

OCT 11 1994



MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

[Signature]
EXECUTIVE SECRETARY

September 22, 1994

(Engineering and Operations Committee--
Information)

To: Board of Directors (Special Committee on Water Quality and
Environmental Compliance--Information)

From: General Manager

Subject: Cryptosporidium Issues Raised by NBC's Dateline Broadcast

Report

On September 20, the NBC television news magazine, Dateline, included a segment on waterborne disease caused by the pathogen Cryptosporidium. Follow-up segments on Cryptosporidium are expected in the next few weeks. This series on Cryptosporidium is anticipated to stimulate many inquiries from the media and the public. Attached (see Attachments 1 and 2) are recent Direct Lines sent to Metropolitan's Member Agency Managers to provide more detailed information about this news program, information on Cryptosporidium, and suggested responses to questions from the public. This letter is provided for your information to assist in answering questions that may be directed to you as a result of the Dateline program.

Metropolitan remains in the forefront of water utilities nationally in our continuing efforts to acquire knowledge and disseminate information regarding Cryptosporidium in our source and finished waters. The attached Board letter dated May 11, 1993 (see Attachment 3) discusses why Metropolitan is not vulnerable to outbreaks of waterborne disease such as the episode in Milwaukee in 1993. It also summarizes the extensive program at Metropolitan to deal with Cryptosporidium.

Metropolitan is involved in several efforts which together provide the most effective means of ensuring against outbreaks of waterborne disease caused by Cryptosporidium. These efforts include implementation and maintenance of an aggressive source water protection program, retrofitting our filtration plants with ozone disinfection, optimized treatment, continued research on sources of pathogen contamination, and monitoring of source and finished waters for the occurrence of pathogens.

Metropolitan's next steps to deal with Cryptosporidium issues will include the following:

- Preparation of an informational brochure concerning Cryptosporidium and associated public health risks
- A Cryptosporidium Action Plan (in preparation) to address source protection, treatment, and outreach to the medical community
- Implementation of an outreach program to vulnerable subpopulations.

Member agencies are invited to call Metropolitan to assist in responding to Cryptosporidium related questions now and in the future. Due to the expected regulations under the U.S. Environmental Protection Agency's Information Collection Rule, utilities nationwide will have to monitor for Cryptosporidium. We, therefore, expect media interest to remain high over the next few years. National experts are exploring all avenues related to Cryptosporidium and how to communicate this information to the public. It is important that the public understand that an outbreak of cryptosporidiosis such as the one that occurred in Milwaukee in 1993 will not happen to Metropolitan. We want to ensure that you can confidently tell your constituents that water provided by Metropolitan is safe to drink.

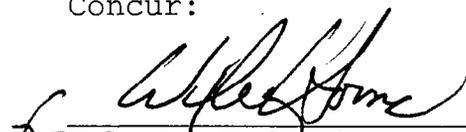
Recommendation

For information only.

John R. Wodraska
General Manager

By Mark D. Beuhler
Mark D. Beuhler
Director of Water Quality

Concur:


John R. Wodraska
General Manager

DIRECT LINE

MEMBER AGENCY MANAGERS



ONE PAGE FAX
Distribute on receipt

To: _____

From: Jay Malinowski,
Director of Public Affairs

September 15, 1994

NBC's "DATELINE" PROGRAM EXPECTED TO DELVE INTO CRYPTOSPORIDIUM ISSUES

Metropolitan Public Affairs staff has learned that Dateline, the weekly NBC television news magazine program, plans to broadcast a report next Tuesday, September 20, on the safety of drinking water supplies in the United States, particularly the nation's vulnerability to Cryptosporidium. This could trigger calls from the public to your offices.

As you know, Cryptosporidium gained worldwide attention in March 1993 when the pathogen caused waterborne disease that may have killed more than 100 people and made another 400,000 ill in Milwaukee.

While details of the broadcast are sketchy, telephone interviews conducted by Dateline researchers with MWD water quality staff over the last few months indicate the program most likely will center around Cryptosporidium issues. Dr. Roy Wolfe, MWD's associate director of water quality, was interviewed twice, with questions focusing on Cryptosporidium.

Of particular interest to Dateline researchers were Cryptosporidium levels in MWD's water supplies. Metropolitan findings determined that Cryptosporidium levels in MWD source waters were several hundred times lower than average levels in other areas of the nation.

These findings, coupled with the multiple treatment barriers at Metropolitan's filtration plants, confirm that Southern California water supplies are safe and that Cryptosporidium poses no risk to consumers.

However, Cryptosporidium is likely to become a bigger issue in the future when all large utilities are required to monitor for the pathogen in 1994-96 as part of the U.S. Environmental Protection Agency's Information Collection Rule. To meet that challenge, Metropolitan's water quality staff has begun discussions with other utilities on how to communicate findings with the public and is preparing an action plan.

