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Detroit Free Press
160 W. FORT STREET DETROIT, MICHIGAN 48226

Brad Wurfel
Public Information Officer
Michigan Department of Environmental Quality

Oct. 5, 2015

Dear Mr. Wurfel:

This request is pursuant to the Michigan Freedom of Information Act {MCL 15.231 et. seq.}.

Specifically, I request copies of the following public records:

- Records showing the results of the water quality tests conducted by or ordered by the Michigan Department of Environmental Quality or the City of Flint between Jan. 1, 2014 and Oct. 5, 2015,
- Any communications sent or received by DEQ director Dan Wyant related to Flint water quality between Jan. 1, 2014 and Oct. 5, 2015,
- Any communication or documents, electronic or otherwise, related to the U.S. Environmental Protection Agency memo or interim report from Miguel A. Del Toral dated June 24, 2015,
- Any subsequent correspondences regarding lead levels in Flint city water between the city of Flint, the Michigan Department of Environmental Quality and the EPA and
- Any and all correspondences or documents, electronic or otherwise, related to the report "Analysis of the Flint River as a Permanent Water Supply for the City of Flint July 2011."

We intend to use this information for a newspaper story, so we ask that you please expedite this request. If portions of this request are available more quickly than others, we ask you to forward those portions immediately rather than wait until the entire request is completed. If the cost of this request is estimated to exceed $50, I ask that you inform me of the estimated cost before completing this request so that I can decide whether to appeal the fee.

If you have any questions about this request, please contact either John Wisely or me. John can be reached at (313) 222-6825 or jwisely@freepress.com; I can most easily be reached by cell at (313) 222-2708 or by email at rerb@freepress.com.

Thank you for your prompt attention. We look forward to your response.

Robin Erb and John Wisely
Free Press Staff Writers

DEQ Media Event
October 2, 2015
1:30 pm
Kettering University – Innovation Center
1300 Bluff St., Flint

Attendee

John Galloway
Freelancer for Detroit News
313-715-3532

Nora Macaluso
Staff Correspondent
Bloomberg BNA
Direct/Mobile 517.775.6340
nmacaluso@bna.com

David Eggert
State Government Reporter / AP
517-482-8011 / 517-899-2991 cell
deggert@ap.org

Lauren Gibbons
Senate Reporter
o: (517) 482-2125
c: (517) 977-5251
lauren@mirsnews.com

Steve Carmody
Michigan Radio
sgcarmod@umich.edu

Rick Pluta
Michigan Radio
517-899-3596 cell

Zoe Clark
Michigan Radio

Ron Fonger
Sara Schuch
Danny Miller
The Flint Journal/MLive
810-347-9963
Rfonger1@mlive.com

Tom Noone
Producer
Al Jazeera America
Detroit Bureau
248-770-9200

Tim Durham
Cameraman
Al Jazeera America

Jessica Dupnack and Damon Maloney
ABC 12 News
Eric Fletcher and Timothy Robertson - Photographers

Mike Householder
Video First Reporter – AP
313-259-0650 (office)
313-421-8501 (mobile)
Mhouseholder@ap.org

Andrew Keller
WNEM-TV5
989-395-0419
Andrew.keller@wnem.com

Ryan Garza
Detroit Free Press Staff Photographer
rgarza@freepress.com

Randy Scott
Davison TV – Community News
810-423-2353

Jon Hewett
WWJ Radio
248-219-4542 cell

Ryan Felton
The Guardian/Detroit Metro Times
734-353-2221

TAKING ACTION ON FLINT WATER

www.mi.gov/FlintWater

- The Action Plan -

- Immediately test all Flint public schools to ensure that **drinking water is safe**. Testing will also be available at no cost to any other school in Flint.
- **Expand health exposure testing** of individual residences.
- **Offer water testing** at no cost to Flint residents to assure water is safe.
- **Expedite optimizing corrosion controls** in the Flint drinking water system.
- **Assemble the "Safe Drinking Water Technical Advisory Committee"** to ensure the best technology, practices and science are being utilized, and add an expert from the EPA's Office of Research and Development to the group.
- **Accelerate water system improvements** to address replacement of lead service lines.
- Expedite completion of **Karegnondi Water Authority**.
- Gov. Rick Snyder names Dr. Eden Wells as the Flint Drinking Water Public Health Advisor to ensure safe drinking water.
- **Provide water filters** to residents of Flint.
- Expand a comprehensive lead education initiative.

To get your water tested for free, please call the city of Flint Water Plant at (810) 787-6537 and then press 1

Visit **www.mi.gov/FlintWater** for more information

TAKING ACTION ON FLINT WATER

www.mi.gov/FlintWater

- Tips for Flint Residents -

Lead plumbing is common in homes built prior to 1986, and **anyone in the state with lead pipes in their home can take some extra precautions** to minimize lead in their drinking water.

1. Get your water tested at no cost to ensure water is safe. **To get your water tested**, please call the city of Flint Water Plant at (810) 787-6537 and then press 1.

2. To ensure safe drinking water, you can also get a free filter. Please visit **mi.gov/FlintWater** to find where you can get a free filter.

3. It takes time for lead to accumulate in drinking water from plumbing, and so **flushing your pipes prior to using them** can minimize your exposure.

- To flush your pipes, run the water until it's as cold as it will go. This can take as little as 5 to 30 seconds if you have recently flushed the toilet or otherwise used water in your home, or as long as 2 to 5 minutes if you have not used any water in hours.
- In the city of Flint, **running the water for 5 minutes costs between 3 and 17 cents.**

4. Additionally, more lead gets into hot water than cold water. **Use only cold water for drinking, cooking and making baby formula.**

To get your water tested for free, please call the city of Flint Water Plant at (810) 787-6537 and then press 1

Visit **www.mi.gov/FlintWater** for more information

IS YOUR CHILD SAFE FROM LEAD POISONING?

LEARN HOW TO PROTECT YOUR FAMILY:

CREATE A LEAD SAFE HOME

What causes lead poisoning?

There are many places in a home that can put babies and children in danger of lead poisoning.

Lead paint is the #1 cause of lead poisoning in Michigan and is often found in homes built before 1978. The older the home, the more likely that painted surfaces like windows, cupboards, doors and porches will contain lead paint.

Lead poisoning occurs most often when children come in contact with lead in the air, in dust particles and in lead paint. Lead dust is created when windows are opened and closed, or when surfaces age and paint chips or peels. When dust and chips fall on the floor they get on hands and toys. When a child puts hands or toys in their mouth, they can become lead poisoned.

How can I tell if my child has lead poisoning?

Talk to your doctor about testing your child's blood for lead poisoning.

When should my child be tested for lead poisoning?

Children should be tested at one and two years of age or if you think your child has been exposed to a lead hazard.

To learn more about lead poisoning prevention and blood lead testing, call the Childhood Lead Poisoning Prevention Project:

(517) 335-8885

(888) 322-4453

Take this quiz to see if your child may have lead poisoning:

Symptoms of lead poisoning can be silent—and hard to recognize. Preventing lead poisoning before it happens is the best way to keep your family safe. Take this quiz to see if your child may be at risk:

Does your child currently live in a home built before 1950 or have they lived in a home built before 1950 in the recent past? Do they spend time at or often visit a home built before 1950?

Yes No Don't know

Does your child currently live in a home built before 1978 that was recently remodeled? Have they lived in or often visited a home built before 1978 that was recently remodeled?

Yes No Don't know

Does your child have a brother, sister or playmate with lead poisoning?

Yes No Don't know

Does your child live with an adult whose job or hobby involves lead?

Yes No Don't know

Does you or your child's caregiver use home remedies that may contain lead?

Yes No Don't know

If you answered NO to all of these questions, your child is probably not at risk for lead poisoning. If you answered YES or DON'T KNOW to any of these questions, talk to your doctor about testing your child for lead poisoning.

SAFE CLEANING IN YOUR HOME

Use these steps to help keep your home clean and reduce your child's risk of exposure:

Put on gloves. If you do not have rubber gloves, wash your hands well after cleaning.

Use the right cleaners and disposable supplies. Use soapy cleaners or products made to remove lead dust.

Remove paint chips first. Window areas and porches often have peeling paint and lead dust. Pick up visible chips and dispose of them in a plastic bag.

Always wet-mop floors and window sills. Do not broom lead dust. Dispose of cloths after wiping each area. If using a mop, replace water frequently.

When using a vacuum, make sure it is a HEPA vacuum. Some health departments have HEPA vacuums available to borrow.

Rinse after cleaning. Use clean water and a new mop head or fresh paper towels to wipe away suds.

Always empty wash water down a toilet.

Repeat these steps often when dirt and dust appear on floors, porches, window wells, window sills, stairs and children's play areas.

Note: Areas that should be cleaned include windows, doors, floors, porches, stairs and child play areas.

Important: Do not use your vacuum. It will spread lead dust into the air you breathe.

What can I do to protect my child from lead?

- Wash hands, bottles, pacifiers and toys often.
- Always take off shoes before going into the house.
- Flush your pipes before drinking, and only use cold water for cooking and mixing formula. Flush pipes by running the water for approximately 5 minutes.
- Watch your child's diet. Foods high in calcium and iron help keep lead from being absorbed by a child's body.
- Avoid using power sanders, open-flame torches, heat guns, dry scrapers and dry sandpaper on painted surfaces.
- Fix peeling or chipping paint.
- Use a certified Repair and Remodeling Professional when making updates to your home.
- Practice safe cleaning methods.

Thinking about remodeling your home? Need advice about identifying and removing lead paint? Call the Lead and Healthy Homes Section: 866-691-LEAD.

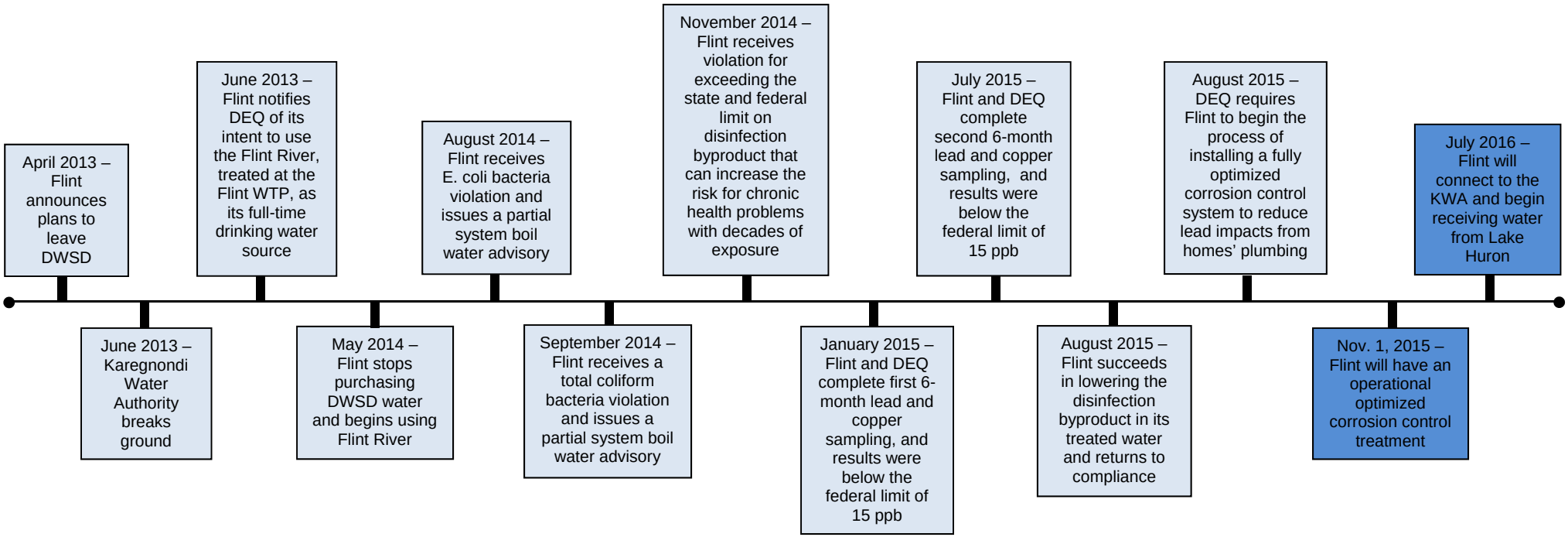
www.michigan.gov/lead

MDHHS
Michigan Department of Health & Human Services
RICK SNYDER, GOVERNOR | NICK LYON, DIRECTOR

Childhood LEAD POISONING prevention program

Drinking Water in Flint

April 2013 - July 2016



The Flint Water Treatment Plant has had seven lead tests since the switch to the Flint River, with the latest on Aug. 11. All seven showed non-detect lead results.

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Thursday, October 01, 2015 1:43 PM
To: Olszewski, Rosemarie (DEQ)
Subject: FW: Use of SRF to replace lead service lines
Attachments: Eligibility of Lead Service Line Replacement MEMO 2012-2013.pdf

Please print.

From: Shekter Smith, Liane (DEQ)
Sent: Thursday, October 01, 2015 1:28 PM
To: Wyant, Dan (DEQ); Sygo, Jim (DEQ)
Cc: Busch, Stephen (DEQ); Benzie, Richard (DEQ); Butler, Sonya (DEQ); Devereaux, Tracy Jo (DEQ); Thelen, Mary Beth (DEQ); Wurfel, Brad (DEQ); Pallone, Maggie (DEQ)
Subject: Fw: Use of SRF to replace lead service lines

From: Butler, Sonya (DEQ)
Sent: Thursday, October 1, 2015 1:14:48 PM
To: Green, Kelly (DEQ); Benzie, Richard (DEQ); Busch, Stephen (DEQ)
Cc: Shekter Smith, Liane (DEQ)
Subject: FW: Use of SRF to replace lead service lines

John Barton from Treasury asked for the federal statute regarding lead service line replacement. I asked EPA for the source document. The reply is noted below.

From: Cossa, Laura [mailto:cossa.laura@epa.gov]
Sent: Thursday, October 01, 2015 12:48 PM
To: Butler, Sonya (DEQ)
Cc: Barton, John (Treasury); Bielanski, Andrew; Baltazar, Debbie; Crooks, Jennifer; Marquardt, Steve
Subject: RE: Use of SRF to replace lead service lines

FYI

Hi Sonya,
Because it is an eligibility question, there is probably no specific regulation to address it, but HQ issued a memo (attached). Although is not dated, it was still draft in 2012, so is probably 2012/2013. We may be able to find a more precise date from HQ. Just FYI, there is a reference on page 2 to a 2003 memo – the link to the 2003 memo is: http://water.epa.gov/grants_funding/dwsrf/upload/2008_04_10_dwsrf_memos_memo_dwsrf_policy_2003-07-25.pdf.

I hope this helps.
Please let me know if you have any questions.
Thanks.
Laura

From: Butler, Sonya (DEQ) [mailto:BUTLERS2@michigan.gov]
Sent: Wednesday, September 30, 2015 12:18 PM
To: Cossa, Laura; Marquardt, Steve

Cc: Barton, John (Treasury)
Subject: FW: Use of SRF to replace lead service lines

Laura

Could you tell me where to find the federal law that allows for work to be done on private property (see original note down below)? John Barton from Treasury wants this information and I know you can find it faster than I.

From: Wyant, Dan (DEQ)
Sent: Monday, September 28, 2015 4:49 PM
To: Pallone, Maggie (DEQ); Busch, Stephen (DEQ); Butler, Sonya (DEQ)
Cc: Wurfel, Brad (DEQ)
Subject: FW: Use of SRF to replace lead service lines

Let's discuss.

Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

From: Hedman, Susan [mailto:hedman.susan@epa.gov]
Sent: Monday, September 28, 2015 4:36 PM
To: Wyant, Dan (DEQ)
Subject: Use of SRF to replace lead service lines

Hi Dan –

Here's a quick answer to your question about using SRF to replace lead service lines. Under the federal SRF program, SRF funds can be used to replace lead service lines on both public and private property. (We don't know if Michigan rules allow for the use of SRF funding on private property, but presumably you know whether that's the case.) If you have additional questions, your staff can follow up with Steve Marquardt, Chief of the R5 Water Division State and Tribal Program Section. His number is 312-353-3214.

Please keep me posted on the time for the event later this week.

Thanks,

Susan

Susan Hedman
Region 5 Administrator/Great Lakes National Program Manager
U.S. Environmental Protection Agency
77 West Jackson Blvd - 19th Floor
Chicago, Illinois 60604-3590

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM

OFFICE OF GENERAL COUNSEL

SUBJECT: Eligibility of Replacement of Lead Service Lines on Private Property Under the DWSRF

FROM: Joanne Hogan
Attorney- Advisor
Civil Rights and Financial Law Office
Office of General Counsel

THROUGH: Wendel Askew
Assistant General Counsel
Civil Rights and Financial Law Office
Office of General Counsel

Ken Redden
Deputy Associate General Counsel
Civil Rights and Financial Law Office
Office of General Counsel

TO: Peter Shanaghan
Team Leader
Drinking Water State Revolving Fund Team
Office of Ground Water and Drinking Water, Office of Water

Question Presented.

You have asked whether financial assistance from a State's Drinking Water State Revolving Loan Fund can be used by eligible entities to fund projects that involve replacing lead service lines that may be on private property and that connect to private dwellings.

Brief Answer

We believe that lead service line projects, regardless of the ownership of the property on which the pipe is placed, may be funded by a State's DWSRF so long as the loans are made to an eligible entity and all other requirements of the DWSRF are met.

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Analysis

The statute and the regulatory provisions governing the use of State DWSRF funds, though defining which entities may receive funds, do not require the Public Water System to have control over all portions of a project that is funded by the DWSRF. Congress gave EPA's Administrator the clear authority to determine which projects would be eligible under §1452: "Financial assistance. . . may be used. . . only for expenditures of a type or category which the Administrator has determined, through guidance, will facilitate compliance with national primary drinking water regulations." PHSA §1452 (a)(2). The only broad statutory limitations on the types of projects that cannot be funded are projects which include monitoring, operation, or maintenance expenditures, or projects for the acquisition of real property unless the purchase is made from a willing seller and the acquisition is integral to the project.

40 CFR §35.3520 (b)(2) sets forth the categories of projects that can be funded by a DWSRF. This provision includes the transmission and distribution of water to be a category of eligible projects. Specifically, the regulation provides examples of such projects to include: "installation or replacement of transmission and distribution pipes to improve water pressure to safe levels or to prevent contamination caused by leaks or breaks in the pipes." See 40 CFR §35.3520 (2)(ii).

Lead pipes can contaminate water at any point, including on its way to a private home. Allowing a public water system to use its funds to replace such pipes is consistent with this allowable category of projects, and is similarly consistent with the overall health protections of the Safe Drinking Water Act. See PHSA 1452 (a)(1)(A). Note that if a Public Water System wishes to purchase and retain an easement so that it maintains control of such infrastructure, that purchase is authorized as well: "Funds shall not be used for real property or interests therein unless the acquisition is integral to the project authorized... and the purchase is from a willing seller... ." PHSA 1452(a)(2).

This determination that replacement of lead pipes on privately owned property is an eligible project cost so long as it otherwise complies with the PHSA is consistent with prior approved eligible projects, such as water efficiency projects, that do not require all elements of a project to be under the control of a Public Water System. In a Memorandum dated July 25, 2003, then Assistant Administrator for Water G. Tracy Mehan III informed Water Division Directors in the regions that projects such as the installation or retrofit of plumbing fixtures and appliances, installation of water meters, and implementation of incentive programs to conserve water, such as rebates or conservation rate structures were all eligible projects under the DWSRF. Therefore, so long as the assistance is given to an eligible entity, and the project otherwise meets the requirements of the DWSRF, the project may be funded regardless of ownership or control of the resulting infrastructure.

TP Flint

Letter Buckslip

12-Oct-15

ID:	**DIR00177**
Date of letter:	10/1/2015
Date received:	10/2/2015
Date due:	10/19/2015
Reply date:	
Last name:	Tallman
First name:	Sarah C.
Organization:	Natural Resources Defense Council
Subject:	Petition for Emergency Action under the Safe Drinking Water Act to Abate the Imminent and Substantial Endagerment to Flint, Michigan Residents
Reply to:	
Author:	
Owner:	OLSZEWSKIR

Deputy Director
Deputy's Mgmt. Asst.
Director's Office Staff
Division/Office Chief
Division/Office Chief's Mgmt. Asst.
Prepared by:
Division/Office Exec. Div. File No:
☐ Delogged

Action	Action Date	Due Date	Entity	Signature	Owner	CCs
Assigned 1	10/12/2015	10/19/2015	EXE	HAA	OLSZEWSKIR	Thelen Sygo Shekter Smith Devereaux Manning/Hart File 2-2 EPA

Comments: Original to EXE (Jim Sygo)

Jim Sygo to discuss with AG's office and ODWMA. Disc w/exhibits went to Sygo. Mbt

DIR00177

NATURAL RESOURCES DEFENSE COUNCIL

October 1, 2015

Via FedEx
Dan Wyant, Director
Michigan Department of Environmental Quality
Executive Division
P.O. Box 30473
Lansing, MI 48909-7973

Re: *Petition for Emergency Action under the Safe Drinking Water Act to Abate the Imminent and Substantial Endangerment to Flint, Michigan Residents*

Director Wyant:

Enclosed please find a Petition for Emergency Action under Section 1431 of the Safe Drinking Water Act to abate the imminent and substantial endangerment to Flint, Michigan residents from lead contamination in their drinking water, served on EPA Administrator McCarthy today. I have also enclosed a CD containing the exhibits to the Petition.

Regards,

Sarah C. Tallman
Natural Resources Defense Council
20 N. Wacker Drive, Suite 1600
Chicago, IL 60622
(312) 651-7918
stallman@nrdc.org

Enclosure

BEFORE THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Petition for Emergency Action under the Safe Drinking Water Act, 42 U.S.C. § 300i, to Abate the Imminent and Substantial Endangerment to Flint, Michigan Residents from Lead Contamination in Drinking Water

---

Submitted on Behalf of Petitioners Coalition for Clean Water, Concerned Pastors for Social Action, Water You Fighting For, Democracy Defense League Water Task Force, Flint Water Study Team, Michigan Nurses Association, NAACP – Michigan State Conference, Michigan Chapter of the National Conference of Black Lawyers, American Civil Liberties Union of Michigan, and the Natural Resources Defense Council

October 1, 2015

Notice of Petition

Gina McCarthy
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, DC 20460

Susan Hedman
Regional Administrator
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard
Mail Code: R-19J
Chicago, IL 60604-3507

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1. Dominic Adams, *Closing the valve on history: Flint cuts water flow from Detroit after nearly 50 years*, Michigan Live (Apr. 25, 2014)

2. Letter from Darnell Earley, Emergency Manager, to Sue McCormick, Detroit Water & Sewer Department (Mar. 7, 2014)

3. Curt Guyette, *In Flint, Michigan, Overpriced Water is Causing People's Skin to Erupt in Rashes and Hair to Fall Out*, The Nation (July 16, 2015)

4. Wenonah Hauter, *Flint's Brown Water Blues*, Huffington Post (July 10, 2015)

5. Laura Gottesdiener, *Flint, Mich., Residents find state water control hard to swallow*, Al Jazeera America (Apr. 3, 2015)

6. Ron Fonger, *Flint issues boil water advisory for section of the city after positive test result for total coliform bacteria*, Michigan Live (Sept. 5, 2014)

7. Robin Erb, *Who wants to drink Flint's water?*, Detroit Free Press (Jan. 23, 2015)

8. Michigan Department of Environmental Quality, Violation Notice—Maximum Contaminant Level for Total Trihalomethanes (Dec. 16, 2014)

9. U.S. EPA, Basic Information about Disinfection Byproducts in Drinking Water

10. Order Den. Mot. for Prelim. Inj. 1, *Coalition for Clean Water v. City of Flint*, No. 15-cv-12084 (E.D. Mich. June 23, 2015)

11. Marc Edwards, *Flint River water 19X more corrosive than Detroit water for Lead Solder; Now What?*, Flint Water Study (Sept. 11, 2015)

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13. Brianna Owczarzak, *GM says no to Flint water*, WNEM (Oct. 14, 2014)

14. U.S. EPA, Integrated Science Assessment for Lead tbl.ES-1 (June 2013)

15. U.S. EPA, Basic Information About Lead in Drinking Water (last updated June 26, 2015)

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18. H.R. Rep. No. 93-1185, 1974 U.S.C.C.A.N. 6454, 6487 (1974); *In re Yakima Valley Dairies*, Admin. Order on Consent (U.S. EPA Region 10, Mar. 5, 2013)

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24. Letter from Jim Ananich, Mich. Sen. Minority Leader and Sheldon Neeley, Phil Phelps, Mich. State Representatives, to Dan Wyant, MDEQ (Sept. 10, 2015)

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26. *Flint Town Hall Meeting Presentation and Distribution of lead results across Flint by ward and zip codes*, Flint Water Study (Sept. 16, 2015)

27. Siddhartha Roy, Flint Water Study Updates for the Citizens of Flint (Sept. 15, 2015)

28. Ron Fonger, *Virginia Tech professor says Flint's tests for lead in water can't be trusted*, Michigan Live (Sept. 15, 2015)

29. *Lead testing results for water sampled by residents*, Flint Water Study (last visited Sept. 28, 2015)

30. Email from Jennifer Crooks, U.S. EPA, to Stephen Busch, MDEQ, et al. (Mar. 18, 2015)

31. Email from Jennifer Crooks, U.S. EPA, to Stephen Busch, MDEQ, et al. (June 4, 2015)

32. Consumer Notice of Lead & Copper Results in Drinking Water (Feb. 18, 2015)

33. Mich. Dep't of Envtl. Quality, Lead and Copper Report and Consumer Notice of Lead Result Certificate for Community Water Supply (Aug. 20, 2015)

34. Drinking Water Lead & Copper Sampling Instructions

35. Memorandum from Miguel A. Del Toral, Regulations Mgmr., Ground Water and Drinking Water Branch, U.S. EPA Region 5, to Thomas Poy, Chief, Ground Water and Drinking Water Branch, U.S. EPA Region 5, re High Levels in Flint, Michigan—Interim Report 2 (June 24, 2015)

36. U.S. EPA, Lead and Copper Rules Monitoring and Reporting Guidance for Public Water Systems 28 (Mar. 2010)

37. Letter from Cynthia C. Dougherty, U.S. EPA, to Ralph Scott, Alliance for Healthy Homes (Sept. 12, 2008)

38. MDEQ, Frequently Asked Questions: Water Lead Levels in the City of Flint (Sept. 2015)

39. Centers for Disease Control and Prevention, Preventing Lead Poisoning in Your Children: Chapter 2 (Oct. 1991)

40. Centers for Disease Control and Prevention, *What Do Parents Need to Know to Protect Their Children?* (last updated June 19, 2014)

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42. U.S. EPA, Lead and Copper Rule: A Quick Reference Guide for Schools and Child Care Facilities that are Regulated Under the Safe Drinking Water Act (Oct. 2005)

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48. Email from Jennifer Crooks, U.S. EPA, to Mike Prysby (Feb. 26, 2015)

49. Pediatric Lead Exposure in Flint, MI: Concerns from the Medical Community (PowerPoint Presentation)

50. Kristi Tanner & Nancy Kaffer, *State data confirms higher blood-lead levels in Flint kids*, Detroit Free Press (Sept. 29, 2015)

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52. American FactFinder, 2009-2013 American Community Survey 5-year Estimates, Flint, Michigan and State of Michigan

53. American Cancer Society, *Lead, Lead in the Environment* (last updated May 27, 2014)

54. 2012 Annual Data Report on Blood Lead Levels of Children in Michigan 26 (Apr. 2013)

55. CPSC, *CPSC Announces Final Ban on Lead-Containing Paint* (Sept. 2, 1977)

56. Dominic Adams, *State says Flint hasn't applied for permit to use river as drinking water source*, Michigan Live (Mar. 28, 2014)

57. Email from Stephen Busch, MDEQ, to Jennifer Crooks and Miguel Del Toral, U.S. EPA (Feb. 27, 2015)

58. Email from Pat Cook, MDEQ, to Miguel Del Toral, U.S. EPA (Apr. 24, 2015)

59. Email from Michael Glasgow (June 1, 2015)

60. City of Flint Water Plant, Lead and Copper Report and Consumer Notice of Lead Result Certificate for Community Water Supply (Jul. 28, 2015)

61. Email from Adam Rosenthal, MDEQ, to Michael Glasgow, Brent Wright, City of Flint (June 25, 2015)

62. Letter from MDEQ to MI State Senators (Sept. 17, 2015)

63. *Did this Michigan Town Poison its Children?*, U.S. News & World Report (Sept. 24, 2015)

64. Ron Fonger, *Feds sending in experts to help Flint keep lead out of water*, Michigan Live (Sept. 10, 2015)

65. Ron Fonger, *Flint will have lead-reduction plan for water system by 2016, officials say*, Michigan Live (Sept. 3, 2015)

66. Amanda Emery, *Flint public school students told to bring own water to school*, Michigan Live (Sept. 25, 2015)

67. U.S. Census Bureau, American FactFinder, 2010 Demographic Profile Data, Flint Michigan

68. 2009-2013 American Community Survey 5-Year Estimates, Children's Characteristics, Flint, Michigan

69. Dominic Adams, *Flint monthly water and sewer bills highest in Genesee County by $35,* Michigan Live (June 1, 2014)

70. Ron Fonger, *Judge orders Flint to cut water rates 35 percent in sweeping injunction,* Michigan Live (Aug. 7, 2015)

71. U.S. EPA, Planning for an Emergency Drinking Water Supply (June 2011)

72. U.S. EPA, Memorandum re: Update on Providing Alternative Water Supply as Part of Superfund Response Actions (Sept. 24, 2010)

The residents of Flint, Michigan have been and continue to be exposed to dangerous levels of lead in their drinking water. Monitoring results confirm that, in many instances, these levels are well above the threshold set by the U.S. Environmental Protection Agency (EPA) that triggers mandatory corrective action by public water systems. The City of Flint and the Michigan Department of Environmental Quality (MDEQ) have failed to address this public health crisis, despite their awareness of these monitoring results and data showing increasing blood lead levels in children residing in Flint.

The Coalition for Clean Water, Concerned Pastors for Social Action, Water You Fighting For, Democracy Defense League Water Task Force, Flint Water Study Team, Michigan Nurses Association, NAACP – Michigan State Conference, Michigan Chapter of the National Conference of Black Lawyers, American Civil Liberties Union of Michigan, and Natural Resources Defense Council (collectively, Petitioners) petition EPA to use its emergency powers under the Safe Drinking Water Act (SDWA or the Act), 42 U.S.C. § 300i, to take action to abate the imminent and substantial endangerment to human health caused by lead contamination in Flint's drinking water. As Petitioners demonstrate below, this contamination meets the SDWA requirements for immediate action by EPA and requires a comprehensive federal response.

