance sheet. The majority of the attendees favored the use of GAC and chlorine disinfection.

Following are the most frequently raised concerns regarding the use of chloramines for drinking water disinfection.

- Skin rashes and respiratory problems that are purportedly attributed to the use of water disinfected with chloramines.
- Effects on fish and amphibians. The ammonia in chloraminated water is harmful to fish and amphibians if not removed.
- Leaching of lead and copper from household plumbing. Water that is disinfected with chloramines could result in more leaching of lead and copper from household plumbing than with chlorine.
- Contamination of groundwater with nitrate. The ammonia from chloraminated water, used to irrigate landscaping, could contaminate the groundwater basin.
- Formation of yet-to-be-regulated disinfection by-products. The potential for harmful disinfection by-products from the use of chloramines.
- Removal of chloramines from water. The cost to remove chloramines using home treatment systems.

These concerns are not unique to the residents of Acton and the Antelope Valley and have been extensively investigated and addressed by the Federal Environmental Protection Agency, the State Department of Public Health, and other reputable organizations.

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## **Conclusion**

The current chlorine disinfection of the water in Los Angeles County Waterworks District Nos. 40, Antelope Valley, and 37, Acton, has to be changed to meet new, more stringent water quality requirements. There are two disinfection options being considered, each has its own technical advantages and disadvantages. Both options will result in an increase in the cost of water to the Districts' 55,000 customers and will be subject to Proposition 218 notification requirements.

We held community meetings in Acton, Lancaster, Palmdale, and Lake Los Angeles to solicit feedback on the two options. The majority of the meeting attendees favored the use of GAC and chlorine disinfection.

Before implementation of GAC, we need to work with the Antelope Valley-East Kern Water Agency to resolve any technical issues to ensure the safety of the treated water. GAC does not remove bromide salt, prevalent in State Water Project water during dry periods, and it has not been used in a large scale filtration plant for the control of THMs. Recently, the Palmdale Water District started using GAC and is still making adjustments to its system to ensure safety standards are met. We also want to carefully monitor GAC filtration costs since the cost of the materials has increased almost 133 percent in the last five years.

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Attach.

cc: Chief Executive Office (Lari Sheehan)  
County Counsel  
Executive Office

## ADVANTAGES AND DISADVANTAGES OF DISINFECTION OPTIONS

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1. **Chloramines** – Use of chloramines, a combination of chlorine and ammonia, instead of the currently used chlorine for disinfection. Chloramines do not produce THMs when they are used to disinfect water.

<b>Advantages</b>	<b>Disadvantages</b>
Low levels of THMs are formed.	There is a potential for the growth of bacteria through a process called "nitrification" if the distribution system is not adequately maintained.
Chloramines are likely to form less THMs in the distribution system and last longer, which helps prevent the growth of bacteria.	Chloramines can be harmful to fish and amphibians if a water conditioner is not used.
Most people report better taste and odor for chloraminated water as compared to chlorinated water.	Kidney dialysis equipment must be modified to remove chloramines.
Use of chloramines will modestly increase customers' water bills by 5% to 16%, depending on water usage.	Use of chloramines could cause more lead and copper leaching in household plumbing than chlorine if corrosion control practices are not followed.

Communities in California using Chloramines: Agoura Hills, Anaheim, Antioch, Beverly Hills, Brentwood, Burbank, Burlingame, Calabasas, Corona, El Segundo, Glendale, Goleta, Hidden Hills, Irvine, Lake Elsinore, Livermore, Long Beach, Malibu, Manhattan Beach, Martinez, Murietta, Newport Beach, Norco, Oakland, Orange, Palo Alto, Pasadena, Pittsburgh, Pleasanton, Redwood City, Riverside, San Bruno, San Diego, San Francisco, Santa Ana, Santa Barbara, Santa Clara, Santa Clarita, Santa Maria, Santa Monica, Temecula, Topanga, Tustin, Val Verde, Ventura, and Westlake Village.

2. **Granular Activated Carbon** – Use of GAC filters removes organic materials that produce THMs when chlorine is used to disinfect the water.

Advantages	Disadvantages
It removes organic materials and, as a result, produces low levels of THMs and, overall, potentially better water quality.	Use of GAC will increase customers' water bills by 28% to 96%, depending on water use.
Most people report better taste and odor due to removal of organic materials from the water.	GAC does not remove bromide salt (prevalent in State Water Project water particularly during dry periods), which forms THMs when chlorine is used for disinfection. Additionally, because GAC does not remove all of the organic materials from water, THMs will continue to be formed in the distribution system.
	The need for frequent GAC replacement could impact treatment plant operations and production capacity.

Agencies in California using GAC: There are presently two agencies in California using GAC, and they are Crestline-Lake Arrowhead Water Agency and Palmdale Water Agency.