For more information about Cryptosporidium or Metropolitan's action plan, contact MWD's water quality division at (213) 217-6635.

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DIRECT LINE

MEMBER AGENCY MANAGERS**ONE PAGE FAX
Distribute on receipt**

To:

From: Jay Malinowski,
Director of Public Affairs

September 21, 1994

CRYPTOSPORIDIUM EXPECTED TO GET CLOSER LOOK ON FOLLOW-UP "DATELINE" BROADCASTS

As Metropolitan's Public Affairs staff informed you last week, Dateline, the NBC television news magazine, last night broadcast the first in a series of thought-provoking reports on the nation's vulnerability to Cryptosporidium being transmitted through municipal water supplies.

Last night's report is expected to be followed by stories on Dateline's broadcasts tonight at 9 and Friday at 8 p.m. A Dateline promo indicated these shows may instead air on Sept. 27 and Oct. 4. In any case, these installments may identify cities in which Cryptosporidium has been detected in water supplies, including the city of Los Angeles and Orange County communities.

Indeed, the broadcasts may note that Metropolitan detected Cryptosporidium in its source waters at levels that were several hundred times lower than average levels in other areas of the nation during a year-long MWD monitoring program in 1991. In Metropolitan's treated water supplies, a single spore was found on one occasion at the district's Joseph Jensen filtration plant in Granada Hills and San Joaquin Reservoir in Newport Beach. The Jensen plant generally provides water to about 3 million Southland consumers in the west end of MWD's service area, stretching from Oxnard to San Pedro. Currently out of service, San Joaquin stores treated water for residents in Huntington Beach, Newport Beach, Costa Mesa, Irvine, Laguna Beach, Dana Point and Corona del Mar.

The 1991 samplings were part of a proactive effort by Metropolitan to document the levels of several pathogens in source and treated waters. Metropolitan's one-year pathogen monitoring program represented the first comprehensive evaluation of Cryptosporidium testing technology by a California water utility.

However, because of the two positive results you may receive calls from the public. The following are questions and answers that may help you respond to some of the public's concerns:

Q: Should I be concerned about Cryptosporidium in my water?

A: Cryptosporidium is not a cause for alarm in Southern California. Our water is safe. Metropolitan supplies meet or surpass all existing state and federal water quality standards.

In addition, the U.S. Surgeon General's office has recently questioned the significance of low levels of Cryptosporidium in water supplies. Metropolitan believes that Cryptosporidium and other pathogen-related issues need to be further evaluated and discussed with those who are now at risk, such as people with compromised immune systems.

Individuals with compromised immune systems who want to do all they can to protect themselves can boil water for five minutes before consuming it. This is an extreme treatment, however, and should be considered only by those people who are at high risk with regard to their immune systems.

Q: Are you testing for Cryptosporidium?

A: Since 1991, Metropolitan has aggressively focused on identifying and monitoring Cryptosporidium levels at our source waters along the Colorado River and, particularly, in the Sacramento-San Joaquin Bay-Delta, which supplies Southern California with a third of its water. Metropolitan also is preparing a more comprehensive monitoring program anticipating the U.S. Environmental Protection Agency's new Information Collection Rule.

Q: Is Southern California vulnerable to a Cryptosporidium outbreak similar to the Milwaukee incident?

A: No. Metropolitan's source water reservoirs are protected from contaminated runoff experienced in Milwaukee. This results in very low pathogen levels entering our treatment facilities. In addition, our treatment plants have multiple barriers, including optimized filtration, for the removal of pathogens such as Cryptosporidium.

**MWD**

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

May 11, 1993

(Engineering and Operations Committee--
Information)To Board of Directors (Special Committee on Water Quality and
Environmental Compliance--Information)

From General Manager

Subject: Metropolitan's Vulnerability to Outbreaks of Waterborne Disease

Report

In March and April, 1993, the City of Milwaukee, Wisconsin, had a major outbreak of waterborne disease caused by the pathogen Cryptosporidium. Estimates of the number of cases of illness range from 180,000 to 280,000, with six fatalities potentially attributed to the outbreak. Metropolitan is not vulnerable to a similar outbreak because monitoring has revealed low levels of pathogens in source waters and the high quality design and operation of Metropolitan's filtration plants. While vigilance must be maintained to ensure that pathogens such as Cryptosporidium are not discharged into our source water, the current lack of vulnerability is a direct result of proactive monitoring, design, and operational programs.