I. Background

Water-quality problems have plagued Flint's water system since at least April 2014, when the City began using the Flint River as its water source after deciding not to continue purchasing water from Lake Huron through the Detroit Water and Sewerage Department, as it had done for nearly fifty years.[1] In the eighteen months since the switch to Flint River water, the City's drinking water has been at times discolored, foul smelling, and "laden with sediments."[2] Residents report that they have experienced hair loss, skin rashes, and vomiting after drinking the water.[3] In the summer of 2014, the City was forced to issue several boil-water notices after tap water tested positive for total coliform bacteria, which

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[1] *See* Dominic Adams, *Closing the valve on history: Flint cuts water flow from Detroit after nearly 50 years*, Michigan Live, Apr. 25, 2014, http://www.mlive.com/news/flint/index.ssf/2014/04/closing_the_valve_on_history_f.html (attached as Ex. 1); Letter from Darnell Earley, Emergency Manager, to Sue McCormick, Detroit Water & Sewer Dep't (Mar. 7, 2014) (explaining that the City "has actively pursued using the Flint River as a temporary water source" instead of accepting Detroit's offer to "provide[] Flint with the option of continuing to purchase water from DWSD") (attached as Ex. 2).

[2] *See* Curt Guyette, *In Flint, Michigan, Overpriced Water is Causing People's Skin to Erupt in Rashes and Hair to Fall Out*, The Nation, July 16, 2015, http://www.thenation.com/article/in-flint-michigan-overpriced-water-is-causing-peoples-skin-to-erupt-and-hair-to-fall-out/ (attached as Ex. 3); Wenonah Hauter, *Flint's Brown Water Blues*, Huffington Post, July 10, 2015, http://www.huffingtonpost.com/wenonah-hauter/flints-brown-water-blues_b_7765132.html (attached as Ex. 4).

[3] Laura Gottesdiener, *Flint, Mich., Residents find state water control hard to swallow*, Al Jazeera America, Apr. 3, 2015, http://america.aljazeera.com/articles/2015/4/3/flint-residents-find-state-water-control-hard-to-swallow.html (attached as Ex. 5).

suggested a possible "pathway for pathogens and fecal contamination" to enter the water system.[4]

The City's subsequent treatment of the water to kill disease-carrying pathogens resulted in elevated levels of total trihalomethanes (TTHM), a byproduct of disinfection.[5] Drinking water with TTHM levels that exceed the federal limit can cause "liver, kidney, or central nervous system problems and increased risk of cancer."[6] In response to the City's water problems, local hospitals, schools, and museums began using bottled water instead of tap water.[7] Some grocery stores reduced the price of bottled water and "sponsored community giveaways of bottled water to low income residents."[8]

Flint River water is also highly corrosive, causing dangerous amounts of lead to leach out of pipes and into the City's water system.[9] Recent sampling has shown that lead is present in Flint's water system at levels well above 15 parts per billion (ppb), the "action level" for lead under the SDWA.[10] These high lead levels put residents at risk of increased lead exposure, which can cause a broad array of serious, irreversible health effects, including cognitive impairment, decreased red blood cell survival, kidney damage, coronary heart disease, and impaired reproductive function.[11]

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[4] Ron Fonger, *Flint issues boil water advisory for section of the city after positive test result for total coliform bacteria*, Michigan Live, Sept. 5, 2014, http://www.mlive.com/news/flint/index.ssf/2014/09/flint_issues_boil_water_adviso.html (attached as Ex. 6).

[5] Robin Erb, *Who wants to drink Flint's water?*, Detroit Free Press, Jan. 23, 2015, http://www.freep.com/story/news/local/michigan/2015/01/22/water-woes-latest-hit-flint/22193291/ (attached as Ex. 7); Mich. Dep't of Envtl. Quality, Violation Notice—Maximum Contaminant Level for Total Trihalomethanes (Dec. 16, 2014) (attached as Ex. 8).

[6] U.S. EPA, Basic Information about Disinfection Byproducts in Drinking Water, http://water.epa.gov/drink/contaminants/basicinformation/disinfectionbyproducts.cfm (last updated Dec. 13, 2013) (attached as Ex. 9); *see* 40 C.F.R. § 141.64(b).

[7] Order Den. Mot. for Prelim. Inj. 1, *Coalition for Clean Water v. City of Flint*, No. 15-cv-12084 (E.D. Mich. June 23, 2015), ECF No. 6 (attached as Ex. 10).

[8] *Id.*

[9] Marc Edwards, *Flint River water 19X more corrosive than Detroit water for Lead Solder; Now What?*, Flint Water Study (Sept. 11, 2015), http://flintwaterstudy.org/2015/09/test-update-flint-river-water-19x-more-corrosive-than-detroit-water-for-lead-solder-now-what/ (attached as Ex. 11); Marc Edwards, *Flint River water is very corrosive to lead, and causing lead contamination in homes*, Flint Water Study (Sept. 2, 2015), http://flintwaterstudy.org/2015/09/flint-rivers-water-is-very-corrosive-to-lead-and-causing-lead-contamination-in-homes/ (attached as Ex. 12). The river water is so corrosive that in October 2014, a local GM engine plant decided to switch back to Lake Huron water to avoid damage to equipment at the plant from corrosion. Brianna Owczarzak, *GM says no to Flint water*, WNEM, Oct. 14, 2014, http://www.wnem.com/story/26785625/gm-says-no-to-flint-water (attached as Ex. 13).

[10] 40 C.F.R. § 141.80(c)(1).

[11] *See, e.g.*, U.S. EPA, Integrated Science Assessment for Lead tbl.ES-1 (June 2013) (attached as Ex. 14) (summarizing health effects of lead exposure); U.S. EPA, Basic

The City of Flint and the Michigan Department of Environmental Quality (MDEQ) have been aware of independent monitoring results showing exceedingly high lead levels in the City's drinking water for months.[12] Despite increasing public concern about the safety of the City's drinking water, neither the City nor MDEQ has taken the actions necessary to meaningfully address the problem. The City has not implemented *any* measures to treat the highly corrosive Flint River water to reduce the amount of lead leaching from service pipes.[13] And MDEQ refuses to use its enforcement authority under the SDWA or state law to require Flint to employ corrosion control measures or provide alternative safe water supplies.[14]

When state and local authorities fail to adequately address a public health crisis, the SDWA empowers EPA to act. Section 1431 of the Act vests EPA with broad emergency authority to address endangerments to public health from contaminated drinking water. The EPA Administrator may use these emergency powers "upon receipt of information that a contaminant which is present in or is likely to enter a public water system . . . may present an imminent and substantial endangerment to the health of persons, and that appropriate State and local authorities have not acted to protect the health of such persons."[15] Once the Administrator receives this information, she may "take such actions as [s]he may deem necessary in order to protect [public] health."[16] These actions "may include (but shall not be limited to) . . . issuing such orders as may be necessary to protect the health of persons who are or may be users of such system (including travelers), including

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Information About Lead in Drinking Water, http://water.epa.gov/drink/contaminants/basicinformation/lead.cfm (last updated June 26, 2015) (explaining that "[i]nfants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development," and that "[a]dults who drink this water over many years could develop kidney problems or high blood pressure") (attached as Ex. 15); *see also* National Ambient Air Quality Standards for Lead, 80 Fed. Reg. 278, 290 (Jan. 5, 2015).

[12] *See, e.g.*, Email from Jennifer Crooks, U.S. EPA, to Stephen Busch, MDEQ, and Mike Prysby, MDEQ (Feb. 26, 2015) (describing "[b]ig worries" for high lead test results at a Flint resident's home) (attached as Ex. 16).

[13] The City's plan to implement corrosion control measures within thirty to sixty days is inadequate to address the ongoing endangerment. *See* City of Flint, City of Flint Issues Lead Advisory (Sept. 25, 2015), https://www.cityofflint.com/2015/09/25/city-of-flint-issues-lead-advisory/ (attached as Ex. 17).

[14] *See* Mich. Comp. Laws Ann. §§ 325.1015(1) ("When considered necessary for protection of the public health, the department shall notify a supplier of water of the need to make changes in operations, to provide treatment, [or] to make structural changes in existing systems . . . as necessary to produce and distribute an adequate quantity of water meeting the state drinking water standards."), (3) ("If a public water supply poses an imminent hazard to the public health, the department may issue an emergency order immediately, . . . requiring such action as the department determines is necessary to protect the public health.").

[15] 42 U.S.C. § 300i(a).

[16] *Id.*

orders requiring the provision of alternative water supplies by persons who caused or contributed to the endangerment."[17] EPA has, in the past, used its emergency powers to issue orders to provide alternative safe water sources to community members, require public notice of the drinking water hazard, require contributors to the hazard to treat or otherwise mitigate the hazardous conditions, and require additional monitoring and data-collection activities.[18]

As Petitioners demonstrate below, the lead contamination in Flint's drinking water meets the prerequisites that authorize EPA to take emergency action under the SDWA.

II. Interests of Petitioners

Petitioners are community groups and advocacy organizations seeking safe and clean water for all residents in Flint. For instance, the Coalition for Clean Water (Coalition), which includes Concerned Pastors for Social Action, Water You Fighting For, and Democracy Defense League Water Task Force, among other community members, has urged city and state officials for months to address Flint's water-quality problems. The Coalition filed a lawsuit in June 2015 in the Circuit Court for the County of Genesee seeking declaratory, injunctive, and other relief relating to Flint's water-quality problems.[19] In August 2015, Food and Water Watch, Water You Fighting For, and the Coalition for Clean Water collected more than 26,000 signatures on a petition to Mayor Dayne Walling asking the City to end its use of the Flint River as a drinking water source.[20] Community members have also organized marches[21] and met with City Council[22] to raise concerns about the quality of Flint's drinking water. These advocacy activities fueled awareness and concern

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[17] *Id.*

[18] *See* H.R. Rep. No. 93-1185, 1974 U.S.C.C.A.N. 6454, 6487 (1974); *In re Yakima Valley Dairies*, Admin. Order on Consent (U.S. EPA Region 10, Mar. 5, 2013), http://www.epa.gov/region10/pdf/sites/yakimagw/consent_order_yakima_valley_dairies_march2013.pdf (attached as Ex. 18).

[19] Compl., *Coalition for Clean Water v. City of Flint*, No. 104900-cz (Mich. Cir. Ct. June 5, 2015) (attached as Ex. 19).

[20] Ron Fonger, *Groups collect 26,000 signatures to end use of Flint River for Water*, Michigan Live, Aug. 31, 2015, http://www.mlive.com/news/flint/index.ssf/2015/08/groups_delivering_26000_signat.html#incart_river (attached as Ex. 20); Ron Fonger, *Flint mayor accepts petitions but not call to end use of Flint River*, Michigan Live, Aug. 31, 2015, http://www.mlive.com/news/flint/index.ssf/2015/08/flint_mayor_accepts_petitions.html (attached as Ex. 21).

[21] William E. Ketchum III, *People take to streets to protest Flint water quality*, Michigan Live, Feb. 14, 2015, http://www.mlive.com/news/flint/index.ssf/2015/02/flint_residents_protest_citys.html (attached as Ex. 22).

[22] AP, *Flint city councilman: 'We got bad water,'* Detroit Free Press, Jan. 14, 2015, http://www.freep.com/story/news/local/michigan/2015/01/14/flint-water-resident-complaints/21743465/ (attached as Ex. 23).

among residents and some elected officials in Flint,[23] but have not resulted in any comprehensive action by the City or the State.

III. Lead present in and likely to continue to enter Flint's water system presents an imminent and substantial endangerment to human health

A. Lead is present in and likely to continue to enter Flint's water system

Flint's residents face ongoing endangerment from lead in their drinking water. Recent sampling data show that dangerously high levels of lead are present in and will likely continue to enter Flint's water system.[24] In August and September 2015, Dr. Marc Edwards, a water resources engineering professor at Virginia Tech, tested 252 drinking water samples collected from Flint residences. Edwards found that *ten percent* of these samples had lead levels of 25 ppb or more, substantially in excess of the federal action level of 15 ppb.[25] Several samples exceeded 100 ppb, and one sample exceeded 1000 ppb.[26] Edwards' sampling data show that lead—a contaminant under the SDWA[27]—is present in Flint's water system.

The results of Edwards' testing are even more concerning because the sampling did not target high-risk residences, as the City is required to do under the Lead and Copper Rule.[28] Because lead levels in a water system are not evenly distributed, EPA requires monitoring for lead under the SDWA to target high-risk residences, "to better ensure that high levels of lead are detected and that the system institutes treatment that provides

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[23] *See* Letter from Jim Ananich, Mich. Sen. Minority Leader and Sheldon Neeley, Phil Phelps, Mich. State Representatives, to Dan Wyant, MDEQ (Sept. 10, 2015) (attached as Ex. 24); Letter from U.S. Representative Dan Kildee, U.S. Representative, to Adm'r Gina McCarthy, U.S. EPA, and Director Dan Wyant, MDEQ (Sept. 9, 2015) (attached as Ex. 25).

[24] Flint's water system is a "public water system" for purposes of the SDWA because it provides water for human consumption to more than twenty-five individuals. 42 U.S.C. § 300f(4).

[25] *Flint Town Hall Meeting Presentation and Distribution of lead results across Flint by ward and zip codes*, Flint Water Study (Sept. 16, 2015), http://flintwaterstudy.org/2015/09/distribution-of-lead-results-across-flint-by-ward-and-zip-codes/ (attached as Ex. 26); Siddhartha Roy, Flint Water Study Updates for the Citizens of Flint (Sept. 15, 2015) (attached as Ex. 27); Ron Fonger, *Virginia Tech professor says Flint's tests for lead in water can't be trusted*, Michigan Live, Sept. 15, 2015, http://www.mlive.com/news/flint/index.ssf/2015/09/virginia_tech_researcher_says.html (attached as Ex. 28).

[26] *Lead testing results for water sampled by residents,* Flint Water Study, http://flintwaterstudy.org/information-for-flint-residents/results-for-citizen-testing-for-lead-300-kits/ (attached as Ex. 29).

[27] *See* 42 U.S.C. § 300f(6).

[28] 40 C.F.R. § 141.86(a)(3)-(5); 56 Fed. Reg. 26,460, 26,514 (June 7, 1991) (adopting approach that "require[s] water systems to collect samples from high-risk residences that are most likely to have lead problems").

uniform and adequate levels of public health protection."[29] Because targeting high-risk residences "means that the detected levels will likely be higher than if sampling were randomly distributed,"[30] Edwards' data showing a 90th percentile lead level of 25 ppb is particularly alarming given that his sampling protocol would be expected to produce *lower* results than the targeted sampling protocol mandated by the Lead and Copper Rule.

The City's monitoring data confirm that some Flint residents' water contains lead at concentrations above the federal action level. Several samples collected by the City showed lead levels as high as 397 ppb, 25 times the action level.[31] Although the City claims that its data show that the 90th percentile lead concentration is lower than the 90th percentile in Edwards' sampling pool, these differences may be attributable to the sampling methods employed by the City. For instance, the City instructed residents to pre-flush their water for "at least 5 minutes" before collecting the sample.[32] Pre-flushing has the effect of reducing the amount of lead in the sample, which is why one of the key steps residents can take to reduce their lead exposure following discovery of a lead problem is to flush their taps prior to consuming tap water.[33] Pre-flushing in sampling results in "significant underestimation of lead levels in drinking water."[34] Pre-flushing is not included in the collection procedures EPA recommends,[35] and is contrary to the Lead and Copper Rule's intent to use worst-case lead and copper sampling data.[36] Evidence also shows that in the January to June 2015 monitoring period, the City did not use a pre-developed sampling pool that targeted high-

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[29] 56 Fed. Reg. at 26,514.

[30] *Id.*

[31] *See* Email from Jennifer Crooks, U.S. EPA, to Stephen Busch, MDEQ (Mar. 18, 2015) (referring to sample with lead level at 397 ppb) (attached as Ex. 30); Email from Jennifer Crooks, U.S. EPA, to Stephen Busch, MDEQ, et al. (June 4, 2015) (referring to samples showing lead levels 22 ppb and 40 ppb) (attached as Ex. 31); Consumer Notice of Lead & Copper Results in Drinking Water (Feb. 18, 2015) (lead level at 104 ppb) (attached as Ex. 32); *see also* Mich. Dep't of Envtl. Quality, Lead and Copper Report and Consumer Notice of Lead Result Certificate for Community Water Supply (Aug. 20, 2015) (showing six samples with lead levels over the action level (attached as Ex. 33).

[32] Drinking Water Lead & Copper Sampling Instructions, *available at* http://www.michigan.gov/documents/deq/Lead_Copper_Sampling_Instructions_329915_7.pdf (attached as Ex. 34).

[33] Memorandum from Miguel A. Del Toral, Regulations Mgr., Ground Water and Drinking Water Branch, U.S. EPA Region 5, to Thomas Poy, Chief, Ground Water and Drinking Water Branch, U.S. EPA Region 5, re High Levels in Flint, Michigan—Interim Report 2 (June 24, 2015) (attached as Ex. 35).

[34] *Id.*

[35] U.S. EPA, Lead and Copper Rules Monitoring and Reporting Guidance for Public Water Systems 28 (Mar. 2010) (attached as Ex. 36).

[36] See Letter from Cynthia C. Dougherty, U.S. EPA, to Ralph Scott, Alliance for Healthy Homes (Sept. 12, 2008) ("[W]e believe that [pre-flushing] goes against the intent of the monitoring protocol, since it changes the normal water use of the homeowners in the sample.") (attached as Ex. 37).

risk residences and did not sample sites consistently across monitoring periods.[37] This likewise may have caused the City's sampling results to underrepresent the 90th percentile lead level in the water system.[38]

The lead contamination in Flint's water is likely to continue. As EPA has explained, "[t]he amount of lead in drinking water depends heavily on the corrosivity of the water,"[39] and testing has shown that Flint River water is highly corrosive. Moreover, the City has no treatment program in place to control the corrosive effects of the water on the City's thousands of lead service lines.[40]

B. Lead in drinking water presents an imminent and substantial endangerment to Flint residents

The endangerment to Flint residents from lead in drinking water is both "imminent" and "substantial."[41] The endangerment to community members' health is imminent because the threat "is present *now*."[42] Highly corrosive water in the Flint River has been flowing through lead service lines in Flint's water system for more than a year without any corrosion control treatment, and sampling has already shown the existence of dangerously high levels of lead in residents' tap water.

The seriousness of the potential harms from lead exposure renders the endangerment "substantial" for purposes of the SDWA.[43] The poisonous effects of lead on "virtually every system in the body," and particularly on the developing brains of young children, are well documented.[44] "Even low levels of lead in blood have been shown to affect IQ, ability to pay attention, and academic achievement," effects that are irreversible.[45]

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[37] *See infra* p. 11 & nn. 70-74; 40 C.F.R. § 141.86(a), (b)(4).

[38] *See infra* p. 11-12.

[39] 56 Fed. Reg. 26,460, 26,466 (June 7, 1991).

[40] MDEQ, Frequently Asked Questions: Water Lead Levels in the City of Flint (Sept. 2015), https://www.michigan.gov/documents/deq/deq-spotlight-Flint_water_FAQs_500946_7.pdf (stating that Flint has more than 15,000 lead service lines) (attached as Ex. 38).

[41] *Id.* § 300i.

[42] *Meghrig v. KFC Western, Inc.*, 516 U.S. 479, 486 (1996) (interpreting substantial-and-imminent-endangerment provision in RCRA).

[43] *E.g., Me. People's Alliance v. Mallinckrodt, Inc.*, 471 F.3d 277, 288 (1st Cir. 2006).

[44] Centers for Disease Control and Prevention, Preventing Lead Poisoning in Your Children: Chapter 2 (Oct. 1991), http://www.cdc.gov/nceh/lead/publications/books/plpyc/chapter2.htm (attached as Ex. 39); *see also* 80 Fed. Reg. 278, 290 (Jan. 5, 2015) ("Lead has been demonstrated to exert a broad array of deleterious effects on multiple organ systems."); 56 Fed. Reg. 26,460, 26,467-68 (June 7, 1991).

[45] Centers for Disease Control and Prevention, *What Do Parents Need to Know to Protect Their Children?* (last updated June 19, 2014), http://www.cdc.gov/nceh/lead/ACCLPP/blood_lead_levels.htm (attached as Ex. 40).

The scientific community has not identified *any* threshold of lead in blood below which there are no adverse health impacts.[46]

Increased lead exposure from drinking water is dangerous because "drinking water can make up 20 percent or more of a person's total exposure to lead."[47] For infants whose diet consists of baby formula made with drinking water, lead in drinking water can make up between forty and sixty percent of total lead exposure.[48] Lead levels in drinking water above the federal action level have been associated with an increase in the rate of individuals with elevated blood lead levels.[49] Exposure to lead-contaminated drinking water has also been associated with fetal death and reduced birth rates.[50] As EPA has recognized, "[i]nfants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development."[51] In short, there is no safe level of lead in drinking water.[52]

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[46] Centers for Disease Control and Prevention, National Biomonitoring Program, Factsheet: Lead (last updated Jul. 12, 2013), http://www.cdc.gov/biomonitoring/Lead_FactSheet.html ("No safe blood lead level has been identified.") (attached as Ex. 41).

[47] U.S. EPA, Lead and Copper Rule: A Quick Reference Guide for Schools and Child Care Facilities that are Regulated Under the Safe Drinking Water Act (Oct. 2005), http://www.epa.gov/safewater/schools/pdfs/lead/qrg_lcr_schools.pdf (attached as Ex. 42).

[48] Lead in Drinking Water, Wisc. Dep't of Nat. Res. 2008), http://dnr.wi.gov/topic/drinkingwater/documents/forms/lead.pdf (attached as Ex. 43). Several cases have also been reported in which infant formula constituted from lead-contaminated tap water was determined to be the sole cause of childhood lead poisoning. *See, e.g.*, Michael Shannon & John W. Graef, *Lead Intoxication: From Lead-contaminated Water Used to Reconstitute Infant Formula*, 28 Clinical Pediatrics (8) 380, 381 (1989) (attached as Ex. 44).

[49] Ronnie Levin, et al., *Lead Exposures in U.S. Children, 2008: Implications for Prevention*, 116 Environ. Health Perspect. (1) 1285-93 (2008), *available at* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2569084/ (attached as Ex. 45); CDC, *Blood Lead Levels in Residents of Homes with Elevated Lead in Tap Water—District of Columbia, 2004*, 53 MMWR Weekly (No. 12) 268-70 (Apr. 2, 2004), *available at* http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5312a6.htm (attached as Ex. 46).

[50] Marc Edwards, *Fetal Death and Reduced Birth Rates Associated with Exposure to Lead-Contaminated Drinking Water*, 48 Envtl. Sci. & Tech. 739-40 (2013), *available at* http://pubs.acs.org/doi/pdf/10.1021/es4034952 (attached as Ex. 47).

[51] U.S. EPA, Basic Information about Lead in Drinking Water, *supra* note 11.

[52] *See* Email from Jennifer Crooks, U.S. EPA, to Mike Prysby, MDEQ (Feb. 26, 2015) ("[T]here are no safe levels of lead in drinking water.") (attached as Ex. 48); City of Flint Issues Lead Advisory, *supra* note 13 (recognizing that "no level of lead is considered safe"). Because no safe level of lead in blood has been identified, EPA promulgated a Maximum Contaminant Level Goal for lead in drinking water of *zero*, reflecting EPA's determination that a threshold of zero lead in drinking water is the level at which "no known or anticipated adverse effects" on human health will occur, allowing for a margin of safety. *See* 40 C.F.R. §§ 141.2, 141.51(b).

Petitioners have reason to be concerned about the health impacts of increased exposure to lead in drinking water. A recent study conducted by researchers at Flint's Hurley Medical Center found that the rate of Flint children with elevated blood lead levels is rising. An analysis of 1746 Flint children under five years old showed that the proportion of children with elevated blood lead levels has *doubled* in the time since the City changed its drinking water source.[53] The study found that the rate of elevated blood lead levels in children under fifteen months is 2.5 times greater after the switch to Flint River water than the rate before the switch.[54] The study found no corresponding statistically significant increase in the rate of elevated blood lead levels of children living in Genesee County outside of Flint.[55] Data released by the State confirm that the percentage of Flint children under sixteen with elevated blood levels has risen (from 2.37% to 3.21%) since the switch to Flint River water.[56]

This increased rate of children with elevated blood lead levels is even more alarming because the Flint community may be more at risk for elevated blood lead levels and lead poisoning than communities elsewhere in the country. Michigan ranks fifth worst in the country for harmful exposures to lead.[57] Low income is a risk factor for lead poisoning, and the proportion of families living below the poverty level in Flint is more than three times the national proportion (35.5% in Flint vs. 11.3% nationally in 2013 estimates).[58] Living in housing built before 1978 (when the federal ban on high-lead paint went into effect) is also a risk factor, because dust from lead paint continues to be a major source of lead exposure in children.[59] Nearly 90% of housing in Flint was built before

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[53] Pediatric Lead Exposure in Flint, MI: Concerns from the Medical Community (PowerPoint Presentation), *available at* http://flintwaterstudy.org/2015/09/pediatric-lead-exposure-presentation-from-hurley-medical-center-doctors-concerning-flint-mi/ (attached as Ex. 49).

[54] *Id.*

[55] *Id.*

[56] Kristi Tanner & Nancy Kaffer, *State data confirms higher blood-lead levels in Flint kids*, Detroit Free Press, Sept. 29, 2015, http://www.freep.com/story/opinion/columnists/nancy-kaffer/2015/09/26/state-data-flint-lead/72820798/ (attached as Ex. 50).

[57] Centers for Disease Control and Prevention, *Public Health in Action: Lead Poisoning Prevention in Michigan* (last updated Feb. 4, 2013), http://www.cdc.gov/nceh/information/healthy_homes_lead.htm (attached as Ex. 51).

[58] 2009-2013 American Community Survey 5-year Estimates, 2013, *available at* http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml (enter "Flint, MI" in the box under "Community Facts," click on "Income" on left-side bar, then click "Selected Economic Characteristics" under "2013 American Community Survey") (table attached as Ex. 52 compares data from Flint, MI to Michigan and the United States).

[59] *See, e.g.*, Am. Cancer Soc'y, *Lead, Lead in the Environment,* http://www.cancer.org/cancer/cancercauses/othercarcinogens/athome/lead (last updated May 27, 2014) (characterizing lead paint as a "major" source of exposure) (attached as Ex. 53).

1978.[60] These factors show that the risks to Flint residents from lead exposure may be particularly acute.

The monitoring data showing high lead levels in Flint drinking water, combined with the well-known serious adverse health impacts of lead exposure, demonstrate "a substantial likelihood that contaminants capable of causing adverse health effects will be ingested by consumers if preventive action is not taken."[61] These circumstances constitute an imminent and substantial endangerment warranting emergency federal action.[62]

IV. Neither the City nor MDEQ has acted to protect Flint residents from continuing health risks of exposure to high lead levels in drinking water

Federal emergency action is necessary because neither the City nor MDEQ has adequately addressed the danger to Flint residents from lead in their drinking water. To date, the local and state response to lead concerns has been, at best, nominal and ineffective.[63]

The state-appointed emergency manager and MDEQ allowed the City to begin using the Flint River as its water source without adequately ensuring that the system would continue to "operate and maintain optimal corrosion control treatment," as required by the SDWA.[64] The Lead and Copper Rule requires states to "review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system."[65] But as of March 28, 2014, three weeks before the City planned to start using Flint River water, the City had not even submitted an application to the State for approval to make the change.[66] A month later, MDEQ had approved the change without requiring the City to implement corrosion control measures, as required by the Lead and

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[60] 2012 Annual Data Report on Blood Lead Levels of Children in Michigan 26 (Apr. 2013), https://www.michigan.gov/documents/mdch/2012AnnualDataReportOnBloodLeadLevels_419508_7.pdf (attached as Ex. 54); *see* CPSC, *CPSC Announces Final Ban on Lead-Containing Paint* (Sept. 2, 1977), http://www.cpsc.gov/en/Recalls/1977/CPSC-Announces-Final-Ban-On-Lead-Containing-Paint/ (attached as Ex. 55); Maj. Thomas F. Zimmerman, *The Regulation of Lead-Based Paint in Air Force Housing,* 44 Air Force L. Rev. 169, 175 (1998).

[61] H.R. Rep. No. 93-1185, 1974 U.S.C.A.A.N. 6454, 6488 (July 10, Aug. 15, 1974) (defining when an endangerment may be considered substantial).

[62] *See Trinity Am. Corp. v. U.S. E.P.A.*, 150 F.3d 389, 399 (4th Cir. 1998) (imminent and substantial endangerment found when "dangerous levels of [a] contaminant[] exist in [the] water supply," and that the contaminant "pose[s] a great risk to human health").

[63] *See id.* at 397 (explaining that "minor" and "ineffective" action by state and local authorities does not "strip EPA of its statutory emergency powers").

[64] 40 C.F.R. § 141.81(b).

[65] 40 C.F.R. § 141.81(b)(3)(iii).

[66] Dominic Adams, *State says Flint hasn't applied for permit to use river as drinking water source,* Michigan Live, Mar. 28, 2014, http://www.mlive.com/news/flint/index.ssf/2014/03/state_says_flint_hasnt_applied_1.html (attached as Ex. 56).

Copper Rule.[67] When EPA inquired about what the City was doing to control corrosion, MDEQ falsely stated that the City was already operating an "Optimized Corrosion Control Program."[68] The opposite was true: as the State later admitted, the City had not implemented any corrosion control treatment measures (and still has not done so).[69]

Further, evidence indicates that the City and MDEQ are either unwilling or unable to conduct tap water monitoring for lead in compliance with federal regulations. As discussed above, statements by a Flint Utilities Administrator suggest that the City did not identify a sampling pool prior to conducting monitoring, as federal law expressly requires. Instead, the Department of Public Works "just thr[ew] out bottles everywhere just to collect as many [samples] as we c[ould]."[70] The City even asked its own employees and their "family/friends who live in the city" to participate in the sampling group.[71]

The City also may not have complied with requirements for targeting high-risk homes, including the requirement that 50% of sampled sites contain lead pipes or copper pipes with lead solder.[72] The City's Utilities Administrator conceded that the City was "not really" able to determine that every residence sampled had lead pipes, even though this was what the City affirmatively reported to MDEQ in a monitoring compliance report.[73] Further, the City's monitoring compliance report shows that the City did not meet the deadline to submit its monitoring results and did not comply with the requirement to sample the same sites across monitoring periods.[74] During the January to June 2015 monitoring period, the City initially sought to obtain 100 samples.[75] *After* the City failed to collect that number, MDEQ decided that only sixty samples were required.[76]

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[67] *See* 40 C.F.R. § 141.81(a)-(b).

[68] *See* Email from Stephen Busch, MDEQ, to Jennifer Crooks and Miguel Del Toral, U.S. EPA (Feb. 27, 2015) ("The City of Flint . . . [h]as an Optimized Corrosion Control Program[.]") (attached as Ex. 57).

[69] Email from Pat Cook, MDEQ, to Miguel Del Toral, U.S. EPA (Apr. 24, 2015) ("Flint is not currently practicing corrosion control treatment at the [Water Treatment Plant].") (attached as Ex. 58).

[70] *See* 40 C.F.R. § 141.86(a)(1); *Thirst for Truth: Who's to Blame for Flint Water Crisis?* (ACLU of Michigan, Jul. 28, 2015), *available at* https://www.youtube.com/watch?t=9&v=LT09irD2f0Y (statement of Michael Glasgow, Utilities Administrator).

[71] Email from Michael Glasgow (June 1, 2015) (attached as Ex. 59).

[72] 40 C.F.R. § 141.86(a)(8).

[73] *Thirst for Truth*, supra note 70 (statement of Michael Glasgow, Utilities Administrator, at 5:30-5:45).

