STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: November 14, 2018
SUBJECT: Update on Lead and Copper Rule Compliance – Fall 2018

COMMITTEE: Water Policy & Oversight

X INFORMATION
VOTE

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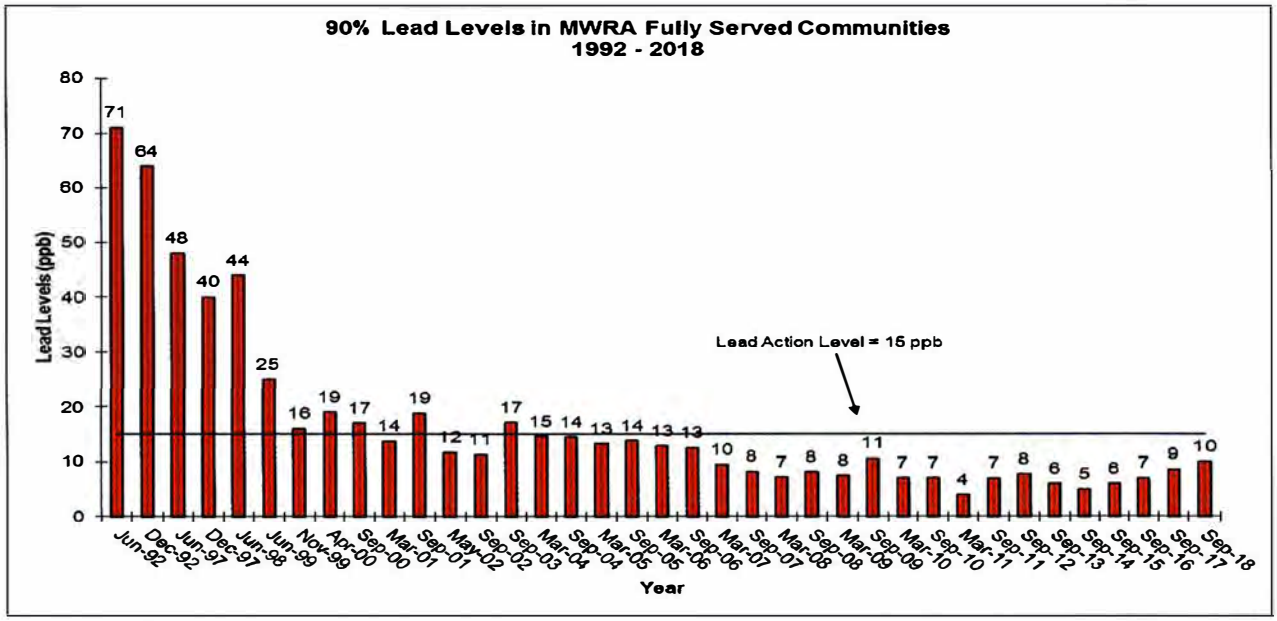
MWRA system-wide 90th percentile lead levels in the September 2018 sampling round was 9.7 ppb, below the Action Level of 15 parts per billion (ppb) again for the 23rd consecutive sampling round. This result was an increase over last year's level and represents the fourth consecutive year with an increase, raising staff's level of concern as to what might be causing these changes. Staff are looking at the sample locations and system metrics to determine if any changes in dosing or other treatment processes might result in improvements. Three communities were individually above the Lead Action Level as compared with four in 2017. MWRA continues to meet the copper standard.

RECOMMENDATION:

For information only.

DISCUSSION:

MWRA and its communities conducted the calendar year 2018 sampling round beginning in September 2018. The 90th percentile value for the system as a whole was 9.7 parts per billion (ppb), which is below the Lead Action Level of 15 ppb, but the highest level since 2009.



Under EPA's Lead and Copper Rule (LCR), each year MWRA and every fully-supplied community must collect and test tap water in a sample of homes[1] *that are likely to have high lead levels*. These are usually homes with lead services or lead solder. EPA requires that nine out of ten of the sampled homes must have lead levels at or below the Action Level of 15 ppb.

Starting in 2012, MWRA's fully-supplied communities were only required to sample for lead and copper once per year, as long as their 90th percentile results are below the Action Level. A community that exceeds can return to once-per-year sampling after it has two consecutive sampling rounds under the Action Level. In September 2017, four communities: Medford, Melrose, Quincy, and Winthrop were above the Action Level. All four were below the Action Level in the March 2018 sampling round, but Medford, Quincy, and Winthrop were once again above in this September 2018 sampling round. They will need to sample twice in 2019.

Massachusetts Department of Environmental Protection (DEP) has had extensive interactions with all three communities with regard to fulfilling the requirements of the Lead and Copper Rule. All three communities have been notified and will be required to meet education requirements, including mailing updated lead education brochures, and will be required to meet lead service line replacement requirements set by DEP. All three communities have been over the Action Level before, so they have experience working with DEP on meeting the requirements of the Lead and Copper Rule. MWRA will provide an updated educational brochure, and staff have offered assistance in working with DEP on the educational requirements and documentation that demonstrates that the community has replaced the required number of service lines.