Cryptosporidiosis is typically transmitted to humans by the fecal-oral route and can be widely disseminated by drinking untreated or undertreated water. Cryptosporidium is a protozoan parasite that produces a gastrointestinal illness in healthy individuals, with symptoms that include diarrhea, nausea, and cramps, lasting up to several weeks. Currently, there is no effective medication for cryptosporidiosis, but the disease will generally subside on its own. However, persons having compromised immune systems (e.g., AIDS patients or cancer patients) may have chronic, life threatening infections. Evidence for waterborne dissemination of this pathogen can be found in several recent outbreaks, each potentially involving hundreds of thousands of persons: Thames River in England; Carrollton, Georgia; Medford, Oregon; and now Milwaukee, Wisconsin. There are no existing State or Federal regulations that set standards for Cryptosporidium in water.

To ensure that Metropolitan was not vulnerable to waterborne pathogens such as Cryptosporidium, a one-year Pathogen Monitoring Program (PMP) was implemented in March, 1991, to document the levels of several pathogens in source and treated waters. This program also assessed the feasibility of routine

pathogen monitoring by a water utility and evaluated the effectiveness of emerging pathogen detection technologies. New microbial detection technology, such as gene probes and immunofluorescent staining, will lead to the development of rapid, easy-to-perform methods that will reduce the cost of routine pathogen monitoring. The PMP represents the first comprehensive evaluation of this technology by a water utility.

Sample sites for the PMP were chosen to provide a thorough evaluation of all Metropolitan source and treated waters. The sample sites are representative of State project water, Colorado River water, and blends of both before and after treatment. Pathogens assayed for included the enteric viruses, Giardia cysts, Cryptosporidium oocysts, and Legionella bacteria. Over 100 samples were analyzed for each of these pathogens, as well as traditional indicators of microbial contamination, such as coliform bacteria.

Levels of pathogens found in Metropolitan's source and finished water are very low. A summary table detailing results from the PMP has been included (Table 1). In the source waters, the levels of Giardia cysts ranged from 0 to 1.5 cysts/100L (mean of 0.05 cysts/100L); whereas, Cryptosporidium oocyst levels ranged from 0 to 1.8 oocysts/100L (mean of 0.18 oocysts/100L). No Giardia cysts were detected in the finished water samples, and only two samples contained Cryptosporidium oocysts (0.21 and 0.28 oocysts/100L). The occurrence and concentration of Giardia and Cryptosporidium in Metropolitan's source and finished waters appears to be 100 to 1,000 times lower when compared to similar studies by other investigators (Tables 2a, 2b, 3a, 3b). While these results are encouraging, continued vigilance is necessary to ensure that this excellent quality is maintained.

The PMP is also an important source of data for the regulatory process. For example, the American Water Works Association has recently requested all utilities to monitor for Cryptosporidium, and monitoring for pathogens will probably be required by the U.S. Environmental Protection Agency as part of information gathering for the upcoming enhanced Surface Water Treatment Rule.

In addition to low pathogen levels in source waters, Metropolitan must ensure removal of Cryptosporidium and other pathogens at its filtration plants. Two key elements for effective removal are optimized filtration and effective treatment of filter backwash water. Optimized filtration was implemented by the Operations Division on October 9, 1989, at all of our filtration plants and resulted in better effluent water quality (Figure 1). The second key element is removal of pathogens by filter washwater reclamation plants. In 1988, the

Engineering Division embarked upon a program to design and construct capacity increases for Metropolitan's wastewater reclamation facilities at its filtration plants (Figure 2). The result is that current capacities of the reclamation plants are now adequate to remove particles in the size range of pathogens such as Cryptosporidium. Without effective wastewater reclamation, pathogens could be recycled and concentrated in the filtration plants.

Board Committee Assignments

This letter is referred for information to:

The Engineering and Operations Committee because of its authority to study, advise, and make recommendations with regard to the production and treatment of water pursuant to Administrative Code 2431 (c); and

The Special Committee on Water Quality and Environmental Compliance because of its authority regarding Federal and State water quality regulations pursuant to Administrative Code 2551 (a) and (b).

Recommendation

For information only.


General Manager

KJR/ra
BOARD/AN9

Attachments

Table 1
Summary of Results of
Pathogen Monitoring Program

| PATHOGEN | RAW WATER | FINISHED WATER |
|---|-----------------------|-----------------------|
| <i>Giardia</i> (per 100 L) Percent Positive Mean Range | 14 0.05 0 - 1.5 | 0 0 0 |
| <i>Cryptosporidium</i> (per 100 L) Percent Positive Mean Range | 24 0.2 0 - 1.8 | 6 0.01 0 - 0.3 |
| <i>Viruses</i> Percent Positive | 21 | 3 |
| Total Samples Collected | 58 | 34 |

Table 3a
Comparison of *Cryptosporidium*
Surveys (Finished Waters)

| | MWD | LECHEVALLIER | ROSE |
|-------------------|------------|---------------------|-------------|
| % Positive | 6 | 27 | 17 |
| Range* | 0 - 0.3 | 0 - 48 | 0 - 1.7 |
| Mean* | 0.01 | 1.52 | N.A.** |

