



**Drinking Water Advisory Committee**  
Meeting Minutes  
November 9, 2016  
Keizer

Members Present

**DJ Ezell**, Special Districts Association of Oregon  
**Jenifer George**, Oregon Environmental Health Association  
**Lori Grant**, Environmental Advocacy Groups  
**Kimberly Gupta**, Large Water Systems  
**Celeste Hari**, Privately Owned Water Systems  
**Ray Johnson**, Plumbers/Backflow Testers  
**Annette Pampush**, Conference of Local Health Officials  
**David Phelps**, League of Women Voters of Oregon  
**Kimberley Ramsay**, Oregon Environmental Lab Association  
**Brian Rigwood**, Pacific NW Section, American Water Works Association

Members Absent

**Ed Butts**, Oregon Association of Water Utilities  
**Jason Canady**, League of Oregon Cities

Guests

**David Barnett**, Infrastructure Finance Authority  
**Janna Graham**, Infrastructure Finance Authority

Staff

Adam DeSemple      Kari Salis  
Dave Leland         Diane Weis

**Welcome/Roster Update:**

DJ Ezell welcomed the group and led introductions.

Dave Leland welcomed Lori Grant, the new member representing Environmental Advocacy Groups.

**July Meeting Minutes:**

Dave Phelps made motion to approve the minutes, Ray Johnson seconded. They were voted on and approved.

**Member Update:**

Kim Ramsay reported that Gary Ward from the Public Health Lab is on leave and may not return.

Kim also reported that ORELAP has been struggling to meet the demands of the cannabis laboratory accreditation program. The labs are unfamiliar with the process and procedures so ORELAP staff has been spending extra time reeducating the labs.

Ray Johnson reported that the backflow renewals have been sent out and that the specialists will be put on the website. The Cross Connection Advisory Board meets quarterly with the next meeting being in February, and they are open to the public.

**Program Update:**

Dave Leland thanked the group for rescheduling the October meeting to November.

Lead in drinking water –

Issues with lead continue. There has been extensive media coverage on lead in schools and the statewide print media articles are posted on the Drinking Water Program's website. An incident management team is in place to direct and coordinate agency response activities and communications. DWS staff continue to get some questions and calls from school district personnel.

Budget Status/Forecast –

Dave Leland shared the Budget Summary report showing expenditures by fund type and expenditure type. Revenues and expenditures are coming closer to matching as staff vacancies occur and are not filled. Current DWS staffing is 35, down from nearly 50 several biennia ago.

Thank you! –

At this his last meeting before retirement, Dave expressed his appreciation and gratitude to current and former members of DWAC for their steadfast interest in safe drinking water and for their thoughtful and valuable advice and counsel to the state program over these many years. Keep up the great work!

Association of State Drinking Water Administrators Annual Conference – Casey Lyon and Kari Salis attended for DWS. Staff from the Michigan drinking water program gave an overview of the Flint, MI lead situation (see attached slides). The ASDWA President gave a national overview of states issues and activities (see attached slides).

DWS Manager Recruitment and Selection Update – The position has been advertised and is now closed. The selection process is underway with final selection in early December.

**Revolving Fund Update:**

FFY2016 DWSRF-Grant Award –

The award was received on September 7, for \$11.8M to be used for projects and for set-asides.

2017 Sustainability Infrastructure Planning Program (SIPP) –

Letters of Interest are being accepted for SIPP until December 15. \$80K is available for this second quarter.

End of 1Q2017: Combined Infrastructure Project Priority List –

There are 12 new projects bringing the total to 42 projects now on the list with \$106M being requested. There is plenty of revolving money.

SFY2016 DWSRF Annual Report –

The State’s financial office provides numbers for the report. It is currently being reviewed then will be submitted to EPA.

SRF Quarterly Report –

The quarterly report was distributed.

**Ozone Workgroup Report:**

Federal rules do not specify where the disinfection credit can be granted in a filtration plant. A request was made to change the post-filtration disinfection rule and to note secondary benefits. Oregon Health Authority can only make a decision of ozone treatment based on public health.

Other state’s rules on disinfection were reviewed. Oregon can propose a rule change or allow construction standard waivers. There are remaining questions and concerns so are hesitant to remove the post-filtration disinfection credit for ozone treatment.

The workgroup recommends –

- Waiver process
- Water system provide technical information
- Gather data
- Decide on a case-by-case basis
- Possibly consider rule revision in the future

The recommendations were agreed to and the workgroup will move forward on developing a more detailed process.

**2017 Meeting Schedule:**

The future meeting dates and location has not been set but the committee agreed the current schedule and location works for them.

Ozone will be an agenda item at the next meeting.

# *State Perspectives During Challenging Times*

**ASDWA Annual Conference  
October 18, 2016**

*June Swallow*

*President, Association of State Drinking Water Administrators  
Chief, Center for Drinking Water Quality;  
Rhode Island Department of Health*



# Topics to Discuss

- ✓ Implementation of Existing Rules
- ✓ Small System Challenges
- ✓ Emerging Contaminants/Health Advisories
- ✓ Water Quality & Quantity
- ✓ Physical Infrastructure Challenges
- ✓ Supporting our Human Infrastructure
- ✓ Concluding Observations

# Implementation of Existing Rules *Especially, LCR and RTCR*

## ➤ **Lead & Copper Rule:**

- **We will implement the current rule** as well as possible; in partnership with EPA and water utilities – while awaiting revised rule.
- **Strive, where feasible, to incorporate some NDWAC recommendations** -- before the new rule -- especially, for additional sampling, transparency of results-sharing, and expedited LSLR.
- **LSLR is a shared Federal-state-local priority;** including involvement of non-traditional partners (e.g., charitable orgs. , real estate community).