[74] City of Flint Water Plant, Lead and Copper Report and Consumer Notice of Lead Result Certificate for Community Water Supply (Jul. 28, 2015) (checking "no" box in response to question asking whether City used the same sampling sites as the previous monitoring period) (attached as Ex. 60); *see* 40 C.F.R. §§ 141.86(b)(4); 141.90(a)(1).

[75] *See* Email from Adam Rosenthal, MDEQ, to Michael Glasgow, Brent Wright, City of Flint (June 25, 2015) (attached as Ex. 61).

[76] *Compare id.* ("We hope you have 61 more lead/copper samples collected and sent to the lab by 6/30/15, and that they will be below the AL for lead. As of now with 39 results,

Compliance with the SDWA's monitoring requirements is critical to accurately assessing the levels of lead in Flint's water, and to ensuring implementation of the drinking water standards set forth in the Lead and Copper Rule. Although the serious apparent flaws in the City's testing procedures call into question whether the City is complying with the SDWA, both the City and MDEQ continue to maintain that Flint's water "is meeting state and federal drinking water standards."[77]

Neither the City nor MDEQ has taken measures to broadly provide an alternative, free source of safe drinking water to residents. Instead, state and local authorities have dismissed citizen concerns about lead in drinking water as "near-hysteri[cal]" and "irresponsible."[78] City officials have encouraged residents to install in-home water filters, flush their taps before using the water, and send their children to school with bottled water, all at the residents' own expense, which is alarming given that there are roughly 14,000 households in Flint with children under 18, and nearly three-quarters of the children in those households receive Supplemental Security Income (SSI), cash public assistance income, or Food Stamp/SNAP benefits.[79] These remedies are inadequate: filters are expensive, may clog quickly, are of varying effectiveness at removing lead, and require

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Flint's 90th percentile is over the AL for lead."), *with* City of Flint, Lead and Copper Report and Consumer Notice of Lead Result Certificate for Community Water Supply, *supra* note 31, at 1 ("Revised report after conference call with DEQ staff.... [D]ue to population the number of samples required was reduced to 60.").

[77] Letter from MDEQ to MI State Senators 2 (Sept. 17, 2015) (attached as Ex. 62); City of Flint, *City of Flint Issues Lead Advisory, supra* note 13 ("[T]he City is in full compliance with the Federal Safe Drinking Water Act.").

[78] *Did this Michigan Town Poison its Children?*, U.S. News & World Report, Sept. 24, 2015, http://www.usnews.com/news/articles/2015/09/25/flint-michigan-children-show-high-levels-of-lead-in-blood (attached as Ex. 63); Ron Fonger, *Feds sending in experts to help Flint keep lead out of water*, Michigan Live, Sept. 10, 2015, http://www.mlive.com/news/flint/index.ssf/2015/09/university_researchers_dont_dr.html (attached as Ex. 64). The City's statement that it will "work with [MDEQ] on implementing water optimization measures to reduce the corrosive effects of water on older pipes" by 2016 is a hollow promise given the present and continuing exposure to lead and lead's irreversible effects on human health. Ron Fonger, *Flint will have lead-reduction plan for water system by 2016, officials say*, Michigan Live, Sept. 3, 2015, http://www.mlive.com/news/flint/index.ssf/2015/09/mayor.html (attached as Ex. 65).

[79] City of Flint, *City of Flint Issues Lead Advisory, supra* note 13; Amanda Emery, *Flint public school students told to bring own water to school*, Michigan Live, Sept. 25, 2015, http://www.mlive.com/news/flint/index.ssf/2015/09/flint_community_schools_asks_s.html (attached as Ex. 66); *see* factfinder.census.gov (2010 data) (enter "Flint, MI" in box under "Community Facts," then click "General Population and Housing Characteristics" under "2010 Census") (attached as Ex. 67); 2009-2013 American Community Survey 5-Year Estimates, Children's Characteristics (2013 estimate), factfinder.census.gov (enter "Flint, MI" in box under "Community Facts," then click "Poverty" on left-side bar, then click "Children Characteristics") (attached as Ex. 68).

ongoing maintenance. Pre-flushing is also imperfect, does not always eliminate lead, and may be prohibitively expensive for many families given Flint's high water rates.[80]

The City's and State's apparent lapses in regulatory compliance, and their failure to take responsibility for responding to the City's lead problems, demand federal intervention.

V. EPA should act immediately to adequately address the public health emergency created by lead in Flint drinking water

Petitioners urge EPA to take all actions necessary to abate the endangerment presented by lead in Flint's drinking water, and to inform Flint residents about the potential hazards of drinking the City's tap water. At minimum, Petitioners request that EPA:

- Immediately order the City and MDEQ to reconnect Flint's water system with water from the Detroit Water and Sewerage Department. EPA should work with the City of Flint, MDEQ, and the Detroit Water and Sewerage Department to facilitate this renewed connection as soon as possible.

- Immediately provide Flint residents with an alternative, free source of safe drinking water that meets EPA standards. This may include providing customers with free bottled water or providing (and routinely maintaining) free in-home and replacement filters that are certified to remove lead by NSF International.[81]

- Immediately order the City to advise all Flint water customers to avoid consuming unfiltered water from the City's water system. The notice should warn customers not to use unfiltered Flint water to make baby formula or for children. The notice should inform customers that if they have no alternative water source, they should flush Flint water for *a minimum* of five minutes before

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[80] Dominic Adams, *Flint monthly water and sewer bills highest in Genesee County by $35,* Michigan Live, June 1, 2014, http://www.mlive.com/news/flint/index.ssf/2014/06/post_386.html (citing Flint bills at $140/month) (attached as Ex. 69). A state-court judge recently ruled that the Emergency Manager's decision to significantly raise water rates was unlawful. Ron Fonger, *Judge orders Flint to cut water rates 30% in sweeping injunction,* Michigan Live, Aug. 7, 2015, http://www.mlive.com/news/flint/index.ssf/2015/08/flint_ordered_to_cut_water_rat.html (attached as Ex. 70).

[81] *See* U.S. EPA, Planning for an Emergency Drinking Water Supply (June 2011) (provision of bottled water is a "common federal response" in emergencies) (attached as Ex. 71); *cf.* 40 C.F.R. § 141.101 (allowing public water systems to use bottled water on a temporary basis "to avoid unreasonable risk to health"); U.S. EPA, Memorandum re: Update on Providing Alternative Water Supply as Part of Superfund Response Actions (Sept. 24, 2010), http://www.epa.gov/superfund/health/conmedia/gwdocs/pdfs/610732.pdf (allowing delivery of bottled water on a temporary basis in certain circumstances in CERCLA removal or remediation actions) (attached as Ex. 72).

use. EPA should prohibit the City from charging water customers for this flushing time.

- Use its authority under 40 C.F.R. §§ 142.19 and 141.82(i) to review MDEQ's determinations concerning corrosion control requirements for the Flint water system, and issue a federal order establishing the optimal corrosion control treatment requirements for the Flint water system and requiring Flint to immediately comply with these requirements.

- Order the City to conduct continued monitoring for lead and copper in six-month periods in accordance with the procedures set forth in 40 C.F.R. § 141.86. EPA should directly oversee the City's monitoring by ordering the City to submit a Quality Assurance Project Plan (QAPP) to ensure that all information, sample collection, analytical data and resulting decisions are technically sound, scientifically valid, and properly administered. EPA must approve the City's QAPP before the City conducts any additional monitoring. EPA should prohibit the City from conducting reduced monitoring under 40 C.F.R. § 141.86(d)(4) for at least five years.

- Order the City to comply with the public education and supplemental monitoring requirements in 40 C.F.R. § 141.85, including but not limited to immediately notifying consumers of the results of tests completed at their homes or places of business, and providing the public education, monitoring, and notification established in those rules.

- Order any other additional relief that EPA determines is "necessary to protect the health" of Flint residents from lead contamination in drinking water.

VI. Conclusion

For the foregoing reasons, Petitioners respectfully request that EPA take the actions necessary to abate the imminent and substantial endangerment to Flint residents' health from lead contamination in their drinking water.

Dated: October 1, 2015

Respectfully Submitted,

/s/ Pastor Allen Overton
Pastor Allen Overton
COALITION FOR CLEAN WATER

/s/ Pastor Alfred Harris
Pastor Alfred Harris
CONCERNED PASTORS FOR SOCIAL ACTION
2200 Forrest Hill
Flint, Michigan 48504
(810) 394-6787

/s/ Melissa Mays
Melissa Mays
LeeAnne Walters
WATER YOU FIGHTING FOR

/s/ Claire McClinton
Claire McClinton
DEMOCRACY DEFENSE LEAGUE WATER TASK FORCE

/s/ Marc Edwards
Marc Edwards, CEE
Siddhartha Roy
FLINT WATER STUDY TEAM

/s/ Dawn Kettinger
Dawn Kettinger
MICHIGAN NURSES ASSOCIATION

/s/ Yvonne M. White
Yvonne M. White
NAACP – Michigan State Conference

/s/ Jeffrey L. Edison
Jeffrey L. Edison
MICHIGAN CHAPTER OF THE NATIONAL CONFERENCE OF BLACK LAWYERS

/s/ Brooke Tucker
Brooke Tucker
Michael Steinberg
AMERICAN CIVIL LIBERTIES UNION OF MICHIGAN
2966 Woodward Ave.
Detroit, MI 48201
(313) 578-6800

/s/ Dimple Chaudhary
Dimple Chaudhary
Anjali Waikar
Sarah C. Tallman
Evan Feinauer
NATURAL RESOURCES DEFENSE COUNCIL
20 N. Wacker Drive, Suite 1600
Chicago, IL 60606
(312) 663-9900

Per Amy Epkey 10/1

She spoke with Nancy Duncan & Farrah Hanley of (DCH)

all set to transfer $1M for filters.

Thelen, Mary Beth (DEQ)

From: Wyant, Dan (DEQ)
Sent: Thursday, October 01, 2015 8:03 AM
To: Dayne Walling
Cc: Thelen, Mary Beth (DEQ); Wyant, Dan (DEQ)
Subject: Pre-Brief - Today, October 1, 2015, 1:30 p.m. EST

Importance: High

Dear Mayor Walling:

You are invited to participate in a pre-brief today, **Thursday afternoon, October 1, 2015, 1:30-2:30 EST.** This will be at **Constitution Hall, 525 W. Allegan Street, Lansing, 6th Floor, Great Lakes Conference Room, 6th Floor South Tower,** or **by telephone** for those you cannot attend in person.

The Call In number for today if you cannot attend in person:
877-873-8018
Access Code: 3467059#
Dan Wyant will have the host number

Please confirm your attendance. Again, we appreciate and thank you for your time today.

Thank you.

Dan

Dan Wyant
Director
MDEQ
517-284-6700

Extra

Thelen, Mary Beth (DEQ)

From: Wyant, Dan (DEQ)
To: Hedman, Susan
Subject: RE: talking points

EPA supports our protocol

From: Hedman, Susan [mailto:hedman.susan@epa.gov]
Sent: Thursday, October 01, 2015 7:27 PM
To: Wyant, Dan (DEQ)
Subject: RE: talking points

Further to our conversation, please note that lead and copper monitoring is used to determine:

1) Whether corrosion control is optimized. Under 141.81(b)(3), a water system is deemed to have optimum corrosion control if it submits results of tap water monitoring that demonstrates for 2 consecutive six-month periods that the 90th percentile level is below 5 ug/L (ppb). Because Flint exceeded this level, the City is required to implement corrosion control – as noted in MDEQ's August 17th letter to the City of Flint which states: "Since the City did not meet these criteria in both the July–December 2014, and January-June 2015, sampling periods, the City must now recommend a treatment to fully optimize corrosion control treatment . . . ."

2) Whether the lead action level (15ug/L) has been exceeded. Under 141.84(a), systems that fail to meet the lead action level in tap samples after installing corrosion control treatment must replace lead service lines – 7% of the lead service lines in its distribution system.

From: Wyant, Dan (DEQ) [mailto:WyantD@michigan.gov]
Sent: Thursday, October 01, 2015 5:02 PM
To: Hedman, Susan
Subject: Fwd: talking points

Talking points. I will make the adjustment you and I talked about. Thanks for your help.

Sent from my iPhone

Begin forwarded message:

From: "Tommasulo, Karen (DEQ)" <TommasuloK@michigan.gov>
Date: October 1, 2015 at 4:27:53 PM EDT
To: "Pallone, Maggie (DEQ)" <PalloneM@michigan.gov>, "Minicuci, Angela (DHHS)" <MinicuciA@michigan.gov>, "Eisner, Jennifer (DHHS)" <EisnerJ@michigan.gov>, "Hertel, Elizabeth (DHHS)" <HertelE@michigan.gov>, "Wurfel, Brad (DEQ)" <WurfelB@michigan.gov>, "Wurfel, Sara (GOV)" <WurfelS@michigan.gov>, "Murray, David (GOV)" <MurrayD1@michigan.gov>, "Thelen, Mary Beth (DEQ)" <THELENM2@michigan.gov>, "Wyant, Dan (DEQ)" <WyantD@michigan.gov>, "Paciorek, Josh (GOV)" <PaciorekJ@michigan.gov>, "Lasher, Geralyn (DHHS)" <lasherg@michigan.gov>
Subject: talking points

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[H2]

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Title 40: Protection of Environment
PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

Subpart I—Control of Lead and Copper

Contents

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§141.83 Source water treatment requirements.
§141.84 Lead service line replacement requirements.
§141.85 Public education and supplemental monitoring requirements.
§141.86 Monitoring requirements for lead and copper in tap water.
§141.87 Monitoring requirements for water quality parameters.
§141.88 Monitoring requirements for lead and copper in source water.
§141.89 Analytical methods.
§141.90 Reporting requirements.
§141.91 Recordkeeping requirements.

Source: 56 FR 26548, June 7, 1991, unless otherwise noted.

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§141.80 General requirements.

(a) *Applicability and effective dates.* (1) The requirements of this subpart I constitute the national primary drinking water regulations for lead and copper. Unless otherwise indicated, each of the provisions of this subpart applies to community water systems and non-transient, non-community water systems (hereinafter referred to as "water systems" or "systems").

(2) [Reserved]

(b) *Scope.* These regulations establish a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

(c) *Lead and copper action levels.* (1) The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with §141.86 is greater than 0.015 mg/L (*i.e.*, if the "90th percentile" lead level is greater than 0.015 mg/L).

(2) The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with §141.86 is greater than 1.3 mg/L (*i.e.*, if the "90th percentile" copper level is greater than 1.3 mg/L).

(3) The 90th percentile lead and copper levels shall be computed as follows:

(i) The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest

contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.

(ii) The number of samples taken during the monitoring period shall be multiplied by 0.9.

(iii) The contaminant concentration in the numbered sample yielded by the calculation in paragraph (c)(3)(ii) is the 90th percentile contaminant level.

(iv) For water systems serving fewer than 100 people that collect 5 samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

(v) For a public water system that has been allowed by the State to collect fewer than five samples in accordance with §141.86(c), the sample result with the highest concentration is considered the 90th percentile value.

(d) *Corrosion control treatment requirements.* (1) All water systems shall install and operate optimal corrosion control treatment as defined in §141.2.

(2) Any water system that complies with the applicable corrosion control treatment requirements specified by the State under §§141.81 and 141.82 shall be deemed in compliance with the treatment requirement contained in paragraph (d)(1) of this section.

(e) *Source water treatment requirements.* Any system exceeding the lead or copper action level shall implement all applicable source water treatment requirements specified by the State under §141.83.

(f) *Lead service line replacement requirements.* Any system exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in §141.84.

(g) *Public education requirements.* Pursuant to §141.85, all water systems must provide a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested. Any system exceeding the lead action level shall implement the public education requirements.

(h) *Monitoring and analytical requirements.* Tap water monitoring for lead and copper, monitoring for water quality parameters, source water monitoring for lead and copper, and analyses of the monitoring results under this subpart shall be completed in compliance with §§141.86, 141.87, 141.88, and 141.89.

(i) *Reporting requirements.* Systems shall report to the State any information required by the treatment provisions of this subpart and §141.90.

(j) *Recordkeeping requirements.* Systems shall maintain records in accordance with §141.91.

(k) *Violation of national primary drinking water regulations.* Failure to comply with the applicable requirements of §§141.80-141.91, including requirements established by the State pursuant to these provisions, shall constitute a violation of the national primary drinking water regulations for lead and/or copper.

[56 FR 26548, June 7, 1991; 57 FR 28788, June 29, 1992, as amended at 72 FR 57814, Oct. 10, 2007]

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§141.81 Applicability of corrosion control treatment steps to small, medium-size and large water systems.

(a) Systems shall complete the applicable corrosion control treatment requirements described in §141.82 by the deadlines established in this section.

(1) A large system (serving >50,000 persons) shall complete the corrosion control treatment steps specified in paragraph (d) of this section, unless it is deemed to have optimized corrosion control under paragraph (b)(2) or (b)(3) of this section.

(2) A small system (serving ≤3300 persons) and a medium-size system (serving >3,300 and ≤50,000 persons) shall complete the corrosion control treatment steps specified in paragraph (e) of this section, unless it is deemed to have optimized corrosion control under paragraph (b)(1), (b)(2), or (b)(3) of this section.

(b) A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the system satisfies one of the criteria specified in paragraphs (b)(1) through (b)(3) of this section. Any such system deemed to have optimized corrosion control under this paragraph, and which has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the State determines appropriate to ensure optimal corrosion control treatment is maintained.

(1) A small or medium-size water system is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of two consecutive six-month monitoring periods conducted in accordance with §141.86.

(2) Any water system may be deemed by the State to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the State that it has conducted activities equivalent to the corrosion control steps applicable to such system under this section. If the State makes this determination, it shall provide the system with written notice explaining the basis for its decision and shall specify the water quality control parameters representing optimal corrosion control in accordance with §141.82(f). Water systems deemed to have optimized corrosion control

under this paragraph shall operate in compliance with the State-designated optimal water quality control parameters in accordance with §141.82(g) and continue to conduct lead and copper tap and water quality parameter sampling in accordance with §141.86(d)(3) and §141.87(d), respectively. A system shall provide the State with the following information in order to support a determination under this paragraph:

(i) The results of all test samples collected for each of the water quality parameters in §141.82(c)(3).

(ii) A report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in §141.82(c)(1), the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment;

(iii) A report explaining how corrosion control has been installed and how it is being maintained to insure minimal lead and copper concentrations at consumers' taps; and

(iv) The results of tap water samples collected in accordance with §141.86 at least once every six months for one year after corrosion control has been installed.

(3) Any water system is deemed to have optimized corrosion control if it submits results of tap water monitoring conducted in accordance with §141.86 and source water monitoring conducted in accordance with §141.88 that demonstrates for two consecutive 6-month monitoring periods that the difference between the 90th percentile tap water lead level computed under §141.80(c)(3), and the highest source water lead concentration is less than the Practical Quantitation Level for lead specified in §141.89(a)(1)(ii).

(i) Those systems whose highest source water lead level is below the Method Detection Limit may also be deemed to have optimized corrosion control under this paragraph if the 90th percentile tap water lead level is less than or equal to the Practical Quantitation Level for lead for two consecutive 6-month monitoring periods.

(ii) Any water system deemed to have optimized corrosion control in accordance with this paragraph shall continue monitoring for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in §141.86(c) and collecting the samples at times and locations specified in §141.86(d)(4)(iv). Any such system that has not conducted a round of monitoring pursuant to §141.86(d) since September 30, 1997, shall complete a round of monitoring pursuant to this paragraph no later than September 30, 2000.

(iii) Any water system deemed to have optimized corrosion control pursuant to this paragraph shall notify the State in writing pursuant to §141.90(a)(3) of any upcoming long-term change in treatment or addition of a new source as described in that section. The State must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system. The State may require any such system to conduct additional monitoring or to take other action the State deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system.

(iv) As of July 12, 2001, a system is not deemed to have optimized corrosion control under this paragraph, and shall implement corrosion control treatment pursuant to paragraph (b)(3)(v) of this section unless it meets the copper action level.

(v) Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this paragraph shall implement corrosion control treatment in accordance with the deadlines in paragraph (e) of this section. Any such large system shall adhere to the schedule specified in that paragraph for medium-size systems, with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control under this paragraph.

(c) Any small or medium-size water system that is required to complete the corrosion control steps due to its exceedance of the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of two consecutive monitoring periods conducted pursuant to §141.86 and submits the results to the State. If any such water system thereafter exceeds the lead or copper action level during any monitoring period, the system (or the State, as the case may be) shall recommence completion of the applicable treatment steps, beginning with the first treatment step which was not previously completed in its entirety. The State may require a system to repeat treatment steps previously completed by the system where the State determines that this is necessary to implement properly the treatment requirements of this section. The State shall notify the system in writing of such a determination and explain the basis for its decision. The requirement for any small- or medium-size system to implement corrosion control treatment steps in accordance with paragraph (e) of this section (including systems deemed to have optimized corrosion control under paragraph (b)(1) of this section) is triggered whenever any small- or medium-size system exceeds the lead or copper action level.

(d) *Treatment steps and deadlines for large systems.* Except as provided in paragraph (b) (2) and (3) of this section, large systems shall complete the following corrosion control treatment steps (described in the referenced portions of §§141.82, 141.86, and 141.87) by the indicated dates.

(1) *Step 1:* The system shall conduct initial monitoring (§141.86(d)(1) and §141.87(b)) during two consecutive six-month monitoring periods by January 1, 1993.

(2) *Step 2:* The system shall complete corrosion control studies (§141.82(c)) by July 1, 1994.

(3) *Step 3:* The State shall designate optimal corrosion control treatment (§141.82(d)) by January 1, 1995.

(4) *Step 4:* The system shall install optimal corrosion control treatment (§141.82(e)) by January 1, 1997.

(5) *Step 5:* The system shall complete follow-up sampling (§141.86(d)(2) and §141.87(c)) by January 1, 1998.

(6) *Step 6:* The State shall review installation of treatment and designate optimal water quality control parameters (§141.82(f)) by July 1, 1998.

(7) *Step 7:* The system shall operate in compliance with the State-specified optimal water quality control parameters (§141.82(g)) and continue to conduct tap sampling (§141.86(d)(3) and §141.87(d)).

(e) *Treatment Steps and deadlines for small and medium-size systems.* Except as provided in paragraph (b) of this section, small and medium-size systems shall complete the following corrosion control treatment steps (described in the referenced portions of §§141.82, 141.86 and 141.87) by the indicated time periods.

(1) *Step 1:* The system shall conduct initial tap sampling (§141.86(d)(1) and §141.87(b)) until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under §141.86(d)(4). A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment (§141.82(a)) within six months after the end of the monitoring period during which it exceeds one of the action levels.

(2) *Step 2:* Within 12 months after the end of the monitoring period during which a system exceeds the lead or copper action level, the State may require the system to perform corrosion control studies (§141.82(b)). If the State does not require the system to perform such studies, the State shall specify optimal corrosion control treatment (§141.82(d)) within the following timeframes:

(i) For medium-size systems, within 18 months after the end of the monitoring period during which such system exceeds the lead or copper action level.

(ii) For small systems, within 24 months after the end of the monitoring period during which such system exceeds the lead or copper action level.

(3) *Step 3:* If the State requires a system to perform corrosion control studies under step 2, the system shall complete the studies (§141.82(c)) within 18 months after the State requires that such studies be conducted.

(4) *Step 4:* If the system has performed corrosion control studies under step 2, the State shall designate optimal corrosion control treatment (§141.82(d)) within 6 months after completion of step 3.

(5) *Step 5:* The system shall install optimal corrosion control treatment (§141.82(e)) within 24 months after the State designates such treatment.

(6) *Step 6:* The system shall complete follow-up sampling (§141.86(d)(2) and §141.87(c)) within 36 months after the State designates optimal corrosion control treatment.

(7) *Step 7:* The State shall review the system's installation of treatment and designate optimal water quality control parameters (§141.82(f)) within 6 months after completion of step 6.

(8) *Step 8:* The system shall operate in compliance with the State-designated optimal water quality control parameters (§141.82(g)) and continue to conduct tap sampling (§141.86(d)(3) and §141.87(d)).

[56 FR 26548, June 7, 1991, as amended at 59 FR 33862, June 30, 1994; 65 FR 2004, Jan. 12, 2000; 72 FR 57814, Oct. 10, 2007]

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§141.82 Description of corrosion control treatment requirements.

Each system shall complete the corrosion control treatment requirements described below which are applicable to such system under §141.81.

(a) *System recommendation regarding corrosion control treatment.* Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, small and medium-size water systems exceeding the lead or copper action level shall recommend installation of one or more of the corrosion control treatments listed in paragraph (c)(1) of this section which the system believes constitutes optimal corrosion control for that system. The State may require the system to conduct additional water quality parameter monitoring in accordance with §141.87(b) to assist the State in reviewing the system's recommendation.

(b) *State decision to require studies of corrosion control treatment (applicable to small and medium-size systems).* The State may require any small or medium-size system that exceeds the lead or copper action level to perform corrosion control studies under paragraph (c) of this section to identify optimal corrosion control treatment for the system.

(c) *Performance of corrosion control studies.* (1) Any public water system performing corrosion control studies shall evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment for that system:

(i) Alkalinity and pH adjustment;

(ii) Calcium hardness adjustment; and

(iii) The addition of a phosphate or silicate based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

(2) The water system shall evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry and distribution system configuration.

(3) The water system shall measure the following water quality parameters in any tests conducted under this

paragraph before and after evaluating the corrosion control treatments listed above:

(i) Lead;

(ii) Copper;

(iii) pH;

(iv) Alkalinity;

(v) Calcium;

(vi) Conductivity;

(vii) Orthophosphate (when an inhibitor containing a phosphate compound is used);

(viii) Silicate (when an inhibitor containing a silicate compound is used);

(ix) Water temperature.

(4) The water system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one of the following:

(i) Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another water system with comparable water quality characteristics; and/or

(ii) Data and documentation demonstrating that the water system has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes.

(5) The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(6) On the basis of an analysis of the data generated during each evaluation, the water system shall recommend to the State in writing the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that system. The water system shall provide a rationale for its recommendation along with all supporting documentation specified in paragraphs (c) (1) through (5) of this section.

(d) *State designation of optimal corrosion control treatment.* (1) Based upon consideration of available information including, where applicable, studies performed under paragraph (c) of this section and a system's recommended treatment alternative, the State shall either approve the corrosion control treatment option recommended by the system, or designate alternative corrosion control treatment(s) from among those listed in paragraph (c)(1) of this section. When designating optimal treatment the State shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes.

(2) The State shall notify the system of its decision on optimal corrosion control treatment in writing and explain the basis for this determination. If the State requests additional information to aid its review, the water system shall provide the information.

(e) *Installation of optimal corrosion control.* Each system shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the State under paragraph (d) of this section.

(f) *State review of treatment and specification of optimal water quality control parameters.* The State shall evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the water system and determine whether the system has properly installed and operated the optimal corrosion control treatment designated by the State in paragraph (d) of this section. Upon reviewing the results of tap water and water quality parameter monitoring by the system, both before and after the system installs optimal corrosion control treatment, the State shall designate:

(1) A minimum value or a range of values for pH measured at each entry point to the distribution system;

(2) A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than 7.0, unless the State determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the system to optimize corrosion control;

(3) If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, that the State determines is necessary to form a passivating film on the interior walls of the pipes of the distribution system;

(4) If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples;

(5) If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples.

The values for the applicable water quality control parameters listed above shall be those that the State determines to reflect optimal corrosion control treatment for the system. The State may designate values for additional water quality control parameters determined by the State to reflect optimal corrosion control for the system. The State shall notify the system in writing of these determinations and explain the basis for its decisions.

(g) *Continued operation and monitoring.* All systems optimizing corrosion control shall continue to operate and

maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the State under paragraph (f) of this section, in accordance with this paragraph for all samples collected under §141.87(d) through (f). Compliance with the requirements of this paragraph shall be determined every six months, as specified under §141.87(d). A water system is out of compliance with the requirements of this paragraph for a six-month period if it has excursions for any State-specified parameter on more than nine days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the State. Daily values are calculated as follows. States have discretion to delete results of obvious sampling errors from this calculation.

(1) On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both. If EPA has approved an alternative formula under §142.16 of this chapter in the State's application for a program revision submitted pursuant to §142.12 of this chapter, the State's formula shall be used to aggregate multiple measurements taken at a sampling point for the water quality parameter in lieu of the formula in this paragraph.

(2) On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

(3) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

(h) *Modification of State treatment decisions.* Upon its own initiative or in response to a request by a water system or other interested party, a State may modify its determination of the optimal corrosion control treatment under paragraph (d) of this section or optimal water quality control parameters under paragraph (f) of this section. A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The State may modify its determination where it concludes that such change is necessary to ensure that the system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the State's decision, and provide an implementation schedule for completing the treatment modifications.

(i) *Treatment decisions by EPA in lieu of the State.* Pursuant to the procedures in §142.19, the EPA Regional Administrator may review treatment determinations made by a State under paragraphs (d), (f), or (h) of this section and issue federal treatment determinations consistent with the requirements of those paragraphs where the Regional Administrator finds that:

(1) A State has failed to issue a treatment determination by the applicable deadlines contained in §141.81,

(2) A State has abused its discretion in a substantial number of cases or in cases affecting a substantial population, or

(3) The technical aspects of a State's determination would be indefensible in an expected Federal enforcement action taken against a system.

[56 FR 26548, June 7, 1991, as amended at 65 FR 2004, Jan. 12, 2000]

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§141.83 Source water treatment requirements.

Systems shall complete the applicable source water monitoring and treatment requirements (described in the referenced portions of paragraph (b) of this section, and in §§141.86, and 141.88) by the following deadlines.

(a) *Deadlines for completing source water treatment steps*—(1) *Step 1:* A system exceeding the lead or copper action level shall complete lead and copper source water monitoring (§141.88(b)) and make a treatment recommendation to the State (§141.83(b)(1)) no later than 180 days after the end of the monitoring period during which the lead or copper action level was exceeded.

(2) *Step 2:* The State shall make a determination regarding source water treatment (§141.83(b)(2)) within 6 months after submission of monitoring results under step 1.

(3) *Step 3:* If the State requires installation of source water treatment, the system shall install the treatment (§141.83(b)(3)) within 24 months after completion of step 2.

(4) *Step 4:* The system shall complete follow-up tap water monitoring (§141.86(d)(2) and source water monitoring (§141.88(c)) within 36 months after completion of step 2.

(5) *Step 5:* The State shall review the system's installation and operation of source water treatment and specify maximum permissible source water levels (§141.83(b)(4)) within 6 months after completion of step 4.

(6) *Step 6:* The system shall operate in compliance with the State-specified maximum permissible lead and copper source water levels (§141.83(b)(4)) and continue source water monitoring (§141.88(d)).

(b) *Description of source water treatment requirements*—(1) *System treatment recommendation.* Any system which exceeds the lead or copper action level shall recommend in writing to the State the installation and operation of one of the source water treatments listed in paragraph (b)(2) of this section. A system may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels

at users' taps.

(2) *State determination regarding source water treatment.* The State shall complete an evaluation of the results of all source water samples submitted by the water system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the State determines that treatment is needed, the State shall either require installation and operation of the source water treatment recommended by the system (if any) or require the installation and operation of another source water treatment from among the following: Ion exchange, reverse osmosis, lime softening or coagulation/filtration. If the State requests additional information to aid in its review, the water system shall provide the information by the date specified by the State in its request. The State shall notify the system in writing of its determination and set forth the basis for its decision.