Under the LCR, each community is also required to collect samples from two schools or daycare facilities. MWRA staff immediately contact any community that had a school above the Action Level. Three communities had one school test above the Action Level as part of the LCR testing, and each one was notified. All school data is available on DEP's online school database that includes over 30,000 school test results from MWRA communities. A link to the DEP school testing database is available on the MWRA webpage.

MWRA has formally transmitted these results to DEP. The results were also transmitted to the communities, and, through them, to each individual homeowner or school that collected a sample for the program. MWRA staff also directly contacted communities with schools above the Action Level and individual homeowners with very high or unusual results.

Analysis of Lead Levels with Source Water Parameters

To further understand how lead levels vary from year to year and location to location, MWRA staff are in the process of investigating several factors that might affect corrosion. Source water factors including UV-254 levels (a measure of naturally occurring organic carbon), conductivity, temperature, and sulfate and chloride levels, and distribution system factors including nitrification, pH level, and alkalinity are being considered. Another factor may be the change in sampling locations, and the requirement to use wide-mouth sample bottles (and thus fill at a higher, potentially scouring flow rate). Over the past two years, DEP has worked with communities to update their sampling pools, emphasizing the requirement to sample at homes with lead service lines. This has resulted in testing many homes not previously tested.

[1] In most communities, 15 homes are sampled; the exceptions are Boston, which collects 25 samples, and Lynnfield and Nahant, which collect 10 samples. A total of at least 450 samples are collected.

Revisions to the Lead and Copper Rule:

EPA has once again signaled that the revisions to the Lead and Copper Rule are taking longer than anticipated. In an October meeting, EPA staff indicated that the draft rule would be not be out in the spring of 2019, but later in the year. MWRA staff will continue to track EPA's efforts, evaluating their potential impact on MWRA and MWRA communities, and will continue to be actively involved along with the water professional associations in commenting as appropriate.

In the absence of Federal action on the LCR, individual states are taking various actions. For example, recently, Michigan issued new state regulations, requiring full replacement of all lead service lines statewide by 2040, and lowering the Action Level to 12 ppb. Ohio added additional strict requirements on prompt reporting of lead results, requiring inventory and disclosure of any lead service lines and requirements for risk mitigation measures, including the provision of filters, during lead service line replacements or work on water main connected to lead service lines. California recently expanded its mandate that schools be tested for lead to include larger child care facilities.

Several large cities have proposed aggressive lead service line replacement programs. For example, in October, driven by a lawsuit filed by the Natural Resources Defense Council (NRDC) a national environmental advocacy group, Newark New Jersey, announced an eight-year program to replace the estimated 15,000 lead services (about 40% of all services) within the city. A new interactive map provides locations of all known lead service lines, and the city's web site provides information and a way for a property owner to indicate they have a lead service line. While the city asserts that the property owner owns all of the lead service on both public and private property, Newark plans to use state funds to pay for all but a maximum of $1,000 which the property owner will need to pay. The city has also agreed to immediately provide filters to all properties with a lead service line.

As discussed in staff's July update to the Board on lead, the issue of Denver corrosion control treatment decision being overridden by their state regulator and being required to add phosphate treatment by 2020, continues. Discussions related to litigation and alternative approaches are still on-going in Denver; however, that situation has further elevated the challenges of utilizing orthophosphates such as higher costs that will be will be placed on wastewater treatment facilities to remove the excess phosphorus, and potential environmental issues in receiving waters. Many utilities across the country have raised issues with this one-size-fits all approach. Locally, MassDEP has suggested that use of orthophosphates may be a potential solution to elevated lead levels in drinking water. MWRA is concerned about unintended consequences and would prefer for now to focus on lead service line replacements and other controls before committing to chemical additions.

Staff have been working with Providence RI, where lead levels increased after what was expected to be a treatment optimization to reduce lead levels. Providence still hasn't resolved the problem after several years, and is currently doing a neighborhood scale pilot of modified treatment, under the oversight of EPA, the Rhode Island Department of Public Health and a national expert panel. MWRA staff are participating in the review of their data to see if their pilot with orthophosphate and a higher than typical pH is successful at reducing lead levels with no adverse impacts to the distribution system. Changes to wastewater treatment are anticipated if Providence goes full scale with phosphate addition.

Congress did include some funding for lead related activities in American's Water Infrastructure Act of 2018 passed in October. The act includes $25 million each year between FY2019 and 2021

for voluntary school and childcare testing and $5 million each year from FY2019 to 2021 for replacement of school fountains. Staff will track whatever grant program EPA develops to distribute these funds, and will alert MWRA communities when the program is available.

BUDGET /FISCAL IMPACT:

MWRA began modern effective corrosion control treatment to reduce lead and copper levels at the tap in 1997. MWRA's corrosion control treatment involves raising the pH and alkalinity to the water to provide a stable, non-corrosive product, reducing the potential for both lead and copper to leach from customer's home plumbing. The annual average cost for corrosion control is approximately $3.9 million ($3.6 million in soda ash costs, and $0.3 million in carbon dioxide costs.)