## ➤ **Revised TCR:**

- States and systems are heavily involved in implementing rule (effective 4/1/16); doing Level 1 & 2 assessments & follow-up
- Particular challenges include NCWSs (especially seasonal facilities)

# Emerging Contaminants & Health Advisories

- **We think the basic statutory construct for addressing contaminants is sound (e.g., CCL, UCMR):**
  - But think there needs to be a more transparent & predictable process for reg. determinations (e.g., what combination of occurrence levels and severity of potential adverse health effects triggers a positive reg. det.?)
- **Health Advisories (HAs):**
  - HAs can help fill the gap by providing needed information & guidance about contaminants of concern that haven't yet gone down the regulatory track.
  - But, we need to know what's in the queue & have as much advance notice as possible.
  - We need to work in partnership (with EPA, CDC, ATSDR) on our public messaging about what HAs are – and, as importantly, what they're not.
    - ✓ *Messages should focus on realistic responses that the public can make to contaminant levels in their drinking water.*



# Water Quality and Quantity

- **It's not only about treatment – we need to collaborate to protect the source:**
  - We collectively need to be steadfast in our efforts to *protect* sources of drinking water -- leveraging all applicable statutes, strategies, and resources from other programs – point and nonpoint.
  - All players have a role (per Source Water Collaborative's Call to Action).
  - We applaud the Agency's 9/22/16 Memo on Nutrient contamination
- **Water availability, variability, and sustainability:**
  - Coping with climate extremes is the “new normal.”
  - We support an “all of the above” integrated water resources management approach.
  - EPA's Climate-Ready Water Utility (CRWU) suite of tools is valuable.
  - How can we best share lessons learned?

# Physical Infrastructure Challenges

- **Use SRFs and the set-asides to their full potential, including helping disadvantaged communities:**
  - **States have effectively used SRFs;** but, we can enhance our collective efforts by more intentional sharing of best practices.
  - **The Water Infrastructure Resiliency and Finance Center (WIRFC)** can be a valuable clearinghouse for sharing best practices & innovations.
  - **WIFIA/SRF coordination** needs to be as smooth as possible; Congressional appropriations for WIFIA should not come at the expense of the SRFs.
  - **States are concerned** about continuing ARRA-like features in the DWSRF (e.g., Davis-Bacon, American Iron & Steel); and appreciate any efforts to make the “cross-cutters” as implementable as possible.

# Perception Issues and Human Infrastructure Challenges

- While the events of the past few years have been tragic in terms of local impacts and associated public health consequences, “collateral damage” has been done in the form of loss of trust in public officials.
- Particular geographic challenges have also sometimes been conflated into narratives suggesting that tap water is unsafe everywhere.
- Drinking water program staff have had their fundamental competency, integrity, and motivation to protect public health repeatedly questioned in the press.
- Rebuilding of trust and confidence is obviously a long and challenging road; but, among other things, we need to value and support the men and women at the federal, state (my particular focus), and local levels who do this difficult work -- *every day*.

# Supporting our Human Infrastructure

- **Better support “human infrastructure” at the state level:**
  - **We’re not saying** that the various crises and challenges we’ve collectively encountered over the past few years would not have happened if states had been adequately resourced.
  - **We are saying** (based on a solid ASDWA resource needs analysis) that state drinking water programs are seriously under-resourced and much in need of better support -- at both the Federal and state levels.
    - ✓ *ASDWA estimates a 41% shortfall and a gap of \$308 million between available funds and what’s needed for a comprehensive state drinking water program.*
  - **The principal federal sources of support** -- the PWSS grant and DWSRF set-asides – need to be ramped up substantially.

# Concluding Observations

## ➤ **Challenging Times:**

- We're in the midst of extremely challenging times; recent events have raised questions about the work we all do and how we do it.
- We face a host of technical & policy challenges, including: threatened source waters, emerging contaminants, hard-pressed core programs, insufficient water system capacity, and resiliency/security challenges.
- We hope that one of the “silver linings” in the dark cloud of recent events is a greater appreciation of the need for replacing aging infrastructure and supporting our human infrastructure – at both water utilities and in states.

## ➤ **Need to Continue Our Partnerships:**

- *In the face of these challenges, we must continue to partner together; with our eyes fixed on the prize of public health protection -- while doing all we can to rebuild trust and confidence in safe drinking water.*

# Flint – What Happened?



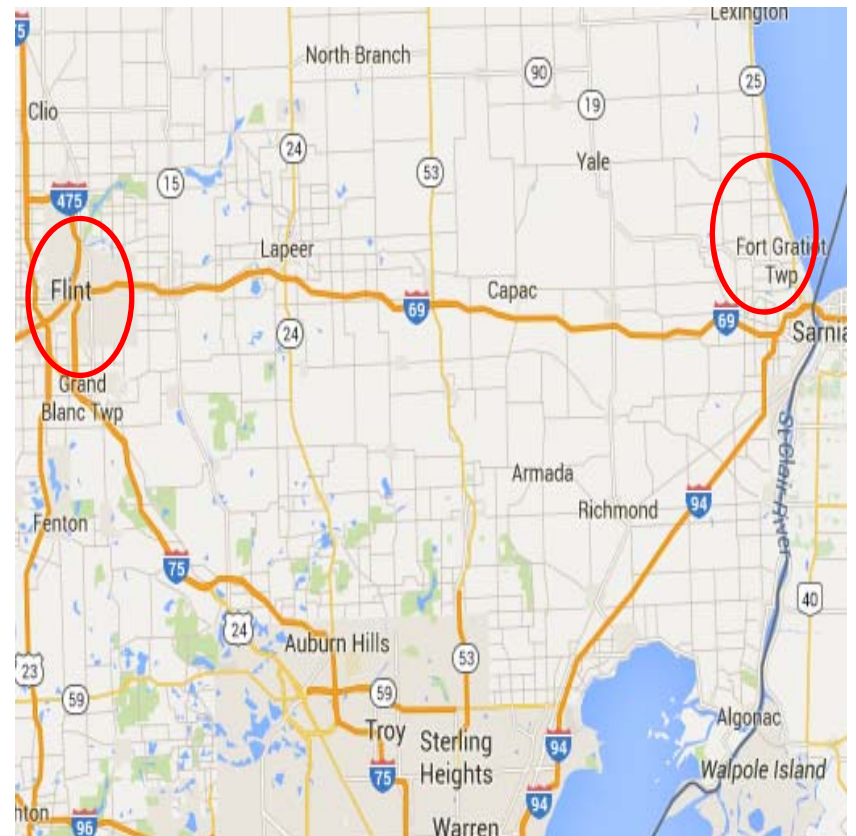


# Background

The Flint plant was completed in 1954.