(3) *Installation of source water treatment.* Each system shall properly install and operate the source water treatment designated by the State under paragraph (b)(2) of this section.

(4) *State review of source water treatment and specification of maximum permissible source water levels.* The State shall review the source water samples taken by the water system both before and after the system installs source water treatment, and determine whether the system has properly installed and operated the source water treatment designated by the State. Based upon its review, the State shall designate the maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment properly operated and maintained. The State shall notify the system in writing and explain the basis for its decision.

(5) *Continued operation and maintenance.* Each water system shall maintain lead and copper levels below the maximum permissible concentrations designated by the State at each sampling point monitored in accordance with §141.88. The system is out of compliance with this paragraph if the level of lead or copper at any sampling point is greater than the maximum permissible concentration designated by the State.

(6) *Modification of State treatment decisions.* Upon its own initiative or in response to a request by a water system or other interested party, a State may modify its determination of the source water treatment under paragraph (b)(2) of this section, or maximum permissible lead and copper concentrations for finished water entering the distribution system under paragraph (b)(4) of this section. A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The State may modify its determination where it concludes that such change is necessary to ensure that the system continues to minimize lead and copper concentrations in source water. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the State's decision, and provide an implementation schedule for completing the treatment modifications.

(7) *Treatment decisions by EPA in lieu of the State.* Pursuant to the procedures in §142.19, the EPA Regional Administrator may review treatment determinations made by a State under paragraphs (b) (2), (4), or (6) of this section and issue Federal treatment determinations consistent with the requirements of those paragraphs where the Administrator finds that:

(i) A State has failed to issue a treatment determination by the applicable deadlines contained in §141.83(a),

(ii) A state has abused its discretion in a substantial number of cases or in cases affecting a substantial population, or

(iii) The technical aspects of a State's determination would be indefensible in an expected Federal enforcement action taken against a system.

[56 FR 26548, June 7, 1991, as amended at 72 FR 57815, Oct. 10, 2007]

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§141.84 Lead service line replacement requirements.

(a) Systems that fail to meet the lead action level in tap samples taken pursuant to §141.86(d)(2), after installing corrosion control and/or source water treatment (whichever sampling occurs later), shall replace lead service lines in accordance with the requirements of this section. If a system is in violation of §141.81 or §141.83 for failure to install source water or corrosion control treatment, the State may require the system to commence lead service line replacement under this section after the date by which the system was required to conduct monitoring under §141.86(d)(2) has passed.

(b)(1) A water system shall replace annually at least 7 percent of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the system, based on a materials evaluation, including the evaluation required under §141.86(a) and relevant legal authorities (e.g., contracts, local ordinances) regarding the portion owned by the system. The first year of lead service line replacement shall begin on the first day following the end of the monitoring period in which the action level was exceeded under paragraph (a) of this section. If monitoring is required annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs. If the State has established an alternate monitoring period, then the end of the monitoring period will be the last day of that period.

(2) Any water system resuming a lead service line replacement program after the cessation of its lead service line replacement program as allowed by paragraph (f) of this section shall update its inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under

paragraph (c) of this section. The system will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that must be replaced per year (7 percent lead service line replacement is based on a 15-year replacement program, so, for example, systems resuming lead service line replacement after previously conducting two years of replacement would divide the updated inventory by 13). For those systems that have completed a 15-year lead service line replacement program, the State will determine a schedule for replacing or retesting lines that were previously tested out under the replacement program when the system re-exceeds the action level.

(c) A system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to §141.86(b)(3), is less than or equal to 0.015 mg/L.

(d) A water system shall replace that portion of the lead service line that it owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner's authorized agent, that the system will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost of replacing the privately-owned portion of the line, nor is it required to replace the privately-owned portion where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion would be precluded by State, local or common law. A water system that does not replace the entire length of the service line also shall complete the following tasks.

(1) At least 45 days prior to commencing with the partial replacement of a lead service line, the water system shall provide notice to the resident(s) of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead. The State may allow the water system to provide notice under the previous sentence less than 45 days prior to commencing partial lead service line replacement where such replacement is in conjunction with emergency repairs. In addition, the water system shall inform the resident(s) served by the line that the system will, at the system's expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content, as prescribed under §141.86(b)(3), within 72 hours after the completion of the partial replacement of the service line. The system shall collect the sample and report the results of the analysis to the owner and the resident(s) served by the line within three business days of receiving the results. Mailed notices post-marked within three business days of receiving the results shall be considered "on time."

(2) The water system shall provide the information required by paragraph (d)(1) of this section to the residents of individual dwellings by mail or by other methods approved by the State. In instances where multi-family dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

(e) The State shall require a system to replace lead service lines on a shorter schedule than that required by this section, taking into account the number of lead service lines in the system, where such a shorter replacement schedule is feasible. The State shall make this determination in writing and notify the system of its finding within 6 months after the system is triggered into lead service line replacement based on monitoring referenced in paragraph (a) of this section.

(f) Any system may cease replacing lead service lines whenever first draw samples collected pursuant to §141.86(b)(2) meet the lead action level during each of two consecutive monitoring periods and the system submits the results to the State. If first draw tap samples collected in any such system thereafter exceeds the lead action level, the system shall recommence replacing lead service lines pursuant to paragraph (b)(2) of this section.

(g) To demonstrate compliance with paragraphs (a) through (d) of this section, a system shall report to the State the information specified in §141.90(e).

[56 FR 26548, June 7, 1991; 57 FR 28788, June 29, 1992, as amended at 65 FR 2005, Jan. 12, 2000; 72 FR 57815, Oct. 10, 2007]

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§141.85 Public education and supplemental monitoring requirements.

All water systems must deliver a consumer notice of lead tap water monitoring results to persons served by the water system at sites that are tested, as specified in paragraph (d) of this section. A water system that exceeds the lead action level based on tap water samples collected in accordance with §141.86 shall deliver the public education materials contained in paragraph (a) of this section in accordance with the requirements in paragraph (b) of this section. Water systems that exceed the lead action level must sample the tap water of any customer who requests it in accordance with paragraph (c) of this section.

(a) *Content of written public education materials*—(1) *Community water systems and non-transient non-community water systems.* Water systems must include the following elements in printed materials (e.g., brochures and pamphlets) in the same order as listed below. In addition, language in paragraphs (a)(1)(i) through (ii) and (a)(1)(vi) of this section must be included in the materials, exactly as written, except for the text in brackets in these paragraphs for which the water system must include system-specific information. Any additional information presented by a water system must be consistent with the information below and be in plain language that can be understood by the general public. Water systems must submit all written public education materials to the State prior to delivery. The State may require the system to obtain approval of the content of written public materials prior to delivery.

(i) IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [INSERT NAME OF WATER SYSTEM] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.

(ii) *Health effects of lead.* Lead can cause serious health problems if too much enters your body from drinking water

or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

(iii) *Sources of lead.* (A) Explain what lead is.

(B) Explain possible sources of lead in drinking water and how lead enters drinking water. Include information on home/building plumbing materials and service lines that may contain lead.

(C) Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

(iv) Discuss the steps the consumer can take to reduce their exposure to lead in drinking water.

(A) Encourage running the water to flush out the lead.

(B) Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

(C) Explain that boiling water does not reduce lead levels.

(D) Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.

(E) Suggest that parents have their child's blood tested for lead.

(v) Explain why there are elevated levels of lead in the system's drinking water (if known) and what the water system is doing to reduce the lead levels in homes/buildings in this area.

(vi) For more information, call us at [INSERT YOUR NUMBER] [(IF APPLICABLE), or visit our Web site at [INSERT YOUR WEB SITE HERE]]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA's Web site at *http://www.epa.gov/lead* or contact your health care provider.

(2) *Community water systems.* In addition to including the elements specified in paragraph (a)(1) of this section, community water systems must:

(i) Tell consumers how to get their water tested.

(ii) Discuss lead in plumbing components and the difference between low lead and lead free.

(b) *Delivery of public education materials.* (1) For public water systems serving a large proportion of non-English speaking consumers, as determined by the State, the public education materials must contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(2) A community water system that exceeds the lead action level on the basis of tap water samples collected in accordance with §141.86, and that is not already conducting public education tasks under this section, must conduct the public education tasks under this section within 60 days after the end of the monitoring period in which the exceedance occurred:

(i) Deliver printed materials meeting the content requirements of paragraph (a) of this section to all bill paying customers.

(ii)(A) Contact customers who are most at risk by delivering education materials that meet the content requirements of paragraph (a) of this section to local public health agencies even if they are not located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users. The water system must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community based organizations serving target populations, which may include organizations outside the service area of the water system. If such lists are provided, systems must deliver education materials that meet the content requirements of paragraph (a) of this section to all organizations on the provided lists.

(B) Contact customers who are most at risk by delivering materials that meet the content requirements of paragraph (a) of this section to the following organizations listed in 1 through 6 that are located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users:

(*1*) Public and private schools or school boards.

(*2*) Women, Infants and Children (WIC) and Head Start programs.

(*3*) Public and private hospitals and medical clinics.

(*4*) Pediatricians.

(*5*) Family planning clinics.

(*6*) Local welfare agencies.

(C) Make a good faith effort to locate the following organizations within the service area and deliver materials that meet the content requirements of paragraph (a) of this section to them, along with an informational notice that encourages distribution to all potentially affected customers or users. The good faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system's service area:

(*1*) Licensed childcare centers

(*2*) Public and private preschools.

(*3*) Obstetricians-Gynecologists and Midwives.

(iii) No less often than quarterly, provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the following statement exactly as written except for the text in brackets for which the water system must include system-specific information: [INSERT NAME OF WATER SYSTEM] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information please call [INSERT NAME OF WATER SYSTEM] [or visit (INSERT YOUR WEB SITE HERE)]. The message or delivery mechanism can be modified in consultation with the State; specifically, the State may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

(iv) Post material meeting the content requirements of paragraph (a) of this section on the water system's Web site if the system serves a population greater than 100,000.

(v) Submit a press release to newspaper, television and radio stations.

(vi) In addition to paragraphs (b)(2)(i) through (v) of this section, systems must implement at least three activities from one or more categories listed below. The educational content and selection of these activities must be determined in consultation with the State.

(A) Public Service Announcements.

(B) Paid advertisements.

(C) Public Area Information Displays.

(D) E-mails to customers.

(E) Public Meetings.

(F) Household Deliveries.

(G) Targeted Individual Customer Contact.

(H) Direct material distribution to all multi-family homes and institutions.

(I) Other methods approved by the State.

(vii) For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the State has established an alternate monitoring period, the last day of that period.

(3) As long as a community water system exceeds the action level, it must repeat the activities pursuant to paragraph (b)(2) of this section as described in paragraphs (b)(3)(i) through (iv) of this section.

(i) A community water system shall repeat the tasks contained in paragraphs (b)(2)(i), (ii) and (vi) of this section every 12 months.

(ii) A community water system shall repeat tasks contained in paragraph (b)(2)(iii) of this section with each billing cycle.

(iii) A community water system serving a population greater than 100,000 shall post and retain material on a publicly accessible Web site pursuant to paragraph (b)(2)(iv) of this section.

(iv) The community water system shall repeat the task in paragraph (b)(2)(v) of this section twice every 12 months on a schedule agreed upon with the State. The State can allow activities in paragraph (b)(2) of this section to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the State in advance of the 60-day deadline.

(4) Within 60 days after the end of the monitoring period in which the exceedance occurred (unless it already is repeating public education tasks pursuant to paragraph (b)(5) of this section), a non-transient non-community water system shall deliver the public education materials specified by paragraph (a) of this section as follows:

(i) Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

(ii) Distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the non-transient non-community water system. The State may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

(iii) For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring

period is September 30 of the calendar year in which the sampling occurs, or, if the State has established an alternate monitoring period, the last day of that period.

(5) A non-transient non-community water system shall repeat the tasks contained in paragraph (b)(4) of this section at least once during each calendar year in which the system exceeds the lead action level. The State can allow activities in (b)(4) of this section to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the State in advance of the 60-day deadline.

(6) A water system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring period conducted pursuant to §141.86. Such a system shall recommence public education in accordance with this section if it subsequently exceeds the lead action level during any monitoring period.

(7) A community water system may apply to the State, in writing (unless the State has waived the requirement for prior State approval), to use only the text specified in paragraph (a)(1) of this section in lieu of the text in paragraphs (a)(1) and (a)(2) of this section and to perform the tasks listed in paragraphs (b)(4) and (b)(5) of this section in lieu of the tasks in paragraphs (b)(2) and (b)(3) of this section if:

(i) The system is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices; and

(ii) The system provides water as part of the cost of services provided and does not separately charge for water consumption.

(8) A community water system serving 3,300 or fewer people may limit certain aspects of their public education programs as follows:

(i) With respect to the requirements of paragraph (b)(2)(vi) of this section, a system serving 3,300 or fewer must implement at least one of the activities listed in that paragraph.

(ii) With respect to the requirements of paragraph (b)(2)(ii) of this section, a system serving 3,300 or fewer people may limit the distribution of the public education materials required under that paragraph to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

(iii) With respect to the requirements of paragraph (b)(2)(v) of this section, the State may waive this requirement for systems serving 3,300 or fewer persons as long as system distributes notices to every household served by the system.

(c) *Supplemental monitoring and notification of results.* A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with §141.86 shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system required to collect and analyze the sample itself.

(d) *Notification of results*—(1) *Reporting requirement.* All water systems must provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of §141.86 to the persons served by the water system at the specific sampling site from which the sample was taken (e.g., the occupants of the residence where the tap was tested).

(2) *Timing of notification.* A water system must provide the consumer notice as soon as practical, but no later than 30 days after the system learns of the tap monitoring results.

(3) *Content.* The consumer notice must include the results of lead tap water monitoring for the tap that was tested, an explanation of the health effects of lead, list steps consumers can take to reduce exposure to lead in drinking water and contact information for the water utility. The notice must also provide the maximum contaminant level goal and the action level for lead and the definitions for these two terms from §141.153(c).

(4) *Delivery.* The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the State. For example, upon approval by the State, a non-transient non-community water system could post the results on a bulletin board in the facility to allow users to review the information. The system must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

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§141.86 Monitoring requirements for lead and copper in tap water.

(a) *Sample site location.* (1) By the applicable date for commencement of monitoring under paragraph (d)(1) of this section, each water system shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that meets the requirements of this section, and which is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in paragraph (c) of this section. All sites from which first draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

(2) A water system shall use the information on lead, copper, and galvanized steel that it is required to collect under §141.42(d) of this part [special monitoring for corrosivity characteristics] when conducting a materials evaluation. When an evaluation of the information collected pursuant to §141.42(d) is insufficient to locate the requisite number of

lead and copper sampling sites that meet the targeting criteria in paragraph (a) of this section, the water system shall review the sources of information listed below in order to identify a sufficient number of sampling sites. In addition, the system shall seek to collect such information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities):

(i) All plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system;

(ii) All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and

(iii) All existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations.

(3) The sampling sites selected for a community water system's sampling pool ("tier I sampling sites") shall consist of single family structures that:

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

(ii) Are served by a lead service line. When multiple-family residences comprise at least 20 percent of the structures served by a water system, the system may include these types of structures in its sampling pool.

(4) Any community water system with insufficient tier 1 sampling sites shall complete its sampling pool with "tier 2 sampling sites", consisting of buildings, including multiple-family residences that:

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

(ii) Are served by a lead service line.

(5) Any community water system with insufficient tier 1 and tier 2 sampling sites shall complete its sampling pool with "tier 3 sampling sites", consisting of single family structures that contain copper pipes with lead solder installed before 1983. A community water system with insufficient tier 1, tier 2, and tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. For the purpose of this paragraph, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(6) The sampling sites selected for a non-transient noncommunity water system ("tier I sampling sites") shall consist of buildings that:

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

(ii) Are served by a lead service line.

(7) A non-transient non-community water system with insufficient tier 1 sites that meet the targeting criteria in paragraph (a)(6) of this section shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the non-transient non-community water system shall use representative sites throughout the distribution system. For the purpose of this paragraph, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(8) Any water system whose distribution system contains lead service lines shall draw 50 percent of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50 percent of the samples from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first-draw samples from all of the sites identified as being served by such lines.

(b) *Sample collection methods.* (1) All tap samples for lead and copper collected in accordance with this subpart, with the exception of lead service line samples collected under §141.84(c) and samples collected under paragraph (b)(5) of this section, shall be first-draw samples.

(2) Each first-draw tap sample for lead and copper shall be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours. First-draw samples from residential housing shall be collected from the cold water kitchen tap or bathroom sink tap. First-draw samples from a nonresidential building shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. Non-first-draw samples collected in lieu of first-draw samples pursuant to paragraph (b)(5) of this section shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the system or the system may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this paragraph. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(3) Each service line sample shall be one liter in volume and have stood motionless in the lead service line for at least six hours. Lead service line samples shall be collected in one of the following three ways:

(i) At the tap after flushing the volume of water between the tap and the lead service line. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line;

(ii) Tapping directly into the lead service line; or

(iii) If the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.

(4) A water system shall collect each first draw tap sample from the same sampling site from which it collected a previous sample. If, for any reason, the water system cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system may collect the follow-up tap sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity of the original site.

(5) A non-transient non-community water system, or a community water system that meets the criteria of §141.85(b)(7), that does not have enough taps that can supply first-draw samples, as defined in §141.2, may apply to the State in writing to substitute non-first-draw samples. Such systems must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The State has the discretion to waive the requirement for prior State approval of non-first-draw sample sites selected by the system, either through State regulation or written notification to the system.

(c) *Number of samples.* Water systems shall collect at least one sample during each monitoring period specified in paragraph (d) of this section from the number of sites listed in the first column ("standard monitoring") of the table in this paragraph. A system conducting reduced monitoring under paragraph (d)(4) of this section shall collect at least one sample from the number of sites specified in the second column ("reduced monitoring") of the table in this paragraph during each monitoring period specified in paragraph (d)(4) of this section. Such reduced monitoring sites shall be representative of the sites required for standard monitoring. A public water system that has fewer than five drinking water taps, that can be used for human consumption meeting the sample site criteria of paragraph (a) of this section to reach the required number of sample sites listed in paragraph (c) of this section, must collect at least one sample from each tap and then must collect additional samples from those taps on different days during the monitoring period to meet the required number of sites. Alternatively the State may allow these public water systems to collect a number of samples less than the number of sites specified in paragraph (c) of this section, provided that 100 percent of all taps that can be used for human consumption are sampled. The State must approve this reduction of the minimum number of samples in writing based on a request from the system or onsite verification by the State. States may specify sampling locations when a system is conducting reduced monitoring. The table is as follows:

System size (number of people served)	Number of sites (standard monitoring)	Number of sites (reduced monitoring)
>100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
≤100	5	5

(d) *Timing of monitoring*—(1) *Initial tap sampling.* The first six-month monitoring period for small, medium-size and large systems shall begin on the following dates:

System size (No. people served)	First six-month monitoring period begins on
>50,000	January 1, 1992.
3,301 to 50,000	July 1, 1992.
≤3,300	July 1, 1993.

(i) All large systems shall monitor during two consecutive six-month periods.

(ii) All small and medium-size systems shall monitor during each six-month monitoring period until:

(A) The system exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under §141.81, in which case the system shall continue monitoring in accordance with paragraph (d)(2) of this section, or

(B) The system meets the lead and copper action levels during two consecutive six-month monitoring periods, in which case the system may reduce monitoring in accordance with paragraph (d)(4) of this section.

(2) *Monitoring after installation of corrosion control and source water treatment.* (i) Any large system which installs optimal corrosion control treatment pursuant to §141.81(d)(4) shall monitor during two consecutive six-month monitoring periods by the date specified in §141.81(d)(5).

(ii) Any small or medium-size system which installs optimal corrosion control treatment pursuant to §141.81(e)(5) shall monitor during two consecutive six-month monitoring periods by the date specified in §141.81(e)(6).

(iii) Any system which installs source water treatment pursuant to §141.83(a)(3) shall monitor during two consecutive six-month monitoring periods by the date specified in §141.83(a)(4).

(3) *Monitoring after State specifies water quality parameter values for optimal corrosion control.* After the State specifies the values for water quality control parameters under §141.82(f), the system shall monitor during each subsequent six-month monitoring period, with the first monitoring period to begin on the date the State specifies the optimal values under §141.82(f).

(4) *Reduced monitoring.* (i) A small or medium-size water system that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the number of samples in accordance with

paragraph (c) of this section, and reduce the frequency of sampling to once per year. A small or medium water system collecting fewer than five samples as specified in paragraph (c) of this section, that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the frequency of sampling to once per year. In no case can the system reduce the number of samples required below the minimum of one sample per available tap. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

(ii) Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the State under §141.82(f) during each of two consecutive six-month monitoring periods may reduce the frequency of monitoring to once per year and reduce the number of lead and copper samples in accordance with paragraph (c) of this section if it receives written approval from the State. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period. The State shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with §141.90, and shall notify the system in writing when it determines the system is eligible to commence reduced monitoring pursuant to this paragraph. The State shall review, and where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(iii) A small or medium-size water system that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the State under §141.82(f) during three consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three years if it receives written approval from the State. Samples collected once every three years shall be collected no later than every third calendar year. The State shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with §141.90, and shall notify the system in writing when it determines the system is eligible to reduce the frequency of monitoring to once every three years. The State shall review, and where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(iv) A water system that reduces the number and frequency of sampling shall collect these samples from representative sites included in the pool of targeted sampling sites identified in paragraph (a) of this section. Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August, or September unless the State has approved a different sampling period in accordance with paragraph (d)(4)(iv)(A) of this section.

(A) The State, at its discretion, may approve a different period for conducting the lead and copper tap sampling for systems collecting a reduced number of samples. Such a period shall be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. For a non-transient non-community water system that does not operate during the months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the State shall designate a period that represents a time of normal operation for the system. This sampling shall begin during the period approved or designated by the State in the calendar year immediately following the end of the second consecutive six-month monitoring period for systems initiating annual monitoring and during the three-year period following the end of the third consecutive calendar year of annual monitoring for systems initiating triennial monitoring.

(B) Systems monitoring annually, that have been collecting samples during the months of June through September and that receive State approval to alter their sample collection period under paragraph (d)(4)(iv)(A) of this section, must collect their next round of samples during a time period that ends no later than 21 months after the previous round of sampling. Systems monitoring triennially that have been collecting samples during the months of June through September, and receive State approval to alter the sampling collection period as per paragraph (d)(4)(iv)(A) of this section, must collect their next round of samples during a time period that ends no later than 45 months after the previous round of sampling. Subsequent rounds of sampling must be collected annually or triennially, as required by this section. Small systems with waivers, granted pursuant to paragraph (g) of this section, that have been collecting samples during the months of June through September and receive State approval to alter their sample collection period under paragraph (d)(4)(iv)(A) of this section must collect their next round of samples before the end of the 9-year period.

(v) Any water system that demonstrates for two consecutive 6-month monitoring periods that the tap water lead level computed under §141.80(c)(3) is less than or equal to 0.005 mg/L and the tap water copper level computed under §141.80(c)(3) is less than or equal to 0.65 mg/L may reduce the number of samples in accordance with paragraph (c) of this section and reduce the frequency of sampling to once every three calendar years.

(vi)(A) A small or medium-size water system subject to reduced monitoring that exceeds the lead or copper action level shall resume sampling in accordance with paragraph (d)(3) of this section and collect the number of samples specified for standard monitoring under paragraph (c) of this section. Such a system shall also conduct water quality parameter monitoring in accordance with §141.87(b), (c) or (d) (as appropriate) during the monitoring period in which it exceeded the action level. Any such system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in paragraph (c) of this section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of paragraph (d)(4)(i) of this section and/or may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (d)(4)(iii) or (d)(4)(v) of this section.

(B) Any water system subject to the reduced monitoring frequency that fails to meet the lead action level during any four-month monitoring period or that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the State under §141.82(f) for more than nine days in any six-month period specified in §141.87(d) shall conduct tap water sampling for lead and copper at the frequency specified in paragraph (d)(3) of this section, collect the number of samples specified for standard monitoring under paragraph (c) of this

section, and shall resume monitoring for water quality parameters within the distribution system in accordance with §141.87(d). This standard tap water sampling shall begin no later than the six-month period beginning January 1 of the calendar year following the lead action level exceedance or water quality parameter excursion. Such a system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

(*1*) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in paragraph (c) of this section after it has completed two subsequent six-month rounds of monitoring that meet the criteria of paragraph (d)(4)(ii) of this section and the system has received written approval from the State that it is appropriate to resume reduced monitoring on an annual frequency. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

(*2*) The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (d)(4)(iii) or (d)(4)(v) of this section and the system has received written approval from the State that it is appropriate to resume triennial monitoring.

(*3*) The system may reduce the number of water quality parameter tap water samples required in accordance with §141.87(e)(1) and the frequency with which it collects such samples in accordance with §141.87(e)(2). Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates, in accordance with the requirements of §141.87(e)(2), that it has re-qualified for triennial monitoring.

(vii) Any water system subject to a reduced monitoring frequency under paragraph (d)(4) of this section shall notify the State in writing in accordance with §141.90(a)(3) of any upcoming long-term change in treatment or addition of a new source as described in that section. The State must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system. The State may require the system to resume sampling in accordance with paragraph (d)(3) of this section and collect the number of samples specified for standard monitoring under paragraph (c) of this section or take other appropriate steps such as increased water quality parameter monitoring or re-evaluation of its corrosion control treatment given the potentially different water quality considerations.

(e) *Additional monitoring by systems.* The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the State in making any determinations (*i.e.*, calculating the 90th percentile lead or copper level) under this subpart.

(f) *Invalidation of lead or copper tap water samples.* A sample invalidated under this paragraph does not count toward determining lead or copper 90th percentile levels under §141.80(c)(3) or toward meeting the minimum monitoring requirements of paragraph (c) of this section.

(1) The State may invalidate a lead or copper tap water sample at least if one of the following conditions is met.

(i) The laboratory establishes that improper sample analysis caused erroneous results.

(ii) The State determines that the sample was taken from a site that did not meet the site selection criteria of this section.

(iii) The sample container was damaged in transit.

(iv) There is substantial reason to believe that the sample was subject to tampering.

(2) The system must report the results of all samples to the State and all supporting documentation for samples the system believes should be invalidated.

(3) To invalidate a sample under paragraph (f)(1) of this section, the decision and the rationale for the decision must be documented in writing. States may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

(4) The water system must collect replacement samples for any samples invalidated under this section if, after the invalidation of one or more samples, the system has too few samples to meet the minimum requirements of paragraph (c) of this section. Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the State invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(g) *Monitoring waivers for small systems.* Any small system that meets the criteria of this paragraph may apply to the State to reduce the frequency of monitoring for lead and copper under this section to once every nine years (*i.e.*, a "full waiver") if it meets all of the materials criteria specified in paragraph (g)(1) of this section and all of the monitoring criteria specified in paragraph (g)(2) of this section. If State regulations permit, any small system that meets the criteria in paragraphs (g)(1) and (2) of this section only for lead, or only for copper, may apply to the State for a waiver to reduce the frequency of tap water monitoring to once every nine years for that contaminant only (*i.e.*, a "partial waiver").

(1) *Materials criteria.* The system must demonstrate that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and/or copper-containing materials, as those terms are defined in this paragraph, as follows:

(i) *Lead.* To qualify for a full waiver, or a waiver of the tap water monitoring requirements for lead (*i.e.*, a "lead

waiver"), the water system must provide certification and supporting documentation to the State that the system is free of all lead-containing materials, as follows:

(A) It contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers; and

(B) It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to 42 U.S.C. 300g-6(e) (SDWA section 1417(e)).

(ii) *Copper.* To qualify for a full waiver, or a waiver of the tap water monitoring requirements for copper (*i.e.,* a "copper waiver"), the water system must provide certification and supporting documentation to the State that the system contains no copper pipes or copper service lines.

(2) *Monitoring criteria for waiver issuance.* The system must have completed at least one 6-month round of standard tap water monitoring for lead and copper at sites approved by the State and from the number of sites required by paragraph (c) of this section and demonstrate that the 90th percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing and/or copper-containing materials, as appropriate, meet the following criteria.

(i) *Lead levels.* To qualify for a full waiver, or a lead waiver, the system must demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.

(ii) *Copper levels.* To qualify for a full waiver, or a copper waiver, the system must demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

(3) *State approval of waiver application.* The State shall notify the system of its waiver determination, in writing, setting forth the basis of its decision and any condition of the waiver. As a condition of the waiver, the State may require the system to perform specific activities (e.g., limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver) to avoid the risk of lead or copper concentration of concern in tap water. The small system must continue monitoring for lead and copper at the tap as required by paragraphs (d)(1) through (d)(4) of this section, as appropriate, until it receives written notification from the State that the waiver has been approved.

(4) *Monitoring frequency for systems with waivers.* (i) A system with a full waiver must conduct tap water monitoring for lead and copper in accordance with paragraph (d)(4)(iv) of this section at the reduced number of sampling sites identified in paragraph (c) of this section at least once every nine years and provide the materials certification specified in paragraph (g)(1) of this section for both lead and copper to the State along with the monitoring results. Samples collected every nine years shall be collected no later than every ninth calendar year.

(ii) A system with a partial waiver must conduct tap water monitoring for the waived contaminant in accordance with paragraph (d)(4)(iv) of this section at the reduced number of sampling sites specified in paragraph (c) of this section at least once every nine years and provide the materials certification specified in paragraph (g)(1) of this section pertaining to the waived contaminant along with the monitoring results. Such a system also must continue to monitor for the non-waived contaminant in accordance with requirements of paragraph (d)(1) through (d)(4) of this section, as appropriate.

(iii) Any water system with a full or partial waiver shall notify the State in writing in accordance with §141.90(a)(3) of any upcoming long-term change in treatment or addition of a new source, as described in that section. The State must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system. The State has the authority to require the system to add or modify waiver conditions (e.g., require recertification that the system is free of lead-containing and/or copper-containing materials, require additional round(s) of monitoring), if it deems such modifications are necessary to address treatment or source water changes at the system.

(iv) If a system with a full or partial waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, (e.g., as a result of new construction or repairs), the system shall notify the State in writing no later than 60 days after becoming aware of such a change.

(5) *Continued eligibility.* If the system continues to satisfy the requirements of paragraph (g)(4) of this section, the waiver will be renewed automatically, unless any of the conditions listed in paragraph (g)(5)(i) through (g)(5)(iii) of this section occurs. A system whose waiver has been revoked may re-apply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of paragraphs (g)(1) and (g)(2) of this section.

(i) A system with a full waiver or a lead waiver no longer satisfies the materials criteria of paragraph (g)(1)(i) of this section or has a 90th percentile lead level greater than 0.005 mg/L.

(ii) A system with a full waiver or a copper waiver no longer satisfies the materials criteria of paragraph (g)(1)(ii) of this section or has a 90th percentile copper level greater than 0.65 mg/L.

(iii) The State notifies the system, in writing, that the waiver has been revoked, setting forth the basis of its decision.

