From: Feuerstein, Heather (DEQ)
Sent: Wednesday, September 16, 2015 4:36 PM
To: Sygo, Jim (DEQ)
Subject: Kildee Response re Flint Water
Attachments: Kildee Response re Flint Water.docx

FYI

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

September 16, 2015

VIA E-MAIL

The Honorable Daniel Kildee
United States House of Representatives
Washington, DC 20515

Dear Congressman Kildee:

Thank you for your September 9, 2015, letter regarding your concerns for the drinking water in the city of Flint (Flint). The Michigan Department of Environmental Quality (MDEQ) is working closely with Flint's water department as well as the U.S. Environmental Protection Agency (USEPA) to ensure Flint residents have ample water that meets state and federal drinking water standards.

The MDEQ's role is to administer its nearly 40-year-old state drinking water protection program based on federal guidelines. The MDEQ works with approximately 11,500 public water systems in the state to monitor for more than 90 primary drinking water contaminants and ensure that every supply consistently provides safe drinking water.

In Flint, the city made a decision 18 months ago to switch drinking water sources. This change required them to take specific measures under the federal Lead and Copper Rule, which was enacted in 1991 to monitor water as it interacts with lead service connections and home plumbing. Flint's test results were conducted according to the same testing protocols every Michigan community uses and the same protocols Flint has used to test its water every three years for the past 25 years.

While the results from Flint's testing show compliance with the federal action level for lead and copper, on August 17, 2015, the MDEQ instructed the city to move forward expeditiously with developing additional corrosion control treatment to minimize the corrosive effects between drinking water and lead service connections and home plumbing in the Flint service area.

We appreciate and share your concern for the situation, and the MDEQ looks forward to providing you a detailed briefing next week. If you have any additional questions in the meantime, please contact Ms. Maggie Pallone, Deputy Director, Policy and Legislative Affairs, at 517-284-6704 or pallonem@michigan.gov; or you may contact me.

Sincerely,

Dan Wyant

Dan Wyant
Director

517-284-6700

cc: Senator Jim Ananich
Representative Sheldon Neeley
Representative Phil Phelps
Mayor Dayne Walling, City of Flint
Mr. Howard Croft, City of Flint
Dr. Susan Hedman, Regional Administrator, USEPA, Region 5
Mr. Thomas Poy, USEPA, Region 5
Ms. Denise Fortin, USEPA, Region 5
Mr. Michael Schock, USEPA
Mr. Darren Lytle, USEPA
Mr. Marc Edwards, Virginia Tech
Mr. Harvey Hollins, Governor's Southeast Michigan Office
Mr. Bill McBride, Governor's Washington Office
Mr. Eric Brown, Governor's Washington Office
Mr. Jim Sygo, Chief Deputy Director, MDEQ
Ms. Madhu R. Anderson, Deputy Director, MDEQ
Ms. Maggie Pallone, Deputy Director, MDEQ
Ms. Sarah M. Howes, Legislative Liaison, MDEQ
Mr. Brad Wurfel, Communications Director, MDEQ
Ms. Liane Shekter Smith, MDEQ
Mr. Stephen Busch, MDEQ
Mr. Pat Cook, MDEQ

From: Shekter Smith, Liane (DEQ)
Sent: Thursday, September 24, 2015 4:42 PM
To: Sygo, Jim (DEQ)
Cc: Shaler, Karen (DEQ);Devereaux, Tracy Jo (DEQ)
Subject: Fw: Flint Pb Health Education Conference Call Summary

FYI - keeping you in the loop.

From: Groetsch, Kory J. (DCH)
Sent: Thursday, September 24, 2015 1:18:38 PM
To: Benzie, Richard (DEQ); Bruneau, Michelle (DCH); Busch, Stephen (DEQ); Dawn Hallwood (dhallwood@gchd.us); Dykema, Linda D. (DCH); Henry, James; Houk, Emily (DCH); Lishinski, Karen (DCH); Peeler, Nancy (DCH); Shekter Smith, Liane (DEQ); Valacak, Mark; Wurfel, Brad (DEQ)
Cc: Groetsch, Kory J. (DCH)
Subject: Flint Pb Health Education Conference Call Summary

Hello All,

Below is a summary from our call. Please note the action items. In addition, Karen Lishinski pointed out this EPA website as a good resource: http://water.epa.gov/drink/contaminants/basicinformation/lead.cfm

SUMMARY:
A conference call with the attendees listed below occurred on 9/22/2015 discussing lead (Pb) outreach in the city of Flint. The purpose of the call was to facilitate introductions, and identify Pb health education materials, current Pb outreach efforts in Flint and existing resources. DEQ provided a brief background of the drinking water compliance process in relation to efforts being conducted in Flint. Information sharing occurred between attendees about the Pb in drinking water sampling efforts in Flint.

Each agency/department listed their current health education efforts and available resources that could be made available relative to Pb outreach in Flint. The CLPPP provides some limited funding to prosperity region 6 to conduct Pb outreach. CLPPP is building a Pb Tool Kit for providers. Information about Pb in drinking water does not currently exist in these materials, but they are interested to build that information into the tool kit. DEQ has contacts with the Flint's drinking water program. GCHD has been getting many phone calls and they have had to create factsheets about water hardness and trihalomethanes.

Action Items from the Call:

1. Participants will e-mail their Pb outreach materials and presentations that are in current use to Michelle Bruneau (BruneauM@michigan.gov).
2. GCHD will send Michelle a list of concerns they have been getting from the Flint community.
3. Michelle will to look over the materials to assess what messages are covered, what messages are not covered, and provide suggestions on what work may need to be done to address gaps.
4. Follow-up is needed on the water sampling directions being provided by the city to homeowners that request a Pb in tap water analysis. (There are two sampling procedures depending on the purpose of the water sample.)
5. Karen Lishinski will provide a contact at WIC, so they can be invited to our follow-up conference call.
6. MDHHS-DEH will arrange a follow-up conference call in approximately two weeks.

Attendees:
Dawn Hallwood (Genesse Co HD)

James Henry (GCHD)
Mark Valacak (GCHD)
Brad Wurfel (DEQ)
Liane Shekter-Smith (DEQ)
Richard Benzie (DEQ)
Stephen Busch (DEQ)
Nancy Peeler (DHHS)
Karen Lishinski (DHHS)
Linda Dykema (DHHS)
Kory Groetsch (DHHS)
Michelle Bruneau (DHHS)

Current plan is to schedule another conference call in two weeks. Clearly, this is a dynamic and evolving situation.

FYI- I am currently in St. Ignace participating in an emergency response exercise

Best Regards,

Kory Groetsch, MS , Manager
Toxicology and Response Section
Michigan Dept of Health and Human Services (MDHHS)
201 Townsend St.
Lansing, MI 48913
517-335-9935
groetschk@michigan.gov

From: Busch, Stephen (DEQ)
Sent: Wednesday, October 07, 2015 11:48 AM
To: Sygo, Jim (DEQ)
Subject: Fwd: Technical Committee Agenda and Number
Attachments: TAC Meeting_10_7_15_Agenda.pdf; ATT00001.htm

Stephen Busch, P.E.
Lansing and Jackson District Supervisor
Office of Drinking Water and Municipal Assistance
MDEQ
517-643-2314

Sent from my iPhone

Begin forwarded message:

From: Howard Croft <hcroft@cityofflint.com>
Date: October 6, 2015 at 4:54:01 PM EDT
To: Amy Hovey <Amy.Hovey@mail.house.gov>, Andy Leavitt <aleavitt@senatedems.org>, Brent Wright <bwright@cityofflint.com>, "Darren Lytle" <lytle.darren@epa.gov>, Dayne Walling <dwalling@cityofflint.com>, "donna. cole" <donna.cole@genesys.org>, edwardsm <edwardsm@vt.edu>, "Gerald (Jed) Natzke" <gdn2@aol.com>, Howard Croft <hcroft@cityofflint.com>, "James Henry" <jhenry@gchd.us>, Jamie Gaskin <jgaskin@unitedwaygenesee.org>, "Jason Lorenz" <jlorenz@cityofflint.com>, jmikewright <jmikewright@yahoo.com>, JoAnne Herman <jherman@genesys.org>, John O'Brien <jfobrien@gcdcwws.com>, Kirk Smith <ksmith@flint.org>, <larry.koehler@mcc.edu>, Laura Sullivan <dr.laura2@gmail.com>, Michael Glasgow <mglasgow@cityofflint.com>, "Michael Wright" <Wright.Michael@epa.gov>, Mike Lane <mjlane@umflint.edu>, "Mike Prysby (DEQ)" <prysbym@michigan.gov>, Natasha Henderson <nhenderson@cityofflint.com>, Norb Birchmeier <nbirchm1@hurleymc.com>, "Pete Levine" <plevine@gcms.org>, Robert Bincsik <rbincsik@cityofflint.com>, <rosejo@msu.edu>, Russell Hudson <Russell.Hudson@mclaren.org>, Samir Matta <SFMatta@lan-inc.com>, <schock.michael@epa.gov>, Sean Kammer <skammer@cityofflint.com>, "Stephen Busch (DEQ)" <BUSCHS@michigan.gov>, Warren Green <jwgreen@lan-inc.com>, <wellse3@michigan.gov>
Subject: Technical Committee Agenda and Number

Team,

We are looking forward to a very productive meeting on Wednesday with those in attendance and those calling in.

I am sending a brief document that includes an agenda and an anticipated attendance list as we expect most of the meting to be good discussion.

Below is the call in information for those that cannot make it:

Number: PPI

Access Code: PPI

Thank you,
--
Howard Croft
Public Works Director
City of Flint
1101 S. Saginaw Street
Flint, MI 48502
PH# 810.766.7135 Ext.2043
hcroft@cityofflint.com

City of Flint

TECHNICAL ADVISORY COMMITTEE

Meeting

October 7th 2:00 pm

Agenda

Introductions

Comments - Natasha Henderson (City Administrator)

System Overview/Update - Howard Croft (DPW Director)
- Purpose of Committee
- TTHM Review
- Lead Concerns

Virginia Tech Findings - Marc Edwards (VA Tech Lead Expert)

EPA Comments - Darren Lytle (EPA Lead Expert)

Open Discussion - Q & A

Solutions (short term & long term)
- DWSD Option - Natasha Henderson (City Administrator)
- Corrosion Control – Samir Matta (LAN Engineer)
- Update on Filter Efforts - Jamie Gaskin (United Way CEO)
- Service Line Replacement - Howard Croft (DPW Director)
- Update on KWA – John O'Brien (KWA Engineer PE)

Open Discussion - Q & A

Committee Recommendations

Next Meeting Dates
- November Date
- December Date

Close

TAC - Participants

Member	Organization	
Donna Cole	Greater Flint Health Coalition	
** **Eden Wells**	State of Michigan – Chief Medical Executive	
Gerald Natzke	Genesys	
** **Jamie Gaskin**	United Way	
Jim Henry	Genesee County Health Department	
JoAnne Herman	Genesys	
John O'Brien	Genesee County Drain Commission	
** **Kevin Kilby**	KWA Associate	
Kirk Smith	Greater Flint Health Coalition	
Larry Kohler	Mott Community College	
Laura Sullivan	Kettering University	
Mike Lane	University of Michigan Flint	
Mike Sargent	Flint Strong	
Norb Birchmeier	Hurley Medical Center	
Joan Rose	Michigan State University	
Pete Levine	Genesee County Medical Society	
Russell Hudson	McLaren Hospital	
Warren Green	Lockwood Andrews Newnam - Engineering	
Samir Matta	Lockwood Andrews Newnam - Engineering	
** **Amy Hovey**	U.S. Congressional Representative	
** **Andy Leavitt**	State Senate Representative	
Mike Prysby	DEQ	
** **Jim Sygo**	DEQ	
** **George Krisztian**	DEQ	
Michael Wright	EPA	By Ph.
** **Darren Lytle**	EPA	
** **Michel Schock**	EPA	Out
** **Marc Edwards**	Virginia Tech	By Ph.

** **New Member or Special Guest**

From: John Lindstrom <john.lindstrom@gmail.com>
Sent: Wednesday, October 07, 2015 2:05 PM
To: Sygo, Jim (DEQ)
Subject: Re: Question

Great, thanks.

On Wed, Oct 7, 2015 at 2:03 PM, Sygo, Jim (DEQ) <SygoJ@michigan.gov> wrote:
Flint periodically treated Flint River water because it was their emergency supply. We new they could meet drinking water standards but did not anticipate system concerns.

Sent from my iPhone

On Oct 7, 2015, at 1:34 PM, John Lindstrom <john.lindstrom@gmail.com> wrote:

> Thanks. Do you recall if any of the discussions on the variability of the water source included any sources of lead, or that the water might activate lead in the old plumbing systems?
>
> On Wed, Oct 7, 2015 at 12:30 PM, Sygo, Jim (DEQ) <SygoJ@michigan.gov> wrote:
>
> Yes there were discussions about quality and the fact that river sources in general were more variable than the water received from DWSD. Treatment to be made available was consistent with what would be needed to provide a safe drinking water source.
>
> **From:** John Lindstrom [mailto:john.lindstrom@gmail.com]
> **Sent:** Wednesday, October 07, 2015 11:59 AM
> **To:** Sygo, Jim (DEQ)
> **Subject:** Question
>
> Jim,
>
> On background, we are trying to look into the Flint water situation a little more. Were there any discussions internally or differences on the issue within the department before the state gave the signoff on switching to the river? Any questions about the overall water quality or its chemical makeup that raised questions?
>
> Like I said, this is all on background.

John Lindstrom,

482-3500

From: Gray, Jennifer (DHHS)
Sent: Friday, October 16, 2015 10:57 AM
To: Groetsch, Kory J. (DHHS);Flaga, Christine (DEQ);Wildfang, Eric (DEQ);Sills, Robert (DEQ);MacKenzie-Taylor, Deb (DEQ)
Cc: Dykema, Linda D. (DHHS);Sygo, Jim (DEQ)
Subject: DRAFT DELIBERATIVE; NOT SUBJECT TO FOIA - final draft
Attachments: draft deliberative Justification of the school daycare drinking water lead level.docx; TSG IEUBK outputs draft for discussion purposes.pdf

All:

Here is the final draft for your review. Please let me know as soon as possible if you have comments or edits. I would greatly appreciate those by 2 pm, so I'm able to finalize the draft today.

I'm not sure of the MDEQ 1997 park reference. Deb, is there a formal report?

I will add headers to the modeling output sheets and figures.

Thank you,
Jennifer

DRAFT – deliberative not subject to FOIA

Justification of the drinking water no "corrective action" lead level for use in the Flint school and daycare drinking water sample decision tree

The Michigan Department of Health and Human Services (MDHHS) requested that the Toxic Steering Group (TSG) provide endorsement of a health-based drinking water lead levels that would require no "corrective action" to put back into service drinking water faucets and fountains to be used by Flint school and daycare children. Selection of the "corrective actions" was not included in the charge question and is not discussed in this document. A TSG subcommittee was convened to examine this issue. Subcommittee members are Deb Mackenzie-Taylor (Michigan Department of Environmental Quality [MDEQ]), Robert Sills (MDEQ), Eric Wildfang (MDEQ), Jennifer Gray (MDHHS), and Kory Groetsch (MDHHS).

Neither the Centers for Disease Control and Prevention's Agency for Toxic Substances and Disease Registry (ATSDR) nor the U.S. Environmental Protection Agency (EPA) have derived potency values (e.g. reference dose, minimal risk level) for lead to be used in risk assessment methods. Both agencies have stated that no blood lead level has been found to be safe and precautionary actions to reduce exposure to lead, such as running tapwater briefly before use, should always be followed. Due to the lack of potency values, the EPA developed a biokinetic model for evaluating lead exposure from multiple media. Lead levels in air, soil, house dust, diet, drinking water, and maternal blood are used to estimate geometric mean blood lead levels for a population of children and the probability that a child would be above a specified blood lead level[1]. The model results are compared to an EPA population health protection goal for young children exposed to lead at residential properties of 5% or lower risk of a child having a blood level greater than the CDC reference value of 5 µg/dL[2]. The model, however, does not include inputs to account for direct paint chip ingestion[2].

Use of the EPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model

The EPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children version 1.1 Build 11 was used to evaluate exposure to children one year old or younger and children seven years old or younger. Default values were retained unless otherwise noted below. See Table 2-1 in the "User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows©" for the listing of all the default values[3]. Values selected that are more appropriate for a Michigan urban area, Flint, are described briefly below.

Air data

MDEQ performs monitoring for lead in ambient air (as measured in Total Suspended Particulates; lead [TSP]) at a number of fixed stations in Michigan. Some of these monitoring stations (e.g., in Belding, Port Huron, and Vassar) were established to intentionally capture the influence of specific nearby industrial

[1] The modeling output includes the percent of children in a population that are above a specified blood lead level, but that value can be also be viewed as the probability (risk) that a certain child would be above the specified blood lead level.

[2] As stated on the EPA's Lead at Superfund Sites: Frequent Questions from Risk Assessors on the Integrated Exposure Uptake Biokinetic (IEUBK) Model webpage, found at http://www2.epa.gov/superfund/lead-superfund-sites-frequent-questions-risk-assessors-integrated-exposure-uptake#mean.

[3] The model itself and documentation, including the user's guide for the model can be found at http://www2.epa.gov/superfund/lead-superfund-sites-software-and-users-manuals.

emissions, while others were established to provide data reflecting the general ambient air lead levels in urban areas. The TSG Subcommittee reviewed the ambient air monitoring data, focusing on urban ambient air lead data that would be representative of contemporary Flint conditions. The most recent MDEQ annual air monitoring report is for 2014[4]. The summary statistics provided in the MDEQ annual air quality reports include 3-month average (mean) levels, the highest value (24-hour sample), and the 2nd highest value (24-hour sample). The National Ambient Air Quality Standard (NAAQS) for lead (0.15 $\mu g/m^3$) has a 3-month averaging time.

The Flint (Whaley Park; 3610 Iowa Ave.) monitor, measuring lead, operated until early 2007. The 2005 calendar quarter arithmetic mean values were 0.008, 0.010, 0.011, and 0.012 micrograms per cubic meter ($\mu g/m^3$). The 2006 calendar quarter arithmetic mean values were 0.005, 0.007, 0.012, and 0.006 $\mu g/m^3$. Although Flint data more recent than 2007 are not available, MDEQ staff considered other urban lead monitoring sites to be fairly representative of Flint conditions. Grand Rapids, Allen Park, and Dearborn each had a highest rolling 3-month arithmetic mean lead (TSP) level of 0.01 $\mu g/m^3$ in 2013; for 2014, these values were 0.01 $\mu g/m^3$ for Grand Rapids and Allen Park and 0.02 $\mu g/m^3$ for Dearborn. These data indicate that the IEUBK model default value of 0.1 $\mu g/m^3$ is not the most appropriate air lead level for Flint, and support a representative value of 0.01 $\mu g/m^3$ for air data model input.

Water consumption

The default drinking water intakes are age-dependent and based on national averages[5]. These were updated to match the mean drinking water intakes (direct and indirect) in Table 3-1 from the U.S. EPA Exposure Factors Handbook: 2011 Edition.

- 0-1 years old - 0.32 liter/day (L/d) (age-adjusted from the values in Table 3-1)
- 1-2 years old - 0.271 L/d
- 2-3 years old - 0.317 L/d
- 3-4 years old - 0.327 L/d (3 to 6 years old in Table 3-1)
- 4-5 years old - 0.327 L/d (3 to 6 years old in Table 3-1)
- 5-6 years old - 0.327 L/d (3 to 6 years old in Table 3-1)
- 6-7 years old - 0.414 L/d (6 to 11 years old in Table 3-1)

Drinking water data for alternate drinking water sources

The alternate drinking water sources used for these modeling runs are listed below with a brief description.

- "Percent of Total Consumed as First Draw" – This was set to 0% as Genesee County issued an Public Health Emergency Advisory[6] recommending that no one drink the City of Flint water until it has been tested or unless it is being filtered through a filter meeting the National Sanitation Foundation (NSF)/American National Standards Institute (ANSI) standard 53.

---

[4] The MDEQ 2014 Annual Air Quality Report can be found at http://www.michigan.gov/documents/deq/deq-aqd-amu-2014_Annual_Air_Quality_Report_492732_7.pdf?20151014123800.

[5] Per the "User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows®", "The default consumption rates are age-dependent and based on national averages. These consumption rates should be changed only when valid site-specific monitoring data is available."

[6] The Genesee County Public Health Emergency Declaration can be found at http://www.gchd.us/docs/public_health_emergency_announcement_10_1_15.pdf.

- "Concentration of Lead in First Draw (µg/L)" – With the "Percent of Total Consumed as First Draw" set to 0%, this value will not alter the model run output so the default of 4 micrograms per liter (µg/L or parts per billion [ppb]) was retained.
- "Concentration of Lead in Flushed (µg/L)" – This was set to 1 µg/L (ppb) as filters meeting NSF/ANSI standard 53 are recommended for use in all schools and daycares. The filters distributed remove greater than 99% of the lead and would result in filtered water containing lead levels of approximately 1 µg/L (ppb) or less.
- "Percentage of Total Consumed from Fountains" – This was set to 50%, as children in school and daycare setting spend around eight hours or more in those locations. Eight hours could be expected to be approximately half of their waking hours in a day.
- "Concentration of Lead in Fountain Water (µg/L)" – Modeling runs were carried out for every 1 µg/L (ppb) between zero and 15, 30, and 100 µg/L (ppb). Modeling runs for the zero to 15 µg/L (ppb) were carried out to perform a sensitivity analysis to evaluate how a one µg/L (ppb) change in lead water concentrations alters the outputs of the model. The 30 and 100 µg/L (ppb) were included as preliminary representatives of high-end lead levels obtained from school drinking water fountains.

Site-specific soil data

Soil lead levels on residential properties vary greatly[7]. The primary influence is from pre-1978 use of lead paint on the outside of buildings[8,9,10]. After 1978 lead-paint was banned. In addition, the age of housing[7,8], paint condition[8], and distance from the building[10] can greatly impact the concentration of lead in soil. The soil lead concentrations near the foundation of houses with lead paint are frequently over 1,000 ppm[8,10,11,12]. Historic vehicle emissions from leaded gasoline are another source of residential soil lead, so distance from road and traffic volume at the time leaded gasoline was in use are also influential factors on residential soil concentrations[9,10,12]. Other potential influences are fill material (e.g., foundry sand, smelter slag), and/or local industrial emission sources. The highest soil lead concentrations are typically found in urban areas with high population density[7].

Soil lead data for residential soil in Flint are not currently available. Other Flint park data and relevant residential soil lead studies were reviewed to evaluate appropriate surrogate concentrations for this assessment.

---

[7] Datko-Williams, L., A. Wilkie, et al. (2014). "Analysis of U.S. soil lead (Pb) studies from 1970 to 2012." Science of The Total Environment **468-469**: 854-863.

[8] Francek, M. A. (1992). "Soil lead levels in a small town environment: a case study from Mt Pleasant, Michigan." Environ Pollut **76**(3): 251-257.

[9] Francek, M. A., B. Makimaa, et al. (1994). "Small town lead levels: a case study from the homes of pre-schoolers in Mt. Pleasant, Michigan." Environ Pollut **84**(2): 159-166.

[10] Schwarz, K., S. T. Pickett, et al. (2012). "The effects of the urban built environment on the spatial distribution of lead in residential soils." Environ Pollut **163**: 32-39.