Flint has purchased water from Detroit Water and Sewerage Department (DWSD) since 1967.

The source of the DWSD water is Lake Huron and treated at the Fort Gratiot plant.



# Timeline

**April 16, 2013** City of Flint signs agreement with Karegnondi Water Authority (KWA) to supply water to Flint starting in 2016. This started a series of events that resulted in the City using the Flint River as a source.



(Photo: Carlos Osorio, Associated Press)

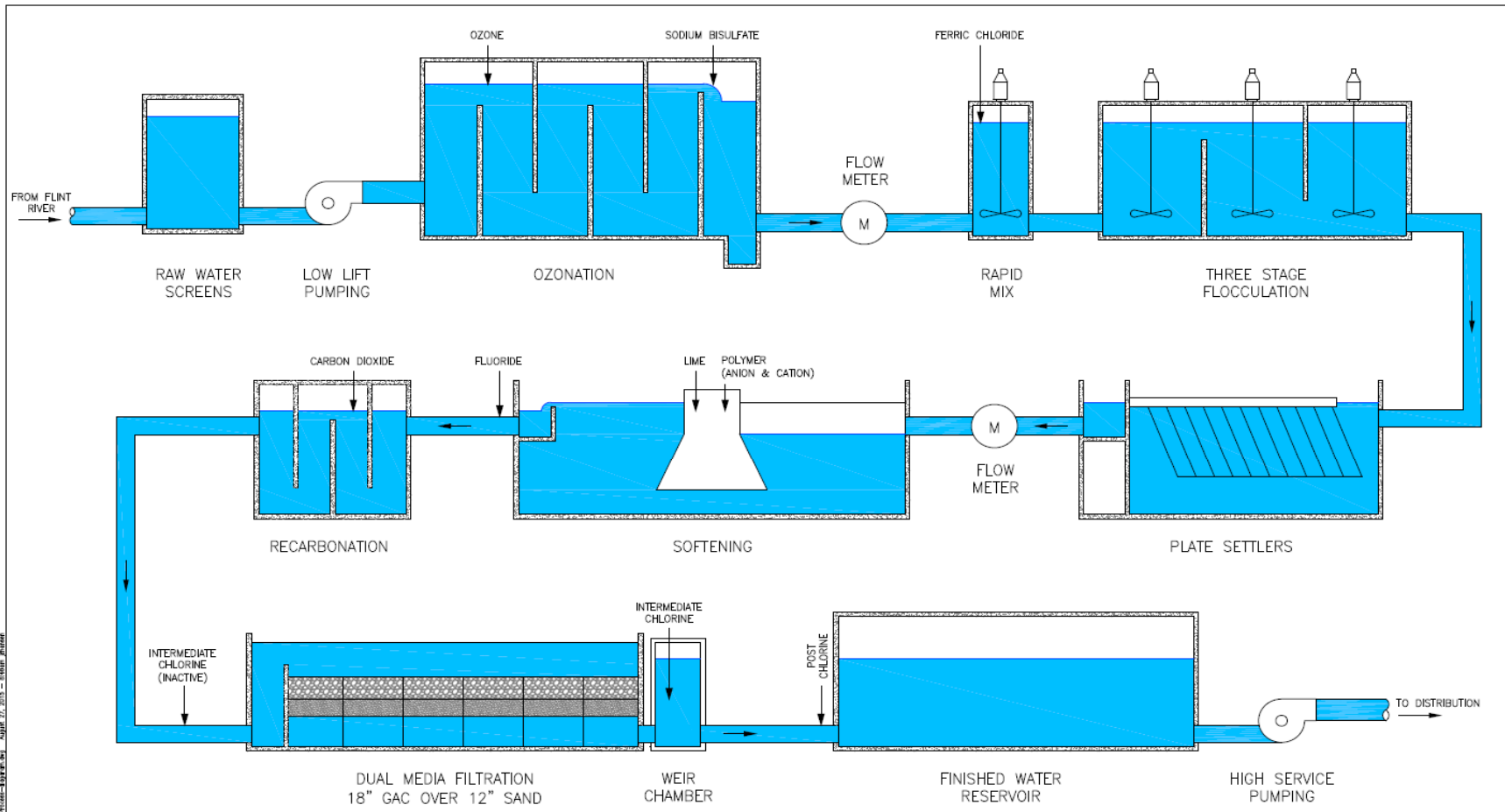


# Timeline

- **April 25, 2014** Flint River changeover ceremony
- **April 30, 2014** DWSD Water line closed



# Flint Water Treatment Plant



C:\p\projects\flint\flint\13010701\Process-Diagram.dwg August 27, 2015 - 8:16am - P:\flint



**lan** **Lockwood, Andrews & Newberry, Inc.**  
 PLANNING ENGINEERING PROGRAM MANAGEMENT  
 1311 S. Linden Road, Suite B  
 Tallahassee, FL 32304-2882 Fax 904-224-2703  
 www.lan-nc.com

CITY OF FLINT  
 WATER TREATMENT PLANT

REVISIONS		FILE LOG	
NO.	DESCRIPTION	DATE	BY

WATER TREATMENT PLANT  
 PROCESS DIAGRAM

Project No. 13010701-001  
 Date: Aug. 27, 2015

Sheet  
**FIG 1**

8/27/2015 8:16:07 AM

# Timeline

- **Mid-May 2014** Complaints regarding water quality (color, odor)
- **August 14, 2014** Flint water tests positive for E coli. Boil water advisories issued two days later. Problems continue with three boil water advisory notices issued in a 22-day span in summer
- **October 13, 2014** GM engine plant announces that it will stop using Flint water