(6) *Requirements following waiver revocation.* A system whose full or partial waiver has been revoked by the State is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:

(i) If the system exceeds the lead and/or copper action level, the system must implement corrosion control treatment in accordance with the deadlines specified in §141.81(e), and any other applicable requirements of this subpart.

(ii) If the system meets both the lead and the copper action level, the system must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sample sites specified in paragraph (c) of this section.

(7) *Pre-existing waivers.* Small system waivers approved by the State in writing prior to April 11, 2000 shall remain in effect under the following conditions:

(i) If the system has demonstrated that it is both free of lead-containing and copper-containing materials, as required by paragraph (g)(1) of this section and that its 90th percentile lead levels and 90th percentile copper levels meet the criteria of paragraph (g)(2) of this section, the waiver remains in effect so long as the system continues to meet the waiver eligibility criteria of paragraph (g)(5) of this section. The first round of tap water monitoring conducted pursuant to paragraph (g)(4) of this section shall be completed no later than nine years after the last time the system has monitored for lead and copper at the tap.

(ii) If the system has met the materials criteria of paragraph (g)(1) of this section but has not met the monitoring criteria of paragraph (g)(2) of this section, the system shall conduct a round of monitoring for lead and copper at the tap demonstrating that it meets the criteria of paragraph (g)(2) of this section no later than September 30, 2000. Thereafter, the waiver shall remain in effect as long as the system meets the continued eligibility criteria of paragraph (g)(5) of this section. The first round of tap water monitoring conducted pursuant to paragraph (g)(4) of this section shall be completed no later than nine years after the round of monitoring conducted pursuant to paragraph (g)(2) of this section.

[56 FR 26548, June 7, 1991; 56 FR 32113, July 15, 1991; 57 FR 28788, June 29, 1992; as amended at 65 FR 2007, Jan. 12, 2000; 72 FR 57817, Oct. 10, 2007]

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§141.87 Monitoring requirements for water quality parameters.

All large water systems, and all small- and medium-size systems that exceed the lead or copper action level shall monitor water quality parameters in addition to lead and copper in accordance with this section. The requirements of this section are summarized in the table at the end of this section.

(a) *General requirements*—(1) *Sample collection methods.* (i) Tap samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the system, and seasonal variability. Tap sampling under this section is not required to be conducted at taps targeted for lead and copper sampling under §141.86(a). [Note: Systems may find it convenient to conduct tap sampling for water quality parameters at sites used for coliform sampling under 40 CFR 141.21.]

(ii) Samples collected at the entry point(s) to the distribution system shall be from locations representative of each source after treatment. If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (*i.e.*, when water is representative of all sources being used).

(2) *Number of samples.* (i) Systems shall collect two tap samples for applicable water quality parameters during each monitoring period specified under paragraphs (b) through (e) of this section from the following number of sites.

System size (No. people served)	No. of sites for water quality parameters
>100,000	25
10,001-100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
≤100	1

(ii) Except as provided in paragraph (c)(3) of this section, systems shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in paragraph (b) of this section. During each monitoring period specified in paragraphs (c)-(e) of this section, systems shall collect one sample for each applicable water quality parameter at each entry point to the distribution system.

(b) *Initial sampling* All large water systems shall measure the applicable water quality parameters as specified below at taps and at each entry point to the distribution system during each six-month monitoring period specified in §141.86(d)(1). All small and medium-size systems shall measure the applicable water quality parameters at the locations specified below during each six-month monitoring period specified in §141.86(d)(1) during which the system exceeds the lead or copper action level.

(1) At taps:

(i) pH;

(ii) Alkalinity;

(iii) Orthophosphate, when an inhibitor containing a phosphate compound is used;

(iv) Silica, when an inhibitor containing a silicate compound is used;

(v) Calcium;

(vi) Conductivity; and

(vii) Water temperature.

(2) At each entry point to the distribution system: all of the applicable parameters listed in paragraph (b)(1) of this section.

(c) *Monitoring after installation of corrosion control.* Any large system which installs optimal corrosion control treatment pursuant to §141.81(d)(4) shall measure the water quality parameters at the locations and frequencies specified below during each six-month monitoring period specified in §141.86(d)(2)(i). Any small or medium-size system which installs optimal corrosion control treatment shall conduct such monitoring during each six-month monitoring period specified in §141.86(d)(2)(ii) in which the system exceeds the lead or copper action level.

(1) At taps, two samples for:

(i) pH;

(ii) Alkalinity;

(iii) Orthophosphate, when an inhibitor containing a phosphate compound is used;

(iv) Silica, when an inhibitor containing a silicate compound is used;

(v) Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(2) Except as provided in paragraph (c)(3) of this section, at each entry point to the distribution system, at least one sample no less frequently than every two weeks (biweekly) for:

(i) pH;

(ii) When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and

(iii) When a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable).

(3) Any ground water system can limit entry point sampling described in paragraph (c)(2) of this section to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated ground water sources mixes with water from treated ground water sources, the system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this paragraph, the system shall provide to the State written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(d) *Monitoring after State specifies water quality parameter values for optimal corrosion control.* After the State specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under §141.82(f), all large systems shall measure the applicable water quality parameters in accordance with paragraph (c) of this section and determine compliance with the requirements of §141.82(g) every six months with the first six-month period to begin on either January 1 or July 1, whichever comes first, after the State specifies the optimal values under §141.82(f). Any small or medium-size system shall conduct such monitoring during each six-month period specified in this paragraph in which the system exceeds the lead or copper action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to §141.86(d)(4) at the time of the action level exceedance, the start of the applicable six-month monitoring period under this paragraph shall coincide with the start of the applicable monitoring period under §141.86(d)(4). Compliance with State-designated optimal water quality parameter values shall be determined as specified under §141.82(g).

(e) *Reduced monitoring.* (1) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month monitoring periods under paragraph (d) of this section shall continue monitoring at the entry point(s) to the distribution system as specified in paragraph (c)(2) of this section. Such system may collect two tap samples for applicable water quality parameters from the following reduced number of sites during each six-month monitoring period.

System size (No. of people served)	Reduced No. of sites for water quality parameters
>100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
≤100	1

(2)(i) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the State under §141.82(f) during three consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in this paragraph (e)(1) of this section from every six months to annually. This sampling begins during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six-month monitoring

occurs. Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the State under §141.82(f), during three consecutive years of annual monitoring under this paragraph may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in paragraph (e)(1) of this section from annually to every three years. This sampling begins no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

(ii) A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in paragraph (e)(1) of this section to every three years if it demonstrates during two consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to the PQL for lead specified in §141.89 (a)(1)(ii), that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L for copper in §141.80(c)(2), and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the State under §141.82(f). Monitoring conducted every three years shall be done no later than every third calendar year.

(3) A water system that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

(4) Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the State in §141.82(f) for more than nine days in any six-month period specified in §141.82(g) shall resume distribution system tap water sampling in accordance with the number and frequency requirements in paragraph (d) of this section. Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in paragraph (e)(1).of this section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of that paragraph and/or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (e)(2)(i) or (e)(2)(ii) of this section.

(f) *Additional monitoring by systems.* The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the State in making any determinations (*i.e.*, determining concentrations of water quality parameters) under this section or §141.82.

SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS[1]

Monitoring period	Parameters[2]	Location	Frequency
Initial monitoring	pH, alkalinity, orthophosphate or silica[3], calcium, conductivity, temperature	Taps and at entry point(s) to distribution system	Every 6 months.
After installation of corrosion control	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every 6 months.
	pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]	Entry point(s) to distribution system[6]	No less frequently than every two weeks.
After State specifies parameter values for optimal corrosion control	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every 6 months.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]	Entry point(s) to distribution system[6]	No less frequently than every two weeks.
Reduced monitoring	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every 6 months, annually[7] or every 3 years[8]; reduced number of sites.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]	Entry point(s) to distribution system[6]	No less frequently than every two weeks.

[1]Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.

[2]Small and medium-size systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

[3]Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

[4]Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

[5]Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

[6]Ground water systems may limit monitoring to representative locations throughout the system.

[7]Water systems may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of monitoring.

[8]Water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every 3 years if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65 mg/L, and the range of water quality parameters designated by the State under §141.82(f) as representing optimal corrosion control during two consecutive six-month monitoring periods.

[56 FR 26548, June 7, 1991; 57 FR 28788, June 29, 1992, as amended at 59 FR 33862, June 30, 1994; 65 FR 2010, Jan. 12, 2000; 72 FR 57818, Oct. 10, 2007]

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§141.88 Monitoring requirements for lead and copper in source water.

(a) *Sample location, collection methods, and number of samples.* (1) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with §141.86 shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

(i) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). The system shall take one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(ii) Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point). The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

NOTE TO PARAGRAPH (a)(1)(ii): For the purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

(iii) If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (*i.e.,* when water is representative of all sources being used).

(iv) The State may reduce the total number of samples which must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration is greater than or equal to 0.160 mg/L, then either:

(A) A follow-up sample shall be taken and analyzed within 14 days at each sampling point included in the composite; or

(B) If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.

(2) Where the results of sampling indicate an exceedance of maximum permissible source water levels established under §141.83(b)(4), the State may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point. If a State-required confirmation sample is taken for lead or copper, then the results of the initial and confirmation sample shall be averaged in determining compliance with the State-specified maximum permissible levels. Any sample value below the detection limit shall be considered to be zero. Any value above the detection limit but below the PQL shall either be considered as the measured value or be considered one-half the PQL.

(b) *Monitoring frequency after system exceeds tap water action level.* Any system which exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system no later than six months after the end of the monitoring period during which the lead or copper action level was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the State has established an alternate monitoring period, the last day of that period.

(c) *Monitoring frequency after installation of source water treatment.* Any system which installs source water treatment pursuant to §141.83(a)(3) shall collect an additional source water sample from each entry point to the distribution system during two consecutive six-month monitoring periods by the deadline specified in §141.83(a)(4).

(d) *Monitoring frequency after State specifies maximum permissible source water levels or determines that source water treatment is not needed.* (1) A system shall monitor at the frequency specified below in cases where the State specifies maximum permissible source water levels under §141.83(b)(4) or determines that the system is not required to install source water treatment under §141.83(b)(2).

(i) A water system using only groundwater shall collect samples once during the three-year compliance period (as

that term is defined in §141.2) in effect when the applicable State determination under paragraph (d)(1) of this section is made. Such systems shall collect samples once during each subsequent compliance period. Triennial samples shall be collected every third calendar year.

(ii) A water system using surface water (or a combination of surface and ground water) shall collect samples once during each calendar year, the first annual monitoring period to begin during the year in which the applicable State determination is made under paragraph (d)(1) of this section.

(2) A system is not required to conduct source water sampling for lead and/or copper if the system meets the action level for the specific contaminant in tap water samples during the entire source water sampling period applicable to the system under paragraph (d)(1) (i) or (ii) of this section.

(e) *Reduced monitoring frequency.* (1) A water system using only ground water may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle (as that term is defined in §141.2) provided that the samples are collected no later than every ninth calendar year and if the system meets one of the following criteria:

(i) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the State in §141.83(b)(4) during at least three consecutive compliance periods under paragraph (d)(1) of this section; or

(ii) The State has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under paragraph (d)(1) of this section, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(2) A water system using surface water (or a combination of surface water and ground water) may reduce the monitoring frequency in paragraph (d)(1) of this section to once during each nine-year compliance cycle (as that term is defined in §141.2) provided that the samples are collected no later than every ninth calendar year and if the system meets one of the following criteria:

(i) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the State in §141.83(b)(4) for at least three consecutive years; or

(ii) The State has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(3) A water system that uses a new source of water is not eligible for reduced monitoring for lead and/or copper until concentrations in samples collected from the new source during three consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified by the State in §141.83(a)(5).

[56 FR 26548, June 7, 1991; 57 FR 28788 and 28789, June 29, 1992, as amended at 65 FR 2012, Jan. 12, 2000; 72 FR 57819, Oct. 10, 2007]

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§141.89 Analytical methods.

(a) Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted with the methods in §141.23(k)(1).

(1) Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by any person acceptable to the State. Analyses under this section for lead and copper shall only be conducted by laboratories that have been certified by EPA or the State. To obtain certification to conduct analyses for lead and copper, laboratories must:

(i) Analyze Performance Evaluation samples, which include lead and copper, provided by or acceptable to EPA or the State at least once a year by each method for which the laboratory desires certification; and

(ii) Achieve quantitative acceptance limits as follows:

(A) For lead: ±30 percent of the actual amount in the Performance Evaluation sample when the actual amount is greater than or equal to 0.005 mg/L. The Practical Quantitation Level, or PQL for lead is 0.005 mg/L.

(B) For Copper: ±10 percent of the actual amount in the Performance Evaluation sample when the actual amount is greater than or equal to 0.050 mg/L. The Practical Quantitation Level, or PQL for copper is 0.050 mg/L.

(iii) Achieve the method detection limit for lead of 0.001 mg/L according to the procedures in appendix B of part 136 of this title. This need only be accomplished if the laboratory will be processing source water composite samples under §141.88(a)(1)(iv).

(iv) Be currently certified by EPA or the State to perform analyses to the specifications described in paragraph (a)(1) of this section.

(2) States have the authority to allow the use of previously collected monitoring data for purposes of monitoring, if the data were collected and analyzed in accordance with the requirements of this subpart.

(3) All lead and copper levels measured between the PQL and MDL must be either reported as measured or they can be reported as one-half the PQL specified for lead and copper in paragraph (a)(1)(ii) of this section. All levels below the lead and copper MDLs must be reported as zero.

(4) All copper levels measured between the PQL and the MDL must be either reported as measured or they can be reported as one-half the PQL (0.025 mg/L). All levels below the copper MDL must be reported as zero.

(b) [Reserved]

[56 FR 26548, June 7, 1991, as amended at 57 FR 28789, June 29, 1992; 57 FR 31847, July 17, 1992; 59 FR 33863, June 30, 1994; 59 FR 62470, Dec. 5, 1994; 64 FR 67466, Dec. 1, 1999; 65 FR 2012, Jan. 12, 2000; 72 FR 57819, Oct. 10, 2007]

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§141.90 Reporting requirements.

All water systems shall report all of the following information to the State in accordance with this section.

(a) *Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring.* (1) Except as provided in paragraph (a)(1)(viii) of this section, a water system shall report the information specified below for all tap water samples specified in §141.86 and for all water quality parameter samples specified in §141.87 within the first 10 days following the end of each applicable monitoring period specified in §141.86 and §141.87 (*i.e.,* every six months, annually, every 3 years, or every 9 years). For monitoring periods with a duration less than six months, the end of the monitoring period is the last date samples can be collected during that period as specified in §§141.86 and 141.87.

(i) The results of all tap samples for lead and copper including the location of each site and the criteria under §141.86(a) (3), (4), (5), (6), and/or (7) under which the site was selected for the system's sampling pool;

(ii) Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to §141.86(f)(2);

(iii) [Reserved]

(iv) The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with §141.80(c)(3)), unless the State calculates the system's 90th percentile lead and copper levels under paragraph (h) of this section;

(v) With the exception of initial tap sampling conducted pursuant to §141.86(d)(1), the system shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed;

(vi) The results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under §141.87 (b)-(e);

(vii) The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under §141.87 (b)-(e);

(viii) A water system shall report the results of all water quality parameter samples collected under §141.87(c) through (f) during each six-month monitoring period specified in §141.87(d) within the first 10 days following the end of the monitoring period unless the State has specified a more frequent reporting requirement.

(2) For a non-transient non-community water system, or a community water system meeting the criteria of §141.85(b)(7), that does not have enough taps that can provide first-draw samples, the system must either:

(i) Provide written documentation to the State identifying standing times and locations for enough non-first-draw samples to make up its sampling pool under §141.86(b)(5) by the start of the first applicable monitoring period under §141.86(d) that commences after April 11, 2000, unless the State has waived prior State approval of non-first-draw sample sites selected by the system pursuant to §141.86(b)(5); or

(ii) If the State has waived prior approval of non-first-draw sample sites selected by the system, identify, in writing, each site that did not meet the six-hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to §141.86(b)(5) and include this information with the lead and copper tap sample results required to be submitted pursuant to paragraph (a)(1)(i) of this section.

(3) At a time specified by the State, or if no specific time is designated by the State, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a water system deemed to have optimized corrosion control under §141.81(b)(3), a water system subject to reduced monitoring pursuant to §141.86(d)(4), or a water system subject to a monitoring waiver pursuant to §141.86(g), shall submit written documentation to the State describing the change or addition. The State must review and approve the addition of a new source or long-term change in treatment before it is implemented by the water system. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants (e.g., alum to ferric chloride), and switching corrosion inhibitor products (e.g., orthophosphate to blended phosphate). Long-term changes can include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily raw water quality changes.

(4) Any small system applying for a monitoring waiver under §141.86(g), or subject to a waiver granted pursuant to §141.86(g)(3), shall provide the following information to the State in writing by the specified deadline:

(i) By the start of the first applicable monitoring period in §141.86(d), any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of §§141.86(g)(1) and (2).

(ii) No later than nine years after the monitoring previously conducted pursuant to §141.86(g)(2) or §141.86(g)(4)(i), each small system desiring to maintain its monitoring waiver shall provide the information required by §§141.86(g)(4)(i) and (ii).

(iii) No later than 60 days after it becomes aware that it is no longer free of lead-containing and/or copper-containing material, as appropriate, each small system with a monitoring waiver shall provide written notification to the State, setting forth the circumstances resulting in the lead-containing and/or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(iv) By October 10, 2000, any small system with a waiver granted prior to April 11, 2000 and that has not previously met the requirements of §141.86(g)(2) shall provide the information required by that paragraph.

(5) Each ground water system that limits water quality parameter monitoring to a subset of entry points under §141.87(c)(3) shall provide, by the commencement of such monitoring, written correspondence to the State that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(b) *Source water monitoring reporting requirements.* (1) A water system shall report the sampling results for all source water samples collected in accordance with §141.88 within the first 10 days following the end of each source water monitoring period (*i.e.*, annually, per compliance period, per compliance cycle) specified in §141.88.

(2) With the exception of the first round of source water sampling conducted pursuant to §141.88(b), the system shall specify any site which was not sampled during previous monitoring periods, and include an explanation of why the sampling point has changed.

(c) *Corrosion control treatment reporting requirements.* By the applicable dates under §141.81, systems shall report the following information:

(1) For systems demonstrating that they have already optimized corrosion control, information required in §141.81(b) (2) or (3).

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under §141.82(a).

(3) For systems required to evaluate the effectiveness of corrosion control treatments under §141.82(c), the information required by that paragraph.

(4) For systems required to install optimal corrosion control designated by the State under §141.82(d), a letter certifying that the system has completed installing that treatment.

(d) *Source water treatment reporting requirements.* By the applicable dates in §141.83, systems shall provide the following information to the State:

(1) If required under §141.83(b)(1), their recommendation regarding source water treatment;

(2) For systems required to install source water treatment under §141.83(b)(2), a letter certifying that the system has completed installing the treatment designated by the State within 24 months after the State designated the treatment.

(e) *Lead service line replacement reporting requirements.* Systems shall report the following information to the State to demonstrate compliance with the requirements of §141.84:

(1) No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in §141.84(a), the system must submit written documentation to the State of the material evaluation conducted as required in §141.86(a), identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level, and provide the system's schedule for annually replacing at least 7 percent of the initial number of lead service lines in its distribution system.

(2) No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in §141.84(a), and every 12 months thereafter, the system shall demonstrate to the State in writing that the system has either:

(i) Replaced in the previous 12 months at least 7 percent of the initial lead service lines (or a greater number of lines specified by the State under §141.84(e)) in its distribution system, or

(ii) Conducted sampling which demonstrates that the lead concentration in all service line samples from an individual line(s), taken pursuant to §141.86(b)(3), is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced and/or which meet the criteria in §141.84(c) shall equal at least 7 percent of the initial number of lead lines identified under paragraph (e)(1) of this section (or the percentage specified by the State under §141.84(e)).

(3) The annual letter submitted to the State under paragraph (e)(2) of this section shall contain the following information:

(i) The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule;

(ii) The number and location of each lead service line replaced during the previous year of the system's replacement schedule;

(iii) If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling.

(4) Any system which collects lead service line samples following partial lead service line replacement required by §141.84 shall report the results to the State within the first ten days of the month following the month in which the system receives the laboratory results, or as specified by the State. States, at their discretion may eliminate this requirement to report these monitoring results. Systems shall also report any additional information as specified by the State, and in a time and manner prescribed by the State, to verify that all partial lead service line replacement activities have taken place.

(f) *Public education program reporting requirements.* (1) Any water system that is subject to the public education requirements in §141.85 shall, within ten days after the end of each period in which the system is required to perform public education in accordance with §141.85(b), send written documentation to the State that contains:

(i) A demonstration that the system has delivered the public education materials that meet the content requirements in §141.85(a) and the delivery requirements in §141.85(b); and

(ii) A list of all the newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(2) Unless required by the State, a system that previously has submitted the information required by paragraph (f)(1)(ii) of this section need not resubmit the information required by paragraph (f)(1)(ii) of this section, as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.

(3) No later than 3 months following the end of the monitoring period, each system must mail a sample copy of the consumer notification of tap results to the State along with a certification that the notification has been distributed in a manner consistent with the requirements of §141.85(d).

(g) *Reporting of additional monitoring data.* Any system which collects sampling data in addition to that required by this subpart shall report the results to the State within the first ten days following the end of the applicable monitoring period under §§141.86, 141.87 and 141.88 during which the samples are collected.

(h) *Reporting of 90th percentile lead and copper concentrations where the State calculates a system's 90th percentile concentrations.* A water system is not required to report the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, as required by paragraph (a)(1)(iv) of this section if:

(1) The State has previously notified the water system that it will calculate the water system's 90th percentile lead and copper concentrations, based on the lead and copper tap results submitted pursuant to paragraph (h)(2)(i) of this section, and has specified a date before the end of the applicable monitoring period by which the system must provide the results of lead and copper tap water samples;

(2) The system has provided the following information to the State by the date specified in paragraph (h)(1) of this section:

(i) The results of all tap samples for lead and copper including the location of each site and the criteria under §141.86(a)(3), (4), (5), (6), and/or (7) under which the site was selected for the system's sampling pool, pursuant to paragraph (a)(1)(i) of this section; and

(ii) An identification of sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods, and an explanation why sampling sites have changed; and

(3) The State has provided the results of the 90th percentile lead and copper calculations, in writing, to the water system before the end of the monitoring period.

[56 FR 26548, June 7, 1991; 57 FR 28789, June 29, 1992, as amended at 59 FR 33864, June 30, 1994; 65 FR 2012, Jan. 12, 2000; 72 FR 57819, Oct. 10, 2007]

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§141.91 Recordkeeping requirements.

Any system subject to the requirements of this subpart shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, State determinations, and any other information required by §§141.81 through 141.88. Each water system shall retain the records required by this section for no fewer than 12 years.

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Need assistance?

CITY OF DETROIT
WATER AND SEWERAGE DEPARTMENT
OFFICE OF THE DIRECTOR

735 RANDOLPH STREET
DETROIT, MICHIGAN 48226-2830
WWW.DETROITMI.GOV

September 30, 2015

Via email: nhenderson@cityofflint.com
and U.S. Mail

Ms. Natasha L. Henderson, City Administrator
City of Flint
1101 S. Saginaw St.
Flint, Michigan 48502

Dear Ms. Henderson:

Thank you for your inquiry regarding the possibility of reconnecting the City of Flint to the Detroit Water and Sewerage Department's (DWSD) Water Supply system. Director McCormick has asked me to respond to you and provide a brief outline of the basis for that reconnection. However, I want to again emphasize what Ms. McCormick has previously stated to your City Council on this issue: DWSD is willing to sit down and talk with the City of Flint without pre-condition, if that is mutually desirable.

I would be remiss if I did not point out that on June 12, 2015, the City of Detroit and the Great Lakes Water Authority (GLWA) executed a Lease Agreement that provides for the GLWA's operation of the Regional Water Supply System. At present, we are transitioning management of the system from DWSD to the GLWA while certain Conditions Precedent of the Lease Agreement are satisfied. We have made substantial progress towards satisfying these Conditions Precedent with a goal of having GLWA commence full system operations on or before January 1, 2016. I can assure you that, like DWSD, the GLWA is concerned with the challenges Flint's residents have faced in recent months, and will be willing to discuss service to your City.

That said, here is a likely list of issues that would need to be addressed:

1) Rates: In Sue McCormick's January 12, 2015 letter to Flint, she indicated that the rates Flint would pay for the remainder of the then current 2014-2015 Fiscal Year (FY) would be "the same rates Flint was paying as a terminated customer when it left the system but modified to include the 4% increase experienced by all other DWSD wholesale customers in 2014." As we are now in the 2015-16 FY, that offer must be modified to include an additional adjustment similar to that which was received by other customers. In this regard we propose that the rates be adjusted as follows:

a) Starting with the 2013-2014 FY terminated rate; and

b) Adding a 4% adjustment to that rate to account for the 2014-2015 FY increases; and

c) Adding an adjustment equal to the average Suburban Wholesale Charge Adjustment for the current 2015-2016 FY. This rate would remain in place until June 30, 2016, the end of the current 2015-2016 FY.

d) Based upon the above considerations, the resulting rate structure is a fixed monthly rate of $662,100 and a commodity rate of $8.93/Mcf for the current 2015-2016 FY. Please note that this rate structure is designed to be applicable to incremental water sales over and above water sales to the Genesee County Drain Commission. Depending on how water is provided to the combined GCDC/Flint customer, alternative rate structures may be appropriate.

e) Additionally, DWSD recently changed its wholesale customer billing methodology as follows: Flint's calculated share of the FY 2016 Budget is allocated 60% to the Fixed Monthly Charge and 40% to the Commodity Charge, which is consistent with the adopted FY 2015-2016 water wholesale rates

f) In extending this proposal, our assumption is that the service provided is to Flint only and computations are based on data from our previous customer relationship.

g) It is anticipated that under the management of the GLWA, the rates for the 2016-2017 FY will be computed using the same methodology as applied to all other Water Supply System customers.

The proposed rate methodology is intended to ensure that Flint is treated fairly by using the average wholesale customer adjustment in the current Fiscal Year, and the same methodology as all other customers.

2) Term: DWSD understands that Flint's current long-term desire is to receive water service from the KWA. Under these circumstances, Flint would be expected to remain a DWSD customer from the time of reconnection until the time it begins to receive service from KWA. If Flint wishes to consider a longer term relationship with DWSD or GLWA, we would welcome that discussion.

3) Reconnection: As previously indicated by Ms. McCormick in her January 12, 2015, letter, DWSD will not charge an additional fee for Flint to reconnect to the DWSD Water System, and is prepared to immediately take those steps necessary on its end to facilitate a reconnection. Any expenses incurred would be billed at actual cost. Because DWSD lacks sufficient information on the status of the disconnection, we are unable to provide an estimate of those costs at this time. Nonetheless, we will work with you in good faith to develop an expedited plan for reconnection, and to develop a mutually agreed good faith estimate of the costs associated with that plan.

Thank you for raising this issue with us. We hope that this letter addresses the concerns you raised during your recent conversation with Ms. McCormick, and we sincerely appreciate your interest and the opportunity to serve Flint.

Finally, we look forward to the opportunity to meet with you at your earliest convenience to discuss this letter, and how we may best assist Flint in serving its residents' needs. Please contact Ms. McCormick's office at (313) 224-4701 to arrange this meeting.

Best Regards,

William M. Wolfson
Chief Administrative and Compliance Officer/General Counsel, DWSD
Interim General Counsel, GLWA

Thelen, Mary Beth (DEQ)

From: Saxton, Thomas (Treasury)
Sent: Wednesday, October 07, 2015 2:43 PM
To: Wyant, Dan (DEQ); Sygo, Jim (DEQ); Muchmore, Dennis (GOV); Roberts, John (DTMB); Baird, Richard (GOV); Lyon, Nick (DHHS); Hollins, Harvey (GOV)
Cc: Workman, Wayne (TREASURY); Khouri, Nick (TREASURY); Duncan, Nancy (DTMB)
Subject: FW: letter from John O'Brien
Attachments: SKM_C554e15100712200.pdf

Importance: High

Here is the letter from the Genesee Co Drain Commission. My interpretation of the contents would be their estimate is $13.2mm (vs the $12mm discussed this morning).

They included their contract with the City. Sec 5.7 references prevailing rates the City would be charged; that is different than the rates reflected in the $13.2mm. So that contract may need to be modified.

They also raise some other items (under *Procedure to Activate Supply* – p.3) that may have cost implications.

GENESEE COUNTY DRAIN COMMISSIONER'S OFFICE
- DIVISION OF -
WATER & WASTE SERVICES
G-4610 BEECHER ROAD - FLINT, MICHIGAN 48532-2617
PHONE (810) 732-7870 - FAX (810) 732-9773

JEFFREY WRIGHT
COMMISSIONER

MEMORANDUM

DATE: October 7, 2015

TO: Wayne Workman, Deputy Director, Treasury Department
Randall Byrne, State Administrative Manager

FROM: John F. O'Brien, P.E., Director

SUBJECT: Letter Dated September 30, 2015
Wolfson to Henderson

My staff and I have reviewed the letter referenced above and have prepared this quick memorandum to explain the economics concerns and ramifications of the temporary cessation of the Flint water treatment operations and the return to DWSD/GLWA supply.

This memorandum is broken down into three parts: economics, procedure and concerns.

Economics

Prior to April 2014, Flint held a water contract with DWSD. Flint also had the franchise rights to DWSD water for Genesee County. Therefore, Genesee County received DWSD water via the Flint. The water rate was calculated on that joint demand. In 2013-2014, the allocated cost was $25,303,062 or $738,066 per month plus $13.01 per mcf.

In 2013, DWSD terminated the Flint contract effective April 2014. The Flint chose to go to the Flint River as its source water until KWA water was made available. With the contract terminated, the franchise was terminated and the county had to go to DWSD for water because Flint could no longer supply DWSD water and the Flint River and the Flint water treatment plant does not have the capacity to serve both utilities.

DWSD established a new rate for GCDC that included significant non-contract and non-member charges to access the water. GCDC also acquired approximately 9 miles of water main pipe from the Flint. (The Detroit water meter at the county line between Lapeer and Genesee and the Flint water plant is approximately 11 miles into the county.) The pipeline is of no use to Flint under the Flint River supply or KWA supply scenario. As part of the purchase agreement, language was included for emergency reconnection for Flint to DWSD through this water line.

GCDC water rates with DWSD are as follows:

	Fixed Monthly	Commodity
July 2013 – April 2014 (Flint Contract)	$346,863	$13.01
May 2014 – June 2014	$423,400	$15.18
July 2014 – June 2015	$1,149,400	$3.89
July 2015 – Present	$900,000	$11.86

As you can see, the fixed monthly fees and commodity fees have had significant swings. This is because under the Flint contract, only 40% of revenue was fixed. GCDC went to 80% and are now 60% for the current billing period.

Upon reviewing DWSD's letter of September 2015, DWSD went back to the 2013-2014 rate, added 4% for FY 14-15 and added approximately 11.3% for FY 15-16. This would create a water revenue requirement for a combined Flint/Genesee supply. In Section 1 d) of the letter, they state they would subtract GCDC current payments from that volume, leaving the amount to be paid by Flint. Remember, GCDC is paying the non-contract/non-customer penalty charges.

