Summary of MDEQ and City of Flint Freedom of Information Act (FOIA) Requests by:

American Civil Liberties Union-Michigan (Curt Guyette) FLINTWATERSTUDY.ORG (Marc Edwards)

Red emphasis added by FLINTWATERSTUDY.org

On Thu, Feb 19, 2015 at 12:47 PM, Michael Glasgow <mglasgow@cityofflint.com> wrote: Lee & Dennis,

Here is a list of test results from water sampled at your home over the last 2 weeks. I have sent in your lead and copper sample, and also a sample from the toilet tank for manganese. I should hopefully have results from this testing early next week. I'll plan on stopping over on Wednesday (the 25th) around 10 am again to give you these results & sample again.

Mike

From: Lea Moste [mailto:lwalters313@gmail.com] Sent: Thursday, February 26, 2015 9:08 AM

To: Crooks, Jennifer

Subject: Fwd: Re: Water testing Results

----- Forwarded message -----

From: "Michael Glasgow" < mglasgow@cityofflint.com>

Date: Feb 26, 2015 7:55 AM Subject: Re: Water testing Results

To: "Lea Moste" < lwalters313@gmail.com>

Cc: Lee,

Here are your Lead & Copper Results. This number is very high, 104 ppb of lead. In the last few months over 100 samples have been tested and only 2 were over the 15 ppb regulatory limit, and the highest level I have seen is 37 ppb. I will pass this info to Mr. Croft so he is aware. I will send the sample I collected from your kitchen faucet today for a complete metals test (12 different metals), to see what the level is without letting the water stagnate over night. I'm hoping that value will be much, but we will have to see. Sorry for this news, but I wanted to let you know right away.

Mike

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]

Sent: Thursday, February 26, 2015 10:53 AM To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)

Cc: Poy, Thomas; Deltoral, Miguel

Subject: HIGH LEAD: FLINT Water testing Results

Hi, Steve and Mike. Thanks for talking with me yesterday, Steve, about the most recent TTHM results. We'll look forward to receiving them whenever you get them back from the lab.

However, the main purpose of my email is to alert you to the high lead levels reported to a citizen yesterday by Flint Water Dept. I have been discussing the water situation with LeeAnn Walters since January, and she has been talking with Mike Glasgow at the plant about the black sediment in her water. (HUGE KUDOs to MIKE!!) He did test it to find that the iron levels were greater than his test would go; GT 3.3. But, because the iron levels were so high, he suggested testing for lead and copper. WOW!!!! Did he find the LEAD! 104 ppb. She has 2 children under the age of 3... Big worries here.

So, Steve, this goes back to what you and I were talking about yesterday. That the different chemistry water is leaching out contaminants from the insides of the biofilms inside the pipes. I think Lead is a good indication that other contaminants are also present in the tap water, that obviously were not present in the compliance samples taken at the plant. VOC/SOC and inorganics/metals would be good samples to start with to take at the tap. And since Ms. Walters' drinking water is showing the high lead levels, her tap water would be a good place to start, I think.

We also talked about Dr. Joan Rose from Michigan State being on the Flint Tech Advisory Committee—you also mentioned that someone from the Dept of Community Health was on the Committee. I'm thinking that Dr. Rose would want to dive further into this, since there's actual evidence that the water is leaching contaminants from the biofilms; or Dept of Community Health would want to get involved and look at this from an epidemiological perspective. (She and her family are also exhibiting the rashes when exposed to the water, and her daughter's hair is falling out in clumps.)

Maybe MSU could authorize the payment of the analyses for these samples? Or Dept of Community Health?

The citizen's name is: LeeAnn Walters 212 Browning Ave Flint, MI 48507

Lwalters313@gmail.com

Jennifer

From: Prysby, Mike (DEQ) [mailto:PRYSBYM@michigan.gov]

Sent: Thursday, February 26, 2015 10:25 AM

To: Crooks, Jennifer

Cc: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ) Subject: RE: HIGH LEAD: FLINT Water testing Results

Jennifer,

I recall Adam showing me a high lead/copper sample result (perhaps it was this one)....as part of the city's routine lead-copper monitoring. If so, it was a stagnated sample as part of the sampling protocol.