# Timeline

- **November 2, 2014** City increases hydrant flushing to address red water concerns
- **November 2014** Draft Operational Evaluation Report on Trihalomethane Formation Concerns issued to City
- **December 16, 2014** City receives official violation notice from DEQ for violations of the Safe Drinking Water Act for total trihalomethanes

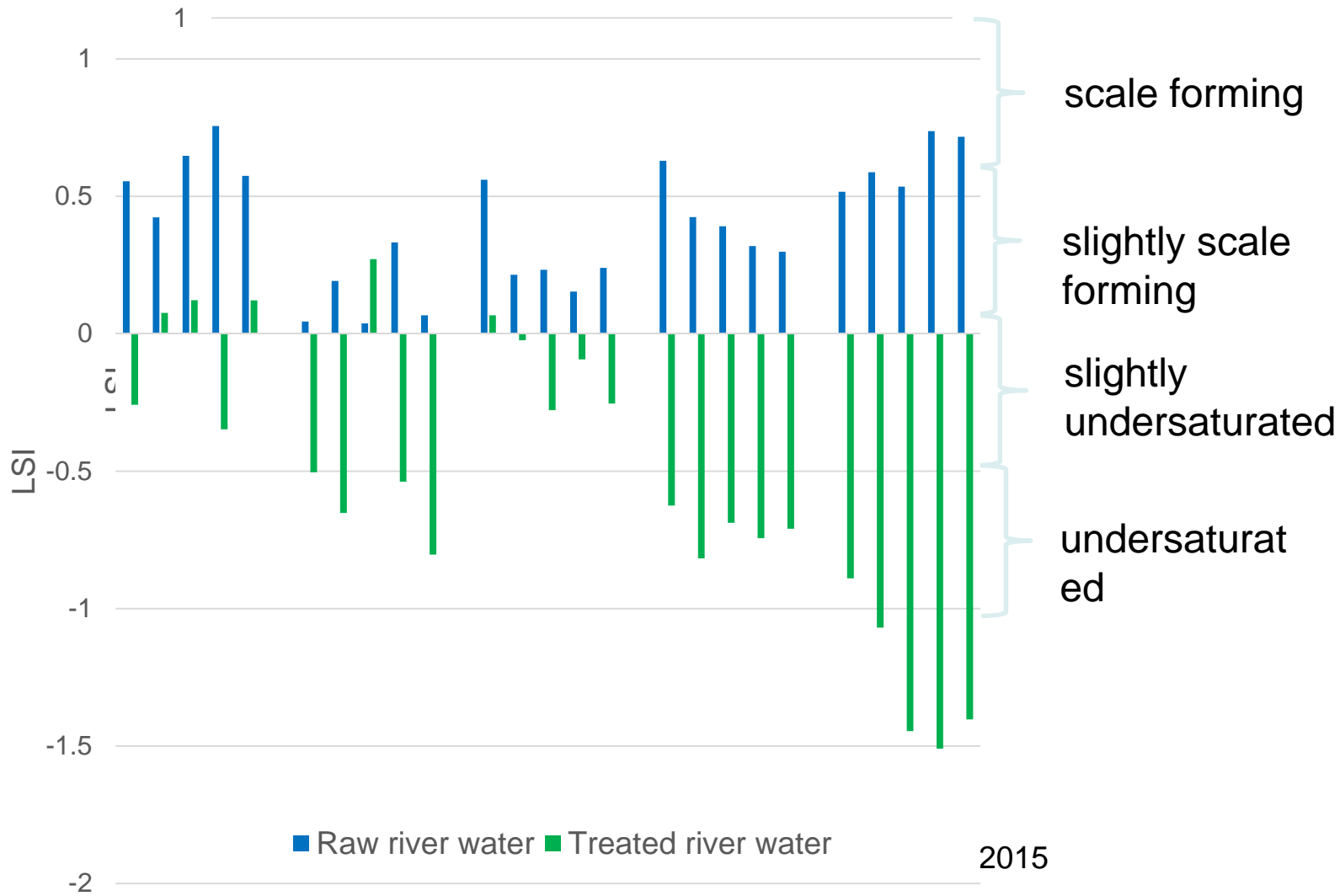


# Timeline

- **August 31, 2015**  
Prof. Marc Edwards, VA Tech says Flint drinking water is "very corrosive" and "causing lead contamination in homes"
  - 20% of the 120 samples exceeded the U.S. EPA lead action level of 15 ppb



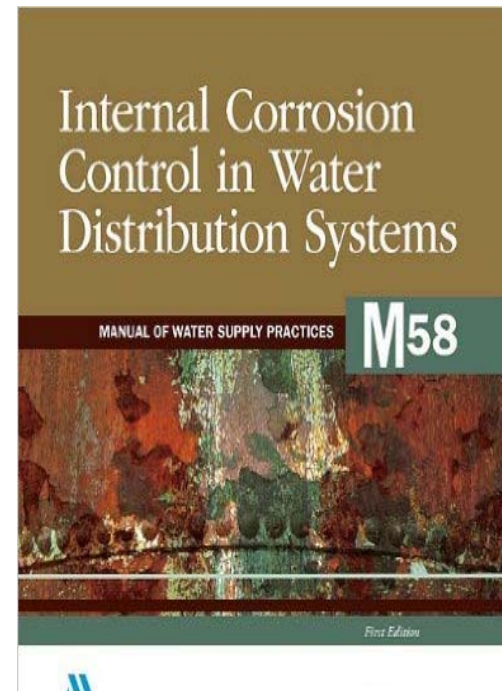
# Estimated LSI – While on Flint River



# Chloride-Sulfate Mass Ratio (CSMR)

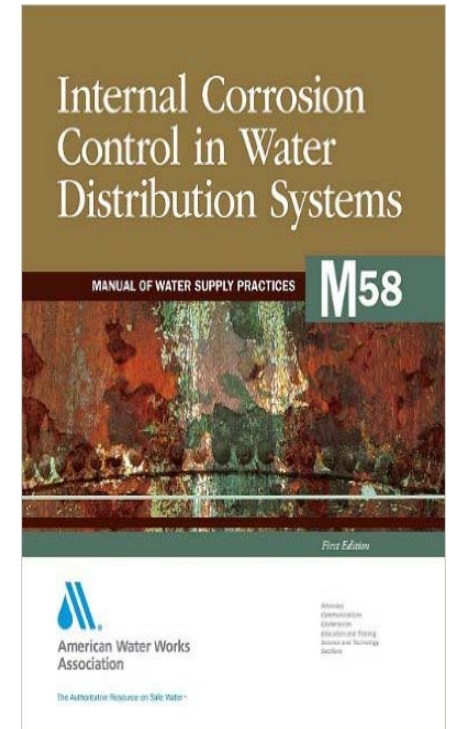
- Chloride-sulfate mass ratio (CSMR) is a widely used index for lead corrosion