The reported rate would be $662,100 monthly fixed and $8.93/mcf commodity. Based on 15 million gallons a day and a 30 day month, the monthly charge would be:

$662,100 + 15,000,000 gal x 30 days x 1 mcf / 7,480 gallons x $8.93 / mcf

$662,100 + $537,232.62 = $1,199,332.62 per month

Flint, over the last two seasons, has seen periods of water flow in the 20 to 25 mgd range due to water main breaks. This period has lasted 2 to 3 months. What is the additional cost if the monthly average was 21 mgd?

6,000,000 x 30 / 7,480 x $8.93 / mcf = $214,893.04 per month

The only way for DWSD to provide water to Flint is a common meter at the county line and flow through a county water main. As previously stated, the Flint and GCDC have a contract regarding this potential circumstance (see 5.7 attached).

Assuming the fixed rate by DWSD is correct, the cost with the current commodity would be:

$662,100 + 15,000,000 x 30 / 7,480 x $11.86 = $1,375,602.67

And again, with water main breaks, the additional monthly cost would be $285,401.00.

Paragraph 1 d) of the DWSD letter recognizes this issue in the last sentence: "Depending on how water is provided to the combined GCDC/Flint customer, alternative rate structures may be appropriate."

We can back into that alternate rate based on our knowledge of the DWSD rate structure. DWSD wants 60% of its revenue from fixed rate.

		Volume per month
GCDC fixed	$900,000	49,428 mcf
Flint fixed	$662,100	50,590 mcf
TOTAL	$1,562,100	100,018 mcf

Total commodity required is $1,041,400
Rate based on volume $10.41would be the alternative rate

The adjusted rate for Flint would then be:

50% of fixed rate plus $10.41 per mcf
$781,050 + $15,000,000 + 30 / 7,480 x $10.41 = $1,407,320

And again, at this rate, the water main break situation could add $250,508 per month

Therefore, Flint's expected bill for DWSD supplied water for a nine month period with 2 months of high flow would be $13,166,896.

Procedure to Activate Supply

1. Agreement with DWSD and common rate for joint GCDC/Flint water supply would be required. Agreement needs to include separate billings to Flint and GCDC, Flint to pay directly to DWSD based on meter readings at Baxter and Potter and Station 2 on Flint plant site. GCDC makes no representation to the water quality - that is between Flint and DWSD. The agreement needs a termination transfer protocol for Flint exiting and GCDC remaining.

2. Separate agreement with Flint: back up supply was anticipated on an emergency basis. Nine months to a year of service requires a more detailed agreement. Water outage due to line break and cost to repair, etc. The agreement needs a termination clause if Flint is still on DWSD when GCDC is ready to turn on its water treatment plant in the fall of 2017.

3. The 72-inch line will be required to be reactivated. This will require flushing, pressure testing, and BAC-T sampling.

4. Station 2 meter needs to be calibrated and GCDC will need access to control the valves and read the meters.

5. Flint needs to reactivate the Dort Reservoir.

6. Flint should perform a significant water flush of the distribution system just prior to the switch over.

Flint Distribution System

The TTHM and lead issues here arising due to the water quality at the residential tap: Everyone agrees that the water leaving the water plant is clean, clear, and lead-free. At the residential tap, it has been shown to contain lead, is often brown in color, and has an odor. These are all indications of problems in the distribution system. The distribution system was built for a population of 250,000 people and major industrial use. Current population is below 100,000 and there is limited industrial use.

If Flint does not continue to make improvements/modifications to the distribution system, the problem at the residential tap will continue.

Concerns

Will the lead sampling protocols change based on Flint's switch back to DWSD?

What happens to water treatment plant personnel during this 9-month period? Will they be laid off or carried as an additional expense?

When Flint switches to KWA, will the staff be capable of treating the water or will the learning curve begin again?

What is the Desired Outcome?

It is the understanding of GCDC that all of the current samples that have been compiled at the Flint Water Treatment Plant have all tested within EPA and MDEQ guidelines. The emergency appears to be in the distribution of the water, which includes lead service leads to several residences located throughout Flint and not in the treatment of the water. As the treated water leaving the Flint Water Treatment Plant is within EPA and MDEQ guidelines, GCDC is confused as to what the emergency is at this time or why Flint would need to purchase water from DWSD. *The quality of the water leaving the Flint Water Treatment Plant is as safe to drink as the water that would be transmitted by DWSD to Flint.*

Given the facts as they have been provided to GCDC, if DWSD begins to supply Flint with water via GCDC, the elevated lead levels will not immediately disappear and Flint will be paying an additional million dollars plus a month over what it is currently paying to provide the same clean potable water to its residents. Additionally, by Flint receiving water from DWSD via GCDC, Flint will not be performing corrosion control measures on the DWSD treated water. This is important because once Flint begins to treat the raw water provided by KWA, the lead issue may resurface and continue until the corrosion control measures that will need to be restarted take effect, which GCDC estimates may take up to eight (8) months to establish the necessary film to separate the distribution system from the supply water.

The DWSD letter purposely pits Flint against Genesee County customers by offering a lower rate to Flint than is currently being offered to GCDC. And the delivery point is the same.

These are our quick thoughts on the matter. As time progresses, we will have more time to understand the issues and most likely additional concerns will present themselves.

Should you have any questions, do not hesitate to contact this office at your convenience.

WATER TRANSMISSION MAIN

ACQUISITION AGREEMENT

BY AND BETWEEN

CITY OF FLINT

AND THE

GENESEE COUNTY DRAIN COMMISSIONER AS COUNTY AGENCY

DATED MAY 30, 2014

approval, clearance, waiver, order or authorization of any person, organization, or entity; and (iii) do not conflict with, or result in any breach of, or default or loss of any right under (or an event or circumstance that, with notice or the lapse of time, or both, would result in a default), or the creation of any encumbrance pursuant to, or cause or permit the acceleration prior to maturity of any amounts owing under any indenture, mortgage, deed of trust, lease or other agreement to which the County Agency is a party, which failure, violation, conflict or breach would, in the aggregate, materially hinder or impair the consummation of the transactions contemplated by this Agreement.

5.4 Litigation. As of the Execution Date, there is no action, suit or proceeding pending or threatened against or affecting the County Agency before any governmental entity in which there is a reasonable possibility of an adverse decision which could have a material adverse effect upon the ability of the County Agency to perform its obligations under this Agreement or which in any manner questions the validity of this Agreement.

5.5 Due Diligence and Inspection. The County Agency acknowledges that it is being afforded the opportunity to conduct due diligence and investigation with respect to the transaction contemplated by this Agreement. The County Agency represents and warrants that it has conducted any and all such legal, factual, and other examinations, inquiries, investigations, and inspections, including conducting any tests, studies and examinations, that it, in its sole discretion, has determined necessary to complete such due diligence inspection to determine that the subject matter of this Agreement is suitable for the County Agency's intended use.

5.6 Environmental Matters. The County Agency represents and warrants that it has conducted any and all such legal, factual, and other examinations, inquiries, investigations, and inspections, including conducting any tests, studies and examinations, that it, in its sole discretion, has determined necessary to complete such due diligence inspection to have full knowledge of the environmental condition of the subject matter of this Agreement. County Agency shall enter into this Agreement subject to any and all environmental conditions present upon the subject matter of this Agreement.

5.7 Emergency Water Supply. The County Agency warrants that it will provide, to the extent the Detroit Water and Sewerage Department has available capacity treated water through the water main that is the subject matter of this Agreement in an emergency situation to Flint until such time as the Karegnondi Water Authority Water Transmission Pipeline construction is completed (which is estimated to be completed by May 2017) and the Karegnondi Water Authority is providing raw water to its customers.

The emergency supply of treated water to the Flint by the County Agency during the construction of the Karegnondi Water Authority Water Transmission Pipeline shall be at the prevailing rate and any additional charges, fees, special charges, and penalties, as billed by the Detroit Water and Sewerage Department to the County Agency.

If Flint shall need an emergency water supply after the Karegnondi Water Authority Water Transmission Pipeline has been installed and is operational, the County Agency will provide, to the extent the County Agency has available capacity, treated water through the water main that is the subject matter of this Agreement in an emergency situation to Flint. The emergency supply of treated water to Flint by the County Agency after the Water

Transmission Pipeline has been installed and is operational, shall be at the prevailing rate and any additional charges, fees, special charges, and penalties, if applicable, as billed by the Detroit Water and Sewerage Department to the County Agency.

ARTICLE 6
COVENANTS OF FLINT

Flint covenants and agrees with the County Agency as follows:

6.1 Operation and Maintenance of the Water Main until Closing. Between the Execution Date of this Agreement and the Effective Date of this Agreement, Flint shall:

a Operate the Water Main in the ordinary course of business; and

b. Maintain all books and records relating to the operation of the Water Main in the ordinary course of business; and

c. Fix any known breaks or leaks in the Water Main, except those set forth on **Exhibit F**; and

c. Promptly notify the County Agency of any emergency or other change in the normal course relating to the Water Main (or communications indicating that the same may be contemplated.

6.2 Litigation and Claims. Flint shall promptly inform the County Agency in writing of any Claims of which Flint is or becomes aware that are or might reasonably be expected to become the subject of litigation affecting the Water Main or the transactions contemplated by this Agreement.

6.3 Notice of Changes. Flint shall inform the County Agency in writing if it becomes aware that any representation or warranty made by Flint in this Agreement has ceased to be accurate or if Flint becomes aware of the occurrence of any breach of any covenant or other agreement required by this Agreement to be performed or complied with by Flint.

ARTICLE 7
COVENANTS OF THE COUNTY AGENCY

The County Agency hereby covenants and agrees with Flint as follows:

7.1 Cooperation. Subject to the terms and conditions of this Agreement, the County Agency shall cooperate with Flint to use its best efforts to secure all necessary consents, approvals, authorizations, exemptions and waivers from all persons and entities as shall be requested by Flint or required to be obtained in order to consummate the transactions contemplated hereby.

7.2 Litigation and Claims. The County Agency shall promptly inform Flint in writing of any claims (or communications indicating that the same may be contemplated) of which the County Agency is or becomes aware that are or might reasonably be expected

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

Deputy(s)
Director's Office Staff
Division/Office Chief
Prepared by:
Name Richard Benzie
Division/Office WD
Log Letter No. 01R00302
File No.
☐ Delogged
EQ 0110e (Rev. 1/2001)

April 21, 2004

Mr. Benjamin H. Grumbles, Acting Assistant Administrator
United States Environmental Protection Agency
Washington, DC 20460

Dear Mr. Grumbles:

SUBJECT: State Programs to Control Lead in School Drinking Water

Thank you for your letter of March 18, 2004, requesting information on efforts being taken by the Michigan Department of Environmental Quality (MDEQ) to control lead in drinking water at schools and day care facilities. The following information has been assembled by staff in our Water Division (WD) having the regulatory responsibility for public water systems.

The WD continues to actively implement the requirements of the Lead and Copper Rule (LCR) authorized by the 1986 amendments to the federal Safe Drinking Water Act, 1976 PA 399, as amended. In Michigan, we have approximately 900 schools and day care centers that meet the definition of a nontransient noncommunity (NTNC) public water system. All of these systems rely on groundwater as their source. Fortunately, groundwater in Michigan is not typically corrosive or conducive to significant lead leaching from water system components.

As specified by the LCR, routine monitoring for lead and copper has been and continues to be conducted in these NTNC systems. Our experience has shown lead levels to be acceptable in these schools and day care centers when samples have been correctly collected from actual drinking water taps. From 1999 to 2003, the MDEQ laboratory analyzed 14,207 lead samples from NTNC public water systems. Only 2.4 percent of these sample results exceeded the lead action level of 15 parts per billion (ppb). Over 94 percent of these results reported lead levels less than or equal to half the lead action level of 7.5 ppb, with 37 percent reporting lead as not detected. On the rare occasion that one of these NTNC systems exceeded the lead action level, the owners have typically eliminated exposure by supplying bottled water or removing the offending tap until a long-term solution has been instituted. Rarely have the elevated lead levels been attributed to a system-wide problem. In Michigan, it has been repeatedly demonstrated that elevated lead levels from drinking water taps in schools are diminished by fixture replacement. In the last 5 years, we have had only 10 action level exceedences reported from a total of 1,750 NTNC public water systems. Only two of these systems have had to install corrosion control treatment.

In your letter, you state that schools are only subject to the requirements of the LCR if they have their own water system. This statement implies there is no benefit to those schools served by community public water systems. The WD feels strongly that the LCR does provide a significant benefit to schools and day care centers that are served by community public water systems (CPWS). Despite limitations in these regulations that severely restrict CPWS from using schools and day care centers as sampling sites, proper implementation of this regulation should result in reduced lead exposure for all customers. For instance, schools and day care centers connected to CPWS serving more than 50,000 residents benefited from the LCR because these water systems have had to demonstrate and maintain optimal corrosion control. These large systems were required to reduce lead levels throughout their water system to the lowest levels possible. In addition, schools and day care centers connected to CPWS serving 50,000 or fewer residents have benefited from proper implementation of the LCR because these water systems have had to achieve and maintain compliance with the lead action level. Furthermore, any CPWS that exceeded a lead action level also had to provide public notification and public service announcements in accordance with and on a frequency specified by the LCR. Therefore, schools and day care centers in these systems could choose to provide an alternate drinking water source until compliance was achieved and lead levels were reduced in their CPWS.

Your letter also references the Lead Contamination Control Act (LCCA) of 1988, which recalled drinking water coolers with lead-lined water reservoir tanks and banned new drinking water coolers with lead parts. This law caused Michigan's state plumbing board to make changes in the construction code to ban lead materials in other drinking water system components as well. Items such as 50/50 lead-tin solder for household plumbing, lead packers and lead wool used for well screens, and brass fixtures having greater than 8 percent lead were among the items banned from future use in potable water systems.

In 1988, prior to the LCCA, NTNC schools in Michigan were informed of the requirement to provide public notice regarding the potential for lead in drinking water, and they were mailed an example notice to use. All Michigan schools supplied by CPWS were also mailed the same information with a recommendation that they provide similar public notice although it was not required by law.

In 1989, over 8,000 Michigan schools and day care centers were mailed information on the LCCA. We cited concerns about lead levels and recommended a sampling and flushing protocol be instituted at all taps used for consumption, not just the water coolers required by the LCCA. In addition, staff of the WD made presentations to state school business officials and to the environmental health association representing local health departments. Articles were also published in school and day care association newsletters.

In 1989, we also conducted a random telephone survey of 40 schools and 40 day care centers (both NTNC and those connected to another water system) regarding the LCCA. Seventy-five percent of the schools were aware of the LCCA requirements and 50 percent had performed some monitoring, while 40 percent of the day care centers were aware of the LCCA requirements, and about 20 percent had sampled.

In 1990, a second mailing to all 8,000 schools and day care centers was conducted, with updated information on the recall of water coolers as required by the LCCA and with the recommendations developed in Michigan on flushing drinking water outlets. In this letter, we also asked that any sample results be reported to us even though they were specifically not required to do so by the LCCA. About 30 of 500 school districts reported results from 720 "first draw" samples taken in over 200 buildings; 2.5 percent of these results exceeded the maximum contaminant level (MCL) of 50 ppb in effect at that time for lead, 8.6 percent exceeded 20 ppb, and 17.5 percent exceeded 10 ppb. It should be noted that all (104) flushed sample results reported lead levels less than 10 ppb. We also noted that the overall average levels in first draw samples collected from kitchen faucets were higher than levels from the targeted lead lined water coolers that were the focus of the LCCA. As a result of this data, state staff did pilot testing in three school districts and provided technical assistance to schools and day care centers. Follow-up sampling and investigations were also accomplished by state staff in other school districts.

As you mentioned, the LCCA also established a technical assistance program to support state activities to reduce lead contamination in schools. The WD is aware of the United States Environmental Protection Agency (USEPA) technical assistance fact sheets, technical bulletins training seminars, and the publication, "Lead in School Drinking Water." As discussed, we conducted several mailings, made numerous presentations, conducted follow-up surveys, responded to requests for assistance, participated in several pilot tests to reduce lead levels, compiled data, conducted additional sampling, and responded to many telephone inquiries with appropriate technical assistance. All of these activities constitute our technical assistance program. However, no funding has ever been allocated to states for implementation of the LCCA. All of the activities performed by Michigan in response to the requirements of the LCCA were done so with resources diverted from other programs. The primary requirement of the LCCA was for schools that identified coolers on a list of those suspected to contain lead lining to repair, replace, remove, or sample to show that these coolers did not contribute to lead in the drinking water. If the schools did sample, they were also required to tell their customers that results were available. If schools had no coolers on the list, nothing further was required by the LCCA. Despite this limited application of the LCCA, Michigan has performed numerous activities beyond the scope specified in the LCCA without any federal funding.

Finally, you ask what the USEPA can do to further efforts in this voluntary program. We have several suggestions. First, we recommend that the USEPA consider allowing schools to be considered Tier 1 sampling sites in CPWS so that we can gain more information on possible lead exposure in schools. Allowing CPWS to use schools will afford them an opportunity to use sampling sites that are more accessible than private homes, more likely to be geographically distributed throughout their system, and likely to satisfy a large constituency (parents). From our experience, we also recommend that the USEPA consider a sampling protocol for schools that would determine if the fixtures at kitchen taps are a problem that could be simply resolved by replacement. The USEPA may also want to consider requiring the owner of these facilities to replace any remaining lead service lines supplying schools or day care centers.

In conclusion, we understand that the detection of elevated lead levels at customer taps in Washington, DC, has caused the USEPA to focus on this issue. However, the MDEQ wants to emphasize that despite the limitations in this law, proper implementation of the LCR accomplishes adequate reduction in lead levels. Failure to carry out some rule provisions in one case should not be cause for disparaging implementation across the country, or for unnecessary revamping of this regulation. If you need further information or assistance, please contact Mr. James K. Cleland, Assistant Division Chief, WD, at 517-241-1287, or you may contact me.

Sincerely,

Steven E. Chester
Director
517-373-7917

cc: Mr. Stanley F. Pruss, Deputy Director, MDEQ
Mr. Jim Sygo, Deputy Director, MDEQ
Ms. JoAnn Merrick, Senior Executive Assistant to the Director, MDEQ
Mr. Andrew W. Hogarth, MDEQ
Mr. Richard A. Powers, MDEQ
Mr. James K. Cleland, MDEQ

Thelen, Mary Beth (DEQ)

From: Dayne Walling <dwalling@cityofflint.com>
Sent: Wednesday, September 30, 2015 10:10 PM
To: Wyant, Dan (DEQ)
Subject: what we are facing in Flint

Dan, I am continuing to communicate with a wide variety of constituents in an attempt to determine the major questions and issues. Below you will find an email that I received personally from a faith community leader who has been incredibly supportive and understanding of the challenges facing Flint. His words really hurt: "I no longer trust the city on this issue." I have searched myself over and over on this. I don't know what more I could have done given the guidance coming from EPA and DEQ and subsequently city staff but this major health issue did come up anyway and our community is paying a huge price.

As the press conference is put together, it is necessary in my mind that we provide an explanation for how this happened and outline the steps that ensure it will never happen again. If this is not provided then the trust will not begin to be restored from what I can tell. I am always available to talk more. Please consider this.

Dayne

--------- Forwarded message ----------
Date: Wed, Sep 30, 2015 at 12:48 AM
Subject: Re: water updates

Dear Mayor Walling,
You delayed your action on this issue for an inordinate amount of time. People were told over and over that it was all fine. I am very disappointed in the efforts concerned Pastors and others(the lawsuit, etc) that had to go on before anything substantial was contemplated. I am up north at a priest conference and I am astonished at the taste of the water and the lack of unpleasant smell I am finding here, in contrast to the very unpleasant experience it is to shower in Flint water. I no longer trust the city on this issue. And that we have now a lead problem for babies and children is unconscionable. Permanent brain damage is all our children need.
Respectfully yours,
Fr. Phil Schmitter

Sent from my iPhone

--
Dayne Walling
Mayor, City of Flint
City Hall, 1101 S. Saginaw St.
Flint, MI 48502
810-766-7346
mayor@cityofflint.com
www.cityofflint.com
follow me on twitter at http://twitter.com/mayorwalling

Thelen, Mary Beth (DEQ)

From: Emmitt, Beth (GOV)
Sent: Wednesday, September 30, 2015 12:44 PM
To: Muchmore, Dennis (GOV); Mcbride, Bill (GOV); Lyon, Nick (DCH); Wyant, Dan (DEQ)
Cc: Wisniewski, Wendy (GOV); Grijalva, Nancy (DCH); Thelen, Mary Beth (DEQ)
Subject: FW: Rep. Kildee Follow Up On Call from Monday
Attachments: 092915 Kildee Follow Up On Call With Gov Snyder.pdf

FYI

From: Dickinson, Jordan [mailto:Jordan.Dickinson@mail.house.gov]
Sent: Tuesday, September 29, 2015 3:39 PM
To: Emmitt, Beth (GOV) <emmittb@michigan.gov>
Cc: Mcbride, Bill (GOV) <mcbrideb@michigan.gov>; Murray, David (GOV) <MurrayD1@michigan.gov>; Brown, Eric (GOV) <BrownE15@michigan.gov>; Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Pallone, Maggie (DEQ) <PalloneM@michigan.gov>
Subject: Rep. Kildee Follow Up On Call from Monday

Hi Beth,

Could you please make sure the Governor and the rest of the staff on the call from Monday see this letter?

Thank you,

Jordan Dickinson
Legislative Assistant
Congressman Dan Kildee (MI-05)
227 Cannon House Office Building
Washington, D.C. 20515
Phone: (202) 225-3611
www.dankildee.house.gov

Sign up for Congressman Dan Kildee's e-newsletter

DANIEL T. KILDEE
5TH DISTRICT, MICHIGAN

COMMITTEE ON
FINANCIAL SERVICES

SUBCOMMITTEE ON
HOUSING AND INSURANCE

SUBCOMMITTEE ON
MONETARY POLICY AND TRADE

SENIOR WHIP

DEMOCRATIC POLICY AND
COMMUNICATIONS COMMITTEE

Congress of the United States
House of Representatives
Washington, DC 20515

WASHINGTON OFFICE

227 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-3611
(202) 225-6393 (FAX)

DISTRICT OFFICE

111 EAST COURT STREET #3B
FLINT, MI 48502
(810) 238-8627
(810) 238-8658 (FAX)

WWW.DANKILDEE.HOUSE.GOV
/REPDANKILDEE
@REPDANKILDEE

September 29, 2015

Governor Rick Snyder
Executive Office of the Governor
P.O. Box 30013
Lansing, Michigan 48909

Governor Snyder: Rick —

I appreciate you taking the time to talk with me yesterday about continued efforts to ensure the safety of the city of Flint's water. I want to summarize some of the items we discussed in order to work together going forward.

It is my hope that the state of Michigan immediately purchase and distribute lead-clearing water filters to Flint residents. As we discussed, I urge you to look for funding in areas such as the Michigan Health Endowment Fund or Michigan Department of Environmental Quality for these much-needed filters. Ultimately, it is the responsibility of the state to ensure the safety of drinking water. While lead-clearing filters will not permanently fix the underlying issues with Flint's water infrastructure system, they will ensure safe drinking water in the interim and help to restore confidence that the water is lead-free and safe to drink.

Additionally, it is imperative that the state release a health advisory regarding the quality of the water in Flint. The public has a right to know about the safety of their water, and it is important to ensure they have the information necessary to help mitigate adverse health impacts.

In addition, I ask that the state formally request assistance from federal agencies. As we have previously discussed, it appears there may be potential opportunities for the state to use the Federal Safe Drinking Water Act State Revolving Fund to invest and improve the water infrastructure in Flint. Following the state's request, my office can work with the appropriate federal agencies seeking assistance.

Finally, going forward, it will be critical to have additional independent and scientific testing to instill confidence in Flint residents that their water is safe. Testing needs to be completed regularly, on a larger scale than previously and must include the most at-risk homes in Flint.

I look forward to continuing to work with you and your staff to provide the necessary immediate assistance to the residents of Flint and develop a long term solution to the issues facing Flint's infrastructure.

For actions in the state of Michigan, please contact my District Chief of Staff Amy Hovey (810-241-3864 or Amy.Hovey@mail.house.gov). For questions regarding federal policy, please contact Jordan Dickinson (202-225-3611 or Jordan.Dickinson@mail.house.gov).

Sincerely,

Dan Kildee
MEMBER OF CONGRESS

Thelen, Mary Beth (DEQ)

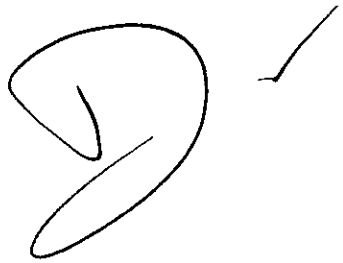
From: DEQ-Legislative-Contact
Sent: Wednesday, September 30, 2015 4:37 PM
To: Devereaux, Tracy Jo (DEQ)
Cc: Thelen, Mary Beth (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ); Pallone, Maggie (DEQ); Howes, Sarah (DEQ); Shekter Smith, Liane (DEQ); DEQ-Legislative-Contact
Subject: ODWMA/LEG00210/Robertson/Flint Water Questions

Due 10/5/15

Please have staff respond to the appropriate portions of the concern below to Kirsten from Senator Robertson's office.

Please keep everyone updated on any responses.

Thanks!
Heather Feuerstein
Management Assistant to
Maggie Pallone, Deputy Director and
Brad Wurfel, Communications Director
Department of Environmental Quality
517.284.6715



From: Howes, Sarah (DEQ)
Sent: Wednesday, September 30, 2015 11:28 AM
To: VanDyke, Trevor (DNR); KDellaSantina@senate.michigan.gov
Cc: DEQ-Legislative-Contact
Subject: RE: Flint Water and Crime Concerns

Sure is!

Kirsten, I'll have staff from our Office of Drinking Water and Municipal Assistance reach out to you to discuss the current issues and steps that are being taken to address the situation with Flint's water.
Thanks for sending this over, Trevor.

Sarah

Sarah M. Howes | Legislative Liaison
Department of Environmental Quality
517.284.6707 O | C 517.282.9204

From: VanDyke, Trevor (DNR)
Sent: Wednesday, September 30, 2015 11:22 AM
To: Howes, Sarah (DEQ)
Subject: FW: Flint Water and Crime Concerns

Is this a DEQ issue?

Sincerely,

Trevor J. VanDyke, J.D.
Director, Legislative & Legal Affairs Office
Michigan Department of Natural Resources
Ph. 517.284.5808
Fx. 517.335.4242
vandyket1@michigan.gov

From: Kirsten DellaSantina [mailto:KDellaSantina@senate.michigan.gov] **On Behalf Of** The Office of Senator Robertson
Sent: Wednesday, September 30, 2015 10:38 AM
To: VanDyke, Trevor (DNR)
Subject: FW: Flint Water and Crime Concerns

Hello.
I wasn't sure who to contact, so I'm hoping maybe you could direct me. Do you know anything about the water situation in Flint?

Kirsten L. Della Santina
Director of Communications
Senator Dave Robertson - 14th Senate District
517-373-5077

From: mzsigohiggins@comcast.net [mailto:mzsigohiggins@comcast.net]
Sent: Wednesday, September 30, 2015 10:27 AM
To: The Office of Senator Robertson <SenDRobertson@senate.michigan.gov>
Subject: Flint Water and Crime Concerns

Dear Dave,

I trust you are doing fine. When you get to the Flint area we should have coffee and catch up.

I am very upset about the water in Flint. I am now a City of Flint resident (for the past 5 years) so I am an authority on the water concerns.

The first time they switched to the Flint River for its source, it backed up my basement with about 4" of water. I was not a happy person. I know it was a result of the change, but no one will take responsibility.

It tasted awful. I couldn't even use a simple purifyer to make it taste better. So I began buying gallons and individual bottles of water to drink and use to cook. I will not even rinse my toothbrush with it. I should be able to deduct that off of my extremely high bill. Yesterday I received my bill and about gagged. $88!!!!!!!!!!!! For water I cannot cook with nor drink! That is so wrong. I will not pay that entire amount! It's time I deducted for having to haul in gallons a week of decent water.

A few weeks ago I had a repaired pipe bust. More water in the basement-lovely. I am sure it's because of all the chemicals in the water. It is destroying my pipes!

Dave, please make this an immediate priority in your work. We must be returned to the Detroit Water System. There is no other way to fix this problem. Because the decision was made while the governor had appointed a city manager for the so-called help for Flint's financial situation, the State of Michigan/Governor should bite the bullet and pay to return Flint to DWS. As I said, no one can fix that Flint River water to be useable. It appears that Flint lives do not matter. The lies we've been told are detrimental to our lives. Please take immediate action to help us.

I love Flint. I realized how wonderful my neighborhood is when my garage was destroyed in August. The storm caused two of my neighbor's trees to fall on it. I had warned the property owner Richard Burris, who likes to be called Doc because he's a chiropractor, (yes it's a rental) that the next bad storm could damage my garage. Now I'm probably going to have to sue him for the extra it's costing me to replace it as it went over and above my homeowner's insurance. That's another problem-landlords who will not properly maintain their rental properties. Perhaps some laws on the books to give them an incentive to do so would help. Anyway my neighbors gathered and gave me moral support. I love the diversity and quality of the people in my immediate neighborhood. It's a wonderful feeling to know they really care. So many other places I lived took advantage of my disability.

Other concerns involve the crime rate in Flint. We do not need fewer police and firemen. We need more. Please allow for that when you consider the financial help to Flint. There are still many decent people who live here. Sometimes I would like the northern part of Flint to be merged with Beecher and call it a war zone, rope it off and make them pay for their own police since many of the murders happen there. It sickens me that there is such a total disregard of life.

I appreciate your work as our Senator. I continue to support your ideas. And you are the only republican I would vote for. LOL. Take care Dave and hope to hear from you soon.

Sincerely,

Mari Zsigo
2309 Mountain Avenue
Flint, MI 48503
810-962-2293

Flint Update 9/29

Issues:

- DWSD switch
- Emergency Declaration
- Edwards issue
- Testing protocols

Flint Drinking Water Action Plan

1. **Governor Snyder names Dr. Eden Wells as Flint drinking water Public Health Advisor.**

   Action to date: Dr. Wells has been brought in and is reviewing the Hurley Health information.

2. **All Flint schools water (public, charter and parochial) will immediately be tested to ensure that drinking water is safe.**

   Action to date: Phone call with Superintendent and Facilities manager to identify schools. Phone call with Genesee County Public Health, DEQ and Flint schools afternoon of 9/29 to discuss testing protocols and timeline. DEQ has volunteered to pay for testing.
   Checking with MDE on fund availability to replace lead lines if they are identified in the testing.

3. **Advisories will be disseminated recommending citizens flush your cold water pipes, use only water from the cold water tap for drinking, cooking and especially for making baby formula.**

   Action to date: This step has already started to occur.

4. **Convene a safe drinking water "Technical Advisory Committee" to ensure best technology, practices and science is being utilized, including EPA's expertise and assistance from their Office of Research and Development.**

   Action to date: Committee will meet October 7. EPA will have Tom Burke, who heads up EPA's Office of Research and Development, participate on the Committee.

5. **Implementation of fully optimized corrosion controls in the Flint drinking water system.**

   Action to date: Technical Advisory Committee is meeting October 7 to recommend this. Flint will submit permit application to DEQ October 8. Corrosion control will begin by end of October.