[11] Andra, S. S., D. Sarkar, et al. (2006). "Lead in Soils in Paint Contaminated Residential Sites at San Antonio, Texas, and Baltimore, Maryland." Bulletin of Environmental Contamination and Toxicology **77**(5): 643-650.

[12] Yesilonis, I. D., R. V. Pouyat, et al. (2008). "Spatial distribution of metals in soils in Baltimore, Maryland: role of native parent material, proximity to major roads, housing age and screening guidelines." Environ Pollut **156**(3): 723-731.

DRAFT – deliberative not subject to FOIA

The MDEQ[13] reported soil lead concentrations from urban parks including Flint. This data set included 12 sample locations from 10 Flint parks. Surface soil samples were collected at 0-2 inches and subsurface samples were collected at 4-6 inches. This dataset may not adequately represent residential soil samples with a lead paint contribution from buildings. Other studies have shown that open spaces may have much lower soil lead concentrations than areas near residential buildings that were built prior to 1978[10,14]. The geometric mean and geometric mean plus two standard deviation surface soil concentrations (see below) from this Flint park dataset were used for this assessment. The geometric mean plus two standard deviation surface soil concentration represents an upper percentile value that may partially account for the higher soil lead levels expected around buildings with lead paint.

Another data source is from soil samples collected from the Rouge River watershed between 1992 and 2002[15]. This dataset was compiled from MDEQ files and Clayton Group Services files for the Rouge River watershed area in southeast Michigan. Although some data is from Part 201 sites, most of the samples were from sites were collected as a result of other regulatory or real estate due diligence requirements. Sites with known industrial metal sources or that had near surface soil with unknown fill material were excluded from the dataset. The dataset included 28 residential sites that had 535 surface soil samples with data reported for lead. The geometric mean value for residential surface soils reported from this study (see below) was used for this assessment.

The current Part 201 residential direct contact risk-based soil level was also used for this assessment for comparison. This value was generated from the IEUBK model using an acceptable blood lead concentration of 10 µg/dL, a drinking water concentration of 4 µg/L (ppb) and a default air concentration used in the model at the time of criteria development.

Soil levels examined in the model runs were:

- 47.5 parts per million (ppm) – based on the geometric mean of 0-2 inch soil concentrations in Flint urban parks[13].
- 155 ppm – based on the geometric mean + two standard deviations of 0-2 inch soil concentrations in Flint urban parks[13].
- 160 ppm – based on the geometric mean for residential surface soil from Rouge River water shed[16].
- 400 ppm - the MDEQ Residential Direct Contact Risk-Based Screening Level for soil.

Both the residential soil geometric mean from the Rouge River watershed and the upper percentile from the Flint park data appear to represent the best surrogates for residential soil concentrations in Flint for this assessment. Although not from Flint, the Rouge River watershed residential soil data appears to be a fairly robust data set for urban residential soils in Michigan. The Flint park data upper percentile

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[13] MDEQ 1997 Urban park soil lead data

[14] Zahran, S., H. W. Mielke, et al. (2013). "Determining the relative importance of soil sample locations to predict risk of child lead exposure." Environ Int **60**: 7-14.

[15] Murray, K. S., D. T. Rogers, et al. (2004). "Heavy metals in an urban watershed in southeastern Michigan." J Environ Qual **33**(1): 163-172.

[16] The value is from Table 5 in Murray, K. S., D. T. Rogers, et al. (2004). "Heavy metals in an urban watershed in southeastern Michigan." J Environ Qual **33**(1): 163-172.

(geometric mean plus two standard deviations is approximately equivalent to the 97.5 percentile) may better account for potential building paint contributions to soil concentrations for urban residential soils than the geometric mean concentration of this dataset. The Flint park upper percentile (155 ppm) reported as two significant digits is equivalent to the Rouge River watershed residential soil lead geometric mean (160 ppm). The soil lead concentration of 160 ppm was selected for use in the calculation of the TSG Subcommittee's recommended health-based drinking water lead levels.

Maternal data

Maternal blood lead levels were changed to 0.8 µg/dL to match the NHANES (2011-2012) geometric mean lead level for women[17].

Blood level of concern (cutoff) for risk estimation

A cutoff value of 5 micrograms per deciliter (µg/dL) was selected as that is the current Centers for Disease Control and Prevention blood reference level to identify children with blood lead levels that require follow-up actions. It is based on the blood lead level for the 97.5th percentile for the U.S. population of children, ages one to five[18].

Outputs of the modeling runs and recommendation of drinking water lead levels for use during the evaluation of Flint school and daycare drinking water samples

The soil lead level of 160 ppm was selected as being the best surrogate for soil lead levels in the city of Flint. In the event that site-specific soil data is collected, the drinking water lead levels may need to be reevaluated. The entire set of modeling runs and figures can be found in Attachment 1.

The recommended drinking water lead levels resulted in a 5% risk or lower that a child had a blood lead level above 5 µg/dL. The 5% is an EPA health protection goal for young children exposed to lead at residential properties[2].

Evaluating school and daycare drinking water samples together

The recommended lead screening level for use while evaluating both school and daycare drinking water samples is 2 µg/L (ppb). This lead level in drinking water samples results in no more than a 5% risk that children age 7 or younger would have blood lead levels above 5 µg/dL.

Age range	Blood lead geometric mean (in micrograms per deciliter [µg/dL])	Risk that a child could have a blood lead level above 5 µg/dL
0-1 year olds	2.308	5.004%
0-7 year olds	2.056	2.934%

Assumptions integral to the use of the health-based school and daycare drinking water lead level

[17] The Fourth National Report on Human Exposure to Environmental Chemicals, dated February 2015, can be found at http://www.cdc.gov/biomonitoring/pdf/FourthReport_UpdatedTables_Feb2015.pdf.

[18] The blood reference level and additional information can be found at http://www.cdc.gov/nceh/lead/ACCLPP/blood_lead_levels.htm.

This calculation includes two assumptions. One is that people have lead levels in home drinking water of no more than 1 µg/L (ppb) or are using filters to reduce lead levels to 1 µg/L (ppb) or below. The second is that children do not live in homes with highly elevated levels of lead in home dust or soil. The modeled lead dust levels do not account for lead coming from pre-1978 paint. Eighty-two percent of city of Flint houses were built before 1970[19]. Soil highly impacted with lead paint may have lead levels higher than the 160 ppm used in this calculation. If children are not drinking filtered water at home, are ingesting lead paint chips, or have elevated levels of lead in home dust or soil, a lead level lower than the one recommended above may need to be selected for the evaluation of school and daycare drinking water samples.

Evaluating school and daycare drinking water samples separately

The recommended lead screening level for use while evaluating daycare drinking water samples is 2 µg/L (ppb). This lead level in drinking water samples results in no more than a 5% risk that children age 1 or younger would have blood lead levels above 5 µg/dL.

Age range	Blood lead geometric mean (in micrograms per deciliter [µg/dL])	Risk that a child could have a blood lead level above 5 µg/dL
0-1 year olds	2.308	5.004%
0-7 year olds	2.056	2.934%

Assumptions integral to the use of the health-based daycare drinking water lead level

This calculation includes two assumptions. One is that people have lead levels in home drinking water of no more than 1 µg/L (ppb) or are using filters to reduce lead levels to 1 µg/L (ppb) or below. The second is that children do not live in homes with highly elevated levels of lead in home dust or soil. The modeled lead dust levels do not account for lead coming from pre-1978 paint. Eighty-two percent of city of Flint houses were built before 1970[20]. Soil highly impacted with lead paint may have lead levels higher than the 160 ppm used in this calculation. If children are not drinking filtered water at home, are ingesting lead paint chips, or have elevated levels of lead in home dust or soil, a lead level lower than the one recommended above may need to be selected for the evaluation of school and daycare drinking water samples.

The recommended lead screening level for use while evaluating K-12 school drinking water samples is 11 µg/L (ppb). This lead level in drinking water samples results in no more than a 5% risk that children age 7 or younger would have blood lead levels above 5 µg/dL. However, when evaluating a population of children age 1 or younger, their risk of having a blood lead level above 5µg/dL was 8.335%. The 11 µg/L (ppb) screening level is not adequately protective for children under the age of 1.

Age range	Blood lead geometric mean (in micrograms per deciliter [µg/dL])	Risk that a child could have a blood lead level above 5 µg/dL
0-1 year olds	2.61	8.335%

[19] As determined by the U.S. Census and can be found at http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_S1101&prodType=table.

[20] As determined by the U.S. Census and can be found at http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_S1101&prodType=table.

0-7 year olds	2.299	4.917%

Assumptions integral to the use of the health-based school drinking water lead level

This calculation includes two assumptions. One is that people have lead levels in home drinking water of no more than 1 µg/L (ppb) or are using filters to reduce lead levels to 1 µg/L (ppb) or below. The second is that children do not live in homes with highly elevated levels of lead in home dust or soil. The modeled lead dust levels do not account for lead coming from pre-1978 paint. Eighty-two percent of city of Flint houses were built before 1970[21]. Soil highly impacted with lead paint may have lead levels higher than the 160 ppm used in this calculation. If children are not drinking filtered water at home, are ingesting lead paint chips, or have elevated levels of lead in home dust or soil, a lead level lower than the one recommended above may need to be selected for the evaluation of school and daycare drinking water samples.

[21] As documented by the U.S. Census and can be found at http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_1YR_S1101&prodType=table.

		0-1 year olds		0-7 year olds	
Soil lead levels (ppm)	Fountain water (ppb)	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL
47.6	0	1.184	0.109	0.92	0.016
155.3	0	2.198	4.014	1.958	2.302
160	0	2.24	4.381	2.002	2.573
400	0	4.268	36.82	4.135	34.306
2000	0	13.431	98.224	14.549	98.847
47.6	1	1.22	0.135	0.949	0.02
155.3	1	2.232	4.306	1.985	2.468
160	1	2.274	4.687	2.029	2.75
400	1	4.298	37.376	4.16	34.772
2000	1	13.447	98.235	14.564	98.954
47.6	2	1.257	0.165	0.977	0.026
155.3	2	2.266	4.609	2.012	2.64
160	2	2.308	5.004	2.056	2.934
400	2	4.327	37.929	4.184	35.236
2000	2	13.464	98.247	14.579	98.86
47.6	3	1.293	0.201	1.006	0.032
155.3	3	2.3	4.923	2.039	2.82
160	3	2.342	5.332	2.083	3.126
400	3	4.357	38.48	4.209	35.699
2000	3	13.48	98.258	14.595	98.867
47.6	4	1.33	0.241	1.034	0.04
155.3	4	2.334	5.248	2.067	3.007
160	4	2.376	5.671	2.11	3.324
400	4	4.386	39.029	4.233	36.161
2000	4	13.496	98.269	14.61	98.874
47.6	5	1.366	0.288	1.063	0.049
155.3	5	2.368	5.585	2.094	3.201
160	5	2.41	6.02	2.138	3.53
400	5	4.416	39.575	4.258	36.622
2000	5	13.513	98.28	14.625	98.88
47.6	6	1.402	0.341	1.091	0.06
155.3	6	2.401	5.932	2.121	3.402
160	6	2.443	6.381	2.165	3.743
400	6	4.445	40.118	4.282	37.082
2000	6	13.529	98.29	14.641	98.887
47.6	7	1.438	0.401	1.12	0.073
155.3	7	2.435	6.289	2.148	3.611
160	7	2.477	6.752	2.192	3.964
400	7	4.474	40.659	4.307	37.54
2000	7	13.545	98.301	14.656	98.893
47.6	8	1.474	0.468	1.148	0.087
155.3	8	2.468	6.658	2.175	3.827
160	8	2.51	7.133	2.219	4.191
400	8	4.504	41.196	4.331	37.997

		0-1 year olds		0-7 year olds	
Soil lead levels (ppm)	Fountain water (ppb)	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL
2000	8	13.561	98.312	14.671	98.9
47.6	9	1.51	0.542	1.176	0.104
155.3	9	2.502	7.036	2.202	4.05
160	9	2.544	7.524	2.245	4.426
400	9	4.533	41.731	4.355	38.453
2000	9	13.577	98.323	14.686	98.906
47.6	10	1.546	0.625	1.205	0.123
155.3	10	2.535	7.425	2.229	4.28
160	10	2.577	7.925	2.272	4.668
400	10	4.562	42.263	4.38	38.907
2000	10	13.594	98.333	14.702	98.912
47.6	11	1.581	0.715	1.233	0.145
155.3	11	2.569	7.823	2.256	4.518
160	11	2.61	8.335	2.299	4.917
400	11	4.591	42.792	4.404	39.359
2000	11	13.61	98.344	14.717	98.919
47.6	12	1.617	0.815	1.261	0.169
155.3	12	2.602	8.231	2.283	4.762
160	12	2.643	8.755	2.326	5.174
400	12	4.62	43.317	4.428	39.81
2000	12	13.626	98.354	14.732	98.925
47.6	13	1.652	0.924	1.289	0.197
155.3	13	2.635	8.648	2.309	5.014
160	13	2.677	9.183	2.353	5.437
400	13	4.649	43.84	4.453	40.259
2000	13	13.642	98.364	14.747	98.931
47.6	14	1.688	1.043	1.317	0.227
155.3	14	2.668	9.075	2.336	5.273
160	14	2.71	9.621	2.38	5.707
400	14	4.677	44.359	4.477	40.707
2000	14	13.658	98.374	14.763	98.937
47.6	15	1.723	1.171	1.346	0.261
155.3	15	2.701	9.51	2.363	5.539
160	15	2.743	10.067	2.406	5.984
400	15	4.706	44.875	4.501	41.153
2000	15	13.674	98.385	14.778	98.944
47.6	30	2.243	4.406	1.762	1.325
155.3	30	3.188	16.918	2.76	10.313
160	30	3.228	17.593	2.803	10.908
400	30	5.131	52.202	4.861	47.608
2000	30	13.914	98.528	15.005	99.031
47.6	100	4.451	40.23	3.603	24.294
155.3	100	5.267	54.406	4.521	41.511
160	100	5.302	54.957	4.56	42.227

		0-1 year olds		0-7 year olds	
Soil lead levels (ppm)	Fountain water (ppb)	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL
400	100	6.967	75.99	6.463	70.746
2000	100	14.992	99.026	16.034	99.342

		0-1 year olds		0-7 year olds	
Soil lead levels (ppm)	Fountain water (ppb)	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL
47.6	0	1.184	0.109	0.92	0.016
47.6	1	1.22	0.135	0.949	0.02
47.6	2	1.257	0.165	0.977	0.026
47.6	3	1.293	0.201	1.006	0.032
47.6	4	1.33	0.241	1.034	0.04
47.6	5	1.366	0.288	1.063	0.049
47.6	6	1.402	0.341	1.091	0.06
47.6	7	1.438	0.401	1.12	0.073
47.6	8	1.474	0.468	1.148	0.087
47.6	9	1.51	0.542	1.176	0.104
47.6	10	1.546	0.625	1.205	0.123
47.6	11	1.581	0.715	1.233	0.145
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47.6	13	1.652	0.924	1.289	0.197
47.6	14	1.688	1.043	1.317	0.227
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155.3	2	2.266	4.609	2.012	2.64
155.3	3	2.3	4.923	2.039	2.82
155.3	4	2.334	5.248	2.067	3.007
155.3	5	2.368	5.585	2.094	3.201
155.3	6	2.401	5.932	2.121	3.402
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155.3	10	2.535	7.425	2.229	4.28
155.3	11	2.569	7.823	2.256	4.518
155.3	12	2.602	8.231	2.283	4.762
155.3	13	2.635	8.648	2.309	5.014
155.3	14	2.668	9.075	2.336	5.273
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155.3	30	3.188	16.918	2.76	10.313
155.3	100	5.267	54.406	4.521	41.511
160	0	2.24	4.381	2.002	2.573
160	1	2.274	4.687	2.029	2.75
160	2	2.308	5.004	2.056	2.934
160	3	2.342	5.332	2.083	3.126
160	4	2.376	5.671	2.11	3.324
160	5	2.41	6.02	2.138	3.53
160	6	2.443	6.381	2.165	3.743
160	7	2.477	6.752	2.192	3.964
160	8	2.51	7.133	2.219	4.191
160	9	2.544	7.524	2.245	4.426
160	10	2.577	7.925	2.272	4.668
160	11	2.61	8.335	2.299	4.917
160	12	2.643	8.755	2.326	5.174
160	13	2.677	9.183	2.353	5.437
160	14	2.71	9.621	2.38	5.707
160	15	2.743	10.067	2.406	5.984
160	30	3.228	17.593	2.803	10.908
160	100	5.302	54.957	4.56	42.227

		0-1 year olds		0-7 year olds	
Soil lead levels (ppm)	Fountain water (ppb)	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL	Geometric mean Blood lead level (ug/dL)	%>5 ug/dL
400	0	4.268	36.82	4.135	34.306
400	1	4.298	37.376	4.16	34.772
400	2	4.327	37.929	4.184	35.236
400	3	4.357	38.48	4.209	35.699
400	4	4.386	39.029	4.233	36.161
400	5	4.416	39.575	4.258	36.622
400	6	4.445	40.118	4.282	37.082
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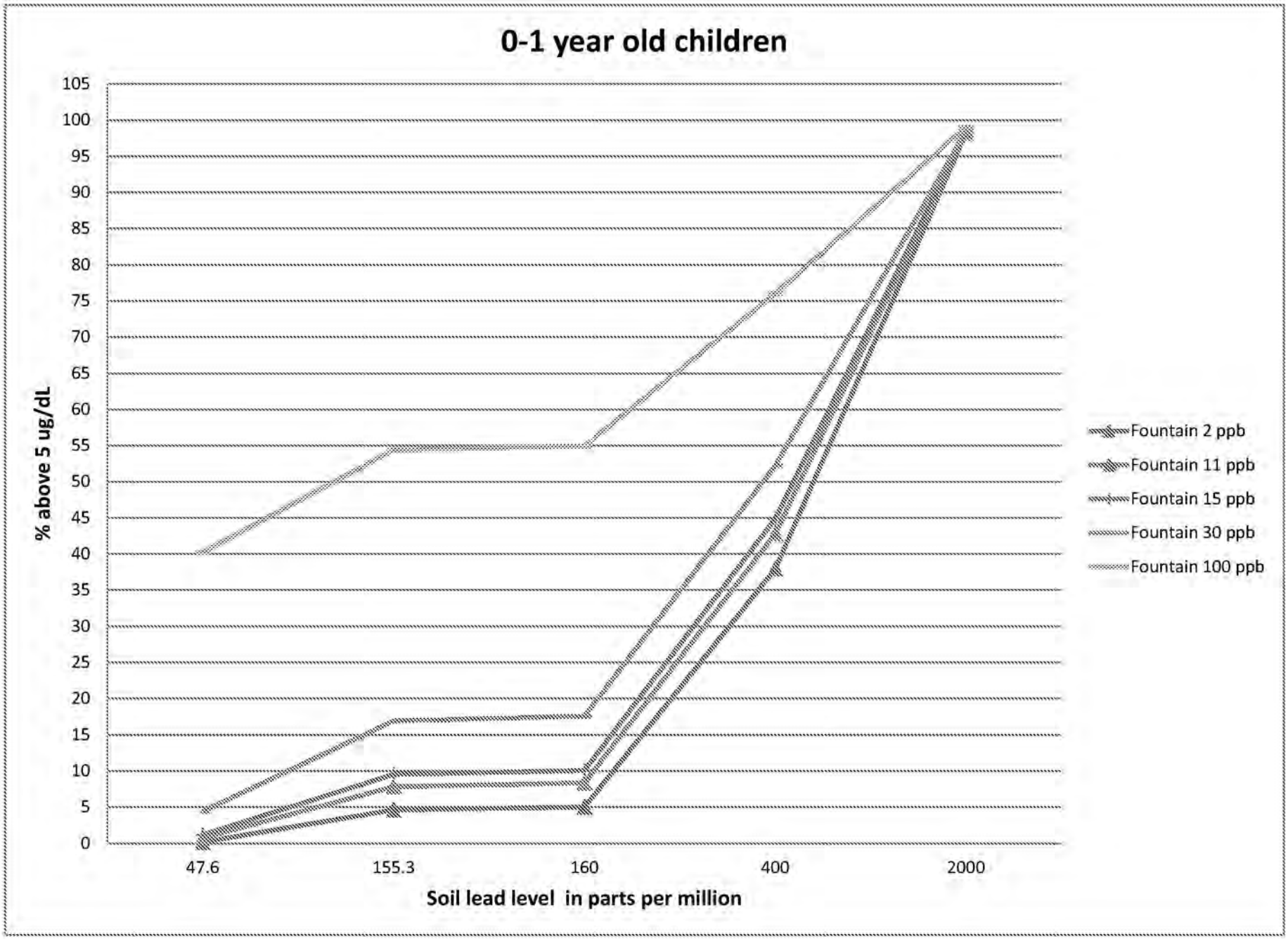
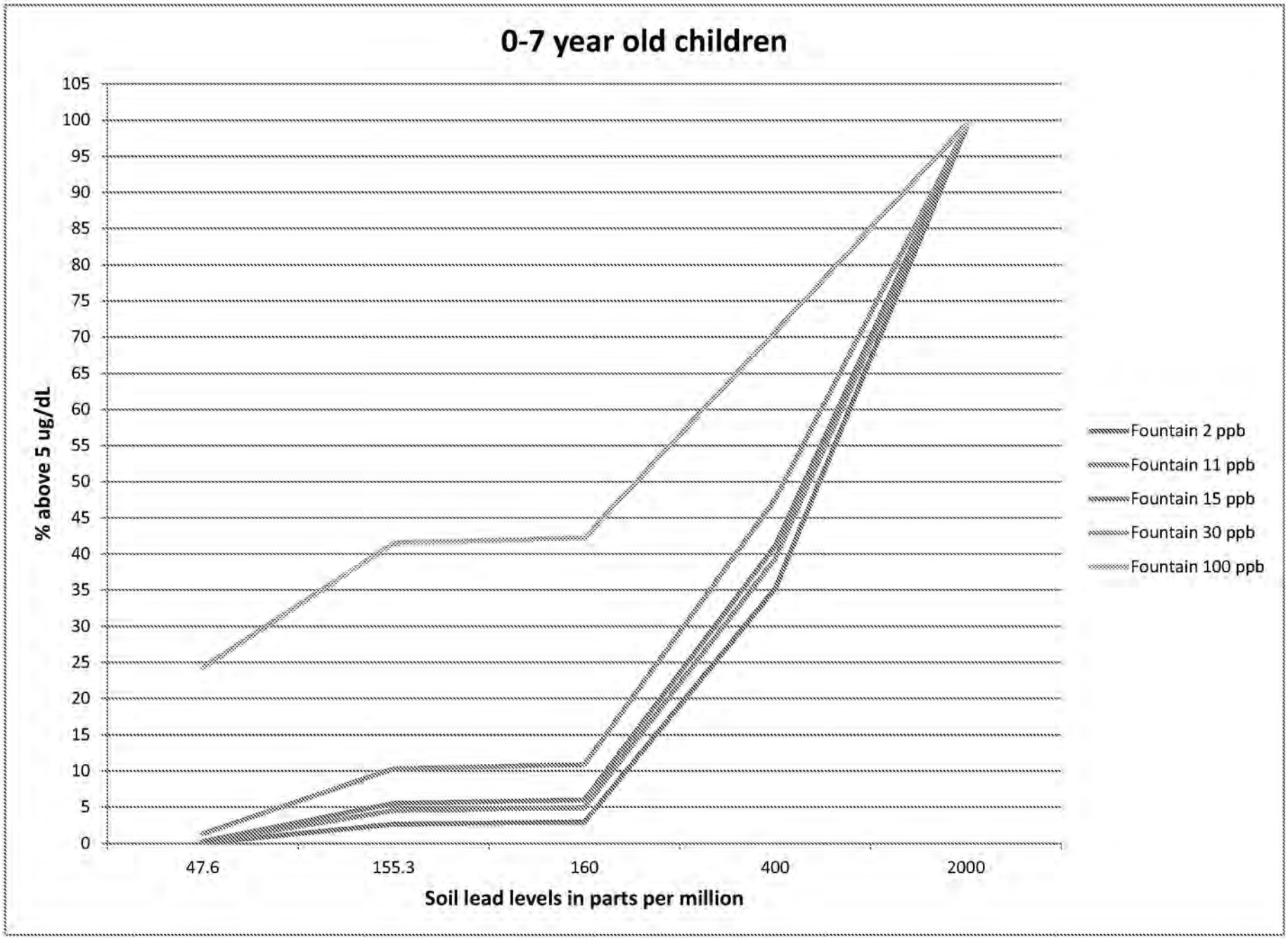
400	8	4.504	41.196	4.331	37.997
400	9	4.533	41.731	4.355	38.453
400	10	4.562	42.263	4.38	38.907
400	11	4.591	42.792	4.404	39.359
400	12	4.62	43.317	4.428	39.81
400	13	4.649	43.84	4.453	40.259
400	14	4.677	44.359	4.477	40.707
400	15	4.706	44.875	4.501	41.153
400	30	5.131	52.202	4.861	47.608
400	100	6.967	75.99	6.463	70.746
2000	0	13.431	98.224	14.549	98.847
2000	1	13.447	98.235	14.564	98.954
2000	2	13.464	98.247	14.579	98.86
2000	3	13.48	98.258	14.595	98.867
2000	4	13.496	98.269	14.61	98.874
2000	5	13.513	98.28	14.625	98.88
2000	6	13.529	98.29	14.641	98.887
2000	7	13.545	98.301	14.656	98.893
2000	8	13.561	98.312	14.671	98.9
2000	9	13.577	98.323	14.686	98.906
2000	10	13.594	98.333	14.702	98.912
2000	11	13.61	98.344	14.717	98.919
2000	12	13.626	98.354	14.732	98.925
2000	13	13.642	98.364	14.747	98.931
2000	14	13.658	98.374	14.763	98.937
2000	15	13.674	98.385	14.778	98.944
2000	30	13.914	98.528	15.005	99.031
2000	100	14.992	99.026	16.034	99.342


0-1 year old children
% above 5 ug/dL
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
47.6
155.3
160
400
2000
Soil lead level in parts per million
Fountain 2 ppb
Fountain 11 ppb
Fountain 15 ppb
Fountain 30 ppb
Fountain 100 ppb


0-7 year old children
% above 5 ug/dL
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
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10
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0
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155.3
160
400
2000
Soil lead levels in parts per million
Fountain 2 ppb
Fountain 11 ppb
Fountain 15 ppb
Fountain 30 ppb
Fountain 100 ppb

From: achubb@cityofflint.com
Sent: Saturday, October 17, 2015 8:39 AM
To: Sygo, Jim (DEQ)
Subject: Fwd: Final Executed Flint Water Service Contract
Attachments: Flint Water Contract FINAL EXECUTED 101615.pdf; ATT00001.htm

Jim, please see attached.