Adam mentioned that all other samples were below the AL...and the city will not exceed the lead AL. I will confirm this. The city; however, needs to take further action to help address Ms. Walter's concern. The type of plumbing needs to be identified and sample tap location within the premise plumbing. They should offer to re-sample for PB after flushing the tap to demonstrate that flushing the tap will reduce the lead concentration. The city also needs to provide other lead-reduction strategies to Mrs. Walters.

Michael Prysby, P.E.
District Engineer
Office of Drinking Water and Municipal Assistance

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]

Sent: Thursday, February 26, 2015 5:15 PM

To: Prysby, Mike (DEQ)

Cc: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ); Deltoral, Miguel; Poy, Thomas

Subject: HIGH LEAD: FLINT Water testing Results

Thank you, Mike. These results are dated 2/18/15, so they're probably different results than the results Adam had, but they still have to be included in with compliance calculation of the 90th percentile. What dates are the earlier compliance samples?

Yes, the stagnation of the water would increase the lead levels, and I'm glad you're following up with the City to get the lead levels reduced for Mrs. Walters' home—which will hopefully be effective for her neighbors because they are also most likely being exposed to these high lead levels. Miguel reminded me this morning, there are no safe levels of lead in drinking water.

I talked with Miguel Del Toral about his knowledge on research on lead. He said that high levels of iron, usually bring high levels of lead. The large amount of black sediment at Mrs. Walters' home, is most likely particulate lead, Miguel said, where the lead actually bonds to the iron sediment. While the particulates of lead/iron are small, they're very highly concentrated with lead—up to 95% lead.

Miguel was wondering if Flint is feeding Phosphates. Flint must have Optimal Corrosion Control Treatment—is it Phosphates? Or is it pH/Alkalinity Adjustment? The reason he asks, is because systems using the pH/Alkalinity adjustment have problems with lead levels in the 100's or higher—and they have problems with random lead particulate matter in the distribution system. Miguel said that we all know that flushing regularly helps reduce the lead concentrations, but not immediately. The City can't just flush in advance of taking the compliance samples, they have to flush the lines on a regular schedule. The problem with high lead issues, is that the water has so many different variables, that it's hard to pinpoint what is causing what problem where. From a public health perspective, can we assume that the high lead levels in Mrs. Walters' neighborhood are isolated to just her area? Or are they more widespread?

Please feel free to contact Miguel directly-; Deltoral.miguel@epa.gov.

Jennifer

From: Busch, Stephen (DEQ) < BUSCHS@michigan.gov>

Sent: Friday, February 27, 2015 12:48 PM **To:** Crooks, Jennifer; Deltoral, Miguel

Cc: Rosenthal, Adam (DEQ); Poy, Thomas; Porter, Andrea; Prysby, Mike (DEQ); Benzie, Richard (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 90^{th} 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), [40 CFR 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. Lansing and Jackson District Supervisor Office of Drinking Water and Municipal Assistance MDEQ 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 Cincinnatti 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

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 collec 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 reduce the occurrence. Caveat Other water quality issues can change the
 chemical complexes that form on the pipe, so cleaner sources with more consistent WQ form
 more predictable scale complexes.

If I remember correctly, Detroit is feeding PO4 for the LCR, but since Flint is no longer part of that interconnection, I was wondering what their OCCT was. They are required to have OCCT in place which is why I was asking what they were using.

Mike Schock is our resident expert and may be able to help out with the simultaneous compliance (Pb & DBPs) so I would suggest that folks give him a call.

Miguel A. Del Toral Regulations Manager U.S. EPA R5 GWDWB 77 West Jackson Blvd, (WG-15J) Chicago, IL 60604

Phone:

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]

Sent: Wednesday, March 18, 2015 11:38 AM

To: Busch, Stephen (DEQ); Prysby, Mike (DEQ); Benzie, Richard (DEQ)

Cc: Poy, Thomas; Deltoral, Miguel; Harris, Kimberly Subject: Lead levels still high at Ms. Walters' home

I just received a call from LeeAnn Walters' home in Flint. She had her water tested again—this time the lead levels came back at 397 ppb. I will ask her to fax me the official lab results she has. Are you aware if the City flushed her system after the last test? Any thoughts on how to respond to her? I'm running out of ideas.