*Oocysts per 100 L

**Data not available

Table 3b
Comparison of *Giardia*
Surveys (Finished Waters)

| | MWD | LECHEVALLIER | ROSE |
|-------------------|------------|---------------------|-------------|
| % Positive | 0 | 17.1 | N.A.** |
| Range* | - | 0 - 64 | N.A.** |
| Mean* | - | 4.45 | N.A.** |

*Oocysts per 100 L

**Data not available

Figure 1

AVERAGE FILTER EFFLUENT TURBIDITY AT MWD FILTRATION PLANTS

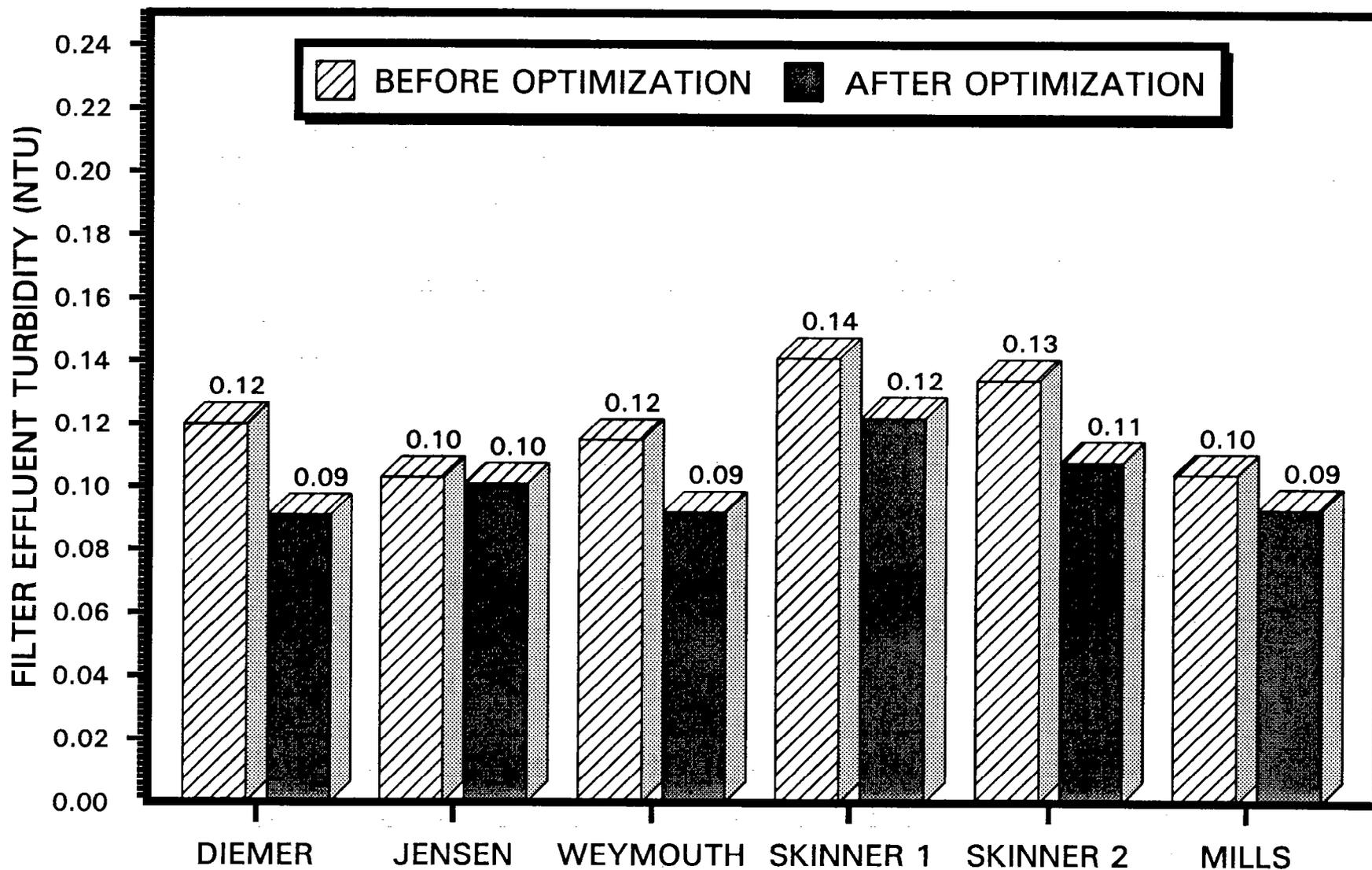


Figure 2

Increases in Washwater Reclamation Plant Capacities at Metropolitan Treatment Plants