Anthony Chubb
Interim Director of Human Resources and Labor Relations
Deputy City Attorney
City of Flint

Sent from my iPhone

Begin forwarded message:

> **From:** Laurie Koester <koester@dwsd.org>
> **Date:** October 16, 2015 at 4:02:47 PM EDT
> **To:** Anthony Chubb <achubb@cityofflint.com>
> **Cc:** Sue McCormick <mccormick@dwsd.org>, wolfson <wolfson@dwsd.org>, Cheryl Porter <cporter@dwsd.org>, Jim Fausone <jfausone@fb-firm.com>, Terry Daniel <tdaniel@dwsd.org>, Grant Gartrell <gartrell@dwsd.org>, Biren Saparia <saparia@dwsd.org>, Mathew Kannanthanam <mgeorge@dwsd.org>, Nicolette Bateson <bateson@dwsd.org>, Jonathan Wheatley <wheatley@dwsd.org>, bfoster <bfoster@fostergroupllc.com>, Gregory Eno <eno@dwsd.org>, smegen <smegen@dwsd.org>, Laurie Koester <koester@dwsd.org>
> **Subject: Final Executed Flint Water Service Contract**
>
> Anthony,
>
> Attached for your records please find a fully executed water contract between the City of Detroit and the City of Flint. Please congratulate your team for the hard work and coordination in getting this accomplished so quickly.
>
> Sincerely,
>
> Laurie A. Koester
> Associate General Counsel
> Detroit Water and Sewerage Department
> 735 Randolph, Room 701
> Detroit, Michigan 48226
> Office: (313) 964-9620
> Cell: (313) 999-3177

From: Chester, Steven E. <Chester@millercanfield.com>
Sent: Tuesday, October 20, 2015 3:21 PM
To: Sygo, Jim (DEQ)
Subject: RE: Flint water

Thanks Jim. Were you able to get the other two documents Maggie or the FOIA folks sent to Phelps? Let me know. Thanks.

From: Sygo, Jim (DEQ) [mailto:SygoJ@michigan.gov]
Sent: Tuesday, October 20, 2015 1:28 PM
To: Chester, Steven E.
Subject: FW: Flint water

This went out last week

From: Pallone, Maggie (DEQ)
Sent: Tuesday, October 20, 2015 12:00 PM
To: Wurfel, Brad (DEQ); Wyant, Dan (DEQ); Shekter Smith, Liane (DEQ); Sygo, Jim (DEQ); Thelen, Mary Beth (DEQ)
Subject: FW: Flint water

Sorry, I didn't realize you weren't cc'd on this email originally.

Maggie

From: Pallone, Maggie (DEQ)
Sent: Tuesday, October 13, 2015 4:42 PM
To: repphelps@house.mi.gov
Cc: DEQ-Legislative-Contact <DEQ-Legislative-Contact@michigan.gov>
Subject: Flint water

Dear Representative Phelps,

I apologize that recent attempts to connect with you via phone have not been successful. As I mentioned in our last phone conversation, I want to make sure you are provided complete access to the DEQ's records and files to get answers to any question you have on Flint, or any other DEQ program.

When the Department sent back your personal check included with your September 4, 2015, Freedom of Information Act request, it was because all state agencies make a practice of working directly with the state's elected officials to produce information and answer questions. The documentation we sent to you on September 30, 2015, was the best available response to your query, based on the wording of the request for "waivers, permits or applications to use the Flint River as a source for water and/or drinking water ..." The September 28, 2015, email from the DEQ FOIA coordinator was that office's procedural closing of the loop.

We would appreciate the opportunity to meet with you, more clearly explain the DEQ's Drinking Water Program policies and requirements, and help you develop questions or requests for information we can respond to. You have our standing commitment to provide you with whatever information we have to help you in your role as a community leader.

Please contact my office at the number below, and we will arrange a meeting at any time that works for you.

Maggie Pallone
Deputy Director
Policy and Legislative Affairs
Department of Environmental Quality
PPI (cell)
PalloneM@michigan.gov

From: Workman, Wayne (TREASURY)
Sent: Thursday, October 22, 2015 9:56 AM
To: Sygo, Jim (DEQ)
Subject: FW: state money for detroit water

Importance: High

Wanted to make sure you are in the loop on this. Rep Neeley's office just left me a voice mail. I will give you a call

Wayne L. Workman
Deputy State Treasurer
Michigan Department of Treasury

From: Muchmore, Dennis (GOV)
Sent: Thursday, October 22, 2015 9:48 AM
To: Saxton, Thomas (Treasury) <SaxtonT@michigan.gov>; Workman, Wayne (TREASURY) <WorkmanW@michigan.gov>
Subject: FW: state money for detroit water
Importance: High

Natasha Henderson is becoming a liability.

From: Wurfel, Sara (GOV)
Sent: Thursday, October 22, 2015 9:35 AM
To: Muchmore, Dennis (GOV) <muchmored@michigan.gov>; Clement, Elizabeth (GOV) <clemente@michigan.gov>; Agen, Jarrod (GOV) <AgenJ@michigan.gov>; Baird, Richard (GOV) <bairdr@michigan.gov>; Hollins, Harvey (GOV) <hollinsh@michigan.gov>
Cc: Murray, David (GOV) <MurrayD1@michigan.gov>
Subject: FW: state money for detroit water
Importance: High

Please see below.

No good deed goes unpunished. This looks like may be next big issue.

I thought GLWA-DWSD was NOT going to require the entire sum all up front?

From: Ronald Fonger [mailto:RFONGER1@milve.com]
Sent: Thursday, October 22, 2015 9:28 AM
To: Wurfel, Sara (GOV) <WurfelS@michigan.gov>
Subject: state money for detroit water

Sara:
I was at a City Council meeting last night when Flint City Administrator Natasha Henderson said the state has only wired Flint $2 million of the $6 million approved by the state Legislature.
She said the city has been told it will receive an additional $2 million in January and another $2 million in April.

Henderson said she's asked that the money be sent immediately because the city was required to pay Detroit the entire $12 million upfront, before the water was reconnected, and its water and sewer fund balance has dropped significantly as a result.
Several council members also spoke about this, and Council President Josh Freeman called the payment plant "beyond ridiculous" given the city's financial position.
Is there someone who can talk to us about this?
Thanks,

Ron Fonger
MLive Media Group
Reporter

mobile PPI
email rfonger1@mlive.com
address 540 S. Saginaw St. #101, Flint MI 48502

From: Sygo, Jim (DEQ)
Sent: Thursday, October 29, 2015 3:53 PM
To: Robert Kaplan
Subject: Fwd: Act 399 Permit
Attachments: PO4 Permit.pdf; ATT00001.htm

Bob,
Here is the permit that went out to Flint yesterday.

Will get you the letter tomorrow.

Sent from my iPhone

Begin forwarded message:

> **From:** "Prysby, Mike (DEQ)" <PRYSBYM@michigan.gov>
> **Date:** October 29, 2015 at 2:26:06 PM EDT
> **To:** "Sygo, Jim (DEQ)" <SygoJ@michigan.gov>
> **Cc:** "Krisztian, George (DEQ)" <krisztiang@michigan.gov>
> **Subject: Act 399 Permit**
>
> Jim,
>
> Attached is the DEQ Act 399 construction permit authorizing the city to install the phosphate feed system for corrosion control. We are currently drafting the corrosion control plan letter for the city and a copy of the final letter will be provided.
>
> Michael Prysby, P.E.
> District Engineer
> Office of Drinking Water and Municipal Assistance
> 517 290-8817

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMIT APPLICATION FOR WATER SUPPLY SYSTEMS

(CONSTRUCTION - ALTERATION - ADDITION OR IMPROVEMENT) AS DESCRIBED HEREIN

Required under the Authority of 1976 PA 399, as amended

ENTERED

This application becomes an Act 399 Permit only when signed and issued by authorized Michigan Department of Environmental Quality (DEQ) Staff. See instructions below for completion of this application.

1. Municipality or Organization, Address and WSSN that will own or control the water facilities to be constructed. This permit is to be issued to:

City of Flint
4500 N. Dort Highway
Flint, MI 48505

WSSN: 02310

2. Owner's Contact Person (provide name for questions):

Contact: Brent Wright
Title: Water Plant Supervisor
Phone: 810.787.6537

Permit Stamp Area (DEQ use only)

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMIT NO. W 1 5 1 1 0 4 OCT 2 8 2015

EXAMINED AND APPROVED FOR COMPLIANCE WITH ACT 399, P.A. 1976

3. Project Name (Provide phase number if project is segmented):

Flint WTP Phase II, Segment 4 Corrosion Control

4. Project Location (City, Village, Township):

Flint, MI

5. County (location of project):

Genesee

ISSUED UNDER THE AUTHORITY OF THE DIRECTOR OF THE DEPARTMENT OF ENVIRONMENT QUALITY

cc:

DEQ
RESOURCE MANAGEMENT DIVISION
OCT 16 2015
LANSING DISTRICT

Issued by: Michael Prysby

Reviewed by: Michael Prysby

☐ **If this box is marked see attached special conditions.**

Instructions: Complete items 1 through 5 above and 6 through 21 on the following pages of this application. Print or type all information except for signatures. Mail completed application, plans and specifications, and any attachments to the DEQ District Office having jurisdiction in the area of the proposed construction.

Please Note:

a. This **PERMIT** only authorizes the construction, alteration, addition or improvement of the water system described herein and is issued solely under the authority of 1976 PA 399, as amended.
b. The issuance of this **PERMIT** does not authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other DEQ permits, or approvals from other units of government as may be required by law.
c. This **PERMIT** expires two (2) years after the date of issuance in accordance with R 325.11306, 1976 PA 399, administrative rules, unless construction has been initiated prior to expiration.
d. Noncompliance with the conditions of this permit and the requirements of the Act constitutes a violation of the Act.
e. Applicant must give notice to public utilities in accordance with 1974 PA 53, (MISS DIG), being Section 460.701 to 460.718 of the Michigan Compiled Laws, and comply with each of the requirements of that Act.
f. All earth changing activities must be conducted in accordance with the requirements of the Soil Erosion and Sedimentation Control Act, Part 91, 1994 PA 451, as amended.
g. All construction activity impacting wetlands must be conducted in accordance with the Wetland Protection Act, Part 303, 1994 PA 451, as amended.
h. Intentionally providing false information in this application constitutes fraud which is punishable by fine and/or imprisonment.
i. Where applicable for water withdrawals, the issuance of this permit indicates compliance with the requirements of Part 327 of Act 451, Great Lakes Preservation Act.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

6. **Facilities Description** – In the space below provide a detailed description of the proposed project. Applications without adequate facilities descriptions **will be returned**. SEE EXAMPLES BELOW. Use additional sheets if needed.

The project entails installation of phosphate feed systems at both Control Station #2 (CS#2) and Pump Station #4 (PS#4). Feed at CS#2 will provide the ability to add phosphate for corrosion control to finished water supplied from the Detroit Water & Sewer Department (DWSD). Feed at PS#4 will provide the ability to add phophate to finished water to supply from either the Flint River or Lake Huron via the Karegondi Water Authority (KWA). Both feed systems are temporary systems until the planned filter transfer pump station is constructed. A permanent phosphate feed system will be constructed as part of that contract.

The feed rate will be proportionally controlled based on the water flow rate and will be tied to the existing SCADA system. See attached basis of design for more detailed information.

EXAMPLES – EXAMPLES – EXAMPLES – EXAMPLES – EXAMPLES – EXAMPLES	
Water Mains	500 feet of 8-inch water main in First Street from Main Street north to State Street. **OR** 250 feet of 12-inch water main in Clark Road from an existing 8-inch main in Third Avenue north to a hydrant.
Booster Stations	A booster station located at the southwest corner of Third Avenue and Main Street, and equipped with two, 15 Hp pumps each rated 150 gpm @ 200 feet TDH. Station includes backup power and all other equipment as required for proper operation.
Elevated Storage Tank	A 300,000 gallon elevated storage tank located in City Park. The proposed tank shall be spherical, all welded construction and supported on a single pedestal. The tank shall be 150 feet in height, 40 feet in diameter with a normal operating range of 130 – 145 feet. The interior coating system shall be ANSI/NSF Standard 61 approved or equivalent. The tank will be equipped with a cathodic protection system, and includes a tank level control system with telemetry.
Chemical Feed	A positive displacement chemical feed pump, rated at 24 gpd @ 110 psi to apply a chlorine solution for Well No. 1. Chlorine is 12.5% NaOCL, ANSI/NSF Standard 60 approved and will be applied at a rate of 1.0 mg/l of actual chlorine.
Water Supply Well	Well No. 3, a 200 foot deep well with 170 feet of 8-inch casing and 30 feet of 8-inch, 10 slot screen. The well will be equipped with a 20 Hp submersible pump and motor rated 200 gpm @ 225 feet TDH, set at 160 feet below land surface.
Treatment Facilities	A 5 million gpd water treatment plant located at the north end of Second Avenue. The facility will include 6 low service pumps, 2 rapid mix basins, 4 flocculation/sedimentation basins, 8 dual media filters, 3 million gallon water storage reservoir and 6 high service pumps. Also included are chemical feed pumps and related appurtenances for the addition of alum, fluoride, phosphate and chlorine.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

General Project Information – Complete all boxes below.

7. Design engineer's name, engineering firm, address, phone number, and email address:

Jeremy Nakashima, PE
Lockwood, Andrews and Newnam, Inc.
1311 South Linden Rd, Suite B
Flint, MI 48532
jnnakashima@lan-inc.com

8. Indicate who will provide project construction inspection:
☐Organization listed in Box 1.
☒Engineering firm listed in Box 7.
☐Other - name, address, and phone number listed below.

9. Is a basis of design attached?
☒YES ☐NO

If no, briefly explain why a basis of design is not needed.

10. Are sealed and signed engineering plans attached?
☒YES ☐NO

If no, briefly explain why engineering plans are not needed.

11. Are sealed and signed construction specifications attached?
☒YES ☐NO

If specifications are not attached, they need to be on file at DEQ.

12. Were Recommended Standards for Water Works, Suggested Practice for Water Works, AWWA guidelines, and the requirements of Act 399 and its administrative rules followed?
☒YES ☐NO

If no, explain which deviations were made and why.

13. Are all coatings, chemical additives and construction materials ANSI/NSF or other adequate 3rd party approved?
☒YES ☐NO

If no, describe what coatings, additives or materials did not meet the applicable standard and why.

14. Are all water system facilities being installed in the public right-of-way or a dedicated utility easement? (For projects not located in the public right-of-way, utility easements must be shown on the plans.)
☒YES ☐NO

If no, explain how access will be obtained.

15. Is the project construction activity within a wetland (as defined by Section 324.30301(d)) of Part 303, 1994 PA 451?
☐YES ☒NO

If yes, a wetland permit must be obtained.

16. Is the project construction activity within a 100-year floodplain (as defined by R 323.1311(e)) of Part 31, 1994 PA 451, administrative rules?
☐YES ☒NO

If yes, a flood plain permit must be obtained.

17. Is the project construction activity within 500 feet of a lake, reservoir, or stream?
☐YES ☒NO

If yes, a Soil and Erosion Control Permit must be obtained or indicate if the owner listed in box 2 of this application is an Authorized Public Agency (Section 10 of Part 91, 1994 PA 451) ☐ Owner is APA.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

18. Will the proposed construction activity be part of a project involving the disturbance of five (5) or more acres of land?
☐YES ☒NO
If yes, is this activity regulated by the National Pollutant Discharge Elimination System storm water regulations?
☐YES: NPDES Authorization to discharge storm water from construction activities must be obtained.

☒NO: Describe why activity is not regulated:
Please call 517-241-8993 with questions regarding the applicability of the storm water regulations.

19. Is the project in or adjacent to a site of suspected or known soil or groundwater contamination?
☐YES ☒NO

If yes, attach a copy of a plan acceptable to the DEQ for handling contaminated soils and/or groundwater disturbed during construction. Contact the local DEQ district office for listings of Michigan sites of environmental contamination.

20. IF YOU ARE A CUSTOMER/WHOLESALE/BULK PURCHASER, COMPLETE THE FOLLOWING

1) Name and WSSN of source water supply system (seller) _____

2) Does the water service contract require water producer/seller to review and approve customer/wholesale/bulk purchaser water system construction plans?
☐YES ☐NO

If yes to #2, the producer/seller approval letter must be attached when submitted to DEQ.

21. **Owner's Certification** The owner of the proposed facilities or the owner's authorized representative shall complete the owner's certification. It is anticipated that the owner will either be a governmental agency (city, village, township, county, etc.) or a private owner (individual, company, association, etc.) of a Type I public water supply.

OWNER'S CERTIFICATION

I, BRENT F WEIGHT (print) (name), acting as the PLANT SUPERVISOR (print) (title/position) for

CITY OF FLINT WATER PLANT (print) (entity owning proposed facilities) certify that this project has been reviewed and approved as detailed by the Plans and Specifications submitted under this application, and is in compliance with the requirements of 1976 PA 399, as amended, and its administrative rules.

Signature* 10-16-2015 Date (810) 787-8537 Phone

*Original signature only, no photocopies will be accepted.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

PROJECT BASIS OF DESIGN – FOR WATER MAIN PROJECTS

PROJECT NAME: Flint WTP Phase II, Segment 4 Corrosion Control

For this PROJECT the following information must be provided per Act 399 unless waived by the Department. For projects other than water main installation, or if additional space is needed, attach separate sheet(s) with detailed Basis of Design calculations.

A. A general map of the initial and ultimate service areas
☒ Included on engineering plans ☐ Attached separately

B. Number of service connections served by this permit application all customers

C. Total number of service connections ultimately served by entire project all customers

D. Residential Equivalent Units (REUs) served by this permit application _____

E. Total Residential Equivalent Units (REUs) ultimately served by entire project _____

F. Water flow rates for proposed project based on REUs listed in "D' and "E" above

1. Initial design average day flow (mgd)	18.3
2. Initial design maximum day flow (mgd)	25.4
3. Total design average day flow (mgd)	24.0
4. Total design maximum day flow (mgd)	36.0
5. Required fire flows: (1)	_____ gpm for _____ hours

G. Actual flows and pressures of existing system at the connection point(s) (2)

_____ gpm at _____ psi
_____ gpm at _____ psi
_____ gpm at _____ psi
_____ gpm at _____ psi

H. Estimated minimum flows and pressures within the proposed water main system (3)

_____ gpm at _____ psi

(1) Every water system must decide what levels of fire fighting flows they wish to provide. Fire flow should be appropriate for the area (residential, commercial, industrial) being served by the project. Typical fire flow rates can be obtained from the water supply, local fire dept., ISO or AWWA. The water system must then be designed to be able to provide the required fire flows while maintaining at least 20 psi in all portions of the distribution system.

(2) Flows and pressures at the connection points must be given to determine if the existing water main(s) are able to deliver water to the new service area. These numbers can be obtained from a properly modeled and calibrated distribution system hydraulic analysis or hydrant flow tests performed in the field. If more than one connection is proposed, list as needed.

(3) List what the estimated minimum flows can be expected in the proposed water mains based on estimated water demands, head losses, elevation changes and other factors that may affect flows, such as dead end mains.

City of Flint
Phase II, Segment 4 Corrosion Control
Basis of Design

Given that Flint will require lead and copper corrosion control and given that Detroit utilizes orthophosphate for their corrosion control methodology, and that Flint will be receiving Detroit water for the immediate future, orthophosphate is the appropriate corrosion control methodology for Flint. A dosage of 0.8 mg/l as PO_4 has been recommended for the Detroit water. Numerous utilities utilizing Lake Michigan water have a target dosage of 0.9 mg/l as PO_4. Therefore, a target dosage in the range of 0.8 to 0.9 mg/l appears appropriate.

It is expected that initially there will be a significant PO_4 demand in the system. This will require a significantly higher dosage until this demand is satisfied and the target residual can be maintained. We are therefore designing for capability of a maximum dosage of 1.5 mg/l.

The arriving Detroit water will likely have some residual PO_4 when it arrives at Flint. It has been reported that this residual will be approximately 0.4 mg/l. The system must therefore be capable of a minimum dosage of 0.4 mg/l.