6. **Expanded water testing of at risk properties.**

   Action to date: EPA and DEQ have a conference call at 1:45 PM 9/29 to discuss additional testing locations and protocols.

7. **Offer water testing at no cost to Flint residents to assure water is safe.**

   Action to date: City is already offering. DEQ will be discussing cost issues with the City.

8. **Offer premixed formula if test results indicate high levels of lead.**

   Action to date: DHHS evaluating.

9. **Accelerate water system improvements to address replacement of lead service lines.**

   Action to date: EPA has indicated that federal Drinking Water Revolving Loan money can be used to replace private service lines. State law needs to be changed to allow this to occur.

10. **Provide filters to residences of Flint.**

    Action to date: Ananich has indicated United Way would supply some. Harvey to follow up with Meijer.

11. **Expedite Completion of KWA.**

    Action to date: DEQ had initial conversation with Drain Commissioner to indicate help in moving any remaining permits.

12. **Facilitate conversation between the City of Flint and DSWD.**

Next Steps:

Press Conference in Flint - Friday, October 2, 1:30
Kettering University (exact room TBD)

Participants
Governor/ Lt. Governor
Harvey Hollins – Governor's office
Dan Wyant – Michigan Department of Environmental Quality
Nick Lyon – Department of Community Health
Dr. Eden Wells- Department of Community Health
Susan Hedman – Region 5 Administrator or EPA
Jamie Curtis- Chair, Genesee County Board of Commissioners
Jeff Wright- Genesee County Drain Commissioner
Local Public Health Department
Mayor of Flint

Thelen, Mary Beth (DEQ)

From: Scott, Allison (GOV)
Sent: Tuesday, September 29, 2015 10:45 AM
To: Muchmore, Dennis (GOV); Clement, Elizabeth (GOV); Agen, Jarrod (GOV); Wyant, Dan (DEQ); Lyon, Nick (DCH); Mcbride, Bill (GOV)
Cc: Thelen, Mary Beth (DEQ); Grijalva, Nancy (DCH); Wisniewski, Wendy (GOV)
Subject: FLINT WATER - MEETING TODAY

Importance: High

You will be receiving a meeting notice from Beth Emmitt for a meeting with the Governor this afternoon. Listed below are areas that we should provide him an update on engagement; if not yet engaged, then we need to engage asap.

1. Emergency management – similar to disasters, is there some form of action we can engage for this situation to help manage
2. Chief Medical officer – should be speaking with Hurley
3. WIC – re water and formula – status update
4. Drain commissioner – how do we expedite KWA

Looking at a 1 pm meeting – let me know if you have questions on the above.

Thanks
ALS

-MDE

AG ___ Communications ___
Chief Deputy ___ A. Cropsey ___
M. Schneider ___
Date Original to Opinions Division 9-30-15

34TH DISTRICT
STATE CAPITOL
P.O. BOX 30014
LANSING, MI 48909-7514
PHONE: (517) 373-8808
FAX: (517) 373-5997
E-MAIL: sheldonneeley@house.mi.gov

MICHIGAN HOUSE OF REPRESENTATIVES

SHELDON A. NEELEY

ASSISTANT DEMOCRATIC WHIP

STATE REPRESENTATIVE

COMMITTEES:
HEALTH POLICY
LOCAL GOVERNMENT
TRANSPORTATION AND INFRASTRUCTURE

DEPT. OF THE ATTORNEY GENERAL
SEP 30 2015
Assigned to:

September 29, 2015

Attention: Honorable Bill Schuette, Attorney General
State of Michigan

As I took my place in this honorable legislative body for the first time, I carried with me the many needs and concerns of a stressed community. These concerns were richly woven in to the very fabric of my experiences on Flint City Council where I worked to lighten the burdens of a working class community.

Once again, I make the appeals I made in my initial fight for the community. As a councilman, working for a city under the control of a state authorized Emergency Financial Manager, I indicated the need for a forensic audit to address inconsistencies with the use of our financial resources. This request was eventually denied by the Emergency Financial Manager. It became painfully clear that the City's elected officials would have no relevant voice in meaningful decision making.

The Emergency Financial Manager would make a unilateral decision to shift the stable and sufficient water system source from Detroit Water and Sewer Department and replace it with the untested Flint River as a primary water source. This was a decision that I strongly objected to.

Since transitioning to the Flint River, the citizens of Flint have suffered serious health issues as a result of poor water quality. We have seen elevated TTHM, e-coli bacteria and at present lead and copper changes. The most recent problems are indicative of a lack of proper corrosion treatment. To some it seems that Flint has a water supply of a "third world country" while living near one of the greatest water sources in the world "The Great Lakes".

Most recently, this matter of water quality, affordability and culpability was heard in the Seventh Circuit Court by Judge Archie Hayman where he effectively ruled in favor of the plaintiffs. And, equally important is the recent independent findings by Virginia Tech and the Medical Doctors Group who cited serious problems with the quality of water in the City of Flint.

Recycled Paper

34TH DISTRICT
STATE CAPITOL
P.O. BOX 30014
LANSING, MI 48909-7514
PHONE: (517) 373-8808
FAX: (517) 373-5997
E-MAIL: sheldonneeley@house.mi.gov

MICHIGAN HOUSE OF REPRESENTATIVES

SHELDON A. NEELEY

ASSISTANT DEMOCRATIC WHIP

STATE REPRESENTATIVE

COMMITTEES:
HEALTH POLICY
LOCAL GOVERNMENT
TRANSPORTATION AND INFRASTRUCTURE

After calling for many inquiries and meetings with the Michigan Department of Environmental Quality, I find that we are no further along to a resolution of this problem than when we began. The responses by local and state departments responsible for the health and safety of a community have been unacceptable. My efforts to obtain appropriate information have been met with elusive replies.

I make this request to urge the Attorney General's Office to investigate and determine if the City of Flint and/or the State of Michigan and its agents have culpability and responsibility for this unfortunate problem. We have reached out to the Governor's Office for additional support and intervention. To date, we have had few sufficient responses.

Once again, I implore you to explore the many facets of this situation and the possible corruption surrounding the water problems plaguing the City of Flint to determine if there have been improprieties and maleficence committed against this historical community.

Respectfully,

Sheldon A. Neeley

Recycled Paper

Thelen, Mary Beth (DEQ)

From:	Wyant, Dan (DEQ)
Sent:	Tuesday, September 29, 2015 12:06 PM
To:	Wyant, Dan (DEQ); Muchmore, Dennis (GOV); Lyon, Nick (DCH); Hollins, Harvey (GOV); Scott, Allison (GOV)
Cc:	Wurfel, Sara (GOV); Lasher, Geralyn (DCH); Wurfel, Brad (DEQ); Emmitt, Beth (GOV); Clement, Elizabeth (GOV)
Subject:	RE: Proposed Press Conference on Flint Drinking Water
Importance:	High

Revised Updates from yesterday's e-mail to Dennis Muchmore, Harvey Hollins, and Nick Lyons. I have added Allison Scott to give to the Governor for the 1:00 meeting today.
Thank you.
==========
Per the ongoing issues in Flint concerning their drinking water, I would offer the following recommendations. Let's discuss.

Recommendation

Press Conference in Flint - Friday, October 2, 1:30 – Flint

Participants

Mayor of Flint
Dan Wyant – Michigan Department of Environmental Quality
Nick Lyon – Department of Community Health
Susan Hedman – Region 5 Administrator or EPA
Harvey Hollins – Governor's office
Local Public Health Department

Announcement

Federal – State – Local action plan to address Flint Drinking Water

1. Chief Medical Officer speaking with Hurley.
2. All Flint schools water will immediately be tested to ensure that drinking water is safe.
3. Advisories will be disseminated recommending citizens flush your cold water pipes, use only water from the cold water tap for drinking, cooking and especially for making baby formula.
4. Implementation of fully optimized corrosion controls in the Flint drinking water system.
5. Expanded water testing of at risk properties.
6. Offer water testing at no cost to Flint residents to assure water is safe.

7. Convene a safe drinking water " Technical Review Advisory" to ensure best technology, practices and science is being utilized, including EPA's expertise and assistance from their Office of Research and Development.

8. Offer bottled water and premixed formula if test results indicate high levels of lead.

9. Accelerate water system improvements to address replacement of lead service lines.

Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

Thelen, Mary Beth (DEQ)

From:	Muchmore, Dennis (GOV)
Sent:	Monday, September 28, 2015 2:27 PM
To:	Wyant, Dan (DEQ); Lyon, Nick (DCH); Hollins, Harvey (GOV)
Cc:	Wurfel, Sara (GOV); Wurfel, Sara (GOV); Lasher, Geralyn (DCH); Thelen, Mary Beth (DEQ)
Subject:	RE: Proposed Press Conference on Flint Drinking Water

Thank you, you're always ahead of us. I don't have any reservations about the PC, although as I mentioned I don't see any reason to have Mr. Sienko, as we have a top notch professional in Eden Wells and certainly Tim and Geralyn if need be.

From: Wyant, Dan (DEQ)
Sent: Monday, September 28, 2015 7:18 AM
To: Muchmore, Dennis (GOV) <muchmored@michigan.gov>; Lyon, Nick (DCH) <LyonN2@michigan.gov>; Hollins, Harvey (GOV) <hollinsh@michigan.gov>
Cc: Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>; Thelen, Mary Beth (DEQ) <THELENM2@michigan.gov>
Subject: Proposed Press Conference on Flint Drinking Water

Per the ongoing issues in Flint concerning their drinking water, I would offer the following recommendations. Let's discuss.

Recommendation

Press Conference in Flint – Wednesday, Thursday or Friday.

Agree - Dan

Participants

Mayor of Flint
Dan Wyant – Michigan Department of Environmental Quality
Nick Lyon – Department of Community Health
Susan Hedman – Region 5 Administrator or EPA
Harvey Hollins – Governor's office
Local Public Health Department

Announcement

Federal – State – Local action plan to address Flint Drinking Water

1. Governor Snyder names Dr. Dean Sienko as Flint drinking water Public Health Advisor.
2. All Flint schools water will immediately be tested to ensure that drinking water is safe.
3. Advisories will be disseminated recommending citizens flush your cold water pipes, use only water from the cold water tap for drinking, cooking and especially for making baby formula.
4. Implementation of fully optimized corrosion controls in the Flint drinking water system.

5. Expanded water testing of at risk properties.

6. Offer water testing at no cost to Flint residents to assure water is safe.

7. Convene a safe drinking water " Technical Review Advisory" to ensure best technology, practices and science is being utilized, including EPA's expertise and assistance from their Office of Research and Development.

8. Offer bottled water and premixed formula if test results indicate high levels of lead.

9. Accelerate water system improvements to address replacement of lead service lines.

Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

FYI - in case you did not see.

Genesee County Board of Commissioners

1101 BEACH STREET, ROOM 312 FLINT, MICHIGAN 48502

TELEPHONE: (810) 257-3020

FAX: (810) 257-3008

D

-COMMISSIONERS-

BRYANT NOLDEN

BRENDA CLACK

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JOHN NORTHRUP

MARK YOUNG

TONY BROWN

MICHAEL LYNCH

September 29, 2015

Public Health Advisory for People Using the Flint City Water Supply with the Flint River as the Source

Lead is a powerful neurotoxin, which means exposure to lead can damage the brain. It can also injure other soft tissues and organs; interfere with the formation of blood, and exposure to enough lead can be fatal. Both children and adults are vulnerable to leads health effects.

Common Health Effects on Children:

- Brain damage resulting in IQ loss, learning disabilities, hyperactivity, inability to concentrate, and/or behavior problems
- Stunted growth
- Hearing problems

Common Health Effects on Adults:

- Hypertension
- Anemia
- Reduced sperm count
- Increased risk of miscarriages

Young children are most vulnerable to leads effects because prior to age six, their brain and central nervous system are still forming and easily susceptible to damage. For an adult to suffer significant health effects, exposure to lead would have to be sustained and more intense. Most adults who are affected by lead have been exposed in an occupational setting, such as working as a house painter or in a battery recycling plant.

Pregnant women are at special risk because the lead they absorb crosses the placenta and enters the fetus.

It's important to remember that there is no known safe level of lead in a human body. Experts now use a reference level of 5 micrograms per deciliter to identify children with blood lead levels that are much higher than most children's levels. This new level is based on the U.S. population of children ages 1-5 years who are in the highest 2.5% of children when tested for lead in their blood.

Lead in water can contribute to a child's blood lead level. The Michigan Department of Environmental Quality, which regulates municipal water supplies, has assured us that the water leaving the Flint Water Plant meets all Federal and state requirements. The City of Flint has a documented problem with lead in its drinking water due to service and household lines that may contain lead or lead solder which can leach lead because of the corrosivity of the water since changing to the Flint River as the source supply. Generally, those who are most vulnerable to leads health effects from exposure to unfiltered tap water are the very youngest children. For this reason, if you are not sure about the lead content in your tap water, it's best to either use a filter that has been found to be effective for reducing or eliminating lead, or to use bottled water instead. Water filters should be National Sanitation Foundation (NSF) certified to remove lead and meet ANSI standard 53. If these options are not available to you, then it's best to let the water run for at least five minutes before using it for either drinking or cooking purposes. Always use cold water instead of hot water for drinking and cooking.

It's best to avoid using tap water for mixing infant formula unless you can assure your water is lead free.

Other Exposure:

When leaded gasoline was in widespread use in this country, the lead came out the tail pipe and was deposited in yards near the roads. That lead may still be in those yards. In addition, lead paint continues to be a major source of childhood lead poisoning and can be found in homes built before 1978 when lead paint was banned in the U.S. and may be a hazard inside and outside the home especially where paint is worn or flaking.

There are many other potential sources of lead exposure, including:

- "Home remedies" and cosmetics imported from other countries
- Tamarind or chili-based candies from Mexico
- Stained glass windows
- Fishing sinkers
- Firing ranges
- Old, deteriorated mini-blinds
- Bean pots and painted ceramics
- Crystal decanters
- Lead crystal glassware

Since no safe level has been identified it is in everyone's interest to reduce exposure to lead as much as possible. Recommendations on ways to reduce lead exposure can be found on the Genesee County Health Department website www.gchd.us and Center for Disease Control and Prevention website.

Recent data provided by Hurley Hospital researchers has indicated that a significant increase in blood lead levels has occurred in children since the switch to Flint River water. The county Health Officer has requested that the Michigan Department of Health and Human Services (MDHHS) provide to the County specific data to support its claim that state data is more comprehensive and does not show a significant increase. To date, the MDHHS has failed to confirm the geographic area included in their findings. We want to assure the state data is specific to the boundaries of the City of Flint, and not Flint addresses which would include addresses in areas outside of the City of Flint. These areas, such as Flint Township, that obtain their water from the Detroit Water Authority and would, therefore, not be representative of Flint River water as the water source. The County is prepared to take further action if the State fails to provide the requested data by September 30, 2015. Further action could include a request for outside independent evaluation of the data and to declare a Public Health Emergency in Flint.

COUNTY OF GENESEE

BY: _____ Date: 9-29-15

Jamie Curtis, Chairperson
Board of Commissioners

GENESEE COUNTY HEALTH DEPARTMENT

BY: Mark Valacak Date: 9-29-15

Mark Valacak, M.P.H.
Health Officer

Thelen, Mary Beth (DEQ)

From: Muchmore, Dennis (GOV)
Sent: Monday, September 28, 2015 12:05 PM
To: Mcbride, Bill (GOV); Hollins, Harvey (GOV); Agen, Jarrod (GOV); Wurfel, Sara (GOV); Lyon, Nick (DCH); Wyant, Dan (DEQ)
Subject: FW: Letter to Governor Snyder: Flint Water
Attachments: 09.28.2015-Letter-Ananich-Snyder-Water-Requests.pdf

Just came in

From: Andrew Leavitt [mailto:ALeavitt@senate.michigan.gov]
Sent: Monday, September 28, 2015 11:45 AM
To: Muchmore, Dennis (GOV) <muchmored@michigan.gov>
Subject: Letter to Governor Snyder: Flint Water

Hi Dennis,

Senator Ananich began drafting the attached letter on Sunday and thought it would be helpful to guide our 12pm call.

Thanks,

Andy

SENATE MINORITY LEADER
JIM ANANICH

517.373.0142
senjananich@senate.michigan.gov
senatedems.com/ananich

September 28, 2015

State of Michigan
Executive Office of the Governor
P.O. Box 30013
Lansing, MI 48909

Governor Snyder,

Access to safe, affordable drinking water is a basic necessity for every community. It is completely unacceptable that respected scientific experts and our trusted local physicians have verified that the City of Flint's drinking water is dangerous for our citizens, especially our most vulnerable young people.

As a result, I am formally requesting assistance as suggested by the experts on the frontline of this public health crisis. Here are the top priorities we should work together to address:

1. **Swift transfer to a safe source of water until the Karegnondi Water Authority (KWA) project is complete next year.** Your administration has the ability to ensure a financially acceptable and responsible contract between Flint and the Detroit Water and Sewerage Department, particularly in light of the public health implications with the Flint River supply.

2. **Equally urgent is the need for corrosion control as recommended by independent scientific experts.** There are chemical treatment additives that could help reduce this corrosion. I urge you to help the city implement anti-corrosion methods immediately. The current emergency makes the January timeline unacceptable.

3. **Filters and bottled water assistance.** Flint water touches the entire city. Whether it's a person's home, work, school, restaurant or place of worship, access to safe, clean drinking water should not be hindered. Water filters, used in conjunction with corrosion control methods, are necessary to help guard against toxic exposure.

   I have been working with the philanthropic community and private sector to secure donations to acquire filters and water; however, more funds will be necessary to effectively cover the thousands of residents impacted. I would like to formally request emergency funding to help supplement the acquisition of water filters and bottled water. Any and all appropriate state or federal money to help accomplish this feat should be considered.

Printed In-house

SENATE MINORITY LEADER
JIM ANANICH

517.373.0142
senjananich@senate.michigan.gov
senatedems.com/ananich

4. **Support for completion of the KWA pipeline.** It is presumed that the upcoming KWA pipeline will solve a number of problems associated with the current sourcing of Flint's water from the Flint River. I am requesting a meeting between representatives from your office, KWA board members and project engineers to discuss any options to expedite the pipeline's construction.

5. **A long-term commitment to addressing outdated infrastructure.** A recent EPA report just outlined the billions of dollars necessary over the next several decades to adequately secure safe water for our entire state. You have the position and opportunity to be a national leader on moving the debate forward on this topic so that we can avoid the type of catastrophe my community is grappling with today.

I look forward to working with you to deliver on these concrete and urgent action items to alleviate the public health crisis facing our residents.

We jeopardize any progress and comeback for our cities and state if we cannot ensure safe, basic necessities for our families or if we cannot come together swiftly to fix an identified, severe threat to the safety of our people.

Sincerely,

Jim Ananich
Senate Democratic Leader
District 27

cc:
U.S. Representative Dan Kildee
Mayor Dayne Walling, City of Flint
Howard Croft, City of Flint
Susan Hedman, EPA
Thomas Poy, EPA
Michael Schock, EPA-ORD
Darren Lytle, EPA-ORD
Denise Fortin, EPA
Liane Shekter-Smith, MDEQ
Pat Cook, MDEQ
Stephen Busch, MDEQ
Brad Wurfel, MDEQ
Marc Edwards, Virginia Tech

Feuerstein, Heather (DEQ)

From:	Wyant, Dan (DEQ)
Sent:	Tuesday, September 22, 2015 1:49 PM
To:	Pallone, Maggie (DEQ); Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Cc:	Wurfel, Brad (DEQ); Tommasulo, Karen (DEQ)
Subject:	FW: Flint water questions
Attachments:	MDEQ Questions 9-22-15.docx
Importance:	High

FYI

Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

From: Curt Guyette [mailto:cguyette@aclumich.org]
Sent: Tuesday, September 22, 2015 1:33 PM
To: Wurfel, Brad (DEQ)
Cc: Wyant, Dan (DEQ)
Subject: Flint water questions
Importance: High

Mr. Wurfel,

Attached are a few questions regarding the MDEQ's oversight of Flint's Lead and Copper Rule monitoring program.

I would appreciate it if you would provide me answers by the end of the day Thursday, Sept. 24.

Feel free to call me either at work (313-578-6834) or on my cell phone (586-925-0493) if you have questions or need anything clarified.

Sincerely,

Curt Guyette

Olszewski, Rosemarie (DEQ)

From:	Thelen, Mary Beth (DEQ)
Sent:	Thursday, September 24, 2015 2:21 PM
To:	Olszewski, Rosemarie (DEQ)
Subject:	FW: Requested MDEQ Drinking Water Information
Attachments:	Flint lead-copper history.pdf; 2310FlintCertOpReport2015-09-23.pdf; CWS-LeadServiceLines-List-partial.pdf

FYI D

Please print.

From: Busch, Stephen (DEQ)
Sent: Thursday, September 24, 2015 2:20 PM
To: sheldonneeley@house.mi.gov
Cc: latanyagarrett@house.mi.gov; Pallone, Maggie (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Thelen, Mary Beth (DEQ); Feuerstein, Heather (DEQ)
Subject: Requested MDEQ Drinking Water Information

Dear Representative Neeley:

I am writing in response to our meeting at your office on September 22, 2015, discussing the recent concerns by you and your constituents regarding lead levels in their tap water. Your interest in this matter is appreciated. During the meeting you requested additional information which we are providing to you as follows and attached.

1. A summary of all lead and copper compliance samples for the City of Flint is attached (Flint lead-copper history.pdf). This compilation was just completed by DEQ staff based on our records. For easier reading we have color coded the lead sample results. Those in green are 15 parts per billion or less. Those in red are over 15 parts per billion. While the City has indicated difficulty in obtaining and keeping customer participants, you will note as we explained during our meeting that lead results vary both higher and lower for addresses where monitoring has been conducted multiple times. Please note that due to the large volume of data, this document has been formatted to print on 11x17 paper.

2. A list of certified operators for the City of Flint is attached (2310FlintCertOpReport2015-09-23.pdf). This information comes from our operator certification and training database. All operators listed with an "F" certification meet the Administrative Rule requirement for the City of Flint Water Treatment Plant that "A shift operator shall be on site and in charge of each operating shift at a community supply in the F classification when the operator in charge is not on site."

3. A list (partial) of communities in Michigan, mostly from Southeast Michigan, that have reported having at least some lead service lines as part of their historical lead and copper compliance monitoring is attached (CWS-LeadServiceLines-List-partial.pdf). Again, please note that this is a partial list of community water systems statewide, based on the records we have been able to review to date. As noted during our meeting, a complete list, if still desired will take longer to compile.

We hope that this information will meet your needs. If you should have additional questions, please contact me at the number below.

Sincerely,

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

City of Flint Lead and Copper History				90th percentile = 0.015			90th percentile = 0.0144				90th percentile = 0.0045				90th percentile = 0.005				90th percentile = 0.0074				90th percentile = 0.005				90th percentile = 0.007				90th percentile = 0.0044				90th percentile = 0.004				90th percentile = 0.0014				90th percentile = 0.000				90th percentile = 0.000				90th percentile = 0.006			90th percentile = 0.011	
All results in parts per million, ppm				33 Required, 33 Taken			33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				33 Required, 33 Taken				23 Required, 23 Taken				100 Required, 100 Taken			60 Required, 69 Taken	
L=Lead, C=Copper, G=Galvanized, P=Plastic				1/1 - 6/30/1992			7/1 - 12/31/1992				1/1 - 6/30/1997				7/1 - 12/31/1997				7/1 - 12/31/1998				1/1 - 6/30/1999				6/1 - 9/30/2000				6/1 - 9/30/2001				6/1 - 9/30/2002				6/1 - 9/30/2005				6/1 - 9/30/2008				6/1 - 9/30/2011				7/1 - 12/31/2014			1/1 - 06/30/2015	
Sample Location	Sample Categor	Service Line	Building Plumbing	Site Code	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Site Code	Same Data?	Pb	Cu	Same Data?	Pb	Cu
912 Lafayette	1	L	C	A1	0.011	0.204	B1	Y	0.013	0.288																																																		
2130 Flushing	1	L	C	A2	0.003	0.023	B2	Y	0.003	0.023																																														N (C,P)	0.006	0.05
1614 Woodlawn Pk	1	L	C	A3	0.004	0.145	B3	Y	0.007	0.061	C3	Y	0.003	0.05	D3	Y	0.032	0.018	E3	Y	0.029	0.060	F3	Y	<0.002	0.030	G3	Y	0.004	0.036	H3	Y	<0.003	<0.020																						
919 Blanchard	1	L	G	A4	0.008	0.036	B4	Y	0.009	0.045	C4	Y	<0.002	0.19	D4	Y	<0.002	0.146	E4	Y	0.004	<0.01	F4	Y	<0.002	0.130	G4	Y	0.005	0.013	H4	Y	<0.003	0.04																						
2322 Calumet	1	L	C	A5	0.004	0.085	B5	Y	0.002	0.053	C5	Y	<0.002	0.04	D5	Y	<0.002	0.025	E5	Y	<0.002	0.010	F5	Y	<0.002	0.010	G5	Y	0.003	0.015	H5	Y	<0.003	<0.020																						
2501 Bagley	1	L	G	A6	0.007	0.055	B6	Y	0.007	0.043																																														J6	Y	<0.002	0.02
3704 Circle	1	L	C	A7	0.005	0.220	B7	Y	0.005	0.134																																															
2110 N. Stevenson	1	L	G	A8	0.009	0.043	B8	Y	0.015	0.037	C8	Y	0.002	0.03	D8	Y	0.003	0.022	E8	Y	0.008	0.020	F8	Y	0.004	0.040																																
2201 Brownell	1	L	G	A9	0.008	0.162	B9	Y	0.009	0.089																																															
2601 Mackin	1	L	G	A10	0.004	0.086	B10	Y	0.005	0.040	C10	Y	0.003	0.02	D10	Y	<0.002	0.013	E10	Y	0.003	<0.01	F10	Y	0.005	0.010	G10	Y	0.005	0.011	H10	Y	<0.003	<0.020																						
2101 Chippewa	1	L	G	A11	0.002	0.005	B11	Y	0.003	0.048																																														
3613 Cassius	1	L	C	A12	0.002	0.043	B12	Y	0.001	0.028																																														
502 Crapo	1	L	C	A13	0.004	0.025	B13	Y	0.006	0.022	C13	Y	<0.002	0.02	D13	Y	<0.002	0.018	E13	Y	<0.002	0.010	F13	Y	<0.002	0.010																																
2202 Joliet	1	L	G	A14	0.005	0.019	B14	Y	0.005	<0.020																																														
310 E. Foss	1	L	C	A15	0.000	0.030																																																	
3714 Circle	1	L	C	A16	0.014	0.035	B16	Y	0.023	0.053																																													
4317 Pengelly	1	L	C	A17	0.008	0.101	B17	Y	0.001	0.023																																													
2214 Nebraska	1	L	C	A18	0.001	0.037	B18	Y	0.001	0.036																																												
2937 Oklahoma	1	L	G	A19	0.013	0.082	B19	Y	0.009	0.073																																												
734 E. Foss	1	L	C	A20	0.004	0.005	B20	Y	0.004	<0.020																																											
530 Leta	1	L	C	A21	0.004	0.085	B21	Y	0.001	<0.020																																											
1922 Barth	1	L	G	A22	0.003	0.022	B22	Y	0.002	0.200	C22	Y	<0.002	0.08					E22	Y	<0.002	0.010																																		
309 Marquette	1	L	C	A23	0.017	0.073	B23	Y	0.020	0.034																																											
318 Marquette	1	L	G	A24	0.009	0.079	B24	Y	0.008	0.080																																											
2428 Thomas	1	L	G	A25	0.009	0.161	B25	Y	0.009	0.115																																											
2443 Thomas	1	L	C	A26	0.006	0.200	B26	Y	0.004	0.141	C26	Y	<0.002	0.1	D26	Y	<0.002	0.090	E26	Y	<0.002	0.070	F26	Y	<0.002	0.110	G26	Y	0.002	0.069																						
2448 Thomas	1	L	G	A27	0.011	0.087	B27	Y	0.007	0.069																																										
2463 Thomas	1	L	G	A28	0.025	0.273	B28	Y	0.022	0.619																																										
2472 Thomas	1	L	G	A29	0.010	0.011	B29	Y	0.006	0.027	C29	Y	0.025	0.02	D29	Y	0.005	0.006	E29	Y	0.013	<0.01	F29	Y	0.013	<0.01	G29	Y	0.017	0.008	H29	Y	0.003	<0.020																						
2420 Norbert	1	L	G	A30	0.006	0.027	B30	Y	0.004	0.023																																										
2448 Nolen	1	L	C	A31	0.006	0.346	B31	Y	0.002	0.084																																										
611 Weller	1	L	C	A32	0.016	0.075	B32	Y	0.011	0.067	C32	Y	0.005	0.06	D32	Y	0.005	0.042	E32	Y	0.006	0.040	F32	Y	0.003	0.030	G32	Y	0.005	0.032	H32	Y	0.006	0.04																						
1613 Woodlawn Pk	1	L	G	A33	0.024	0.025	B33	Y	0.008	0.050	C33	Y	0.003	0.01	D33	Y	<0.002	0.035	E33	Y	0.002	0.430	F33	Y	0.01	0.530	G33	Y	0.005	0.137	H33	Y	<0.003	0.27	I33	Y	<0.003	0.095																
238 Peer	1	L	C				B34	New	0.009	0.069																																										
508 Avon	1	L	C								C35	New	0.005	0.15	D35	Y	0.004	0.105	E35	Y	0.004	0.030	F35	Y	0.003	0.130																																		
352 Commonwealth	1	L	C								C36	New	<0.002	0.02	D36	Y	<0.002	0.008	E36	Y	<0.002	<0.01	F36	Y	<0.002	0.020	G36	Y	0.003	0.085																												
2026 Hill	1	L	C								C37	New	<0.002	0.02	D37	Y	<0.002	0.006																													I37	Y	<0.003	0.025										
2014 Leith	1	L	G								C38	New	<0.002	<0.01																																										
1519 Lincoln	1	L	C								C39	New	<0.002	0.03	D39	Y	<0.002	0.010	E39	Y	0.003	0.010	F39	Y	0.003	<0.01	G39	Y	<0.002	0.005	H39	Y	<0.003	<0.020																						
1401 Maplewood	1	L	G								C40	New	0.004	0.02	D40	Y	<0.002	0.017	E40	Y	<0.002	0.010	F40	Y	0.002	0.030	G40	Y	0.002	0.022	H40	Y	<0.003	0.02																						
509 Mathewson	1	L	L								C41	New	<0.002	0.01	D41	Y	<0.002	0.031	E41	Y	<0.002	<0.01	F41	Y	<0.002	0.060																																		
1805 Proctor	1	L	G								C42	New	0.005	0.03					E42	Y	0.003	0.050	F42	Y	0.004	0.110																																
2751 Swayze	1	L	L								C43	New	<0.002	0.03	D43	Y	<0.002	0.014	E43	Y	0.003	<0.01	F43	Y	<0.002	<0.01																																		
2467 Thomas	1	L	G								C44	New	0.002	0.07	D44	Y	<0.002	0.008	E44	Y	0.004	<0.01	F44	Y	0.003	<0.01	G44	Y	0.021	0.005																												
2207 Windemere	1	L	G								C45	New	0.003	0.07	D45	Y	0.005	0.047					F45	Y	0.007	0.010	G45	Y	0.006	0.006																												
2701 Yale	1	L	C								C46	New	<0.002	0.02	D46	Y	<0.002	0.004	E46	Y	<0.002	<0.01																																				
2705 Yale	1	L	C								C47	New	<0.002	0.03																																									
2709 Yale	1	L	C								C48	New	<0.002	0.03	D48	Y	<0.002	0.032					F48	Y	<0.002	0.03																																
2710 Yale	1	L	C								C49	New	0.003	0.05					E49	Y	<0.002	0.010	F49	Y	<0.002	0.02	G49	Y	<0.002	0.008	H49	Y	0.003	0.040																						
2713 Yale	1	L	C								C50	New	<0.002	0.02	D50	Y	0.002	0.003					F50	Y	<0.002	0.02	G50	Y	<0.002	0.013	H50	Y	<0.003	0.03																						
2714 Yale	1	L	C								C51	New	<0.002	0	D51	Y	<0.002	0.003																																						
2717 Yale	1	L	C								C52	New	0.003	0.03	D52	Y	0.002	0.003																																						
2718 Yale	1	L	C								C53	New	0.002	0.04	D53	Y	0.003	0.003	E53	Y	0.002	0.030	F53	Y	0.003	0.05																																
2721 Yale	1	L	C								C54	New	<0.002	0.02	D54	Y	<0.002	0.003																																						
2734 Yale	1	L	C								C55	New	<0.002	0.02	D55	Y	<0.002	0.021	E55	Y	<0.002	<0.01																																				
2801 Yale	1	L	C								C56	New	0.002	0.03																																							K56	Y	<0.002	0.0204			
1701 Pennsylvania	1	L	G,C												D57	New	0.005	0.029																																						
2937 Oklahoma	1	L	C												D58	New	0.003	0.138																																						
2465 Norbert	1	L	G,C												D59	New	0.003	0.003	E59	Y	0.004	<0.01	F59	Y	0.002	0.01	G59	Y	0.004	0.006	H59	Y	<0.003	<0.020																						
2453 Norbert	1	L	G,C												D60	New	<0.002	0.029																																						
2471 Norbert	1	L	G,C												D61	New	0.003	0.027	E61	Y	0.003	<0.01	F61	Y	0.003	<0.01	G61	Y	0.005	0.019	H61	Y	0.003	<0.020																						
2436 Norbert	1	L	G,C												D62	New	<0.002	0.003	E62	Y	0.003	<0.01									H92	Y	<0.003	<0.020																						
2459 Norbert	1	L	C																E63	New	0.002	<0.01					G76	N (L/G)	0.004	0.009																						
2440 Norbert	1	L	C																E64	New	<0.002	<0.01																							J64	Y	0.002	0.036						
2470 Nolen Dr.	1	L	C																E65	New	0.002	0.01																																
3413 Brunswick	1	L	C																E66	New	0.008	<0.01	F66	Y	0.005	<0.01	G66	Y	0.004	0.009	H66	Y	0.003	<0.020									J66	Y	<0.002	<0.010	K66	Y	<0.002	<0.005	L66	Y	<0.002	<0.005
416 Marquette	1	L	C																E67	New	<0.002	<0.01																																
2230 Winona	1	L	C																E68	New	0.006	0.07	F68	Y	<0.002	0.01	G68	Y	0.003	0.012	H68	Y	0.007	<0.020																				
2574 Nolen	1	L	C																E69	New	<0.002	0.02																																
3714 Leith	1	L	C																				F70	New	<0.002	0.07	G70	Y	<0.002	0.033	H70	Y	<0.003	<0.020	I70	Y	<0.003	<0.020														
915 Hughes	1	L	C																				F71	New	0.002	<0.01	G71	Y	0.007	0.012	H71	Y	<0.003	<0.020																				
2706 Cumings	1	L	C																				F72	New	<0.002	0.01	G72	Y	<0.002	0.005	H72	Y	<0.003	0.02																				
1922 Bagley	1	L	C																				F73	New	0.003	0.02																												
2014 Leith	1	L	C																				F74	New	<0.002	<0.01																												
2111 Brownell Blvd.	1	L	C																				F75	New	0.003	0.06																												
2619 Thomas	1	L	G																								G77	New	0.004	0.022	H76	Y	<0.003	<0.020																		
2522 Wolcott	1	L	C																								G78	New	<0.002	0.05	H78	Y	<0.003	0.05																		
3202 Camden	1	L	C																								G79	New	<0.002	0.05	H79	Y	<0.003	<0.020	I79	Y	<0.003	<0.020										
313 E. Stewart	1	L	G																								G80	New	<0.002	0.004	H80	Y	<0.003	0.02																		
2126 Nebraska	1	L	C																								G81	New	<0.002	0.028	H81	Y	<0.003	0.09	I81	Y	<0.003	0.116										
206 Baker St.	1	L	C																								G82	New	<0.002	0.007																						
229 Baker St.	1	L	C																								G83	New	0.01	0.016																						
911 Hughes	1	L	C																								G84	New	0.004	0.008	H84	Y	0.006	<0.020																		
422 W. Taylor	no data	no data	no data																								G85	New	<0.002	0.051																						
1405 Maplewood	1	L	C																								G86	New	0.006	0.008	H86	Y	<0.003	<0.020																		
2306 Levern	1	L	G/C																												H87	New	<0.003	<0.020																		
1906 Knapman	1	L	C																												H88	New	<0.003	<0.020																		
2310-610 Garland	1	L	G/C																												H89	New	0.005	<0.020																		
928 Garland	1	L	G/C																												H90	New	<0.003	<0.020																		
5801 Edwards Ave.	1	L	C																												H91	New	<0.003	<0.020																		
3706 Leith	1	L	C																												H93	New	<0.003	<0.020																		
911 Beard	1	L	G/C																												H94	New	<0.003	<0.020																		
830 E. 7th Street	1	L	G																																I95	New	<0.003	<0.020																		
841 E. 7th Street	1	L	G																																I96	New	<0.003	<0.020																		
849 E. 7th Street	1	L	G																																I97	New	<0.003	<0.020																		
857 E. 7th Street	1	L	G																																I98	New	0.004	0.072																		
903 E. 7th Street	1	L	G																																I99	New	<0.003	<0.020																		
906 E. 7th Street	1	L	G																																I100	New	0.007	<0.020																		
909 E. 7th Street	1	L	G																																I101	New	<0.003	0.124																		
911 E. 7th Street	1	L	G																																I102	New	<0.003	0.059																		
915 E. 7th Street	1	L	G																																I103	New	<0.003	<0.020																		