Jennifer

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]

Sent: Tuesday, June 02, 2015 8:28 AM

To: Busch, Stephen (DEQ); Prysby, Mike (DEQ); Cook, Pat (DEQ)

Cc: Benzie, Richard (DEQ); Philip, Kris (DEQ); Shekter Smith, Liane (DEQ)

Subject: April 27 Flint Sampling Update from Miguel

Mea culpa.... I totally missed this email. Just saw it today. You already know the general information, but here is directly from Miguel.

Jennifer

From: Deltoral, Miguel

Sent: Monday, April 27, 2015 6:53 AM

To: Poy, Thomas

Cc: Porter, Andrea; Bair, Rita; Crooks, Jennifer

Subject: Flint Sampling Update

Good morning, Tom

Just an update on the Flint sampling so folks know what's going on. As we had initially discussed, the only way to really see what the lead levels are throughout and where the lead is actually coming from at Ms. Walters' place is to do sequential sampling prior to the removal of the LSL. I spoke to Ms. Walters and she said that the water was shut off inside her home, so it can actually be turned back on, so Jennifer and I picked up sample bottles from the R5 office and we will be dropping them off at Ms. Walters place today on the way home from the MDEQ RTCR meeting. Pat Cook has confirmed that following the disconnection from Detroit, Flint has not been operating any corrosion control treatment, which is very concerning given the likelihood of LSLs in the city. We do not know how many LSLs there are in Flint and according to Ms. Walters, neither does the city. She said that they do not know where any LSLs are, based on their records, so other than what appears to be a very long one at Ms. Walters' place, we don't have confirmation of any others at this point. Since they were used extensively here in R5, it is likely there are more. No idea how many, though.

Marc Edwards (from Virginia Tech) was kind enough to offer to analyze this round of samples so she will shipping the samples to Marc for analysis. I asked that he measure phosphate as well, so that we have some data on that. As we discussed, R5 will send an additional set of bottles to Ms. Walters for the follow-up monitoring once the LSL is removed. I spoke to Mike Prysby on Friday and he said that the city was going to remove the LSL fully this Wednesday. I also brought a camera with me and will take some pictures while we are at Ms. Walters place as well.

Apparently, according to Ms. Walters, the water director appears to be telling residents that the high lead from Ms. Walters residence is from the internal plumbing and that a reporter she was talking to, as well as others, has confirmed that this is what residents are being told. Ms. Walters indicated that the line coming into the home appears to be galvanized pipe. If this is true, it is possible that her portion of the service line, from the home to the property line, is not lead and that the city-owned portion of the service line is the only source of lead here. The sample results should help to clarify where the lead is coming from.

Call me on the cell if you need to:

Miguel A. Del Toral Regulations Manager U.S. EPA R5 GWDWB 77 West Jackson Blvd, (WG-15J)

Chicago, IL 60604

Phone:

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]

Sent: Thursday, June 04, 2015 4:06 PM

To: Busch, Stephen (DEQ); Prysby, Mike (DEQ); Cook, Pat (DEQ)

Cc: Deltoral, Miguel; Poy, Thomas

Subject: more customer lead samples over the AL?

I talked with Miguel this week; he learned that there have been 2 more customer-requested lead samples that have come back over the AL: 22ppb and 40 ppb. These were customer-requested samples taken by Mike Glasgow and analyzed at the Flint lab. When I receive the lab reports, I'll email them to you—or Mike Glasgow should have copies of all the customer-requested lead sample results he's taken. Greg Waldorf, the contractor that replaced Ms. Walters' service line on Wed May 6, said that many of the customer services are galvanized from the customer to the water main, but they also have a lead line that connects the shut-off valve with the water main—which would make the lead piping Cityowned.

Jennifer

From: Prysby, Mike (DEQ) [mailto:PRYSBYM@michigan.gov]

Sent: Wednesday, June 10, 2015 10:40 AM

To: Michael Glasgow

Subject: RE: Lead-Copper info

Thanks Michael

Michael Prysby, P.E.
District Engineer
Office of Drinking Water and Municipal Assistance

On Tue, Jun 9, 2015 at 10:14 AM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote: Mike,

I was trying to contact you regarding Lead and Copper info that we may need. I don't have your cell number....and the WTP main phone was not switching over to the option to have my incoming call forwarded to the lab. I wish to discuss the following:

- 1. Basically, we need a listing of Flint's PB&CU sampling pool (around 120 sites) with the Tier designation (Tier 1, Tier 2, or Tier 3) and those sites with lead services. It is possible that you may have sent us this information last summer as part of revising the lead & copper monitoring program.
- 2. The lead & copper reporting form for the July 2014 Dec 2014 monitoring period states that not all sites were Tier 1; however, the listing of all 100 locations on the subsequent pages show all locations being Tier 1. Please clarify
- 3. Please provide us a copy of the consumer lead notice that was mailed to each customer in your sampling pool....we only need a copy of one notice.
- 4. We have received 28 of the 100 samples for the Jan-June 2015 round of lead/copper monitoring. Four of the samples were above the lead action level; however the PURPOSE of monitoring for two of

these was noted as "OTHER" instead of ROUTINE MONITORING. The address of these 2 locations are: 625 S. Grand Traverse (Utility Sink) and 625 S. Grand Traverse (Bathroom). Is this site part of the sampling pool or was this location sampled based on a customer complaint and/or concern?

Michael Prysby, P.E. District Engineer Office of Drinking Water and Municipal Assistance

From: Prysby, Mike (DEQ) [mailto:PRYSBYM@michigan.gov]

Sent: Wednesday, June 10, 2015 9:49 AM

To: Michael Glasgow; 'bwright@cityofflint.com'

Subject: Flint Lead & Copper

Michael, Brent

Any info yet on my email from yesterday? Hate to bug you; however, I have an 11am meeting today that includes Flint's lead & copper status....

Michael Prysby, P.E. District Engineer Office of Drinking Water and Municipal Assistance

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]

Sent: Wednesday, June 10, 2015 10:37 AM

To: Prysby, Mike (DEQ)

Subject: Re: Lead-Copper info

Mike,

To answer your questions:

- 1. I'm trying to compile the list.
- 2. There were a couple of Apartment residences that were used in the first sampling pool. These would be tier 2 sites. the majority were Tier 1.
- 3. A copy of the consumer notice is attached below.
- 4. This was in response to a customer complaint, and it is a business. I would only use the Utility sink as a site if we are short a sample, and would be a Tier 3. This is not in our sample pool, but is served by lead service line.

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Mike Glasgow Utilities Administrator City of Flint From: Rosenthal, Adam (DEQ) [mailto:ROSENTHALA@michigan.gov]

Sent: Thursday, June 25, 2015 10:48 AM **To:** Mike Glasgow; 'bwright@cityofflint.com' **Cc:** Prysby, Mike (DEQ); Busch, Stephen (DEQ)

Subject: 6/30 & 7/1/15 deadlines

Morning Mike & Brent, just wanted to remind you/confirm that Flint is on track for a few items.

1 – We hope you have 61 more lead/copper samples collected and sent to the lab by 6/30/15, and that they are will be below the AL for lead. As of now with 39 results, Flint's 90th percentile is over the AL for lead.

2 - LT2 source water monitoring plan, reminder that it is due to our office for review by 7/1/15 per Mike's 4/3/15 letter, (attached).

3 – Consumer Confidence Report, (CCR), has not been received yet – due to our office, Gen. Co. LHD & your customers by 7/1/15.

Please provide an update for the above items.

thanks,

Adam Rosenthal, EQA MDEQ – Office of Drinking Water and Municipal Assistance Lansing District – Constitution Hall 1SW PO Box 30242 Lansing, MI 48909

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms: DEQ-DWMA-Lansing@michigan.gov

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]

Sent: Tuesday, July 14, 2015 3:34 PM

To: Busch, Stephen (DEQ); Prysby, Mike (DEQ); Cook, Pat (DEQ)

Cc: Bair, Rita

Subject: Flint lead sampling results?

Steve/Mike/Pat—Thank you for cluing me in to the fact that Liane and Tinka are talking about Flint next Tuesday. I guess it's just a manager discussion, from what I understand. I understand that Flint didn't get the minimum number of lead samples (100) for the second 6-month monitoring period that ended June 30, so I assume Flint is collecting the remaining samples now. Our Division Director, Tinka Hyde asked

today if we will know what the lead results are from the second 6-month monitoring period. Perhaps you don't know what the results are for the remaining samples Flint began taking in July; but do you know what the other 80+ sample results are? Would you be able to share this information with us prior to the call on Tuesday? If not, Liane can share this info regarding the status of the sampling and the sample results with Tinka on Tuesday.

Thank you all for your hard work with Flint and with your management; I know this has not been an easy problem to deal with for anyone.

Jennifer