Based upon the usage of 75% Phosphoric Acid and a flow range of 4 MGD to 25 MGD, with an average day of 16 MGD, the expected feed rate will be 1.35 to 32 gpd. Average Phosphoric Acid feed is expected to be 10.8 gpd, requiring 30 days storage of 325 gal. Phosphoric acid will be stored in delivered totes and will be placed with containment pallets for dual containment.

Orthophosphate will need to be applied at two locations. Detroit water will enter the Flint system at Control Station CS2, and supplementary phosphate will be applied there. However, on occasion some incoming water may need to be diverted to the Dort Reservoir, bypassing CS2. This water would then be introduced to the system through High Service Pump Station PS4 and phosphate would be introduced at this location.

Lockwood, Andrews & Newnam, Inc.

PLANNING

ENGINEERING

PROGRAM MANAGEMENT

Est. 1935

AUSTIN, TX
CHICAGO, IL
CLEARWATER, FL
COLLEGE STATION, TX
DALLAS, TX
FLINT, MI
FORT WORTH, TX
HOUSTON, TX
HUNTINGTON BEACH, CA
LAS VEGAS, NV
LOS ANGELES, CA
MIAMI, FL
MILPITAS, CA
PHOENIX, AZ
SACRAMENTO, CA
SAN ANTONIO, TX
SAN MARCOS, TX
WACO, TX

TRANSMITTAL

Filing Data Code 1-07

☐ UPS ☐ FEDEX ☐ DELIVERY SERVICE ☐ HAND DELIVER ☐ OVERNIGHT ☐ REGULAR MAIL ☐ PICK-UP ☒ OTHER Extranet(To PM)

To: Michael Prysby	**Date** 10-16-13
Company: MDEQ	**Project Number** 130-10701-001
Address: 525 WEST ALLEGAN STREET Lansing, MI 48933	**Routing:**
Project: City of Flint Water Treatment Plant Improvements.	

We Are Sending You:		These Are Transmitted:
☐ Shop Drawings	☐ Reports	☐ As Requested
☐ Original Drawings	☐ Submittal Data	☒ For Your Use
☒ Prints	☐ Proposal	☒ For Review and Comment
☐ Specifications	☐ As Noted	☐ For Your Signature

Quantity	Description
3	Full Set of Plans for Ph2-Seg4 Corrosion Control
1	Act 399 Permit Application
1	11x17 Set of Plan for Ph2-Seg4 Corrosion Control

Remarks

These plans have been modified slightly from the set electronically submitted last night.

We look forward to your comments and approval.

Thanks.

DEQ
RESOURCE MANAGEMENT DIVISION
OCT 16 2015
LANSING DISTRICT

Distribution	Prepared By
1- Mike Glasgow 2- Brent Wright 3- File	Samir Matta, PE

1311 SOUTH LINDEN ROAD
SUITE B
FLINT, MI 48532
TEL 810.820.2682
FAX 810.820.2703
www.lan-inc.com

If enclosures are not as noted, kindly notify us at once.

From: Kaplan, Robert <kaplan.robert@epa.gov>
Sent: Thursday, October 29, 2015 4:05 PM
To: Sygo, Jim (DEQ)
Subject: RE: Act 399 Permit

Perfect. Thanks, Jim.

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: (PPI
Fax: (312) 692-2075

From: Sygo, Jim (DEQ) [mailto:SygoJ@michigan.gov]
Sent: Thursday, October 29, 2015 2:53 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Subject: Fwd: Act 399 Permit

Bob,
Here is the permit that went out to Flint yesterday.

Will get you the letter tomorrow.

Sent from my iPhone

Begin forwarded message:

From: "Prysby, Mike (DEQ)" <PRYSBYM@michigan.gov>
Date: October 29, 2015 at 2:26:06 PM EDT
To: "Sygo, Jim (DEQ)" <SygoJ@michigan.gov>
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Michael Prysby, P.E.
District Engineer
Office of Drinking Water and Municipal Assistance

517 290-8817

From: Sygo, Jim (DEQ)
Sent: Friday, October 30, 2015 9:15 AM
To: 'Shekter-Smith, Liane (DEQ)' (SHEKTERL@michigan.gov)
Subject: FW: Act 399 Permit
Attachments: PO4 Permit.pdf; ATT00001.htm

From: Sygo, Jim (DEQ)
Sent: Thursday, October 29, 2015 3:53 PM
To: Robert Kaplan
Subject: Fwd: Act 399 Permit

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

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(CONSTRUCTION - ALTERATION - ADDITION OR IMPROVEMENT) AS DESCRIBED HEREIN

Required under the Authority of 1976 PA 399, as amended

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Phone: 810.787.6537

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMIT NO. W 1 5 1 1 0 4 OCT 2 8 2015

EXAMINED AND APPROVED FOR COMPLIANCE WITH ACT 399, P.A. 1976

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4. Project Location (City, Village, Township):

Flint, MI

5. County (location of project):

Genesee

ISSUED UNDER THE AUTHORITY OF THE DIRECTOR OF THE DEPARTMENT OF ENVIRONMENT QUALITY

cc:

DEQ
RESOURCE MANAGEMENT DIVISION
OCT 16 2015
LANSING DISTRICT

Issued by: Michael Prysby

Reviewed by: Michael Prysby

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

General Project Information – Complete all boxes below.

7. Design engineer's name, engineering firm, address, phone number, and email address:

Jeremy Nakashima, PE
Lockwood, Andrews and Newnam, Inc.
1311 South Linden Rd, Suite B
Flint, MI 48532
jnnakashima@lan-inc.com

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☐Organization listed in Box 1.
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☐Other - name, address, and phone number listed below.

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☒YES ☐NO

If no, briefly explain why a basis of design is not needed.

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Permit Application for Water Systems (Continued)

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OWNER'S CERTIFICATION

I, BRENT F WEIGHT (print) (name), acting as the PLANT SUPERVISOR (print) (title/position) for

CITY OF FLINT WATER PLANT (print) (entity owning proposed facilities) certify that this project has been reviewed and approved as detailed by the Plans and Specifications submitted under this application, and is in compliance with the requirements of 1976 PA 399, as amended, and its administrative rules.

Signature* 10-16-2015 Date (810) 787-8537 Phone

*Original signature only, no photocopies will be accepted.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

PROJECT BASIS OF DESIGN – FOR WATER MAIN PROJECTS

PROJECT NAME: Flint WTP Phase II, Segment 4 Corrosion Control

For this PROJECT the following information must be provided per Act 399 unless waived by the Department. For projects other than water main installation, or if additional space is needed, attach separate sheet(s) with detailed Basis of Design calculations.

A. A general map of the initial and ultimate service areas
☒ Included on engineering plans ☐ Attached separately

B. Number of service connections served by this permit application all customers

C. Total number of service connections ultimately served by entire project all customers

D. Residential Equivalent Units (REUs) served by this permit application _____

E. Total Residential Equivalent Units (REUs) ultimately served by entire project _____

F. Water flow rates for proposed project based on REUs listed in "D' and "E" above

1. Initial design average day flow (mgd)	18.3
2. Initial design maximum day flow (mgd)	25.4
3. Total design average day flow (mgd)	24.0
4. Total design maximum day flow (mgd)	36.0
5. Required fire flows: (1)	_____ gpm for _____ hours

G. Actual flows and pressures of existing system at the connection point(s) (2)

_____ gpm at _____ psi
_____ gpm at _____ psi
_____ gpm at _____ psi
_____ gpm at _____ psi

H. Estimated minimum flows and pressures within the proposed water main system (3)

_____ gpm at _____ psi

(1) Every water system must decide what levels of fire fighting flows they wish to provide. Fire flow should be appropriate for the area (residential, commercial, industrial) being served by the project. Typical fire flow rates can be obtained from the water supply, local fire dept., ISO or AWWA. The water system must then be designed to be able to provide the required fire flows while maintaining at least 20 psi in all portions of the distribution system.

(2) Flows and pressures at the connection points must be given to determine if the existing water main(s) are able to deliver water to the new service area. These numbers can be obtained from a properly modeled and calibrated distribution system hydraulic analysis or hydrant flow tests performed in the field. If more than one connection is proposed, list as needed.

(3) List what the estimated minimum flows can be expected in the proposed water mains based on estimated water demands, head losses, elevation changes and other factors that may affect flows, such as dead end mains.

City of Flint
Phase II, Segment 4 Corrosion Control
Basis of Design

Given that Flint will require lead and copper corrosion control and given that Detroit utilizes orthophosphate for their corrosion control methodology, and that Flint will be receiving Detroit water for the immediate future, orthophosphate is the appropriate corrosion control methodology for Flint. A dosage of 0.8 mg/l as PO_4 has been recommended for the Detroit water. Numerous utilities utilizing Lake Michigan water have a target dosage of 0.9 mg/l as PO_4. Therefore, a target dosage in the range of 0.8 to 0.9 mg/l appears appropriate.

It is expected that initially there will be a significant PO_4 demand in the system. This will require a significantly higher dosage until this demand is satisfied and the target residual can be maintained. We are therefore designing for capability of a maximum dosage of 1.5 mg/l.

The arriving Detroit water will likely have some residual PO_4 when it arrives at Flint. It has been reported that this residual will be approximately 0.4 mg/l. The system must therefore be capable of a minimum dosage of 0.4 mg/l.

Based upon the usage of 75% Phosphoric Acid and a flow range of 4 MGD to 25 MGD, with an average day of 16 MGD, the expected feed rate will be 1.35 to 32 gpd. Average Phosphoric Acid feed is expected to be 10.8 gpd, requiring 30 days storage of 325 gal. Phosphoric acid will be stored in delivered totes and will be placed with containment pallets for dual containment.

Orthophosphate will need to be applied at two locations. Detroit water will enter the Flint system at Control Station CS2, and supplementary phosphate will be applied there. However, on occasion some incoming water may need to be diverted to the Dort Reservoir, bypassing CS2. This water would then be introduced to the system through High Service Pump Station PS4 and phosphate would be introduced at this location.

Lockwood, Andrews & Newnam, Inc.

PLANNING

ENGINEERING

PROGRAM MANAGEMENT

Est. 1935

AUSTIN, TX
CHICAGO, IL
CLEARWATER, FL
COLLEGE STATION, TX
DALLAS, TX
FLINT, MI
FORT WORTH, TX
HOUSTON, TX
HUNTINGTON BEACH, CA
LAS VEGAS, NV
LOS ANGELES, CA
MIAMI, FL
MILPITAS, CA
PHOENIX, AZ
SACRAMENTO, CA
SAN ANTONIO, TX
SAN MARCOS, TX
WACO, TX

TRANSMITTAL

Filing Data Code 1-07

☐ UPS ☐ FEDEX ☐ DELIVERY SERVICE ☐ HAND DELIVER ☐ OVERNIGHT ☐ REGULAR MAIL ☐ PICK-UP ☒ OTHER Extranet(To PM)

To: Michael Prysby	**Date** 10-16-13
	Project Number 130-10701-001
Company: MDEQ	**Routing:**
Address: 525 WEST ALLEGAN STREET Lansing, MI 48933	
Project: City of Flint Water Treatment Plant Improvements.	

We Are Sending You:		These Are Transmitted:
☐ Shop Drawings	☐ Reports	☐ As Requested
☐ Original Drawings	☐ Submittal Data	☒ For Your Use
☒ Prints	☐ Proposal	☒ For Review and Comment
☐ Specifications	☐ As Noted	☐ For Your Signature

Quantity	Description
3	Full Set of Plans for Ph2-Seg4 Corrosion Control
1	Act 399 Permit Application
1	11x17 Set of Plan for Ph2-Seg4 Corrosion Control

Remarks

These plans have been modified slightly from the set electronically submitted last night.

We look forward to your comments and approval.

Thanks.

DEQ
RESOURCE MANAGEMENT DIVISION
OCT 16 2015
LANSING DISTRICT

Distribution	Prepared By
1- Mike Glasgow 2- Brent Wright 3- File	Samir Matta, PE

1311 SOUTH LINDEN ROAD
SUITE B
FLINT, MI 48532
TEL 810.820.2682
FAX 810.820.2703
www.lan-inc.com

If enclosures are not as noted, kindly notify us at once.

From: Shaler, Karen (DEQ)
Sent: Friday, October 30, 2015 10:47 AM
To: Sygo, Jim (DEQ)
Subject: Letter to City of Flint
Attachments: Draft Flint CCT operation letter.docx

Attached as requested. Please let me know when you've heard back from Bob Kaplan because Jo Anne Rennaker is leaving by early afternoon today, so I'm planning to help her out with finaling this letter. Thanks.

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

DAN WYANT
DIRECTOR

October 30, 2015

Mr. Mike Glasgow
Utilities Administrator
City of Flint
4500 North Dort Highway
Flint, Michigan 48505

Dear Mr. Glasgow:

SUBJECT: Water Supply – City of Flint (City) – Corrosion Control Treatment Operation

The purpose of this letter is to outline additional requirements and recommendations regarding the additional corrosion control treatment measures being taken by the City water system.

The City has been purchasing drinking water from the Detroit Water and Sewerage Department (DWSD)/Great Lakes Water Authority (GLWA) since Friday, October 16, 2015. DWSD/GLWA provides corrosion control treatment to its water and DWSD/GLWA has been deemed by the Michigan Department of Environmental Quality (MDEQ) to have fully optimized corrosion control treatment. This optimization requires DWSD/GLWA to provide orthophosphate addition, maintain a minimum dose of 0.9 milligrams per liter (mg/L) as PO_4, and maintain a DWSD/GLWA plant tap residual of 0.8 mg/L as PO_4. As part of its optimization, DWSD/GLWA is also required to maintain a minimum pH of 7.0 at the DWSD/GLWA plant tap.

Corrosion Control Treatment and Operation

To further enhance pipe passivation in the City water distribution system, customer service lines, and customer plumbing, **the City shall dose additional orthophosphate to increase distribution system phosphate residual to a minimum of 3.1 mg/L as PO_4 (1.0 mg/L as P).** The City has obtained a Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), water system construction permit for the installation of this treatment equipment at Control Station 2 and Pump Station 4, construction permit number W151104, issued on October 28, 2015.

The City should also maintain a minimum pH level of 7.0 throughout the City's water distribution system. If pH levels of 7.0 or less are detected, the City shall immediately notify the MDEQ.

As part of the City water system operations, the City shall conduct:

- **Daily monitoring of incoming DWSD/GLWA water for pH and for orthophosphate residual, as PO_4**
- **Daily monitoring of additional orthophosphate dosage, as PO_4**
- **Daily monitoring of water entering the City distribution system for pH and for orthophosphate residual, as PO_4**

This information shall be included in the City's monthly operation report and shall be reported to the MDEQ as required under Administrative Rule 1502 (R 325.11502) of the administrative rules promulgated pursuant to Act 399.

Enhanced Water Quality Parameter Monitoring

The City's revised monitoring schedule dated October 22, 2015, requires quarterly Water Quality Parameter Monitoring at 25 sites throughout the City's water distribution system for temperature (Celcius), Conductivity (mS), pH, Total Alkalinity (mg/L as $CaCO_3$), Calcium (mg/L as Ca^{2+}), and orthophosphate (mg/L PO_4). Ten of these 25 sites are also used by the City to conduct required total coliform bacteria and chlorine residual monitoring (location numbers 1, 2, 3, 4, 5, 6, 7, 8, CS, and WS). **At these ten locations the City shall also conduct weekly monitoring for the following parameters at the same time that total coliform bacteria and chlorine residual monitoring is conducted to further assess water stability:**

- **Turbidity (NTU)**
- **Iron (mg/L)**
- **Orthophosphate (mg/L PO_4)**
- **pH**
- **Total Alkalinity (mg/L as $CaCO_3$)**
- **Calcium (mg/L as Ca^{2+})**
- **Chloride (mg/L as Cl^-)**
- **Temperature (Celcius)**
- **Conductivity (mS)**

If orthophosphate residual levels less than 3.1 mg/L as PO_4 (1.0 mg/L as P) are detected at any of these locations, then orthophosphate dosage shall be increased to achieve the minimum phosphate residual of 3.1 mg/L as PO_4 (1.0 mg/L as P) at all locations. In addition, if pH levels of 7.0 or less are detected at any of these locations, the City shall immediately notify the MDEQ.

Corrosion Control Treatment Test Loops

To further confirm the effectiveness of corrosion control treatment and the City's operations, it is recommended that the City construct, install, and monitor test loops of service line and plumbing materials. Instructions for construction, installation, and monitoring of these test loops can be obtained from the United States Environmental Protection Agency's (U.S. EPA) Office of Research and Development. Please contact Mr. Darren Lytle, Acting Branch Chief, at 512-569-7432 or lytle.darren@epa.gov.

Lead Service Line Verification Sampling

The City has been reviewing customer service connection records in order to confirm customer service line materials at each connection. The U.S. EPA has developed a sampling procedure that can be used to help verify the presence of lead service lines and it is recommended that the City conduct this sampling at a selection of customer locations for this purpose. Information regarding this verification sampling can also be obtained from Mr. Lytle. Any water analysis for lead and copper is expected to be completed by a certified lab.

Customer Household Exposure Assessment

The Michigan Department of Health and Human Services (MDHHS) is continuing to conduct blood lead level testing for children in the City. Families with children found to have elevated blood lead levels will be asked to have an elevated blood lead level investigation conducted at their residence that will include a lead exposure assessment, including the contribution of lead from water service lines and premise plumbing. This diagnostic testing is different than the first

draw sampling being conducted by the City and should help further substantiate the effectiveness of corrosion control treatment. Any water analysis for lead and copper is expected to be completed by a certified lab. It is recommended that any additional research monitoring should be further evaluated by the City's Technical Advisory Committee prior to being conducted.

Flint Water Treatment Plant Evaluation of Karegnondi Water Authority (KWA) Raw Water

The City is planning to change source water in the next year to raw water from Lake Huron purchased from the KWA. The City is required to evaluate the Flint Water Treatment Plant (WTP) processes related to optimization of corrosion control treatment using source water purchased from the KWA to determine if any adjustments are necessary. It is recognized that full scale testing at the Flint WTP may not be feasible. A report of this evaluation shall be provided to our office for review and approval prior to initiating service of this treated water to its customers.

If you have any questions regarding this correspondence, please contact me at the number below or at prysbym@michigan.gov.

Sincerely,

Michael F. Prysby, P.E.
District Engineer
Field Operations Section
Office of Drinking Water and
Municipal Assistance
517-290-8817

cc: Mr. Brent Wright, City of Flint
Mr. Howard Croft, City of Flint
Ms. Natasha Henderson, City of Flint
Mr. Darren Lytle, U.S. EPA
Mr. Samir F. Matta, P.E., Lockwood, Andrews & Newnam, Inc.
Mr. Warren Green, Lockwood, Andrews & Newnam, Inc.
Genesee County Health Department
Dr. Linda Dykema, MDHHS
Mr. Jim Sygo, Chief Deputy Director, MDEQ
Mr. Stephen Busch, MDEQ
Mr. Adam Rosenthal, MDEQ

From: Kaplan, Robert <kaplan.robert@epa.gov>
Sent: Friday, October 30, 2015 4:26 PM
To: Sygo, Jim (DEQ)
Subject: EPA Task Force comments on letter sending Flint Corrosion Control Permit
Attachments: Draft Flint CCT operation letter tpedits.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Jim,

On behalf of the Task Force, thank you for sending us the corrosion control plan letter this morning for our review. Attached please find EPA's edits to that letter. We also understand that MDEQ will issue an amended permit shortly to take account of the Task Force's comments sent to you today.

EPA encourages the City to take advantage of our offer for analytical support as our laboratory can analyze for a more robust set of parameters. The presence or absence of these additional parameters has provided valuable information and insights in past efforts on identifying potential sources of lead.

The Task Force believes Flint should implement the additional corrosion control treatment as soon as possible. The letter and amended permit are an important step in making sure additional corrosion control takes place quickly and appropriately.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: PPI
Fax: (312) 692-2075

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

DAN WYANT
DIRECTOR

October 30, 2015

Mr. Mike Glasgow
Utilities Administrator
City of Flint
4500 North Dort Highway
Flint, Michigan 48505

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Comment [PT1]: In addition to the 10 locations, the entry point to the distribution system should be one of the locations for enhanced WQP monitoring.

- **Turbidity (NTU)**
- **Iron (mg/L)**
- **Orthophosphate (mg/L PO_4)**
- **pH**
- **Total Alkalinity (mg/L as $CaCO_3$)**
- **Calcium (mg/L as Ca^{2+})**
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The City has been reviewing customer service connection records in order to confirm customer service line materials at each connection. The U.S. EPA has developed a sampling procedure that can be used to help verify the presence of lead service lines and it is recommended that the City conduct this sampling at a selection of customer locations for this purpose. Information regarding this verification sampling can also be obtained from Mr. Lytle. Any water analysis for samples meeting the criteria for inclusion in the 90th percentile calculation for lead and copper compliance must is expected to be completed by a certified lab. The City of Flint may wish to conduct this lead service line investigative sampling in cooperation with the U.S. EPA, which has offered to provide analytical services.

Customer Household Exposure Assessment

The Michigan Department of Health and Human Services (MDHHS) is continuing to conduct blood lead level testing for children in the City. Families with children found to have elevated blood lead levels will be asked to have an elevated blood lead level investigation conducted at their residence that will include a lead exposure assessment, including the contribution of lead from water service lines and premise plumbing. This diagnostic testing is different than the first draw sampling being conducted by the City and should help further substantiate the effectiveness of corrosion control treatment. Any water analysis samples meeting the criteria for inclusion in the 90th percentile calculation for lead and copper must ~~is expected to~~ be completed by a certified lab. The City of Flint may wish to conduct the investigative service line and premise plumbing sampling in cooperation with the U.S. EPA, which has offered to provide analytical services. It is also recommended that any additional research monitoring should be further evaluated by the City's Technical Advisory Committee prior to being conducted.

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The City is planning to change source water in the next year to raw water from Lake Huron purchased from the KWA. The City is required to evaluate the Flint Water Treatment Plant (WTP) processes related to optimization of corrosion control treatment using source water purchased from the KWA to determine if any adjustments are necessary. It is recognized that full scale testing at the Flint WTP may not be feasible. A report of this evaluation shall be provided to our office for review and approval prior to initiating service of this treated water to its customers.

If you have any questions regarding this correspondence, please contact me at the number below or at prysbym@michigan.gov.

Sincerely,

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Mr. Warren Green, Lockwood, Andrews & Newnam, Inc.
Genesee County Health Department
Dr. Linda Dykema, MDHHS
Mr. Jim Sygo, Chief Deputy Director, MDEQ
Mr. Stephen Busch, MDEQ
Mr. Adam Rosenthal, MDEQ

From: Sygo, Jim (DEQ)
Sent: Friday, October 30, 2015 5:36 PM
To: Kaplan, Robert
Subject: RE: EPA Task Force comments on letter sending Flint Corrosion Control Permit
Attachments: Flint CCT Operation Letter 10-30-15.pdf

Bob,
Thanks for the edits. Attached is a copy of the letter sent to the City of Flint today. We have made some minor edits but did emphasize that EPA is available for doing analysis and that a certified lab must analyze any sample that will be used tin the calculation of the 90 percentile of the Lead/Copper rule. We also added the additional point for sampling beyond the ten identifies.
Thanks for your assistance and your quick turn around.

DEQ will be sampling 2 more schools on Saturday as we discussed earlier in the week. Plumbing assessments were completed today.

