

CENTRAL BASIN MUNICIPAL WATER DISTRICT

JUNE 9, 2004 – Water Resources

Morse, Cole

JUNE 28, 2004 – Board Meeting

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INFORMATION CALENDAR

LEAD IN DRINKING WATER SYSTEMSSUMMARY:

The news has recently reported on elevated levels of lead in drinking water in the Washington, D.C. area. Lead levels in thousands of homes exceeded 15 parts per billion (ppb), which is the federal level that public notice and remedial action is required. Although residents learned of the lead problem through a newspaper article in the Washington Post, the issue dates back to the year 2000.

In order to comply with regulations to limit corrosion, chloramines were added to drinking water supplies in 2000. Rather than help corrosion, chloramines actually sped up the corrosion of lead pipes/fixtures and increased the amount of lead found in drinking water (recent lead samples collected during the annual pipe flushing and switching to free chlorine confirmed this relationship with significantly lower lead levels). The link between chloramines and elevated lead levels was not discovered until early 2003, when analytical results indicated there might be a problem.

A collaborative effort between the United States Environmental Protection Agency, (EPA) researchers at Virginia Tech University, the Washington Suburban Sanitation Commission, and the District of Columbia Water and Sewer Authority attempted to pinpoint the issue. Although riddled with controversy, the research focused on the following core issues:

1. Insufficient Regulations: The 1991 Lead and Copper Rule implemented by the EPA aims to minimize lead and copper levels in drinking water by reducing water corrosivity. The Rule establishes an "Action Level" (AL) of 15 ppb for lead. Compliance is based on samples collected from the tap in consumers' homes. AL's are non-enforceable, but when exceeded additional actions may be required. According to the Rule, if 10% of samples exceed the AL of 15 ppb, utilities may be required to perform additional monitoring, implement corrosion control treatment, perform source water monitoring and/or treatment, inform and educate the public, and/or replace lead service lines.
2. Gaps in Monitoring: The current sampling protocol for compliance includes two lead samples; first and second draw. First draw is the first liter of water to come out of the faucet after sitting for several hours undisturbed. Experts believed this would represent the worst-case lead levels. After flushing the lines for five minutes, the second draw sample is collected. This sample supposedly draws water in from the water main and should have low levels of lead. However, this sampling protocol does not allow for samples to be collected in between these two points, which is the water that would be consumed by residents if they follow flushing protocols issued to them during elevated lead episodes. Most utilities recommend residents flush 15-30 seconds, or a minute at most, to minimize the exposure to lead, yet regulations do not even require samples to be collected at this point in time. When researchers sampled for lead in between these two points, results revealed that it actually takes up to ten minutes for lead levels to dissipate, and that levels

actually spike after the first draw sample up through three minutes of flushing. What this means is that when consumers follow flushing guidelines, they are actually consuming water with even higher lead levels than originally thought, since regulations do not require sampling in this period, it has not been realized until now.

3. Sources of Lead Contamination: There are three main sources of lead contaminating drinking water in homes. One is simply lead pipes that still exist in older homes. The second is lead solder used legally on drinking water pipes before it was banned in 1986 with the Safe Drinking Water Act (SDWA). The third is brass plumbing devices. Although the SDWA totally banned lead solder, and states that lead-free plumbing must be used, it defines lead-free plumbing as containing up to 8% lead. Brass plumbing devices containing up to 8% lead are usually not included in lead compliance samples because they are found in newer homes. However, when researchers analyzed brass-plumbed homes disinfected with chloramines, they found a 33-fold increase in the amount of lead leaching out of the so-called "lead-free" pipes compared to free chlorine disinfected lines.
4. Problems with Chloramine Disinfectant: The water industry is eagerly latching on to chloramines as the latest disinfectant strategy because it holds longer than free chlorine, and helps them meet tougher regulatory standards. However, insufficient research was done to study the impacts of chloramines on drinking water pipes before encouraging its use. The researchers proved that chloramines are known to cause copper pipe pitting that eventually turns into pinhole leaks. These water leaks can cause dangerous molds. Chloramines also trigger lead release from both brass and lead pipes.

In light of these research findings, the Washington, D.C. community has been given conflicting guidance and answers about what to do, agencies have struggled over who had responsibilities, and researchers are exasperated that their findings were not embraced by those in charge to adequately warn the public. This has resulted in a nationwide spotlight on the issue of lead in drinking water supplies, to the point that legislators recently introduced the Lead-Free Drinking Water Act in the Senate and House.

This Act would first require that utilities around the country immediately test their water. The EPA would also be required to review whether a nationwide maximum contaminant level for lead is appropriate, or if they should lower the 15 ppb AL. Public notification procedures would be enhanced, as would regular monitoring protocols. Furthermore, if the AL is exceeded, consumers would be provided filters and the lead service lines would be replaced. Millions of dollars are requested to fund this effort. Although most drinking water systems serving more than 50,000 people are in compliance with the Rule, legislators contend that the EPA has no idea the extent of the problem in the U.S.

In California, the Department of Health Services also implements a 15 ppb AL for lead, which the District's purveyors monitor for to ensure compliance.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

This item was reviewed by the Water Resources Committee on June 9, 2004 and agendaized to the June 28, 2004 Board meeting as information for discussion.

RECOMMENDED MOTION:

This item is for information only.

EXHIBITS:

None.

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