- $$CSMR = \frac{\text{Conc. of } Cl^{-} \left(\frac{mg}{L}\right)}{\text{Conc. of } SO_4^{2-} \left(\frac{mg}{L}\right)}$$



# CSMR

- It is assumed
  - if  $CSMR < 0.58$  corrosion is limited
  - if  $CSMR > 0.58$  corrosion could be a problem
- Empirical. No sound theoretical under-pinning. It is thought sulfate may aid formation of passive layer
- Low alkalinity waters ( $<50$  mg/L as  $CaCO_3$ )
  - $CSMR < 0.2$

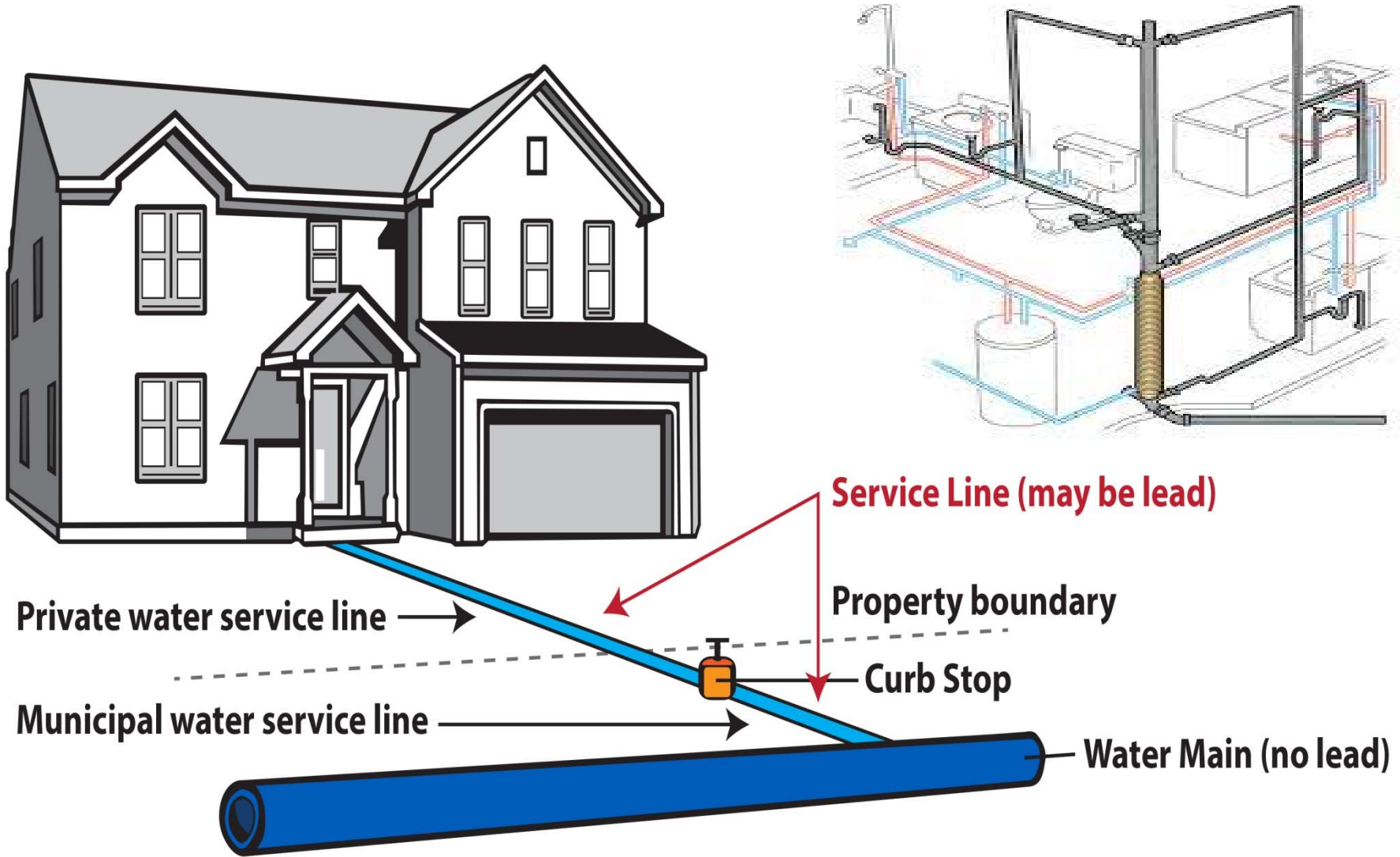




# Water Characteristics and Corrosion

Increase in Factor	Corrosion rate
pH (should be > 7.5)	↓
Chloride	↑
Sulfate	↓
Alkalinity (< 50 mg/L as CaCO <sub>3</sub> )	↑
Dissolved Oxygen	↑
HOCl/OCl <sup>-</sup>	↑
Phosphate	↓
Chloramines vs. Chlorine	↑

# Where Does Lead Come From?



# Timeline

**September 24, 2015**

Dr. Mona Hanna-Attisha releases study showing that the number of Flint infants and children with elevated blood lead levels have increased since the switch to Flint River Water