From: Kaplan, Robert [mailto:kaplan.robert@epa.gov]
Sent: Friday, October 30, 2015 4:26 PM
To: Sygo, Jim (DEQ)
Subject: EPA Task Force comments on letter sending Flint Corrosion Control Permit

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- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: PPI
Fax: (312) 692-2075

From: Kaplan, Robert <kaplan.robert@epa.gov>
Sent: Friday, October 30, 2015 6:18 PM
To: Sygo, Jim (DEQ)
Subject: RE: EPA Task Force comments on letter sending Flint Corrosion Control Permit

Many thanks, Jim. Good luck with the sampling this weekend. Glad we were able to work through these issues together.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: PPI
Fax: (312) 692-2075

From: Sygo, Jim (DEQ) [mailto:SygoJ@michigan.gov]
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Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: (312) 515-9827
Fax: (312) 692-2075

From: Sygo, Jim (DEQ)
Sent: Friday, November 06, 2015 4:53 PM
To: Kaplan, Robert
Subject: RE: Release on Monday

I met with the Flint Group today and She told me that she now has the hard copy of the permit. They hope to have installation of the Corrosion Control Equipment be operational before the end of the month.

From: Kaplan, Robert [mailto:kaplan.robert@epa.gov]
Sent: Friday, November 06, 2015 4:42 PM
To: Sygo, Jim (DEQ)
Subject: RE: Release on Monday

Hi Jim,

One more thing – I spoke to Natasha on Wednesday. She said that she had not received MDEQ's permit yet. It could be those documents were sent elsewhere in the City. I asked her to call you to make sure the permit, calculations, and transmittal letter had all been sent to Flint. I hope the City has all of this now so corrosion control can proceed as quickly as possible.

Thanks. -- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: [PPI]
Fax: (312) 692-2075

From: Sygo, Jim (DEQ) [mailto:SygoJ@michigan.gov]
Sent: Friday, November 06, 2015 2:33 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Subject: Release on Monday

Bob,
I should be able to get the info to you on the Freeman School data and report prepared first thing on Monday morning.

From: Sygo, Jim (DEQ)
Sent: Monday, November 09, 2015 10:11 AM
To: Kaplan, Robert (kaplan.robert@epa.gov)
Subject: Release of Data from City of Flint Schools
Attachments: Freeman Elementary Report Final.pdf; Freeman Elementary Final Lead and Copper Results.xlsx

Bob,
Attached is the information to be rele3ased today regarding the sampling efforts at the Freeman Elementary School. Please keep this internal t EPA until noon today.

Of 381 samples delivered to the state lab fro free lead testing from homes in the City of Flint, 381 samples have been delivered.
Of the 381 samples delivered, 77% were 5 ppb of lead or less.
Of the 381 samples delivered, 92% were 15 ppb of lead or less.
About 8% of the samples delivered were above 15 ppb for lead.

HHS will be releasing blood results later this week we believe.

We will be3 putting this information on the States web page later today.

If you have any questions, please feel free to contact me.

By the way, we have sent a letter today to the City regarding Lead/Copper monitoring information that had been certified by the City, requesting additional information.
Their certifications have been questioned by some and they are pointing to the State program. As you know this is the responsibility of the water supplier under the Lead/Copper rule.

FREEMAN ELEMENTARY SCHOOL

Outlet Sampling and Plumbing Assessment Recommendations

4001 Ogema Avenue, Flint, MI 48507

DEQ

BACKGROUND INFORMATION

On Friday, October 23, 2015, the Department of Licensing and Regulatory Affairs (DLARA) and the Department of Environmental Quality (DEQ) conducted an assessment of Freeman Elementary School's plumbing system to gain a comprehensive understanding of how water moves through the building and what types of plumbing materials are used. The assessment identified the following potential sources of lead leaching into drinking water:

- Lead solder joints on copper piping
- Brass valves and brass fittings
- Brass components in fixtures
- Galvanized piping

The assessment also identified 31 faucets or fountains that provide water for drinking, cooking, and/or food preparation. The team developed a sequence for sampling the 31 faucets/fountains based on how the water travels through the building.

On Saturday, October 24, 2015, the DEQ and the DLARA completed sampling of the 31 faucets/fountains, in the order determined by the plumbing assessment from the previous day, following a stagnation period of 12 hours. At each of the 31 faucets/fountains identified, staff collected four samples. Two initial, 125-milliliter samples (P1 and P2) were collected immediately after turning on the tap. The water was then flushed for 30 seconds, and a third 125-milliliter sample (F1) was collected. Finally, the water was flushed for another two minutes, and the fourth 125-milliliter sample (F2) was collected. These samples were used to determine the impact of any lead sources in and around each specific faucet/fountain and its connecting plumbing.

On Saturday, October 31, 2015, the DEQ completed consecutive sampling at three of the 31 faucets/fountains following a stagnation period of 12 hours. This sampling was used to determine the impact of any lead sources located deep in the supply plumbing. The three sites included one site near the building service line, one site near the plumbing mid-point, and one site at the far end of the plumbing system. At each of these three sites, staff collected 10, 1-liter samples. The 10 samples were collected immediately after turning on the tap, and consecutively, without any flushing time in between.

WATER SERVICE INFORMATION

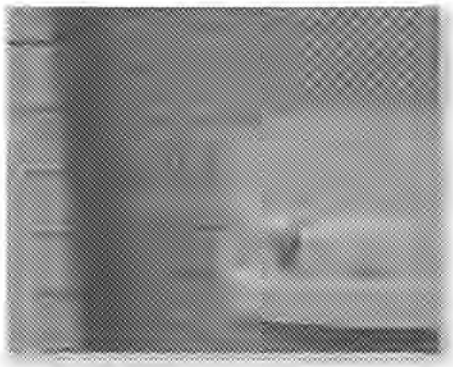
A four-inch diameter cast iron water service line enters the school in the boiler room on the west wall. Piping in the boiler room immediately transitions into galvanized metal piping for cold water lines. Two separate galvanized cold water supply lines exit the boiler room. One in the northeast corner appears to serve the gym, auditorium, and proposed pre-K facilities on the north end of the school. The other exits the boiler room in the southwest corner and appears to serve the remainder of the school to the south, including the library. This line was also found to have grounding connections attached to the piping. Hot water is distributed in continuous loops that feed from and return to a central water heater in the boiler room. Hot water piping material, where exposed, was copper piping with 50/50 lead solder joints. Brass valves were seen throughout the building.

Outlets With Lead Levels Greater Than 15 Parts per Billion

The DEQ recommends school facilities take action if samples from any drinking water outlets show lead levels greater than 15 parts per billion. Based on the sampling conducted at 31 faucets/fountains on October 24, 2015, the following nine drinking water outlets had lead water level results greater than 15 parts per billion. Each of these nine outlets is listed below with its sample results, including a description of the potential source(s) of lead, and recommended actions for the school to take.

Outlet: Bubbler Drinking Fountain, Left (DW001)

Location: Hallway outside Janitorial Room
Results: P1=40 parts per billion, P2=6 parts per billion
F1=4 parts per billion, F2=1 part per billion

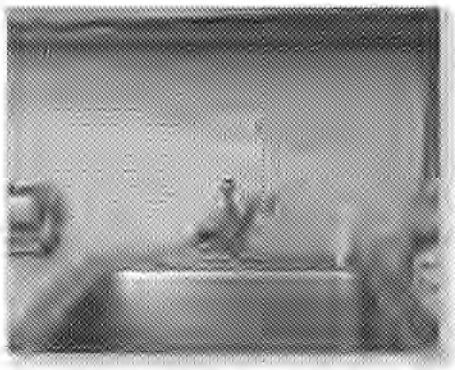


These results suggest the highest contribution of lead may be from the bubbler itself. This bubbler fixture is believed to have a brass valve. The connection underneath the sink also appears to have some brass components, including the valve at the wall.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (CF029)

Location: DHHS Office, west wall
Results: P1=17 parts per billion, P2=12 parts per billion
F1=2 parts per billion, F2=non-detect



These results suggest the highest contribution of lead may be from the faucet and its connecting plumbing. The faucet is a Delta 400. This model faucet valve has brass components. This style faucet also has a mixing valve that may allow mixing of hot and cold water. Connecting plumbing in the cabinet under the sink may also contain brass components.

This faucet also has an aerator at the outlet. The aerator should be removed, inspected for particulate accumulations, scrubbed clean, and reinstalled. If particulates are found, the aerator should be periodically checked and cleaned.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

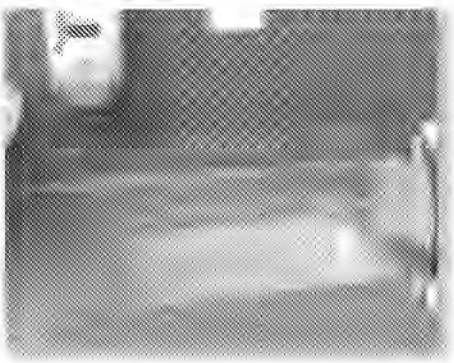
Outlet: Integrated faucet and bubbler fountain (CF006)

Location: Classroom 2, south wall
Results: P1=16 parts per billion, P2=3 parts per billion
F1=1 part per billion, F2=1 part per billion

These results were collected from the faucet portion of the fixture and suggest the highest contribution of lead may be from the fixture itself. The make and model of this fixture is unknown, but appears to be made of chrome plated brass and may be connected on the underside of the sink using a brass nipple.

Replacement of this fixture and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Integrated faucet and bubbler fountain (CF014)



Location: Classroom 10, north wall
Results: P1=27 parts per billion, P2=7 parts per billion
F1=4 parts per billion, F2=3 parts per billion

These results were collected from the faucet portion of the fixture and suggest the highest contribution of lead may be from the fixture itself and its connecting plumbing. The make and model of this fixture is unknown, but appears to be made of chrome plated brass and may be connected on the underside of the sink using a brass nipple. Connecting plumbing in the cabinet under the sink may also contain brass components.

Replacement of this fixture and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (CF013)

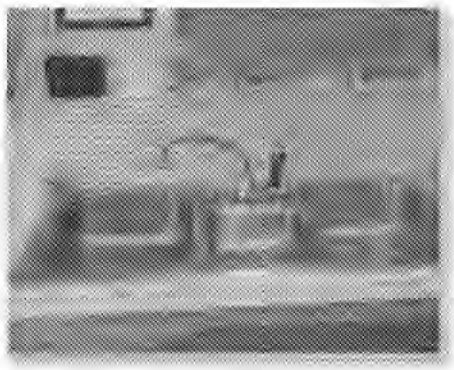
Location: Classroom 10, north wall
Results: P1=9 parts per billion, P2=18 parts per billion
F1=3 parts per billion, F2=3 parts per billion

These results suggest the highest contribution of lead may be from the connecting plumbing with some contribution from the faucet itself. The faucet appears to be a Delta 500 series. This model faucet may have some brass components. This style faucet also has a mixing valve that may allow mixing of hot and cold water. Connecting plumbing in the cabinet under the sink should be checked for brass components, including brass valves.

This faucet also has an aerator at the outlet. The aerator should be removed, inspected for particulate accumulations, scrubbed clean, and reinstalled. If particulates are found, the aerator should be periodically checked and cleaned.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlet: Sink Faucet (CF015)



Location: Classroom 11, northeast corner
Results: P1=102 parts per billion, P2=326 parts per billion
F1=14 parts per billion, F2=11 parts per billion

These results suggest the highest contribution of lead may be from the connecting plumbing and from the faucet itself. The faucet is an older design that uses a brass tube approximately 8 inches in length between the hot and cold water valves and connects to the outlet under the sink. This brass tube may be the primary source of lead, explaining the higher second (P2) sample result. The faucet and valves may also contain brass components. Connecting plumbing in the cabinet under the sink should be checked for additional brass components, including brass valves.

This faucet also has an aerator at the outlet. The aerator should be removed, inspected for particulate accumulations, scrubbed clean, and reinstalled. If particulates are found, the aerator should be periodically checked and cleaned.

Replacement of this faucet and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location and needs to be completed. If replacement is not currently feasible, **DO NOT USE THIS FAUCET FOR DRINKING OR COOKING.**

Outlet: Integrated faucet and bubbler fountain (CF024)

Location: Classroom 19, east wall
Results: P1=23 parts per billion, P2=3 parts per billion
F1=4 part per billion, F2=3 parts per billion

These results were collected from the faucet portion of the fixture and suggest the highest contribution of lead may be from the fixture itself. The make and model of this fixture is unknown, but appears to be made of chrome plated brass and may be connected on the underside of the sink using a brass nipple.

Replacement of this fixture and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

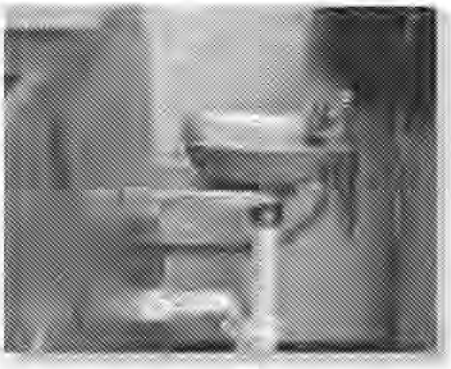
Outlet: Bubbler fountain (CF026)

Location: Classroom 14, west wall
Results: P1=36 parts per billion, P2=30 parts per billion
F1=17 parts per billion, F2=4 parts per billion

These results suggest the highest contribution of lead may be from the bubbler itself. This bubbler fixture appears to be made of chrome plated brass. This style bubbler typically has a 4-5-inch brass fitting that connects to a 3-inch brass nipple on the underside of the sink. This would explain the higher concentrations in the first two sample results. The connection underneath the sink may also have some brass components and should be checked, including the valve.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location and should be completed. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes prior to each use and for at least 4 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure. **In general, use of this fountain for drinking water should be discouraged.**

Outlet: Bubbler fountain (CF031)



Location: Proposed Pre-K Room, south wall
Results: P1=57 parts per billion, P2=3 parts per billion
F1=2 parts per billion, F2=non-detect

These results suggest the highest contribution of lead may be from the bubbler itself. This bubbler fixture appears to be made of chrome plated brass. This bubbler has a brass fitting connection to a brass nipple. The connector hose is not expected to be contributing lead.

Replacement of this bubbler tap and its connection plumbing with lead-free materials will significantly reduce lead exposure at this location and should be completed. If replacement is not currently feasible, sample results indicate that flushing this tap for 3 minutes following periods of stagnation is likely to reduce lead concentrations and lead exposure.

Outlets With Lead Levels 15 Parts per Billion or Less

While the remaining 22 outlets showed sample results to be at levels requiring no further action, several recommendations have been identified.

The fourth sample at each of these 22 outlets following approximately 3 minutes of use and flushing at a reduced flow reduced lead concentrations to 4 parts per billion or less. This indicates that flushing of all taps used for drinking, cooking, and/or food preparation for 4 minutes following periods of stagnation will further reduce lead exposure. It is recommended that a flushing operational procedure be developed for use by staff responsible for plumbing operations and maintenance.

Twelve of these outlets are comprised of similar materials as the outlets listed above and could potentially experience higher lead levels under extended periods of stagnation. These faucets/fountains include:

- Sink Side Bubbler Units in Classroom 12 (CF022), Classroom 5 (CF009), Classroom 21 (CF028), Hallway Fountain (DW002), Classroom 15 (CF018), Classroom 17 (CF020), and Classroom 1 (DW005).
- Integrated Faucet Bubbler Fountain Units in Classroom 6 (CF010), Classroom 9 (CF012), Classroom 4 (CF008), Classroom 3 (CF007), and Classroom 7 (CF011).

Replacement of these fixtures with lead-free materials is also recommended.

The remaining 10 outlets showed sample results of 15 parts per billion or less, requiring no further action or additional recommendations. These faucets/fountains include:

- Sink Faucets in Classroom 1 (CF004), Classroom 15 (CF017), Classroom 17 (CF019), Classroom 12 (CF021), Classroom 19 (CF023), Classroom 14 (CF025), Classroom 21 (CF027), and Proposed Pre-K Room (CF030).
- Kitchen Sink (cold) in the Community Room (KC003).
- Sink Side Bubbler Fountain in Classroom 11 (CF016).

Consecutive Sampling Results and Building Plumbing Recommendations

The consecutive samples taken at three sites in the building on October 31, 2015, provide additional confirmation that the highest contribution of lead appears to be from the individual faucet/fountains and not from the larger diameter supply plumbing within the school building.

LOCATION	LEAD RESULT (PARTS PER BILLION; ND = NOT-DETECTED)									
Proposed Pre-K Rm Sink Faucet (CF030)	2	1	ND	ND	ND	ND	ND	ND	ND	ND
Classroom 11 Sink Faucet (CF015)	62	8	8	7	7	7	7	6	6	6
Classroom 21 Sink Faucet (CF027)	2	ND	ND	ND	ND	ND	ND	ND	ND	ND

The continued presence of lead in samples collected at Classroom 11 (CF015) may be a result of lead particulates caught in the aerator/screen installed on the faucet outlet or may be from a source of lead further back in the plumbing system. However, the non-detect results from consecutive samples collected in Proposed Pre-K Room (CF030) and Classroom 21 (CF027) suggest any additional source of lead associated with Classroom 11 (CF015) is localized to the plumbing branch serving this faucet. The faucet aerator/screen in Classroom 11 (CF015) should be removed and inspected before completing a more in-depth plumbing analysis. Consecutive sampling results at Classroom 11 (CF015) support the water use restrictions specified for this outlet.

	A	B	C	D	E	F
1	**ANALYTE**	**RESULT (mg\L)**	**Sample Location**	**Sample Description**	**Site Code**	**Site Code Description**
2	Lead	0.010	Classroom 12	CF022	P1	First Primary draw of 125 milliliters
3	Lead	0.003	Classroom 12	CF022	P2	Second Primary draw of 125 milliliters
4	Lead	0.001	Classroom 12	CF022	F01	Flush Sample taken 30 Seconds after Second Primary Draw
5	Lead	0.001	Classroom 12	CF022	F02	Flush Sample taken 2 minutes after First Flush Sample
6	Lead	0.004	Classroom 12	CF021	P1	First Primary draw of 125 milliliters
7	Lead	0.007	Classroom 12	CF021	P2	Second Primary draw of 125 milliliters
8	Lead	0.000	Classroom 12	CF021	F01	Flush Sample taken 30 Seconds after Second Primary Draw
9	Lead	0.000	Classroom 12	CF021	F02	Flush Sample taken 2 minutes after First Flush Sample
10	Lead	0.009	Classroom 5	CF009	P1	First Primary draw of 125 milliliters
11	Lead	0.002	Classroom 5	CF009	P2	Second Primary draw of 125 milliliters
12	Lead	0.002	Classroom 5	CF009	F01	Flush Sample taken 30 Seconds after Second Primary Draw
13	Lead	0.001	Classroom 5	CF009	F02	Flush Sample taken 2 minutes after First Flush Sample
14	Lead	0.102	Classroom 11	CF015	P1	First Primary draw of 125 milliliters
15	Lead	0.326	Classroom 11	CF015	P2	Second Primary draw of 125 milliliters
16	Lead	0.014	Classroom 11	CF015	F01	Flush Sample taken 30 Seconds after Second Primary Draw
17	Lead	0.011	Classroom 11	CF015	F02	Flush Sample taken 2 minutes after First Flush Sample
18	Lead	0.003	Classroom 11	CF016	P1	First Primary draw of 125 milliliters
19	Lead	0.003	Classroom 11	CF016	P2	Second Primary draw of 125 milliliters
20	Lead	0.005	Classroom 11	CF016	F01	Flush Sample taken 30 Seconds after Second Primary Draw
21	Lead	0.004	Classroom 11	CF016	F02	Flush Sample taken 2 minutes after First Flush Sample
22	Lead	0.009	Classroom 21	CF027	P1	First Primary draw of 125 milliliters
23	Lead	0.007	Classroom 21	CF027	P2	Second Primary draw of 125 milliliters
24	Lead	0.000	Classroom 21	CF027	F01	Flush Sample taken 30 Seconds after Second Primary Draw
25	Lead	0.000	Classroom 21	CF027	F02	Flush Sample taken 2 minutes after First Flush Sample
26	Lead	0.012	Classroom 6	CF010	P1	First Primary draw of 125 milliliters
27	Lead	0.004	Classroom 6	CF010	P2	Second Primary draw of 125 milliliters
28	Lead	0.002	Classroom 6	CF010	F01	Flush Sample taken 30 Seconds after Second Primary Draw

	A	B	C	D	E	F
29	Lead	0.000	Classroom 6	CF010	F02	Flush Sample taken 2 minutes after First Flush Sample
30	Lead	0.009	Classroom 21	CF028	P1	First Primary draw of 125 milliliters
31	Lead	0.002	Classroom 21	CF028	P2	Second Primary draw of 125 milliliters
32	Lead	0.001	Classroom 21	CF028	F01	Flush Sample taken 30 Seconds after Second Primary Draw
33	Lead	0.001	Classroom 21	CF028	F02	Flush Sample taken 2 minutes after First Flush Sample
34	Lead	0.023	Classroom 19	CF024	P1	First Primary draw of 125 milliliters
35	Lead	0.003	Classroom 19	CF024	P2	Second Primary draw of 125 milliliters
36	Lead	0.004	Classroom 19	CF024	F01	Flush Sample taken 30 Seconds after Second Primary Draw
37	Lead	0.003	Classroom 19	CF024	F02	Flush Sample taken 2 minutes after First Flush Sample
38	Lead	0.005	Community Room	KC003	P1	First Primary draw of 125 milliliters
39	Lead	0.002	Community Room	KC003	P2	Second Primary draw of 125 milliliters
40	Lead	0.000	Community Room	KC003	F01	Flush Sample taken 30 Seconds after Second Primary Draw
41	Lead	0.000	Community Room	KC003	F02	Flush Sample taken 2 minutes after First Flush Sample
42	Lead	0.009	Classroom 19	CF023	P1	First Primary draw of 125 milliliters
43	Lead	0.009	Classroom 19	CF023	P2	Second Primary draw of 125 milliliters
44	Lead	0.001	Classroom 19	CF023	F01	Flush Sample taken 30 Seconds after Second Primary Draw
45	Lead	0.000	Classroom 19	CF023	F02	Flush Sample taken 2 minutes after First Flush Sample
46	Lead	0.015	Hallway	DW002	P1	First Primary draw of 125 milliliters
47	Lead	0.006	Hallway	DW002	P2	Second Primary draw of 125 milliliters
48	Lead	0.004	Hallway	DW002	F01	Flush Sample taken 30 Seconds after Second Primary Draw
49	Lead	0.001	Hallway	DW002	F02	Flush Sample taken 2 minutes after First Flush Sample
50	Lead	0.002	Classroom 9	CF012	P1	First Primary draw of 125 milliliters
51	Lead	0.004	Classroom 9	CF012	P2	Second Primary draw of 125 milliliters
52	Lead	0.002	Classroom 9	CF012	F01	Flush Sample taken 30 Seconds after Second Primary Draw
53	Lead	0.000	Classroom 9	CF012	F02	Flush Sample taken 2 minutes after First Flush Sample
54	Lead	0.040	Hallway	DW001	P1	First Primary draw of 125 milliliters
55	Lead	0.006	Hallway	DW001	P2	Second Primary draw of 125 milliliters
56	Lead	0.004	Hallway	DW001	F01	Flush Sample taken 30 Seconds after Second Primary Draw

