

CJ

Busch, Stephen (DEQ)

From: Busch, Stephen (DEQ)
Sent: Friday, February 27, 2015 1:48 PM
To: 'Crooks, Jennifer'; Deltoral, Miguel
Cc: Rosenthal, Adam (DEQ); Poy, Thomas; Porter, Andrea; Prysby, Mike (DEQ); Richard Benzie P.E. (BENZIER@michigan.gov); Shekter Smith, Liane (DEQ) (SHEKTERL@michigan.gov)
Subject: RE: HIGH LEAD: FLINT Water testing Results

Miguel and Jennifer,

Thank you for this information, we will take it under consideration.

The City of Flint:

- Has a 90th percentile lead level of 6.0 ppb based on 100 samples collected in its most recent monitoring period of 7/1/2014 – 12/31/2014, with 2 samples (23 & 37 ppb) over the AL.
- Has a 90th percentile copper level of 110 ppb based on 100 samples collected in its most recent monitoring period of 7/1/2014 – 12/31/2014, with no samples over the Cu AL.
- Has an Optimized Corrosion Control Program
- Conducts quarterly Water Quality Parameter monitoring at 25 sites and has not had any unusual results.
- Has never had a 90th percentile lead AL exceedance
- Continues to meet all applicable plant tap standards and treatment technique requirements at its WTP
- Has developed and implemented an Operational Evaluation of its treatment and distribution systems, and continues to adjust and update this OE based on updated quarterly results

My understanding from Ben Grumbles and the LCR Short Term Revisions is that "EPA regulations require water systems to develop a targeted sampling pool, focused on those sites with the greatest risk of lead leaching. All compliance samples used to determine the 90th percentile must come from that sampling pool." [40 CFR 141.80(c)(1)], 56 Fed Reg. 26518 (June, 7, 1991), [40CFR 141.90(a)(1)(v), and 40 CFR 141.90(h)(2)]. Our office continues to work with our community water systems to follow these and all other requirements of the current lead and copper regulations.

212 Browning, the site in question, is not part of the City's established sample site pool. The residence consists of PVC plumbing materials, and has an iron pre-filter at the service connection.

Regarding TTHM, the most recent quarter monitoring from February 2015 was issued today by the lab. While 2 of the 8 DBP compliance sites continue to have an LRAA that exceeds the standard, quarterly results at all 8 DBP compliance sites were below less than half the standard level of 80 ppb, the highest being 28.5 ppb. Only one site now has an OEL over 80 ppb, at 85 ppb.

Stephen Busch, P.E.
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 MDEQ
 517-643-2314

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Friday, February 27, 2015 11:05 AM
To: Deltoral, Miguel; Prysby, Mike (DEQ)
Cc: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ); Poy, Thomas; Porter, Andrea
Subject: Re: HIGH LEAD: FLINT Water testing Results

Hi, Steve and Mike. I talked with Miguel, and he said if you all would be interested in getting input from our expert, Mike Schock at EPA Cincinnati Research, on the Flint distribution system issues and dealing with lead and DBP's together, you should contact Mike directly--here is his information.

schock.michael@epa.gov
(513) 569-7412

Jennifer

From: Deltoral, Miguel
Sent: Friday, February 27, 2015 4:58 AM
To: Crooks, Jennifer; Prysby, Mike (DEQ)
Cc: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ); Poy, Thomas; Schock, Michael; Porter, Andrea
Subject: Re: HIGH LEAD: FLINT Water testing Results

Jen/all - I think things got garbled in translation...

What I was saying is that where you find Pb values that high, it is usually due to particulate lead. Not always, but generally. Particulate lead is released sporadically from lead service lines, leaded solder and leaded brass in a number of ways and folks tend to discount these values as anomalies, but particulate lead release is a normal part of the corrosion process and it is universal (common) in all systems. It's just that it is not captured as often by the infrequent LCR sampling. If systems are pre-flushing the tap the night before collection on thisting LCR compliance samples (MDEQ still provides these instructions to public water systems) this clears particulate lead out of the plumbing and biases the results low by eliminating the highest lead values. If systems are pre-flushing and still finding particulate lead, the amount of particulate lead in the system can be higher than what is being detected using these 'pre-flushed' first-draw samples. My point on that was that people are exposed to the particulate lead on a daily basis, but the particulate lead is being flushed away before collecting compliance samples which provides false assurance to residents about the true lead levels in the water.

Some quick notes on particulate lead release:

- Fe/Mn can transport lead from the lead service lines into the home. The lead sorbs onto the Fe/Mn particles. In GW systems, Fe/Mn can come from the source water and more Fe from the water mains. In SW systems, the Fe typically is released from the water mains.
- Lead released from lead service lines can also 'seed' galvanized iron pipes inside the homes. Again, the lead sorbs onto the iron on the pipes and be released sporadically. Generally, the higher the flow, the more Fe and Fe+Pb particulate you will likely get.
- If there is a partial lead service line (lead connected to copper) you can get additional lead release due to galvanic corrosion.
- Leaded brasses and solder can also release particulate lead under certain circumstances.
- The particulate can contain very high concentrations of lead (hundreds to thousands of ppb Pb) which is a much higher concentration than lead paint, so even small particles can result in high lead values.
- If the lead service line was disturbed (water main repair/replacement, meter installation repair/replacement, service line leak repairs, etc.) you can have VERY high lead levels in the scale and sediment that is dislodged from the inside of lead service lines. Here in Chicago, during a partial lead service line replacement, we collected the scale and sediment that came into the home and we found 300,000+ ug/L lead in the scale; 125,000 ug/L Pb in the sediment. Very dangerous.
- Higher levels of PO4 (3-4 mg/L Ortho) seem to reduce the amount of particulate Pb that is released in the absence of physical disturbances to the lead lines. Doesn't stop it entirely, but should generally