# Additional Flint Issues

- Population in Flint peaked in 1960 at ~200,000
- Population now <100,000. Water usage is down by  $\frac{2}{3}$ , so water spends much more time in system than is conventional
- Many older houses have lead services lines and/or plumbing (estimated at 15,000 ????)
- High minority population and low income (Environmental Justice)

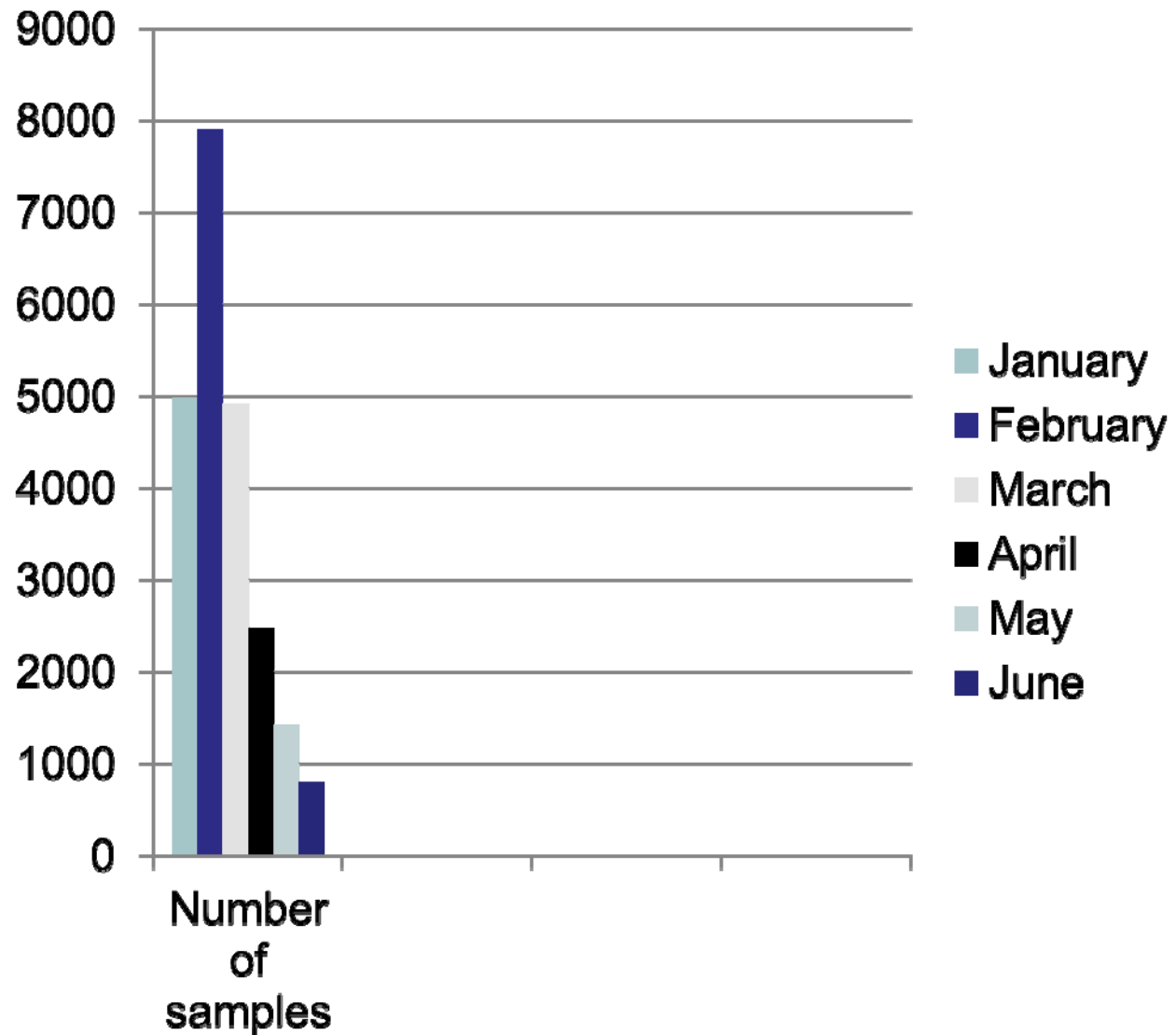
# Recovery Timeline

- **October 16, 2015** Flint switches back to “Detroit” water which comes from Lake Huron
- **December 9, 2015** Flint starts adding additional phosphate to increase the concentration to **3.1 mg/L.**