	A	B	C	D	E	F
57	Lead	0.001	Hallway	DW001	F02	Flush Sample taken 2 minutes after First Flush Sample
58	Lead	0.014	Classroom 15	CF018	P1	First Primary draw of 125 milliliters
59	Lead	0.005	Classroom 15	CF018	P2	Second Primary draw of 125 milliliters
60	Lead	0.002	Classroom 15	CF018	F01	Flush Sample taken 30 Seconds after Second Primary Draw
61	Lead	0.002	Classroom 15	CF018	F02	Flush Sample taken 2 minutes after First Flush Sample
62	Lead	0.010	Classroom 15	CF017	P1	First Primary draw of 125 milliliters
63	Lead	0.014	Classroom 15	CF017	P2	Second Primary draw of 125 milliliters
64	Lead	0.002	Classroom 15	CF017	F01	Flush Sample taken 30 Seconds after Second Primary Draw
65	Lead	0.002	Classroom 15	CF017	F02	Flush Sample taken 2 minutes after First Flush Sample
66	Lead	0.017	DHHS Office	CF029	P1	First Primary draw of 125 milliliters
67	Lead	0.012	DHHS Office	CF029	P2	Second Primary draw of 125 milliliters
68	Lead	0.002	DHHS Office	CF029	F01	Flush Sample taken 30 Seconds after Second Primary Draw
69	Lead	0.000	DHHS Office	CF029	F02	Flush Sample taken 2 minutes after First Flush Sample
70	Lead	0.013	Classroom 4	CF008	P1	First Primary draw of 125 milliliters
71	Lead	0.006	Classroom 4	CF008	P2	Second Primary draw of 125 milliliters
72	Lead	0.001	Classroom 4	CF008	F01	Flush Sample taken 30 Seconds after Second Primary Draw
73	Lead	0.000	Classroom 4	CF008	F02	Flush Sample taken 2 minutes after First Flush Sample
74	Lead	0.007	Classroom 3	CF007	P1	First Primary draw of 125 milliliters
75	Lead	0.006	Classroom 3	CF007	P2	Second Primary draw of 125 milliliters
76	Lead	0.003	Classroom 3	CF007	F01	Flush Sample taken 30 Seconds after Second Primary Draw
77	Lead	0.002	Classroom 3	CF007	F02	Flush Sample taken 2 minutes after First Flush Sample
78	Lead	0.027	Classroom 10	CF014	P1	First Primary draw of 125 milliliters
79	Lead	0.007	Classroom 10	CF014	P2	Second Primary draw of 125 milliliters
80	Lead	0.004	Classroom 10	CF014	F01	Flush Sample taken 30 Seconds after Second Primary Draw
81	Lead	0.003	Classroom 10	CF014	F02	Flush Sample taken 2 minutes after First Flush Sample
82	Lead	0.036	Classroom 14	CF026	P1	First Primary draw of 125 milliliters
83	Lead	0.030	Classroom 14	CF026	P2	Second Primary draw of 125 milliliters
84	Lead	0.017	Classroom 14	CF026	F01	Flush Sample taken 30 Seconds after Second Primary Draw

	A	B	C	D	E	F
85	Lead	0.004	Classroom 14	CF026	F02	Flush Sample taken 2 minutes after First Flush Sample
86	Lead	0.005	Classroom 17	CF019	P1	First Primary draw of 125 milliliters
87	Lead	0.003	Classroom 17	CF019	P2	Second Primary draw of 125 milliliters
88	Lead	0.001	Classroom 17	CF019	F01	Flush Sample taken 30 Seconds after Second Primary Draw
89	Lead	0.000	Classroom 17	CF019	F02	Flush Sample taken 2 minutes after First Flush Sample
90	Lead	0.000	Classroom 14	CF025	P1	First Primary draw of 125 milliliters
91	Lead	0.003	Classroom 14	CF025	P2	Second Primary draw of 125 milliliters
92	Lead	0.003	Classroom 14	CF025	F01	Flush Sample taken 30 Seconds after Second Primary Draw
93	Lead	0.002	Classroom 14	CF025	F02	Flush Sample taken 2 minutes after First Flush Sample
94	Lead	0.009	Classroom 10	CF013	P1	First Primary draw of 125 milliliters
95	Lead	0.018	Classroom 10	CF013	P2	Second Primary draw of 125 milliliters
96	Lead	0.003	Classroom 10	CF013	F01	Flush Sample taken 30 Seconds after Second Primary Draw
97	Lead	0.003	Classroom 10	CF013	F02	Flush Sample taken 2 minutes after First Flush Sample
98	Lead	0.013	Classroom 17	CF020	P1	First Primary draw of 125 milliliters
99	Lead	0.004	Classroom 17	CF020	P2	Second Primary draw of 125 milliliters
100	Lead	0.005	Classroom 17	CF020	F01	Flush Sample taken 30 Seconds after Second Primary Draw
101	Lead	0.003	Classroom 17	CF020	F02	Flush Sample taken 2 minutes after First Flush Sample
102	Lead	0.016	Classroom 2	CF006	P1	First Primary draw of 125 milliliters
103	Lead	0.003	Classroom 2	CF006	P2	Second Primary draw of 125 milliliters
104	Lead	0.001	Classroom 2	CF006	F01	Flush Sample taken 30 Seconds after Second Primary Draw
105	Lead	0.001	Classroom 2	CF006	F02	Flush Sample taken 2 minutes after First Flush Sample
106	Lead	0.002	Classroom 7	CF011	P1	First Primary draw of 125 milliliters
107	Lead	0.000	Classroom 7	CF011	P2	Second Primary draw of 125 milliliters
108	Lead	0.002	Classroom 7	CF011	F01	Flush Sample taken 30 Seconds after Second Primary Draw
109	Lead	0.000	Classroom 7	CF011	F02	Flush Sample taken 2 minutes after First Flush Sample
110	Lead	0.057	Proposed Pre K	CF031	P1	First Primary draw of 125 milliliters
111	Lead	0.003	Proposed Pre K	CF031	P2	Second Primary draw of 125 milliliters
112	Lead	0.002	Proposed Pre K	CF031	F01	Flush Sample taken 30 Seconds after Second Primary Draw

	A	B	C	D	E	F
113	Lead	0.000	Proposed Pre K	CF031	F02	Flush Sample taken 2 minutes after First Flush Sample
114	Lead	0.010	Proposed Pre K	CF030	P1	First Primary draw of 125 milliliters
115	Lead	0.003	Proposed Pre K	CF030	P2	Second Primary draw of 125 milliliters
116	Lead	0.007	Proposed Pre K	CF030	F01	Flush Sample taken 30 Seconds after Second Primary Draw
117	Lead	0.000	Proposed Pre K	CF030	F02	Flush Sample taken 2 minutes after First Flush Sample
118	Lead	0.012	Classroom 1	CF004	P1	First Primary draw of 125 milliliters
119	Lead	0.007	Classroom 1	CF004	P2	Second Primary draw of 125 milliliters
120	Lead	0.004	Classroom 1	CF004	F01	Flush Sample taken 30 Seconds after Second Primary Draw
121	Lead	0.002	Classroom 1	CF004	F02	Flush Sample taken 2 minutes after First Flush Sample
122	Lead	0.005	Classroom 1	DW005	P1	First Primary draw of 125 milliliters
123	Lead	0.003	Classroom 1	DW005	P2	Second Primary draw of 125 milliliters
124	Lead	0.003	Classroom 1	DW005	F01	Flush Sample taken 30 Seconds after Second Primary Draw
125	Lead	0.002	Classroom 1	DW005	F02	Flush Sample taken 2 minutes after First Flush Sample
126	Lead	0.002	Proposed Pre K	CF030	CA1	First Sequential Sample
127	Lead	0.001	Proposed Pre K	CF030	CA2	Second Sequential Sample
128	Lead	0.000	Proposed Pre K	CF030	CA3	Third Sequential Sample
129	Lead	0.000	Proposed Pre K	CF030	CA4	Forth Sequential Sample
130	Lead	0.000	Proposed Pre K	CF030	CA5	Fifth Sequential Sample
131	Lead	0.000	Proposed Pre K	CF030	CA6	Sixth Sequential Sample
132	Lead	0.000	Proposed Pre K	CF030	CA7	Seventh Sequential Sample
133	Lead	0.000	Proposed Pre K	CF030	CA8	Eigth Sequential Sample
134	Lead	0.000	Proposed Pre K	CF030	CA9	Ninth Sequential Sample
135	Lead	0.000	Proposed Pre K	CF030	CA10	Tenth Sequential Sample
136	Lead	0.062	Classroom 11	CF015	CB1	First Sequential Sample
137	Lead	0.008	Classroom 11	CF015	CB2	Second Sequential Sample
138	Lead	0.008	Classroom 11	CF015	CB3	Third Sequential Sample
139	Lead	0.007	Classroom 11	CF015	CB4	Forth Sequential Sample
140	Lead	0.007	Classroom 11	CF015	CB5	Fifth Sequential Sample
141	Lead	0.007	Classroom 11	CF015	CB6	Sixth Sequential Sample
142	Lead	0.007	Classroom 11	CF015	CB7	Seventh Sequential Sample
143	Lead	0.006	Classroom 11	CF015	CB8	Eigth Sequential Sample
144	Lead	0.006	Classroom 11	CF015	CB9	Ninth Sequential Sample
145	Lead	0.006	Classroom 11	CF015	CB10	Tenth Sequential Sample
146	Lead	0.002	Classroom 21	CF027	CC1	First Sequential Sample
147	Lead	0.000	Classroom 21	CF027	CC2	Second Sequential Sample

	A	B	C	D	E	F
148	Lead	0.000	Classroom 21	CF027	CC3	Third Sequential Sample
149	Lead	0.000	Classroom 21	CF027	CC4	Forth Sequential Sample
150	Lead	0.000	Classroom 21	CF027	CC5	Fifth Sequential Sample
151	Lead	0.000	Classroom 21	CF027	CC6	Sixth Sequential Sample
152	Lead	0.000	Classroom 21	CF027	CC7	Seventh Sequential Sample
153	Lead	0.000	Classroom 21	CF027	CC8	Eigth Sequential Sample
154	Lead	0.000	Classroom 21	CF027	CC9	Ninth Sequential Sample
155	Lead	0.000	Classroom 21	CF027	CC10	Tenth Sequential Sample
156						
157	Note: Results of "Not Detected" have been converted to a numerical value of zero to allow for ease of sorting					
158						
159	Results in RED exceed 15 ppb					
160	1 ppb = 0.001 mg\L					

	A	B	C	D	E	F
1	ANALYTE	RESULT (mg\L)	Sample Location	Sample Description	Site Code	Site Code Description
2	Copper	0.32	Classroom 12	CF022	P1	First Primary draw of 125 milliliters
3	Copper	0.17	Classroom 12	CF022	P2	Second Primary draw of 125 milliliters
4	Copper	0.15	Classroom 12	CF022	F01	Flush Sample taken 30 Seconds after Second Primary Draw
5	Copper	0.15	Classroom 12	CF022	F02	Flush Sample taken 2 minutes after First Flush Sample
6	Copper	0.09	Classroom 12	CF021	P1	First Primary draw of 125 milliliters
7	Copper	0.15	Classroom 12	CF021	P2	Second Primary draw of 125 milliliters
8	Copper	0.14	Classroom 12	CF021	F01	Flush Sample taken 30 Seconds after Second Primary Draw
9	Copper	0.15	Classroom 12	CF021	F02	Flush Sample taken 2 minutes after First Flush Sample
10	Copper	0.31	Classroom 5	CF009	P1	First Primary draw of 125 milliliters
11	Copper	0.28	Classroom 5	CF009	P2	Second Primary draw of 125 milliliters
12	Copper	0.08	Classroom 5	CF009	F01	Flush Sample taken 30 Seconds after Second Primary Draw
13	Copper	0.07	Classroom 5	CF009	F02	Flush Sample taken 2 minutes after First Flush Sample
14	Copper	0.43	Classroom 11	CF015	P1	First Primary draw of 125 milliliters
15	Copper	0.66	Classroom 11	CF015	P2	Second Primary draw of 125 milliliters
16	Copper	0.19	Classroom 11	CF015	F01	Flush Sample taken 30 Seconds after Second Primary Draw
17	Copper	0.13	Classroom 11	CF015	F02	Flush Sample taken 2 minutes after First Flush Sample
18	Copper	0.99	Classroom 11	CF016	P1	First Primary draw of 125 milliliters
19	Copper	0.89	Classroom 11	CF016	P2	Second Primary draw of 125 milliliters
20	Copper	0.16	Classroom 11	CF016	F01	Flush Sample taken 30 Seconds after Second Primary Draw
21	Copper	0.13	Classroom 11	CF016	F02	Flush Sample taken 2 minutes after First Flush Sample
22	Copper	0.19	Classroom 21	CF027	P1	First Primary draw of 125 milliliters
23	Copper	0.21	Classroom 21	CF027	P2	Second Primary draw of 125 milliliters
24	Copper	0.16	Classroom 21	CF027	F01	Flush Sample taken 30 Seconds after Second Primary Draw
25	Copper	0.15	Classroom 21	CF027	F02	Flush Sample taken 2 minutes after First Flush Sample
26	Copper	0.24	Classroom 6	CF010	P1	First Primary draw of 125 milliliters
27	Copper	0.22	Classroom 6	CF010	P2	Second Primary draw of 125 milliliters
28	Copper	0.17	Classroom 6	CF010	F01	Flush Sample taken 30 Seconds after Second Primary Draw

	A	B	C	D	E	F
29	Copper	0.12	Classroom 6	CF010	F02	Flush Sample taken 2 minutes after First Flush Sample
30	Copper	0.17	Classroom 21	CF028	P1	First Primary draw of 125 milliliters
31	Copper	0.16	Classroom 21	CF028	P2	Second Primary draw of 125 milliliters
32	Copper	0.15	Classroom 21	CF028	F01	Flush Sample taken 30 Seconds after Second Primary Draw
33	Copper	0.15	Classroom 21	CF028	F02	Flush Sample taken 2 minutes after First Flush Sample
34	Copper	0.23	Classroom 19	CF024	P1	First Primary draw of 125 milliliters
35	Copper	0.17	Classroom 19	CF024	P2	Second Primary draw of 125 milliliters
36	Copper	0.16	Classroom 19	CF024	F01	Flush Sample taken 30 Seconds after Second Primary Draw
37	Copper	0.16	Classroom 19	CF024	F02	Flush Sample taken 2 minutes after First Flush Sample
38	Copper	0.31	Community Room	KC003	P1	First Primary draw of 125 milliliters
39	Copper	0.27	Community Room	KC003	P2	Second Primary draw of 125 milliliters
40	Copper	0.14	Community Room	KC003	F01	Flush Sample taken 30 Seconds after Second Primary Draw
41	Copper	0.13	Community Room	KC003	F02	Flush Sample taken 2 minutes after First Flush Sample
42	Copper	0.13	Classroom 19	CF023	P1	First Primary draw of 125 milliliters
43	Copper	0.18	Classroom 19	CF023	P2	Second Primary draw of 125 milliliters
44	Copper	0.15	Classroom 19	CF023	F01	Flush Sample taken 30 Seconds after Second Primary Draw
45	Copper	0.15	Classroom 19	CF023	F02	Flush Sample taken 2 minutes after First Flush Sample
46	Copper	0.21	Hallway	DW002	P1	First Primary draw of 125 milliliters
47	Copper	0.10	Hallway	DW002	P2	Second Primary draw of 125 milliliters
48	Copper	0.07	Hallway	DW002	F01	Flush Sample taken 30 Seconds after Second Primary Draw
49	Copper	0.00	Hallway	DW002	F02	Flush Sample taken 2 minutes after First Flush Sample
50	Copper	0.23	Classroom 9	CF012	P1	First Primary draw of 125 milliliters
51	Copper	0.16	Classroom 9	CF012	P2	Second Primary draw of 125 milliliters
52	Copper	0.11	Classroom 9	CF012	F01	Flush Sample taken 30 Seconds after Second Primary Draw
53	Copper	0.08	Classroom 9	CF012	F02	Flush Sample taken 2 minutes after First Flush Sample
54	Copper	0.41	Hallway	DW001	P1	First Primary draw of 125 milliliters
55	Copper	0.29	Hallway	DW001	P2	Second Primary draw of 125 milliliters
56	Copper	0.17	Hallway	DW001	F01	Flush Sample taken 30 Seconds after Second Primary Draw

	A	B	C	D	E	F
57	Copper	0.00	Hallway	DW001	F02	Flush Sample taken 2 minutes after First Flush Sample
58	Copper	0.20	Classroom 15	CF018	P1	First Primary draw of 125 milliliters
59	Copper	0.17	Classroom 15	CF018	P2	Second Primary draw of 125 milliliters
60	Copper	0.14	Classroom 15	CF018	F01	Flush Sample taken 30 Seconds after Second Primary Draw
61	Copper	0.14	Classroom 15	CF018	F02	Flush Sample taken 2 minutes after First Flush Sample
62	Copper	0.17	Classroom 15	CF017	P1	First Primary draw of 125 milliliters
63	Copper	0.29	Classroom 15	CF017	P2	Second Primary draw of 125 milliliters
64	Copper	0.17	Classroom 15	CF017	F01	Flush Sample taken 30 Seconds after Second Primary Draw
65	Copper	0.15	Classroom 15	CF017	F02	Flush Sample taken 2 minutes after First Flush Sample
66	Copper	0.59	DHS Office	CF029	P1	First Primary draw of 125 milliliters
67	Copper	0.40	DHS Office	CF029	P2	Second Primary draw of 125 milliliters
68	Copper	0.08	DHS Office	CF029	F01	Flush Sample taken 30 Seconds after Second Primary Draw
69	Copper	0.00	DHS Office	CF029	F02	Flush Sample taken 2 minutes after First Flush Sample
70	Copper	0.28	Classroom 4	CF008	P1	First Primary draw of 125 milliliters
71	Copper	0.54	Classroom 4	CF008	P2	Second Primary draw of 125 milliliters
72	Copper	0.17	Classroom 4	CF008	F01	Flush Sample taken 30 Seconds after Second Primary Draw
73	Copper	0.15	Classroom 4	CF008	F02	Flush Sample taken 2 minutes after First Flush Sample
74	Copper	0.17	Classroom 3	CF007	P1	First Primary draw of 125 milliliters
75	Copper	0.27	Classroom 3	CF007	P2	Second Primary draw of 125 milliliters
76	Copper	0.09	Classroom 3	CF007	F01	Flush Sample taken 30 Seconds after Second Primary Draw
77	Copper	0.07	Classroom 3	CF007	F02	Flush Sample taken 2 minutes after First Flush Sample
78	Copper	0.11	Classroom 10	CF014	P1	First Primary draw of 125 milliliters
79	Copper	0.10	Classroom 10	CF014	P2	Second Primary draw of 125 milliliters
80	Copper	0.10	Classroom 10	CF014	F01	Flush Sample taken 30 Seconds after Second Primary Draw
81	Copper	0.08	Classroom 10	CF014	F02	Flush Sample taken 2 minutes after First Flush Sample
82	Copper	0.75	Classroom 14	CF026	P1	First Primary draw of 125 milliliters
83	Copper	0.66	Classroom 14	CF026	P2	Second Primary draw of 125 milliliters
84	Copper	0.35	Classroom 14	CF026	F01	Flush Sample taken 30 Seconds after Second Primary Draw

	A	B	C	D	E	F
85	Copper	0.20	Classroom 14	CF026	F02	Flush Sample taken 2 minutes after First Flush Sample
86	Copper	0.16	Classroom 17	CF019	P1	First Primary draw of 125 milliliters
87	Copper	0.15	Classroom 17	CF019	P2	Second Primary draw of 125 milliliters
88	Copper	0.14	Classroom 17	CF019	F01	Flush Sample taken 30 Seconds after Second Primary Draw
89	Copper	0.14	Classroom 17	CF019	F02	Flush Sample taken 2 minutes after First Flush Sample
90	Copper	0.14	Classroom 14	CF025	P1	First Primary draw of 125 milliliters
91	Copper	0.25	Classroom 14	CF025	P2	Second Primary draw of 125 milliliters
92	Copper	0.17	Classroom 14	CF025	F01	Flush Sample taken 30 Seconds after Second Primary Draw
93	Copper	0.18	Classroom 14	CF025	F02	Flush Sample taken 2 minutes after First Flush Sample
94	Copper	0.06	Classroom 10	CF013	P1	First Primary draw of 125 milliliters
95	Copper	0.07	Classroom 10	CF013	P2	Second Primary draw of 125 milliliters
96	Copper	0.19	Classroom 10	CF013	F01	Flush Sample taken 30 Seconds after Second Primary Draw
97	Copper	0.10	Classroom 10	CF013	F02	Flush Sample taken 2 minutes after First Flush Sample
98	Copper	0.19	Classroom 17	CF020	P1	First Primary draw of 125 milliliters
99	Copper	0.16	Classroom 17	CF020	P2	Second Primary draw of 125 milliliters
100	Copper	0.16	Classroom 17	CF020	F01	Flush Sample taken 30 Seconds after Second Primary Draw
101	Copper	0.14	Classroom 17	CF020	F02	Flush Sample taken 2 minutes after First Flush Sample
102	Copper	0.17	Classroom 2	CF006	P1	First Primary draw of 125 milliliters
103	Copper	0.22	Classroom 2	CF006	P2	Second Primary draw of 125 milliliters
104	Copper	0.11	Classroom 2	CF006	F01	Flush Sample taken 30 Seconds after Second Primary Draw
105	Copper	0.11	Classroom 2	CF006	F02	Flush Sample taken 2 minutes after First Flush Sample
106	Copper	0.20	Classroom 7	CF011	P1	First Primary draw of 125 milliliters
107	Copper	0.15	Classroom 7	CF011	P2	Second Primary draw of 125 milliliters
108	Copper	0.11	Classroom 7	CF011	F01	Flush Sample taken 30 Seconds after Second Primary Draw
109	Copper	0.06	Classroom 7	CF011	F02	Flush Sample taken 2 minutes after First Flush Sample
110	Copper	0.38	Proposed Pre K	CF031	P1	First Primary draw of 125 milliliters
111	Copper	0.21	Proposed Pre K	CF031	P2	Second Primary draw of 125 milliliters
112	Copper	0.27	Proposed Pre K	CF031	F01	Flush Sample taken 30 Seconds after Second Primary Draw

