COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
www.ladpw.org

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: W-0

August 10, 2004

Mr. Russell E. Fuller, General Manager
Antelope Valley-East Kern Water Agency
6500 West Avenue N
Palmdale, CA 93551-2855

Dear Mr. Fuller:

LOS ANGELES COUNTY WATERWORKS DISTRICT NO. 40, ANTELOPE VALLEY RECOMMENDATION ON ALTERNATIVE DISINFECTION BYPRODUCTS CONTROL STRATEGIES

As requested, enclosed is the Los Angeles County Waterworks District No. 40, Antelope Valley, recommendation on the control of disinfection byproducts.

If you have any questions, please contact Mr. Adam Ariki at (626) 300-3332.

Very truly yours,

DONALD L. WOLFE
Interim Director of Public Works

MANUEL DEL REAL for
Assistant Deputy Director
Waterworks and Sewer Maintenance Division

TJK:nm
WW3842

Enc.

Los Angeles County Waterworks District No. 40's Recommendation on Alternative Disinfection Byproducts Control Strategies

Recent water quality test results showed that drinking water quality in one of five water systems in the Los Angeles County Waterworks District No. 40 (District) exceeded the federal drinking water quality standard for total trihalomethanes (TTHMs) twice this year and two systems are at a risk of noncompliance. Due to concerns about the safety of the drinking water for the residents in the District, we have been working closely with the Antelope Valley-East Kern water agency (AVEK) and its consultant, MWH, to determine the most efficient and cost-effective treatment method for reducing TTHM levels in AVEK's treated water.

MWH produced a short list of disinfection byproduct (DBP) control alternatives with associated cost per acre-foot for the AVEK board's final decision. Following are the alternatives in the short list:

- **Option 1**: Use existing enhanced coagulation (EC) system with chloramines as a secondary disinfectant (**EC+Chloramines**): **$30/AF**

- **Option 2**: Use ozone as a primary disinfectant and oxidizing agent, biologically active carbon (BAC) filters and chloramines as a secondary disinfectant (**Ozone/BAC+Chloramines**): **$44/AF**

- **Option 3**: Use granular activated carbon (GAC) as an adsorber to remove DBP precursors and free chlorine as a secondary disinfectant (**GAC+Chlorine**): **$180/AF**

Of the above three options, we prefer Option 2 for the following reasons: First, the cost per acre-foot for this option is a quarter of that of Option 3 for comparable overall water quality benefits. Second, according to MWH, using ozone as the primary disinfectant will result in higher filter loading rates that could increase the Qaurtz Hill treatment plant from the existing 65 MGD to 80 MGD. Such increase would provide needed supplies for the ongoing developments in the Lancaster/Palmdale areas.

While the cost per acre-foot under Option 1 will be less than Option 2, Option 1 will not have the additional improvement in water quality such as taste and odor that will result from using Option 2. Additionally, the reduction in TTHM levels most likely will not be below the 40 parts per billion that is required by the Lahontan Region Water Quality Control Board to approve the planned aquifer storage and recovery program for the District (refer to attached letters).

While Option 3 provides comparable results for controlling TTHM levels and for improving the taste and odor of the treated water, it costs four times per acre-foot in comparison to Option 2. We do realize that we will incur additional costs for monitoring and controlling potential distribution system nitrification which is inherent in the use of chloramines. However, we consider the cost increase in our operation and maintenance for this purpose insignificant in comparison to the cost increase in treatment under Option 3.