**January 5, 2016**  
**State of Emergency**  
**Free Commodities**

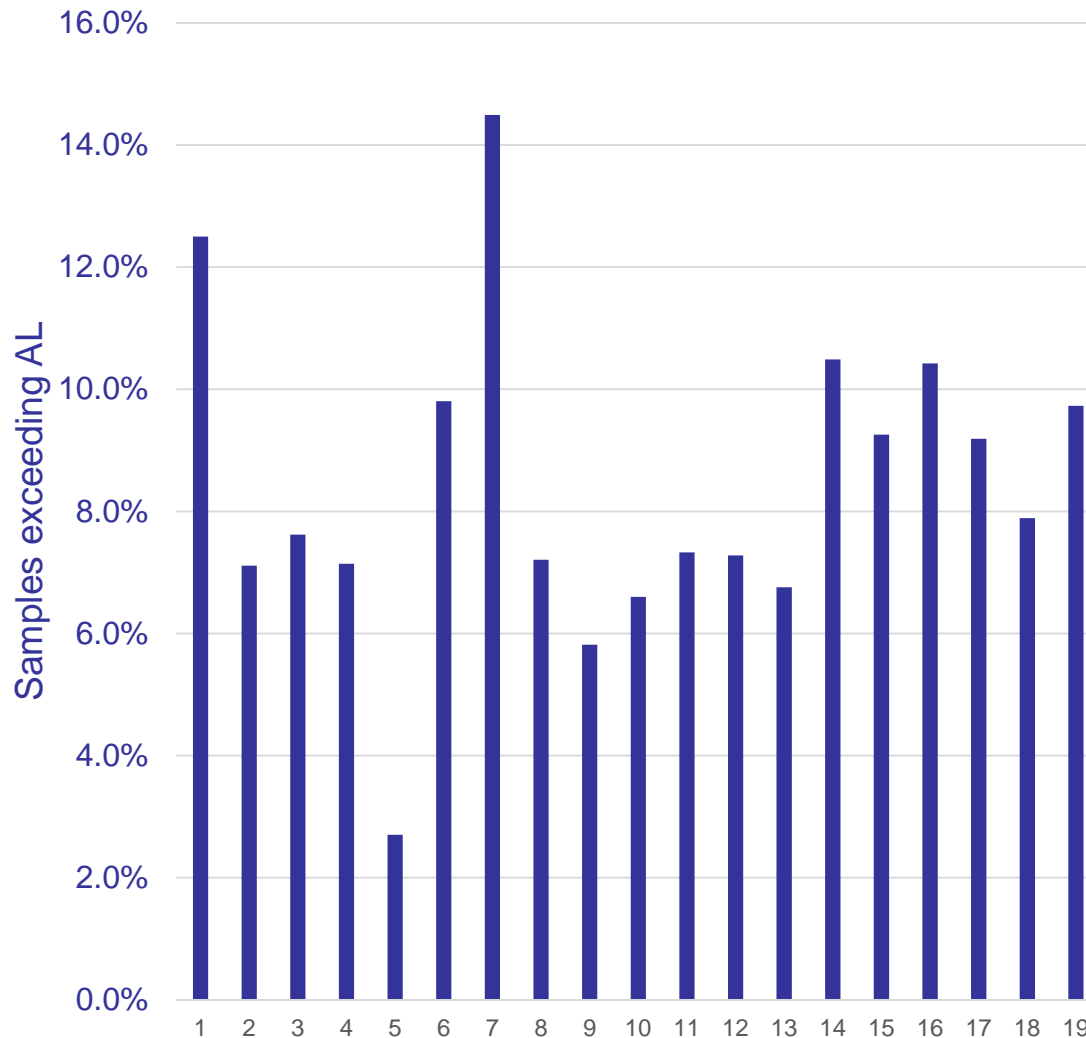
# Free Residential Testing

As of July 7, 2016, over 22,492 residential samples have been analyzed for lead and copper.



# Repassivating Pipes

Analysis of MDEQ Residential Data



Group	Date	n
1	Sep-15	40
2	Oct 1-15 2015	225
3	Oct 16-31	105
4	November	126
5	Dec 1-10	74
6	December 11-31	102
7	Jan 3-9 2016	69
8	Jan 10-16	110
9	Jan 17-23	2063
10	Jan 24-30	2531
11	Jan 31-Feb 6	2732
12	Feb 7-13	1795
13	Feb 14-20	2059
14	Feb 21-27	1374
15	Feb 28-Mar 5	1102
16	Mar 6-12	854
17	Mar 13-19	1306
18	March 20-26	900
19	March 27-30	699

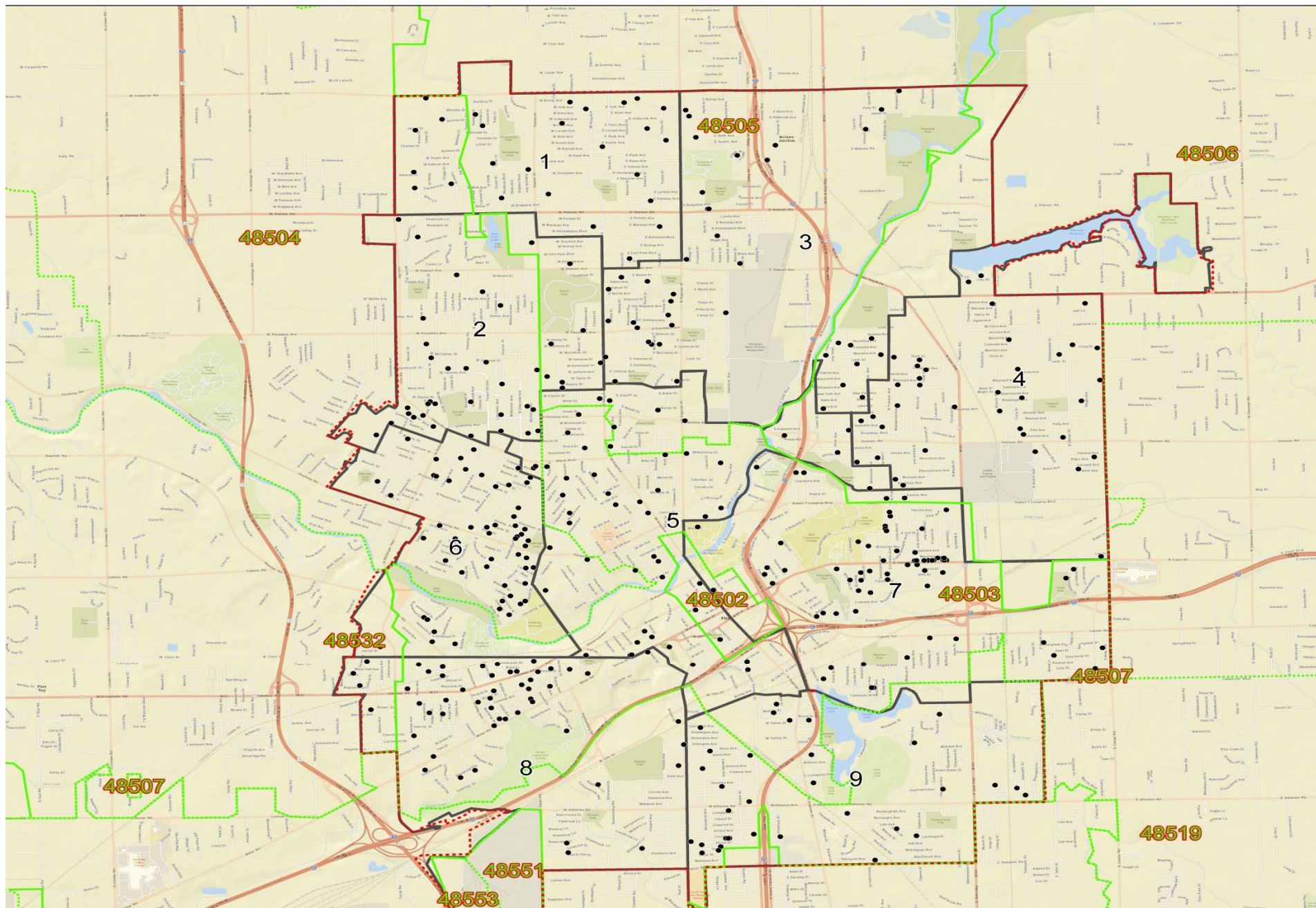


# High Result Home Visits

- Sampling information
- Inspection by Plumbers
- Commodities
- Health info
- Blood test referral