	A	B	C	D	E	F
113	Copper	0.19	Proposed Pre K	CF031	F02	Flush Sample taken 2 minutes after First Flush Sample
114	Copper	0.38	Proposed Pre K	CF030	P1	First Primary draw of 125 milliliters
115	Copper	0.42	Proposed Pre K	CF030	P2	Second Primary draw of 125 milliliters
116	Copper	0.59	Proposed Pre K	CF030	F01	Flush Sample taken 30 Seconds after Second Primary Draw
117	Copper	0.21	Proposed Pre K	CF030	F02	Flush Sample taken 2 minutes after First Flush Sample
118	Copper	0.27	Classroom 1	CF004	P1	First Primary draw of 125 milliliters
119	Copper	0.25	Classroom 1	CF004	P2	Second Primary draw of 125 milliliters
120	Copper	0.21	Classroom 1	CF004	F01	Flush Sample taken 30 Seconds after Second Primary Draw
121	Copper	0.08	Classroom 1	CF004	F02	Flush Sample taken 2 minutes after First Flush Sample
122	Copper	0.10	Classroom 1	DW005	P1	First Primary draw of 125 milliliters
123	Copper	0.09	Classroom 1	DW005	P2	Second Primary draw of 125 milliliters
124	Copper	0.09	Classroom 1	DW005	F01	Flush Sample taken 30 Seconds after Second Primary Draw
125	Copper	0.06	Classroom 1	DW005	F02	Flush Sample taken 2 minutes after First Flush Sample
126	Copper	0.45	Proposed Pre K	CF030	CA1	First Sequential Sample
127	Copper	0.37	Proposed Pre K	CF030	CA2	Second Sequential Sample
128	Copper	0.22	Proposed Pre K	CF030	CA3	Third Sequential Sample
129	Copper	0.22	Proposed Pre K	CF030	CA4	Forth Sequential Sample
130	Copper	0.21	Proposed Pre K	CF030	CA5	Fifth Sequential Sample
131	Copper	0.21	Proposed Pre K	CF030	CA6	Sixth Sequential Sample
132	Copper	0.20	Proposed Pre K	CF030	CA7	Seventh Sequential Sample
133	Copper	0.20	Proposed Pre K	CF030	CA8	Eigth Sequential Sample
134	Copper	0.20	Proposed Pre K	CF030	CA9	Ninth Sequential Sample
135	Copper	0.20	Proposed Pre K	CF030	CA10	Tenth Sequential Sample
136	Copper	0.40	Classroom 11	CF015	CB1	First Sequential Sample
137	Copper	0.14	Classroom 11	CF015	CB2	Second Sequential Sample
138	Copper	0.13	Classroom 11	CF015	CB3	Third Sequential Sample
139	Copper	0.13	Classroom 11	CF015	CB4	Forth Sequential Sample
140	Copper	0.13	Classroom 11	CF015	CB5	Fifth Sequential Sample
141	Copper	0.13	Classroom 11	CF015	CB6	Sixth Sequential Sample
142	Copper	0.13	Classroom 11	CF015	CB7	Seventh Sequential Sample
143	Copper	0.12	Classroom 11	CF015	CB8	Eigth Sequential Sample
144	Copper	0.12	Classroom 11	CF015	CB9	Ninth Sequential Sample
145	Copper	0.12	Classroom 11	CF015	CB10	Tenth Sequential Sample
146	Copper	0.16	Classroom 21	CF027	CC1	First Sequential Sample
147	Copper	0.14	Classroom 21	CF027	CC2	Second Sequential Sample

	A	B	C	D	E	F
148	Copper	0.14	Classroom 21	CF027	CC3	Third Sequential Sample
149	Copper	0.14	Classroom 21	CF027	CC4	Forth Sequential Sample
150	Copper	0.14	Classroom 21	CF027	CC5	Fifth Sequential Sample
151	Copper	0.15	Classroom 21	CF027	CC6	Sixth Sequential Sample
152	Copper	0.15	Classroom 21	CF027	CC7	Seventh Sequential Sample
153	Copper	0.15	Classroom 21	CF027	CC8	Eigth Sequential Sample
154	Copper	0.15	Classroom 21	CF027	CC9	Ninth Sequential Sample
155	Copper	0.15	Classroom 21	CF027	CC10	Tenth Sequential Sample
156						
157	Note: Results of "Not Detected" have been converted to a numerical value of zero to allow for ease of sorting					
158						
159	None of the results for Copper exceeded 1.3 PPM					
160	1 ppb = 0.001 mg\L					

From: Sygo, Jim (DEQ)
Sent: Friday, November 13, 2015 4:05 PM
To: Kaplan, Robert (kaplan.robert@epa.gov)
Subject: Flint Drinking Water Lead/Copper Sampling Instructions
Attachments: Letter to Addressed to Resident.pdf

Attached is the proposed language proposed by the City of Flint for their next sampling effort.
Please provide any comments that you or task force members may have by close of business November 20, 2015.

Dear Resident,

The City of Flint Utility Division has recently amended our lead and copper testing procedure and are now using a NO-FLUSH protocol. The new method is designed to provide a more accurate gauge of the amount of lead exposure that may exist in the plumbing.

We are requesting that all residents who have had their water tested for lead and copper submit to another test so that we may provide you with a current report. The City has multiple methods available for you to arrange another water test, obtain a water filter, or a replacement cartridge:

1) Call the Water Treatment Plant at 810-787-6537
2) Call Our DPW Service Specialist at 810-766-7105 x 2606
3) Email flintwater@cityofflint.com
4) Come in to the INFORMATION window in the Lobby of City Hall

Bottles for water testing can be picked up at the Water Treatment Plant or at City Hall. You may also arrange for bottles to be delivered to your individual home or business. We ask that you please encourage other neighbors and residents to get their water tested as well by sharing this information with them.

Thank you,

Sincerely,

Mike Glasgow
Utilities Administrator
810-787-6537 x 3512

Howard Croft
Public Works Director
810-766-7346 x 2043

Drinking Water Lead & Copper Sampling Instructions

Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. It is important that you follow these instructions so that we may collect an accurate measurement of the lead and copper in your drinking water. This sample is supposed to represent the water you would typically drink and the faucet from where you would drink the water. Call your water supply if you have any questions.

1. Select a faucet in the KITCHEN or BATHROOM that is commonly used for drinking. DO NOT sample from a laundry sink or a hose spigot as these samples cannot be used by your utility.

2. Wait at least 6 hours before collecting your sample but we do not recommend sampling if the faucet has sat idle for more than 12 hours.

3. Fill the sample bottle to the neck with the "first draw" of COLD water.

4. Please answer the following questions:

a) What date and time did you **fill the bottle**? Date _____ Time _____ A.M.

b) Which faucet did you use to fill the bottle? ☐ Kitchen ☐ Main Bathroom ☐ Other
If OTHER, please describe: _____

C) Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? ☐ Yes ☐ No
If YES, please describe: _____

Your Printed Name _____

Your Address _____

_____

Your Signature _____

5. Attach this form to the bottle and leave it outside your front door and call to arrange pick up.

If you have any questions about sampling call:

Water Supply: City of Flint

Manager or Water Operator: Brent Wright

Phone: (810) 787-6537

To schedule sample pick up call:

Wendy Braun: (810) 766-7135 ext. 2606

Thanks again for your help. Information on this year's lead and copper monitoring will be printed in the *Consumer Confidence Report* that will be made available to you by July 1 of next year. We will send you the results within 30 days of receiving them. Contact your utility if you have any questions.

From: Sygo, Jim (DEQ)
Sent: Wednesday, November 18, 2015 11:52 AM
To: Kaplan, Robert (kaplan.robert@epa.gov)
Subject: HHS Protocol for sampling homes that have blood levels over 5
Attachments: Draft EBL Water Protocol 18Nov15.docx

Bob,
Attached is the proposed protocol to be utilized for the sampling of homes where children with blood serum levels over 5 have been identified. These homes will be evaluated completely by HHS for
sources of lead exposure. If the task force has any comments please try to get them to me by November 24.

Please do not release outside of EPA until the protocol is final.

We are working on the protocol for LCR sampling that the city will use for their next collection period and should have that to you for comments by the end of the week.

DRAFT – WORK IN PROGRESS

Protocol for Collecting Residential Drinking Water Samples for Lead Analysis

The following protocol will be used by the Michigan Department of Health and Human Services (MDHHS) to ensure that residential drinking water samples are collected in a systematic, consistent manner as part of an elevated blood lead (EBL) investigation. The results will be used to evaluate human exposure to lead in household drinking water and to identify plumbing components that are contributing lead to household drinking water.

MDHHS will:

- Collect water samples from the kitchen faucet used for drinking and cooking; a secondary faucet, most likely a bathroom sink; and any additional faucets based on frequency of use for consumptive purposes.
- Collect two small volume [125 milliliter (mL)] first-draw samples from selected cold faucet to evaluate exposure to lead in drinking water.
- Collect ten large volume [1 liter (L)] sequential samples from the kitchen cold faucet to identify plumbing components that are contributing lead to the household water supply.
- Incorporate the results of water testing into the EBL investigation report.

Before the EBL Inspection

Obtain information about the age of the house and any building additions. Identify if there are any records of previous water testing in the past two years. If possible, obtain information about the materials used in the water service line (lead, galvanized, copper or plastic).

Instruct residents not use any water in the house for any purpose (including toilet flushing) for at least 6 hours prior to sample collection.

Step 1 – Prior to Sample Collection

Sampling staff should confirm upon arrival at the home that no water has been used in the home for at least 6 hours prior to sample collection.

Step 2 – Identify and Label the Sample Faucets

- Identify the primary cold kitchen faucet.
- Identify a secondary cold faucet based on use: most likely a bathroom sink.
- Identify any additional cold faucets that are frequently used.

Identify each sampling location on the interior floor plan. Document each sampling location with digital photos, including the connections beneath the sink. Note the presence of any potential brass components or treatment devices, and whether the faucet has an aerator. Document other noteworthy items for each location such as leaky faucet, rust stained sink, etc. Document any exposed plumbing in the basement, if possible.

If a temporary in-line filter is installed on the faucet, use the by-pass lever to collect unfiltered water samples. A whole house filter does not preclude sampling, as this is a permanent filter and representative of actual exposure.

Each water sample must be given a unique identification (ID) code that identifies the location of the faucet, the sample volume, and the order of sample collection.

Faucet location is indicated as follows:

- KF = kitchen faucet, cold
- BF = bathroom faucet, cold
- OF = other faucet, cold (specify type)

The two 125-mL first draw samples are labeled in order of collection P1 and P2. For example, the ID codes for the bathroom faucet samples would be BF-P1 and BF-P2.

The 10 large volume 1-L sequential samples collected from the kitchen faucet are labeled A1 through A10. For example, the first sequential sample at the kitchen faucet is labeled KF-A1, the second is labeled KF-A2 ... through KF-A10.

Step 3 – Collect the Small Volume Samples

Before sample collection:

1. Write the assigned ID code on each sample bottle's green label using a black Ultra Fine Point Sharpie permanent marker. To ensure clarity for the DEQ lab, draw a slash mark through each zero, the number one is a straight vertical line (no hat or foot), and cross each number seven.
2. Next, remove the cap from each bottle and label using a red Fine Point Sharpie permanent marker. Write '1' on the white cap of the bottle marked as P1; write '2' on the cap of the bottle marked as P2. Caps must be placed open side up to avoid contamination when not on the bottle.
3. Complete the *Request for Analysis* forms for each sample using a pen, pencil or black Sharpie. If the Lead and Copper analyses is not already selected, mark as 32CC for the 125-mL samples.

Collect 125-mL samples from all secondary faucets before collecting any samples from the primary kitchen faucet. Collect the P1 sample as the very first-draw from each faucet, followed by the P2 sample.

DO NOT REMOVE THE AERATOR IF THERE IS ONE, but make a notation that there is an aerator present.

Sample collection:

1. Place the P1 bottle under the faucet, open the faucet to produce a moderate, steady stream and fill the first bottle to the appropriate level. Immediately fill the P2 bottle without a break in the stream (do not turn off the faucet between the first and

second bottle and do not allow water to run down the drain in between the first and second bottle if at all possible).

2. Turn off faucet. Cap each sample bottle making sure to match the P1 sample to the '1' white cap, and the P2 sample to the '2' white cap.

3. Secure the appropriate request for water analysis form to each bottle (refer to the example bottle provided for "instructions") with a rubber band.

4. Bundle the P1 and P2 samples collected at each faucet (after the proper paperwork has been banded to each bottle) and secure them together with a single rubber band.

Step 4 – Collect the Large Volume Samples

After all 125-mL samples have been collected; collect ten sequential 1-L samples from the kitchen cold faucet.

Before sample collection:

1. Write the assigned ID code on each sample bottle's green label using a black Ultra Fine Point Sharpie permanent marker. To ensure clarity for the DEQ lab, draw a slash mark through each zero, the number one is a straight vertical line (no hat or foot), and cross each number seven.

2. Next, remove the cap from each bottle and label using a red Fine Point Sharpie permanent marker. Write 1 through 10 on the white caps of the 1-L bottles for the A1 through A10 sequential samples. Caps must be placed open side up to avoid contamination when not on the bottle.

3. Complete the Request for Analysis forms for each sample using a pen, pencil or black Sharpie. If the Lead and Copper analyses is not already selected, mark as 36CC for the 1-L samples.

Sample collection:

1. Place the A1 bottle under the faucet, open the faucet to produce a moderate, steady stream and fill the first bottle to the appropriate level. Immediately fill bottles A2 to A10 consecutively without a break in the stream (do not turn off the faucet between bottles and do not allow water to run down the drain between the bottles).

2. After all 1-L samples are collected, turn off faucet. Cap each sample bottle making sure to match the A1 sample to the '1' white cap, the A2 sample to the '2' white cap and so forth.

3. Secure the appropriate request for water analysis form to each bottle (refer to the example bottle provided for "instructions") with a rubber band.

Step 5 - Deliver all sample bottles to the DEQ Drinking Water Laboratory.

The DEQ Drinking Water Laboratory will analyze all water samples in accordance with the Laboratory Services Standard Operating Procedure (SOP) Document SOP #800 Revision #4 Effective Date 10/2015.

Applicable analytical methods will be in accordance with the *Method for Determination of Metals in Environmental Samples, Supplement I,* U.S. Environmental Protection Agency, Method 200.8, 1999 Revision 5.5.

All Method Detection Limits shall be performed according to Title 40 of the Code of Federal Regulations, Part 136, Guidelines Establishing Testing Procedures for the Analysis of Pollutants, Appendix B, Definition and Procedure for the Determination of the Method Detection Limit.

Analytical quality control will be in accordance with SOP #800 Revision #4.

From: Kaplan, Robert <kaplan.robert@epa.gov>
Sent: Wednesday, November 18, 2015 11:55 AM
To: Sygo, Jim (DEQ)
Subject: RE: HHS Protocol for sampling homes that have blood levels over 5

Jim,

Got it, thanks. We will not release, and we will be able to meet your schedule without a problem.

Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: PPI
Fax: (312) 692-2075

From: Sygo, Jim (DEQ) [mailto:SygoJ@michigan.gov]
Sent: Wednesday, November 18, 2015 10:52 AM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Subject: HHS Protocol for sampling homes that have blood levels over 5

Bob,
Attached is the proposed protocol to be utilized for the sampling of homes where children with blood serum levels over 5 have been identified. These homes will be evaluated completely by HHS for sources of lead exposure. If the task force has any comments please try to get them to me by November 24.

Please do not release outside of EPA until the protocol is final.

We are working on the protocol for LCR sampling that the city will use for their next collection period and should have that to you for comments by the end of the week.

From: Shaler, Karen (DEQ)
Sent: Friday, November 20, 2015 1:37 PM
To: Sygo, Jim (DEQ)
Subject: PDF
Attachments: Notices to Flint Residents.pdf

Please see attached.

Drinking Water Lead & Copper Sampling Instructions

Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. It is important that you follow these instructions so that we may collect an accurate measurement of the lead and copper in your drinking water. This sample is supposed to represent the water you would typically drink and the faucet from where you would drink the water. Call your water supply if you have any questions.

1. Select a faucet in the KITCHEN or BATHROOM that is commonly used for drinking. DO NOT sample from a laundry sink or a hose spigot as these samples cannot be used by your utility.

2. Wait at least 6 hours before collecting your sample but we do not recommend sampling if the faucet has sat idle for more than 12 hours. (Samples taken with a stagnation greater than 18 Hours may not be analyzed

3. Fill the sample bottle to the neck with the "first draw" of COLD water.

4. Please answer the following questions:

a) What date and time did you **fill the bottle**? Date _____ Time _____ A.M.

b) Which faucet did you use to fill the bottle? ☐ Kitchen ☐ Main Bathroom ☐ Other
If OTHER, please describe: _____

C) Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? ☐ Yes ☐ No
If YES, please describe: _____

Your Printed Name _____

Your Address _____

_____

Your Signature _____

5. Attach this form to the bottle and leave it outside your front door and call to arrange pick up.

If you have any questions about sampling call: To schedule sample pick up call:

Water Supply: City of Flint Wendy Braun: (810) 766-7135 ext. 2606

Manager or Water Operator: Brent Wright 2nd sentence

Phone: (810) 787-6537 If your sample is part of

3rd sentence Compliance information

~~Thanks~~ Information on this year's lead and copper monitoring will be printed in the *Consumer Confidence Report* that will be made available to you by July 1 of next year. We will send you the results within 30 days of receiving them. Contact your utility if you have any questions. 5th sentence

Since not all samples can be used for compliance determination, probably need different language here.

Dear Resident,

The City of Flint Utility Division has recently amended our lead and copper testing procedure and are now using a NO-FLUSH protocol. ~~The new method is designed to provide a more accurate gauge of the amount of lead exposure that may exist in the plumbing.~~

We are requesting that all residents who have had their water tested for lead and copper submit to another test so that we may provide you with a current report. The City has multiple methods available for you to arrange another water test, obtain a water filter, or a replacement cartridge:

1) Call the Water Treatment Plant at 810-787-6537
2) Call Our DPW Service Specialist at 810-766-7105 x 2606
3) Email flintwater@cityofflint.com
4) Come in to the INFORMATION window in the Lobby of City Hall

Bottles for water testing can be picked up at the Water Treatment Plant or at City Hall. You may also arrange for bottles to be delivered to your individual home ~~or business~~. We ask that you please encourage other neighbors and residents to get their water tested as well by sharing this information with them.

Thank you,

Sincerely,

Mike Glasgow
Utilities Administrator
810-787-6537 x 3512

Howard Croft
Public Works Director
810-766-7346 x 2043

From: Sygo, Jim (DEQ)
Sent: Friday, November 20, 2015 2:14 PM
To: Kaplan, Robert (kaplan.robert@epa.gov)
Subject: Compliance Monitoring Instructions For Flint's next testing period.
Attachments: Notices to Flint Residents.pdf

Bob,
Attached is a document and letter that Howard put together before he left. This is based on the discussion at the last TAC meeting.
My staff have provided several recommended changes, but we also want the Task Force to weigh in.
Remember this document will be used for Flint's Compliance Monitoring under the LCR starting in January.

Today Flint advised that they will be having a contractor identify Tier 1 sites with lead lines to me monitored.

If you could have this back to us by December 4, 2015 that would be appreciated.

Drinking Water Lead & Copper Sampling Instructions

Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. It is important that you follow these instructions so that we may collect an accurate measurement of the lead and copper in your drinking water. This sample is supposed to represent the water you would typically drink and the faucet from where you would drink the water. Call your water supply if you have any questions.

1. Select a faucet in the KITCHEN or BATHROOM that is commonly used for drinking. DO NOT sample from a laundry sink or a hose spigot as these samples cannot be used by your utility.

2. Wait at least 6 hours before collecting your sample but we do not recommend sampling if the faucet has sat idle for more than 12 hours. (Sample taken with a stagnation greater than 18 Hours may not be analyzed

3. Fill the sample bottle to the neck with the "first draw" of COLD water.

4. Please answer the following questions:

a) What date and time did you **fill the bottle**? Date _____ Time _____ A.M.

b) Which faucet did you use to fill the bottle? ☐ Kitchen ☐ Main Bathroom ☐ Other
If OTHER, please describe: _____

C) Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? ☐ Yes ☐ No
If YES, please describe: _____

Your Printed Name _____

Your Address _____

_____

Your Signature _____

5. Attach this form to the bottle and leave it outside your front door and call to arrange pick up.

If you have any questions about sampling call: To schedule sample pick up call:

Water Supply:	City of Flint	Wendy Braun: (810) 766-7135 ext. 2606
Manager or Water Operator:	Brent Wright	
Phone:	(810) 787-6537	

~~Information~~ on this year's lead and copper monitoring will be printed in the *Consumer Confidence Report* that will be made available to you by July 1 of next year. We will send you the results within 30 days of receiving them. Contact your utility if you have any questions.

Thanks again for your help.

2nd sentence
If your sample is part of compliance

3rd sentence

Information

Since not all samples can be used for compliance determination, probably need different language here.

Dear Resident,

The City of Flint Utility Division has recently amended our lead and copper testing procedure and are now using a NO-FLUSH protocol. ~~The new method is designed to provide a more accurate gauge of the amount of lead exposure that may exist in the plumbing.~~

We are requesting that all residents who have had their water tested for lead and copper submit to another test so that we may provide you with a current report. The City has multiple methods available for you to arrange another water test, obtain a water filter, or a replacement cartridge:

1) Call the Water Treatment Plant at 810-787-6537
2) Call Our DPW Service Specialist at 810-766-7105 x 2606
3) Email flintwater@cityofflint.com
4) Come in to the INFORMATION window in the Lobby of City Hall

Bottles for water testing can be picked up at the Water Treatment Plant or at City Hall. You may also arrange for bottles to be delivered to your individual home ~~or business~~. We ask that you please encourage other neighbors and residents to get their water tested as well by sharing this information with them.

Thank you,

Sincerely,

Mike Glasgow
Utilities Administrator
810-787-6537 x 3512

Howard Croft
Public Works Director
810-766-7346 x 2043

From: Groetsch, Kory J. (DHHS)
Sent: Tuesday, November 24, 2015 11:27 AM
To: Sygo, Jim (DEQ);Busch, Stephen (DEQ);Shekter Smith, Liane (DEQ)
Cc: Dykema, Linda D. (DHHS)
Subject: MDHHS - draft Phosphate Factsheet - Request - [Preliminary and Deliberative Draft - not subject to FOIA]
Attachments: 2015-11-24 - Phosphate in Flint 05 DRAFT.PDF

Hello Jim, Liane, and Stephen,

MDHHS has created a one-page Phosphate factsheet that is in the final stages of review.

We would appreciate your review of this statement:

> **The City of Flint, MDEQ, and the EPA worked together to find how much phosphate is needed to help quickly coat the pipes with scale.**

Is it accurate to include MDEQ and/or US EPA in this statement?

We are always open to additional comments and edits, if you have them.

We appreciate your attention to this request.

Kory Groetsch, MS , Manager
Toxicology and Response Section
Michigan Dept of Health and Human Services (MDHHS)
201 Townsend St.
Lansing, MI 48913
517-335-9935
groetschk@michigan.gov

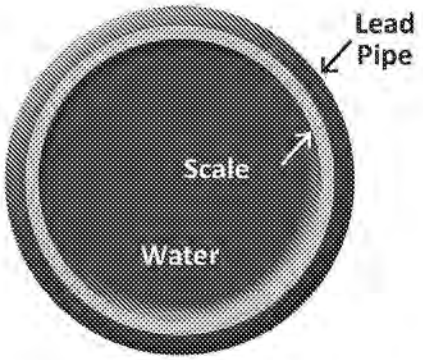
Genesee County Health Department

Frequently Asked Questions About Adding Phosphate to Flint Water

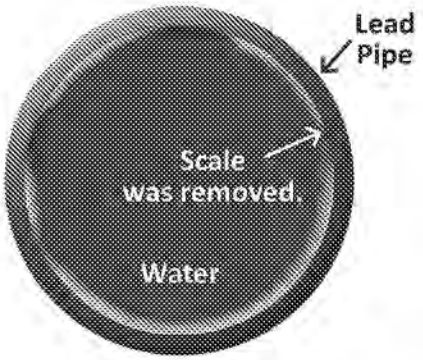
MDHHS Michigan Department of Health & Human Services

Why is phosphate being added to our water?

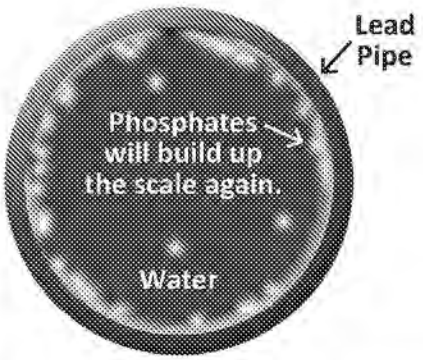
- Homes built before 1986 are more likely to have lead service lines and pipes. Brass faucets and certain kinds of solder could also have lead in them.
- The lead found in tap water in the City of Flint is from these older pipes, solder, and faucets.