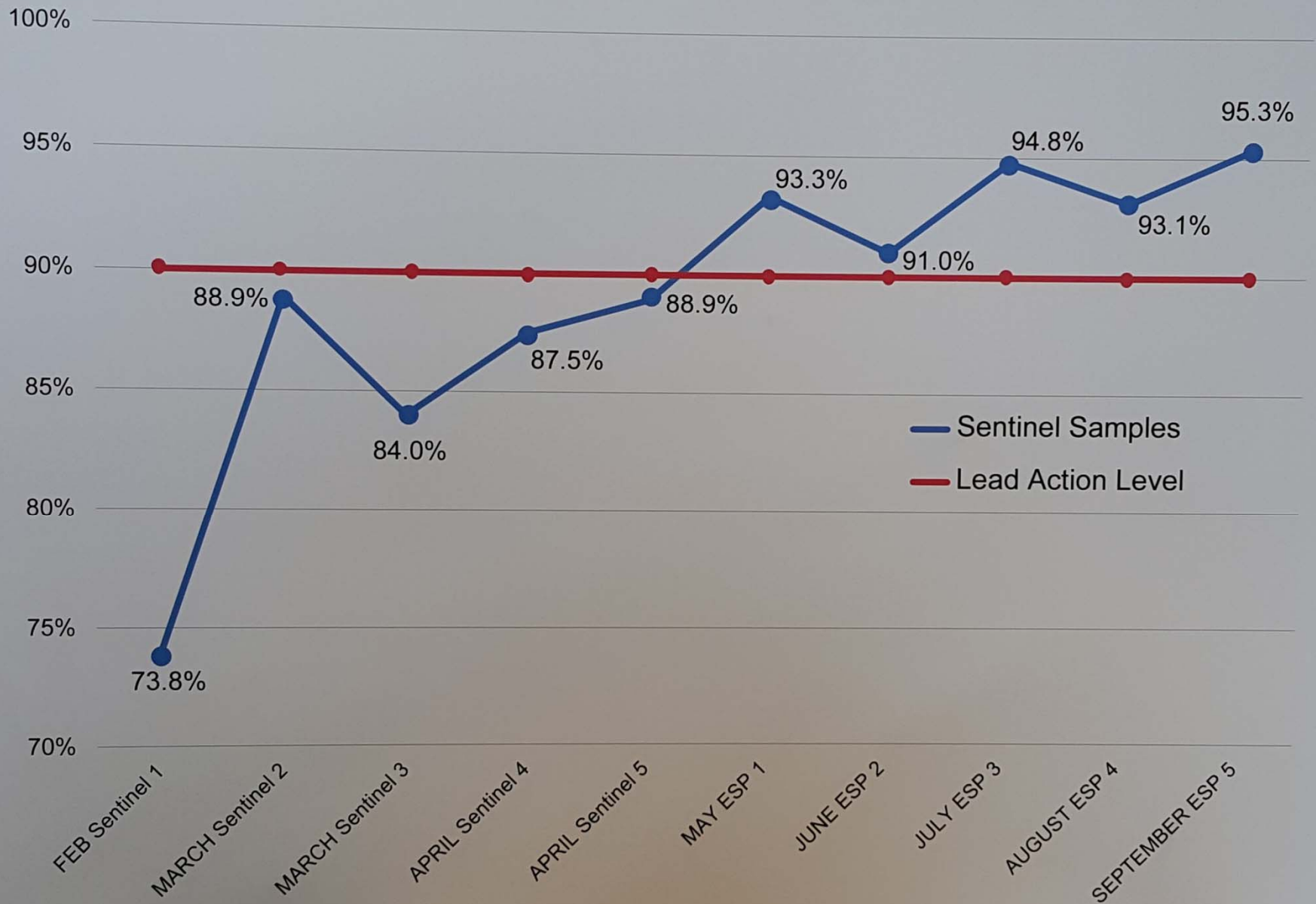


# 402 Potential Sentinel Water Test Sites (2/01/2016 at 1100)





# Percent of Tier 1 Sentinel Samples at or Below 15 PPB



# School Testing

# Replacing School Fixtures

# Lead Line Investigations

- 30,000 services
- 15,000 Pb services based on City records
- February thru August 2016, DEQ staff investigated over 3700 homes and found approximately 131 lead lines



# Lead and Galvanized Services



# Flint, MI Filter Challenge Assessment

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Attachment: ATSDR Letter to U.S. EPA Administrator  
June 22, 2016

Prepared by U.S. EPA in coordination with the Unified Command Group





# LCR Revisions

Gongwer report: Friday, April 15, 2016

- Snyder Proposes State Lead And Copper Rule Action Level Of 10 PPB



# Child Lead Poisoning Elimination Board

Friday, May 20, 2016

- The 12-members
- Recommendations for both ending lead poisoning and addressing those who have already been exposed.



# City to Treat Raw KWA Water



# City Agrees to Side-by-Side Operations, Management and Training Plan



# Flint Water Infrastructure Summit

## March 7-9, 2017

- Over-sized infrastructure
- Populations that have declined
- Innovative and emerging technologies
- Governor's 21<sup>st</sup> Century Infrastructure Commission to identify long-term, sustainable, affordable strategies

# Questions