- Over the years, minerals in our water have built up on our water pipes. This kept the water from actually touching the pipes.
- This mineral build-up is called scale.
- This scale helped to keep a lot of lead from the pipes out of our water.



- The chemicals added to the Flint River water to make it drinkable also removed some of the scale.
- Less scale means that the water can touch the pipes again. If there is lead in the pipes, it can get into water.



- This is why some houses with older pipes or service lines have lead in the water.
- Adding extra phosphate to the water will let the scale build back up on the pipes faster than just waiting for it to happen again naturally.

Learn About Phosphate

- **Phosphorus is a natural mineral that your body needs. It works with calcium to keep your bones strong and healthy.**
- **Phosphate is a type of salt that has phosphorus in it.**
- **Extra phosphate is being added to the water in the City of Flint to help put the scale back on the pipes.**
- **The City of Flint, MDEQ, and the EPA worked together to find how much phosphate is needed to help quickly coat the pipes with scale.**
- **The levels of phosphate in your drinking water should be safe for everyone.**
- **Continue to use water filters that remove lead until the scale is built back up and the Genesee County Health Department's Public Health Emergency Declaration is removed.**

If you have questions about the phosphate being added to City of Flint water, please call the Flint Water Department at 810-787-6537.
If you have questions about phosphates and your health, please call MDHHS at 1-800-648-6942.

From: Thelen, Mary Beth (DEQ)
Sent: Thursday, December 03, 2015 3:20 PM
To: Sygo, Jim (DEQ)
Cc: Thelen, Mary Beth (DEQ)
Subject: FW: DAN WYANT: STOP SCREWING AROUND. WAS THE MDEQ EMAIL TO LEE-ANNE WALTERS EVER SENT? YES OR NO?
Attachments: LeeAnne email.docx

For Jim's review.

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, December 03, 2015 12:07 PM
To: Andrew Leavitt; Wyant, Dan (DEQ); Dickinson, Jordan
Subject: DAN WYANT: STOP SCREWING AROUND. WAS THE MDEQ EMAIL TO LEE-ANNE WALTERS EVER SENT? YES OR NO?

Dear Dan,

Months back my FOIA of MDEQ revealed a surprising letter that your employees supposedly mailed to Lee-Anne Walters.
I immediately had a suspicion that this e-mail was a fraud.
In fact, on October 15th and 16th, I immediately and point blank (URGENT REQUEST) asked you whether that e-mail was ever sent.
Dan, you refused to answer my urgent direct question about the e-mail.

So I then submitted a FOIA and paid several hundred dollars, asking for the MDEQ e-mails that would prove the e-mail to Lee-Anne was actually sent. In the e-mail (see attached), not only is Lee-Anne Walter's cc'd, but other MDEQ employees are also cc'd. Would you agree that if the e-mail was ACTUALLY sent from Shektor-Smith to Lee-Anne, that it also had to appear in the mailbox of the other MDEQ employees. **Yet, in the new FOIA, there is no e-mail from your employees that shows they received the e-mail. Even though this is what I explicitly asked for.**

DOES THIS MEAN THE EMAIL WAS NEVER SENT? If so, why is an EMAIL that was never sent, in my FOIA?
If it was sent, where is my proof via FOIA, that another MDEQ employee actually received it? Lee-Anne says that she never received it.

Dan, what your employees did here was truly diabolical and pathological.
If you will not answer my direct question, you are part of it.

Marc

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Friday, October 16, 2015 3:06 PM
To: WyantD@michigan.gov; lwalters313@gmail.com; Andrew Leavitt (ALeavitt@senate.michigan.gov); Melissa Mays (indigrace@gmail.com); Dickinson, Jordan (Jordan.Dickinson@mail.house.gov)
Subject: RE: Urgent Request for Clarification: Letter to Lee-Anne Walters and justification for invalidating her samples.

Dear Dan,

I spoke with Lee-Anne, and it was Harvey Hollins that ordered MDEQ to respond to Lee-Anne in writing, about the reason for invalidating her samples, not the deputy chief of staff.
http://www.michigan.gov/snyder/0,4668,7-277-57577_57657_59871-260098--,00.html

Also, I asked Lee-Anne what she would have done, **IF she had received that e-mail from MDEQ about her invalidated samples.** She said one of the last things Miguel told her, was to be sure that MDEQ did not invalidate her samples. So if that e-mail had been received, which it was not, she would have screamed from the roof-top. How convenient it was not received.

Your employee's also told Lee-Anne and Melissa, at the August 4th meeting, **that they had no idea why her samples were invalidated. And that the City of Flint invalidated her samples.** This is also a lie. The e-mails have already shown that MDEQ employees led the invalidation of the samples. There is not a word from the City of Flint asking to invalidate Lee-Anne's samples.

My point is that if all of these shenanigans are not "wrong-doing," then what on earth is? If two of Lee-Anne's high lead samples are counted, Flint fails to meet the LCR, even with Flint just "throwing bottles out there," no sampling pool, a 5 minute pre-flush, and sampling in many homes like Melissa without any lead plumbing at all. People would have been protected. Corrosion control would have been required. Nobody would be running around, to this day, claiming in a city of lead poisoned children, that FLINT is meeting all Federal regulations, and that Flint is meeting the LCR. That false statement been a staple of almost every MDEQ press conference in the last few months. Your employee's made that happen.

Marc

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, October 15, 2015 10:44 AM
To: WyantD@michigan.gov; lwalters313@gmail.com; Andrew Leavitt (ALeavitt@senate.michigan.gov); Melissa Mays (indigrace@gmail.com); Dickinson, Jordan (Jordan.Dickinson@mail.house.gov)
Subject: Urgent Request for Clarification: Letter to Lee-Anne Walters and justification for invalidating her samples.

Hi Dan,

Thank you for your help (if any) with the MDEQ FOIA. I received the documents last night. I was hoping you could help me with something ASAP.

One of the things creating distrust between Flint residents and MDEQ, is a long list of miscommunications and false statements by your employees. I want you to help us understand one of those miscommunications as soon as possible.

On August 4th your employee's Wurfel, Busch and Shekter Smith met with Melissa and Lee-Anne. According to Melissa and Lee-Anne, in a meeting with the governor's Chief of Staff, your employee's could not explain to them, why Lee-Anne's samples were invalidated (i.e., thrown out of the samples used to calculate the 90%'ile lead).

For your information, on the basis of records from the City, **Lee-Anne's home is the ONLY home in the 2015 sampling pool that is proven to have a lead pipe.** I have compared the sample sites that the city used to the database that Flint has put together, **and of 11 samples in the database that the city claims had a lead pipe, ZERO actually had a lead pipe.** Michigan and Federal law further states that if a sample is taken from a home with a lead pipe, **even if it has a point of use device like a filter or softener,** once that sample is collected it cannot be invalidated (see below). EPA R5 staff explicitly told your employee's in writing, that Lee-Anne's samples had to be counted for compliance purposes. **Your employee's nonetheless, over R5's written instructions and the law, threw out the only Flint LCR samples known to be legitimate in the 2015 sampling round.** They also double counted Melissa's samples for LCR compliance purposes, even though her house does not have a lead pipe, and has no lead plumbing. So I hope you can see the "adding insult to injury" dimension of your employee's actions. The irony-- using samples from the chief critics

of MDEQ, to cheat on the LCR monitoring. Specifically, counting a lead free site twice (when it should not be counted at all), and throwing out three samples from the only home known to have lead pipe. We also now have data that shows every single sample we could check in the 2015 round, did not have a lead pipe at all.

Furthermore, according to Melissa and Lee-Anne, the Governors chief of staff ordered your employee's, to as soon as possible, communicate to Lee-Anne why her samples were invalidated. According to Melissa and Lee-Anne, the governor's chief of staff further ordered your employees to "CC" him on that communication. The governor's chief of staff also apparently asked them to get Lee-Anne's address and phone number, so that they could be sure their communication got to her, and they refused, and insisted they had all of Leigh-Anne's information.

In the FOIA production, I was surprised to see that there is an e-mail to Lee-Anne dated August 25th. This is surprising because Lee-Anne never received that e-mail. Moreover, there is an apology to Lee-Anne that the e-mail is late, and furthermore, the chief of staff is not cc'd. Lee-Anne has looked in her spam and other files, and there is no evidence that this late e-mail ever reached her.

I am hoping you can get to the bottom of this, and see first of all 1) why the chief of staff was not cc'd as requested, 2) if this e-mail was actually sent, and produce some evidence that it was, and 3) try to understand why your employee's illegally invalidated Lee-Anne's samples over the objections of EPA and Lee-Anne. And I am hoping you can do this today. My understanding is that you are out and about trying to re-establish public trust in MDEQ, and this would be a good place to start.

Best Regards,

Marc Edwards

From: Shekter Smith, Liane (DEQ)
Sent: Tuesday, August 25, 2015 1:56 PM
To: lwalters313@gmail.com
Cc: Busch, Stephen (DEQ); Devereaux, Tracy Jo (DEQ)
Subject: Follow Up from our Aug. 4th meeting

Dear Ms. Walters,

I wanted to update you regarding our Department's findings related to questions raised during our meeting at the Governor's office on August 4. I apologize for the delay in getting back to you.

Lead and Copper Monitoring

Regarding Flint lead and copper compliance monitoring for the January – June 2015 period, the City has confirmed that all lead and copper samples collected throughout the City, whether routine sites or customer requests, were sent to the State of Michigan lab for analysis. Individual sample results are provided to the property owner within 30 days of receiving the lab results in accordance with the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 410(5). Results from the State of Michigan lab are provided directly to our Office.

Staff have confirmed that the lead 90th percentile compliance calculation of 11 parts per billion is based on 69 samples that met the appropriate sampling location site criteria, and met the sample collection site and collection protocol requirements of the Safe Drinking Water Act for this monitoring period. A minimum of 60 samples were required for this monitoring period. As indicated during the meeting, the City's sampling for lead complies with the Action Level standard of 15 parts per billion, but based on the population served by the City and these results, the City will need to make a recommendation to the MDEQ on how they will fully optimize their corrosion control treatment. These next steps continue to follow the requirements of the Lead and Copper Rule.

From: Kaplan, Robert <kaplan.robert@epa.gov>
Sent: Friday, December 04, 2015 3:18 PM
To: Sygo, Jim (DEQ)
Subject: Attached -- Task Force Comments on Residential Sampling Protocol
Attachments: Task Force Comments on MDHHS Residential Sampling Protocol 12-4-15.pdf

Jim,

Thanks for giving the Task Force the opportunity to comment on the Residential Sampling Protocol. I've attached EPA's comments.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: PPI
Fax: (312) 692-2075

From: Kaplan, Robert <kaplan.robert@epa.gov>
Sent: Wednesday, December 09, 2015 3:53 PM
To: Sygo, Jim (DEQ)
Subject: RE: Phosphate Feed System

Jim,

Hurray! Thanks for letting me know. That is great news.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: PPI
Fax: (312) 692-2075

From: Sygo, Jim (DEQ) [mailto:SygoJ@michigan.gov]
Sent: Wednesday, December 09, 2015 2:14 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Subject: Fwd: Phosphate Feed System

FYI

Sent from my iPhone

Begin forwarded message:

From: "Prysby, Mike (DEQ)" <PRYSBYM@michigan.gov>
Date: December 9, 2015 at 3:07:03 PM EST
To: "Krisztian, George (DEQ)" <krisztiang@michigan.gov>, "Shekter Smith, Liane (DEQ)" <SHEKTERL@michigan.gov>, "Sygo, Jim (DEQ)" <SygoJ@michigan.gov>
Subject: FW: Phosphate Feed System

Below is an update on the status of the corrosion control treatment system at the Flint WTP.

Michael Prysby, P.E.
District Engineer
Office of Drinking Water and Municipal Assistance
517 290-8817

From: Brent Wright [mailto:bwright@cityofflint.com]
Sent: Wednesday, December 09, 2015 2:37 PM
To: Prysby, Mike (DEQ)
Cc: Rosenthal, Adam (DEQ); Busch, Stephen (DEQ); Michael Glasgow; Natasha Henderson
Subject: Phosphate Feed System

Mike,

As of 1:45pm today the Phosphate feed system at the Water Plant is up and running. The feed rate is set at 2.5mg/l as PO4-3. If you have any questions please give me a call.

Thank you.

--

Brent Wright
Water Plant Supervisor
City of Flint
4500 N. Dort Hwy.
Flint, MI. 48505
Ph: 810.787.6537 ext. 3510
Fx: 810.787.3710

From: Kaplan, Robert <kaplan.robert@epa.gov>
Sent: Wednesday, December 09, 2015 5:19 PM
To: Natasha Henderson;Sygo, Jim (DEQ)
Cc: Michael Glasgow
Subject: RE: Update on feeding orthophosphate?

Natasha, thanks very much for letting us know. That's good news. Congrats to you and your team for making this happen.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: PPI
Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Wednesday, December 09, 2015 4:15 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>; Sygo, Jim (DEQ) <SygoJ@michigan.gov>
Cc: Michael Glasgow <mglasgow@cityofflint.com>
Subject: RE: Update on feeding orthophosphate?

Hello Bob,

We are feeding phosphate as of 1:45 p.m. today. Just wanted to make sure you know, as we did not have this information during the conference call.

Thanks,

Natasha L. Henderson, City Administrator
1101 S. Saginaw St.
Flint, MI
Email: nhenderson@cityofflint.com
Phone: (810) 237-2057
www.cityofflint.com

On Dec 8, 2015 2:59 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Thanks for the update.

Any ETA? Do you think this week? Tomorrow? I know there is a lot going on. It would be very helpful to get an update on your schedule as soon as you can provide one.

Best wishes,

Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: PPI

Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Monday, December 07, 2015 1:40 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Cc: Michael Glasgow <mglasgow@cityofflint.com>
Subject: Re: Update on feeding orthophosphate?

Not feeding yet, due to not receiving the spill-containment and electrical wiring change that is complete now. This all must be verified before we can start feeding.

Thanks,

Natasha L. Henderson, City Administrator

City of Flint, Michigan

1101 S. Saginaw St.

Flint, MI 48502

Email: nhenderson@cityofflint.com

Phone: (810) 237-2057

www.cityofflint.com

On Mon, Dec 7, 2015 at 12:18 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Hello Natasha,

Is Flint feeding corrosion control yet? I know that Mike said he "jar testing" was ongoing as of last week. It would be helpful to get an update. Thanks very much!

- bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: PPI

Fax: (312) 692-2075

From: Dykema, Linda D. (DHHS)
Sent: Monday, December 14, 2015 10:06 AM
To: Sygo, Jim (DEQ)
Subject: FW: Phosphate Fact Sheet
Attachments: Adding Extra Phosphate to Flint Water 10.pdf

Importance: High

FYI – we can't seem to shake the Phosphate fact sheet loose...see Wurfel's comments below that we responded to end of last week.

From: Dykema, Linda D. (DHHS)
Sent: Friday, December 11, 2015 9:02 AM
To: Lasher, Geralyn (DHHS) <lasherg@michigan.gov>
Cc: 'Michelle Bruneau' <BruneauM@michigan.gov>; Angela <MinicuciA@michigan.gov>; Eisner, Jennifer (DHHS) <EisnerJ@michigan.gov>
Subject: FW: Phosphate Fact Sheet

Geralyn,

Attached is the revised phosphate fact sheet and below is a thread of e-mails in which GCHD conveys comments from EPA and expresses his concerns about the delay in getting this fact sheet released. Also below, Michelle Bruneau responds to Brad's comments. Michelle, Kory and Jennifer have very thoroughly vetted the technical details with DEQ and GCHD, who also ran it by EPA. My opinion is that the technical details are accurate and are presented as clearly as possible given the need to keep the reading level down to the standard requested by GCHD.

I'm working from home this morning, but I think Michelle is in the office if you have any further questions. We'd really like to get this to GCHD today if at all possible. Thanks

Linda

From: Bruneau, Michelle (DHHS)
Sent: Thursday, December 10, 2015 5:08 PM
To: Groetsch, Kory J. (DHHS) <GroetschK@michigan.gov>; Gray, Jennifer (DHHS) <GrayJ@michigan.gov>
Cc: Dykema, Linda D. (DHHS) <DykemaL@michigan.gov>
Subject: RE: Phosphate Fact Sheet

Hi Linda:

Here is the updated fact sheet with "faucets" added in. Please let me know if you want us to make additional changes, otherwise feel free to forward to Geralyn for finalization.

><{{{'> www.michigan.gov/eatsafefish <'}}}><

Michelle Bruneau, MA
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From: Groetsch, Kory J. (DHHS)
Sent: Thursday, December 10, 2015 5:03 PM
To: Gray, Jennifer (DHHS); Bruneau, Michelle (DHHS)
Cc: Dykema, Linda D. (DHHS)
Subject: RE: Phosphate Fact Sheet

I agree, we talked through. I have nothing additional to add.
Thanks.

From: Gray, Jennifer (DHHS)
Sent: Thursday, December 10, 2015 4:56 PM
To: Bruneau, Michelle (DHHS) <BruneauM@michigan.gov>; Groetsch, Kory J. (DHHS) <GroetschK@michigan.gov>
Cc: Dykema, Linda D. (DHHS) <DykemaL@michigan.gov>
Subject: RE: Phosphate Fact Sheet

I have nothing to add.

From: Bruneau, Michelle (DHHS)
Sent: Thursday, December 10, 2015 4:48 PM
To: Groetsch, Kory J. (DHHS) <GroetschK@michigan.gov>; Gray, Jennifer (DHHS) <GrayJ@michigan.gov>
Cc: Dykema, Linda D. (DHHS) <DykemaL@michigan.gov>
Subject: FW: Phosphate Fact Sheet
Importance: High

Linda, Jen & Kory:

Below, please see a note received from Jim Henry with comments they received from the EPA with regards to the fact sheet and my response that Geralyn may be interested in seeing. Also, please see my responses to Brad's comments inline of his email in green; Jen & Kory feel free to chime in with any edits or suggestions. Linda – feel free to smooth it out as you see fit.

Note received this afternoon from Jim Henry, GCHD:

We have not posted the fact sheet as a courtesy to this MDHHS team, exclusively. We greatly appreciate the assistance relative to the toxicological assessments. However; the delays in communication to the community, due to the state's bureaucracy is unacceptable. This process is compromising our relationship and needs to be expedited. Below are some recommendations for the factsheet from our partners at EPA.

A few thoughts:

1. Under "Learn About Phosphate", wondering if the term "salt" will concern people on low-sodium or salt-restricted diets? We agree it's a proper term.
2. Second bullet under "Why is there...", this kind of misses the solder issue, which is probably widespread. I would suggest something like: "Homes built before 1987 are more likely to have lead service lines, lead pipes, and 50% or more leaded solder. Brass valves and faucets may have lead, and older faucets are likely to have higher lead contents.

3. Last bullet same section might say "Pipes, brass fixtures and fittings, and solder…."

Darren and Mike

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MB's response:
Hi Jim, et al:

We greatly appreciate your (limited) patience and understand your frustration with this process. Now that I've been made aware of the expectations of 'business as usual' in our communications office despite the urgency of the situation, delays on this order should hopefully no longer occur. I will begin the approval signatory process much sooner, and ensure it's expedited as much as possible.

Thanks for forwarding the EPA's comments –

In our discussion with the DEQ, we hashed out the issue of using the term brass faucets vs faucets and decided to err on the side of more general, and therefore inclusive, because some faucets may be lined with brass internally or be a different color than what people may expect when hearing the term brass.

Also, per the solder issue, again, we'd prefer to remain inclusive of all types of solder because of the unknown/hard to know age/type/etc of solder and under which regulatory definition they fell, because according to the attached, even as late as 2014, "lead-free" products could still contain 8% lead.

And, most depressing is the fact that, like many things, companies are left to self-regulate their lead-free status (now 0.25% lead), so again, I vote for inclusivity.
http://www.nsf.org/newsroom_pdf/Lead_free_certification_marks.pdf

If you're OK with it as is; I'm OK with it.

><{{{'> www.michigan.gov/eatsafefish <'}}}><

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From: Lasher, Geralyn (DHHS)
Sent: Thursday, December 10, 2015 3:07 PM
To: Dykema, Linda D. (DHHS); Bruneau, Michelle (DHHS)

Cc: Eisner, Jennifer (DHHS); Minicuci, Angela (DHHS)
Subject: FW: Phosphate Fact Sheet
Importance: High

Comments back from DEQ. Please review. I think the first four of their edits are worth considering. The last two are not as urgent to change in my opinion.

From: Wurfel, Brad (DEQ)
Sent: Thursday, December 10, 2015 3:01 PM
To: Lasher, Geralyn (DHHS) <lasherg@michigan.gov>
Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>; Krisztian, George (DEQ) <krisztiang@michigan.gov>
Subject: RE: Phosphate Fact Sheet
Importance: High

The first bullet opens oddly. "Lead pipes, solder and faucets used to be common." All three of those things are still common. Especially faucets.
MB: This was an attempt to point out that the use of pipes, solder, and faucets and lead used to be common, but since 1986, lead content slowly been phased down. But we can say "Until 2014, pipes, solder, and faucets could contain 8% lead or more. Lead can harm our health."

I'd suggest having Jason Moon's folks at Lara fact check the second bullet.
MB
http://nepis.epa.gov/Exe/ZyNET.exe/10003GWO.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1986+Thru+1990&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C86thru90%5CTxt%5C00000003%5C10003GWO.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyAction5&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

Fourth bullet, the actions referenced would actually potentially eliminate lead exposure.
MB: Not sure where else water would be picking up lead?

Fifth bullet, new pipes and solder are required to meet EPA's lead free standard. Also, faucets should be on that list.
MB: Can add faucets, but "required" is self-regulated. All new pipes should meet EPA-lead free standards per the regulations, but it's up to individuals to make sure they are purchasing pipes/faucets/solder made after 2014. That is as definitive as we should go
http://www.nsf.org/newsroom_pdf/Lead_free_certification_marks.pdf

Ninth bullet could be dropped. Focus on the positive and all.
MB. That describes the mechanism of how the lead gets into the water. I actually recommend we leave it

Fourth bullet under "Learn about Phosphate" reads goofy – 'find how much' could also be 'determine appropriate amounts.' Or this bullet could be dropped, as it is stated much more clearly in the final section at the bottom of the page.
MB: "Determine appropriate amounts" is a much higher reading level than "find how much." GCHD felt it was an important statement. I recommend we leave it as is.

Thanks!
b

Brad Wurfel
Communications Director,
Michigan Department of Environmental Quality
wurfelb@michigan.gov
PPI cell)

From: Lasher, Geralyn (DHHS)
Sent: Thursday, December 10, 2015 1:57 PM
To: Wurfel, Brad (DEQ); Sygo, Jim (DEQ)
Cc: Dykema, Linda D. (DHHS); Ridley, Nancy (DHHS)
Subject: Phosphate Fact Sheet

Attached is the Phosphate Fact Sheet that MDHHS will be distributing to the Genesee County Health Department (GCHD) at their request. We believe this version incorporates all edits received by DEQ and GCHD.

It is our goal to provide this to the GCHD on Friday so please let us know if there are any last minute questions you may have.

Thank you,
Geralyn

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