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CEC Report within Renewal Period - By WSSN

WSSN: 2310
DISTRICT: 11

This application was created using the trial version
of the XtraReports.

OPERATOR: Nicole D. Alexander **OPER ID:** 13291

CERTIFIED: ISSUE DATE: 07/16/2013 EXPIRATION DATE: 07/15/2016

CLASSIFICATION(S) HELD: F-3, S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
03/06/2014	Chlorine Safety Training Seminar	Flint	0.2		
		CEC's Earned:	.2	.0	.0
		Total CEC's Earned: 0.2			

OPERATOR: Jessica E. Ashley **OPER ID:** 18582

CERTIFIED: ISSUE DATE: 11/05/2014 EXPIRATION DATE: 01/15/2018

CLASSIFICATION(S) HELD: F-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

OPERATOR: Scott A. Ball **OPER ID:** 18394

CERTIFIED: ISSUE DATE: 11/05/2014 EXPIRATION DATE: 01/15/2018

CLASSIFICATION(S) HELD: F-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

OPERATOR: Chris S. Beatenhead **OPER ID:** 18594

CERTIFIED: ISSUE DATE: 11/05/2014 EXPIRATION DATE: 01/15/2018

CLASSIFICATION(S) HELD: F-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

This application was created using the trial version of the XtraReports.

OPERATOR: Melissa A. Beckelic **OPER ID:** 14931

CERTIFIED: ISSUE DATE: 10/17/2012 EXPIRATION DATE: 01/15/2016

CLASSIFICATION(S) HELD: F-2, S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
08/04/2015	Basic Environmental Chemistry	on line	1.1		
02/04/2015	Joint Expo	Lansing			0.2
06/19/2013	MDEQ Water Security Tabletop Exercises -	Montrose		0.2	
		CEC's Earned:	1.1	.2	.2
		Total CEC's Earned: 1.5			

OPERATOR: Michael G. Beckley **OPER ID:** 13782

CERTIFIED: ISSUE DATE: 06/01/2015 EXPIRATION DATE: 07/15/2018

CLASSIFICATION(S) HELD: F-4, S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

OPERATOR: Timothy J. Bednarski **OPER ID:** 18595

CERTIFIED: ISSUE DATE: 05/06/2015 EXPIRATION DATE: 07/15/2018

CLASSIFICATION(S) HELD: F-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

This application was created using the trial version
of the XtraReports.

OPERATOR: Robert J. Bincsik **OPER ID:** 13784

CERTIFIED: ISSUE DATE: 01/16/2014 EXPIRATION DATE: 01/15/2017

CLASSIFICATION(S) HELD: F-4, S-1 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
02/04/2015	Joint Expo	Lansing			0.2
02/05/2014	Joint Expo	Lansing			0.2
		CEC's Earned:	.0	.0	.4
		Total CEC's Earned: 0.4			

OPERATOR: Timothy A. Bratton **OPER ID:** 4214

CERTIFIED: ISSUE DATE: 12/18/2013 EXPIRATION DATE: 01/15/2017

CLASSIFICATION(S) HELD: F-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
03/06/2014	Chlorine Safety Training Seminar	Flint	0.2		
01/14/2014	Electrical Training: Advanced	Lapeer	0.5		
		CEC's Earned:	.7	.0	.0
		Total CEC's Earned: 0.7			

OPERATOR: Thomas A. Childs **OPER ID:** 12737

CERTIFIED: ISSUE DATE: 05/06/2015 EXPIRATION DATE: 07/15/2018

CLASSIFICATION(S) HELD: F-3 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

OPERATOR: Todd C. Church **OPER ID:** 12192

CERTIFIED: ISSUE DATE: 11/09/2011 EXPIRATION DATE: 01/15/2015

CLASSIFICATION(S) HELD: S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other

This application was created using the trial version of the XtraReports.

CEC's Earned:	.0	.0	.0

Total CEC's Earned: 0.0

OPERATOR: Jeffrey S. Church **OPER ID:** 12559

CERTIFIED: ISSUE DATE: 04/16/2014 EXPIRATION DATE: 04/15/2017

CLASSIFICATION(S) HELD: S-3 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
06/24/2015	NUCA Excavation Safety & Competent	Flint			0.6
		CEC's Earned:	.0	.0	.6

Total CEC's Earned: 0.6

OPERATOR: Scott A. Dungee **OPER ID:** 5550

CERTIFIED: ISSUE DATE: 12/01/2013 EXPIRATION DATE: 01/15/2017

CLASSIFICATION(S) HELD: F-4, S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
02/04/2015	Joint Expo	Lansing			0.2
03/06/2014	Chlorine Safety Training Seminar	Flint	0.2		
		CEC's Earned:	.2	.0	.2

Total CEC's Earned: 0.4

OPERATOR: Donald G. Echlin **OPER ID:** 17279

CERTIFIED: ISSUE DATE: 11/05/2014 EXPIRATION DATE: 01/15/2018

CLASSIFICATION(S) HELD: F-3, S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
02/18/2015	Technical Maintenance for W&WW Treatment	Davison	0.5		
02/04/2015	Joint Expo	Lansing			0.2
		CEC's Earned:	.5	.0	.2

Total CEC's Earned: 0.7

This application was created using the trial version
of the XtraReports..

OPERATOR: Michael B. Glasgow **OPER ID:** 13684

CERTIFIED: **ISSUE DATE:** 01/01/2014 EXPIRATION DATE: 01/15/2017

CLASSIFICATION(S) HELD: F-1R, F-2, S-3 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
03/06/2014	Chlorine Safety Training Seminar	Flint	0.2		
		CEC's Earned:	.2	.0	.0
		Total CEC's Earned: 0.2			

OPERATOR: Rodney L. Jackson **OPER ID:** 16056

CERTIFIED: **ISSUE DATE:** 11/06/2013 EXPIRATION DATE: 01/15/2017

CLASSIFICATION(S) HELD: F-3, S-2 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
03/06/2014	Chlorine Safety Training Seminar	Flint	0.2		
		CEC's Earned:	.2	.0	.0
		Total CEC's Earned: 0.2			

OPERATOR: Christopher J. Koryciak **OPER ID:** 4653

CERTIFIED: **ISSUE DATE:** 12/01/2013 EXPIRATION DATE: 01/15/2017

CLASSIFICATION(S) HELD: F-4, S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
03/06/2014	Chlorine Safety Training Seminar	Flint	0.2		
		CEC's Earned:	.2	.0	.0
		Total CEC's Earned: 0.2			

OPERATOR: Matt T. McFarland **OPER ID:** 5575

CERTIFIED: **ISSUE DATE:** 01/16/2014 EXPIRATION DATE: 01/15/2017

CLASSIFICATION(S) HELD: F-3, S-3 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
12/31/2014	AWWA Membership				0.1
		CEC's Earned:	.0	.0	.1
		Total CEC's Earned: 0.1			

This application was created using the trial version
of the XtraReports.

Earned:

OPERATOR: Kevin S. McLeod **OPER ID:** 18598

CERTIFIED: ISSUE DATE: 11/05/2014 EXPIRATION DATE: 01/15/2018

CLASSIFICATION(S) HELD: F-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

OPERATOR: John M. Monsees **OPER ID:** 3622

CERTIFIED: ISSUE DATE: 07/01/2014 EXPIRATION DATE: 07/15/2017

CLASSIFICATION(S) HELD: F-2, S-1 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
12/31/2014	MRWA Membership				0.1
09/12/2014	MI-AWWA Annual Conference Exhibits	Manistee			0.1
09/12/2014	MI-AWWA Annual Conference Exhibitor	Manistee	0.1		
09/12/2014	MI-AWWA Section Meeting	Manistee	0.6	0.4	0.1
		CEC's Earned:	.7	.4	.3
		Total CEC's Earned: 1.4			

OPERATOR: Jeffrey N. Murray **OPER ID:** 16103

CERTIFIED: ISSUE DATE: 11/09/2011 EXPIRATION DATE: 01/15/2015

CLASSIFICATION(S) HELD: S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

This application was created using the trial version of the XtraReports.

OPERATOR: Paul O. Simpson **OPER ID:** 4849

CERTIFIED: ISSUE DATE: 01/16/2015 EXPIRATION DATE: 01/15/2018

CLASSIFICATION(S) HELD: S-2 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
06/25/2015	NUCA Excavation Safety & Competent	Flint			0.6
06/11/2015	Confined Space	Flint			0.4
03/20/2015	MRWA Annual Conference	Acme	0.6	0.4	0.1
03/20/2015	Michigan Rural Water Association Annual	Acme			0.1
		CEC's Earned:	.6	.4	1.2
		Total CEC's Earned: 2.2			

OPERATOR: Howard W. Swickard **OPER ID:** 5091

CERTIFIED: ISSUE DATE: 12/16/2012 EXPIRATION DATE: 01/15/2016

CLASSIFICATION(S) HELD: S-2 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
03/20/2015	MRWA Annual Conference	Acme	0.6	0.4	0.1
03/20/2015	Michigan Rural Water Association Annual	Acme			0.1
09/25/2013	Basic Math/Hydraulics	Higgins Lake	1.8		
07/23/2013	Permit Required Confined Space	Flint			0.6
07/10/2013	Arsenic in Drinking Water	Mt Pleasant	0.4		
06/05/2013	NUCA Excavation Safety & Competent	Flint			0.6
05/30/2013	Municipal Safety Day	Mason			0.4
		CEC's Earned:	2.8	.4	1.8
		Total CEC's Earned: 5.0			

OPERATOR: Bobby G. Vaughn **OPER ID:** 14565

CERTIFIED: ISSUE DATE: 02/20/2014 EXPIRATION DATE: 04/15/2017

CLASSIFICATION(S) HELD: S-3 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
		CEC's Earned:	.0	.0	.0
		Total CEC's Earned: 0.0			

This application was created using the trial version
of the XtraReports.

OPERATOR: Christopher C. Wilcox **OPER ID:** 18586

CERTIFIED: ISSUE DATE: 11/05/2014 EXPIRATION DATE: 01/15/2018

CLASSIFICATION(S) HELD: F-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
02/18/2015	Technical Maintenance for W&WW Treatment	Davison	0.5		
		CEC's Earned:	.5	.0	.0
		Total CEC's Earned: 0.5			

OPERATOR: Brent F. Wright **OPER ID:** 3676

CERTIFIED: ISSUE DATE: 07/16/2013 EXPIRATION DATE: 07/15/2016

CLASSIFICATION(S) HELD: F-2, S-3 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
12/31/2014	AWWA Membership	Varies			0.1
04/28/2014	Applied Hydraulics	Lansing	3.0		
01/14/2014	Electrical Training: Advanced	Lapeer	0.5		
12/31/2013	AWWA Membership	Varies			0.1
		CEC's Earned:	3.5	.0	.2
		Total CEC's Earned: 3.7			

OPERATOR: Charles V. Yanta **OPER ID:** 3678

CERTIFIED: ISSUE DATE: 11/09/2011 EXPIRATION DATE: 01/15/2015

CLASSIFICATION(S) HELD: F-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
02/04/2015	Joint Expo	Lansing			0.2
03/06/2014	Chlorine Safety Training Seminar	Flint	0		
06/27/2013	Chlorine Safety Training Seminar	Flint	0.2		
		CEC's Earned:	.2	.0	.2
		Total CEC's Earned: 0.4			

This application was created using the trial version of the XtraReports.

OPERATOR: Michael J. Young **OPER ID:** 15877

CERTIFIED: ISSUE DATE: 01/16/2012 EXPIRATION DATE: 01/15/2015

CLASSIFICATION(S) HELD: S-4 **WSSN:** 2310 **DISTRICT:** 11

DATE	COURSE	LOCATION	Tech	Mgr	Other
07/24/2013	Permit Required Confined Space	Flint			0.6
07/10/2013	Arsenic in Drinking Water	Mt Pleasant	0.4		
06/05/2013	NUCA Excavation Safety & Competent	Flint			0.6
05/30/2013	Municipal Safety Day	Mason			0.4
		CEC's Earned:	.4	.0	1.6
		Total CEC's Earned: 2.0			

This application was created using the trial version
of the XtraReports.

Michigan Community Water Supplies that have previously listed lead service line materials as part of Lead and Copper compliance monitoring – partial list

Supply Name and Water Supply Serial Number

Allen Park 0130
Ash Twp. 0245
Bloomfield Twp. 0790
Brownstown 0940
Centerline 1290
Dearborn Heights 1740
Dearborn 1730
Eastpoint 1950
Ecorse 2050
Farmington 2230
Ferndale 2280
Flat Rock 2300
Flint 2310
Garden City 2550
Gibraltar 2630
Grosse Ile 2870
Grosse Pointe Park 2900
Grosse Pointe Woods 2920
Hamtramck 2970
Harper Woods 3020
Hazel Park 3100
Huron Twp. 3320
Inkster 3360
Lincoln Park 3870
Livonia 3930
Madison Heights 4000
Melvindale 4420
Oak Park 4880
Plymouth Twp. 5420
Plymouth 5400
Pontiac 5440
Redford Twp. 5640
River Rouge 5690
Riverview 5710
Rockwood 5750
Romulus 5785
Roseville 5820
Southgate 6170
St. Clair Shores 6280
Taylor 6545
Trenton 6650
Troy 6690
Utica 6760
Warren 6900
Wayne 6950
Westland 7470/7040
Ypsilanti Twp. 7260
Berkley 0630
Beverly Hills 0690
Birmingham 0730
Clawson 1440
Huntington Woods 3310
Lathrup Village 3800
Pleasant Ridge 5390
Royal Oak 5830
Southfield 6160
Greater Genesee County Water Supply Systems 2615
Detroit 1800.

Lansing BWL 3760
Bay City 0470

Thelen, Mary Beth (DEQ)

From: Curt Guyette <cguyette@aclumich.org>
Sent: Tuesday, September 22, 2015 1:33 PM
To: Wurfel, Brad (DEQ)
Cc: Wyant, Dan (DEQ)
Subject: Flint water questions
Attachments: MDEQ Questions 9-22-15.docx

Importance: High

Mr. Wurfel,

Attached are a few questions regarding the MDEQ's oversight of Flint's Lead and Copper Rule monitoring program.

I would appreciate it if you would provide me answers by the end of the day Thursday, Sept. 24.

Feel free to call me either at work (313-578-6834) or on my cell phone (586-925-0493) if you have questions or need anything clarified.

Sincerely,

Curt Guyette

Dear Mr. Wurfel,

In a February 27, 2015 email to Jennifer Crooks and Miguel Del Toral of the U.S. EPA, the MDEQ's Stephen Busch wrote that the city of Flint "has an optimized corrosion control program."

According to a recent interview with Flint Public Work's director Howard Croft, there is currently no corrosion control plan in place in Flint, and that it was MDEQ's decision not to use corrosion control additives, as Detroit does, at the time of the changeover to the Flint River in April 2014, and that none have been used since. It appears that Mr. Busch told the EPA something that wasn't true.

I'm writing to ask you to clear up the discrepancy between what Mr. Busch told the EPA, and what Mr. Croft is now saying.

- **What, if any, Optimized Corrosion Control has been in place in Flint since the changeover to the Flint River in April 2014?**
- **If implemented, when did that program begin?**
- **What are the specific details of that optimized corrosion control program, if it did in fact exist? That is to say, what chemicals were used to control corrosion in Flint's water infrastructure?**

In addition, according to my understanding of the law, the city of Flint, operating under the oversight of the MDEQ, was supposed to (a) have had a 120-home sample pool to draw from when choosing homes to sample as part of the EPA's Lead and Copper Rule compliance monitoring and (b) that the city was required by law to re-test those same 100 homes during the second round of testing that took place from Jan. 1 to June 30 2015.

- **Did the city of Flint ever provide the MDEQ with that 120 homes sample pool? Will the MDEQ make that list available if in its possession?**
- **Why did the MDEQ certify that Flint followed proper testing protocol when only 13 of the homes tested during the first round (July 1 to Dec. 31, 2014) were re-tested during the second round?**
- **Why is this not a violation of the federal LCR testing protocols?**
- **Why were all 13 of those homes under the federal action level for lead and copper, while none of the homes over the action level were re-tested during the second round?**

Mr. Del Toral of the EPA specifically said in a communication with MDEQ that a sample from the Walters home at 212 Browning Ave. in Flint should be included in the homes used to determine whether Flint is in compliance with the LCR.

That home was included in the original list of 71 homes the city of Flint provided to MDEQ, but the MDEQ deleted that home from its final report.

It has been asserted that this home had a whole house filter, but according to Lee-Anne Walters she was instructed by Flint officials to disable the filter prior to taking the water sample that showed lead levels to be far above the federal action limit.

- **What is the DEQ's justification for not following the U.S. EPA's specific guidance to include this home in its report showing that Flint is in compliance with federal regulations regarding lead levels in water?**

I would appreciate an answer to these questions by the end of the day Thursday, Sept. 24.

Thank you for your assistance in this important matter.

Sincerely,

Curt Guyette

Investigative reporter

ACLU of Michigan

Work number: 313-578-6834

Cell phone number: 586-925-0493

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Thursday, November 05, 2015 7:57 AM
To: Olszewski, Rosemarie (DEQ)
Subject: FW: Flint MI: LCR Enforcement Issues
Attachments: image003.png; ATT00001.htm; Flint LCR for FOIA 6429-15 (5).pdf; ATT00002.htm; FOIA 15-585 Part 2 55pgs (12).pdf; ATT00003.htm

Please print.

From: Shekter Smith, Liane (DEQ)
Sent: Monday, September 21, 2015 11:56 AM
To: Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Wurfel, Brad (DEQ); Pallone, Maggie (DEQ); Wyant, Dan (DEQ)
Cc: Thelen, Mary Beth (DEQ); Feuerstein, Heather (DEQ); Shaler, Karen (DEQ); Devereaux, Tracy Jo (DEQ)
Subject: FW: Flint MI: LCR Enforcement Issues

EPA just shared the attached

From: Fortin, Denise [mailto:Fortin.Denise@epa.gov]
Sent: Monday, September 21, 2015 11:44 AM
To: Shekter Smith, Liane (DEQ)
Subject: Fwd: Flint MI: LCR Enforcement Issues

Sent from my iPhone

Begin forwarded message:

From: "Henry, Timothy" <henry.timothy@epa.gov>
To: "Fortin, Denise" <Fortin.Denise@epa.gov>
Subject: FW: Flint MI: LCR Enforcement Issues

Tim Henry
Deputy Director, Water Division
U.S. EPA (W-15J)
77 W. Jackson Blvd., Chicago, IL 60604-3590
Phone: 312.886.6107 Fax: 312.692.2578

From: Damato, Nicholas
Sent: Monday, September 21, 2015 7:56 AM
To: Henry, Timothy; Hyde, Tinka
Subject: FW: Flint MI: LCR Enforcement Issues
Importance: High

Tim & Tinka,

Miguel forwarded the email below from Marc Edwards. Miguel then called because he wanted Tinka to have a heads up especially on the info in the ACLU video and didn't want her blindsided with the content – it should be reviewed carefully. Tom, Rita, Heather, Jennifer, Miguel & I will be having a call with ORC & OECA this morning on Marc's email.

Nick

From: Deltoral, Miguel
Sent: Monday, September 21, 2015 6:52 AM
To: Damato, Nicholas
Subject: Fw: Flint MI: LCR Enforcement Issues
Importance: High

Just noticed you weren't copied on this...

Miguel A. Del Toral
Regulations Manager
U.S. EPA R5 GWDWB
77 West Jackson Blvd, (WG-15J)
Chicago, IL 60604
Phone: (312) 886-5253

From: Marc Edwards <edwardsm@vt.edu>
Sent: Sunday, September 20, 2015 09:29 PM
To: Schock, Michael; Lytle, Darren; kempic.jeffrey@epa.gove; Burneson, Eric; demarco.carol@epa.gov; Murphy, Thomas; Shoven, Heather; Deltoral, Miguel
Subject: Flint MI: LCR Enforcement Issues

Mike, Darren, Jeff, Eric, Carol and Miguel and R5 MI/Enforcement personnel (as listed on the R5 webpage).

In this e-mail, I am making you aware of what we know regarding the Flint lead situation.

1) They do not have an approved lead sampling pool. Only 13 of the lowest lead sampled homes from 2014, were resampled in 2015.
The homes sampling high in 2014, were not asked to be resampled.
At best, their program is sending out sampling bottles at random across the city.

2) This message exemplifies the type of site selection, that they are doing to satisfy their high risk LCR monitoring pool site.
That is, none. They are not even hiding it.
http://www.flintneighborhoodsunited.org/drinking-water-testing/.

3) Furthermore, in a video now on the ACLU website, at the end of the interview, Mike Glasgow (Flint LCR program) notes what is perfectly obvious from looking at the MDEQ FOIA materials.
"we threw out bottles everywhere just to collect as many as we can, just to hit our number, and we just turn in every result we get in."

Moreover, they do not have the records to show the homes have lead pipe. *"we are still looking for the records"*
See video here. Start at 4 minutes and 13 seconds to see the admission. ***https://vimeo.com/139882021***

4) On top of that, according to my count, MDEQ covered up no fewer than 5 violations in the 2015 sample round. These include:

a) Technical violation in that what they now stamp as the "draft" report (attached) is late (the signed date is 7/28/2015).
It was due 7/10/2015. The final "revised" report is dated 8/20/2015 (also attached), which is 40 days late.

b) Although 87 sites from 2014 were not resampled, no written justification for the site changes was provided in the FOIA materials, and this is required by law.
The statement given today by Flint, that residents were not resampled because they did not want to participate, is contradicted by my conversations with residents.

c) In the original 71 samples Flint submitted late, the lead 90%ile action level was exceeded. MDEQ took the initiative to invalidate 2 samples, dropping Flint below the Action Level.
Flint never requested in writing that any of the samples be invalidated (see the comments written in the box of page 1, FOIA 15-585).
Mike Glasgow says that the 2 high samples were deleted based on the conference call. Only the high samples were scrutinized for meeting the sample pool criteria.
No low samples were investigated. I have the e-mails.

4) The "Draft 7/28/2015" and "revised 8/20/2015" LCR reports, on page 1, check boxes that note Tier 1 sites are not used. MDEQ asks no questions about that. In video Mike admits he has no knowledge of what sites actually have lead pipe or not.

5) Flint did not achieve the minimum number of samples as determined before the sampling round. In his e-mail Mike Glasgow (see below, and see FLINT LCR FOR FOIA...pdf) acknowledges this will be a technical violation. The draft LCR clearly indicates that the minimum was not achieved. MDEQ responds "we are discussing options" to handle this technical violation. In the August 20th revised final report, even this technical violation magically disappears (see comments box on page 1....).

To:	'Michael Glasgow'
Cc:	Brent Wright
Subject:	RE: lead/copper

we are discussing options regarding this and future rounds of monitoring and will get back with you.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Thursday, July 09, 2015 2:19 PM
To: Rosenthal, Adam (DEQ)
Cc: Brent Wright
Subject: Re: lead/copper

Adam,

I just sent the last of the samples to the lab today. Unfortunately we did not reach 100 samples. I believe the count I have is 76 total. Since we have had a few more hits this round, we are going to continue to solicit samples for our own informational purposes. I am disappointed in the turnout of sampling, we distributed close [illegible] With this monitoring violation will we be required to collect another round of 100

N DEPARTMENT OF ENVIRONMENTAL QUALITY
F DRINKING WATER AND MUNICIPAL ASSISTANCE

DRAFT

AND COPPER REPORT AND
ONSUMER NOTICE OF LEAD RESULT
CERTIFICATE FOR COMMUNITY WATER SUPPLY

Issued under authority of 1976 PA 399, MCL 325.1001 *et al.*, and Administrative Rules, as amended.
Failure to submit this information is a violation of Act 399 and may subject the water supply to enforcement penalties.

Administrative Rule R 325.10710d requires water supplies to report lead and copper monitoring information within 10 days after the end of the monitoring period. This form may be used to meet this requirement. Submit the information to the appropriate Department of Environmental Quality (DEQ) district office. For district office addresses, visit www.michigan.gov/deq and click on Locations.

1. Water Supply Name: City of Flint Water Plant
2. County: Genesee 3. WSSN: 2310
4. Population: 99,763 5. Monitoring Period: From: 1/1/15 To: 6/30/15
6. Minimum # of Samples Required: 100 60 7. # of Samples Taken: 71 ~~72~~ 69
8. Name of Certified Laboratory: DEQ Drinking Water Laboratory

9. SAMPLE CRITERIA:

Yes	No	Explain No responses in Comments block.	
☐	☒	a. Are the same sampling points used as in the previous monitoring period?	
☐	☒	b. Are all samples from Tier 1 sites?	For more information see *Instructions* paragraph 11, subparagraph "Sample Category."
☒	☐	c. Are all samples from Tier 1, 2, or 3 sites giving Tier 1 priority?	
☒	☐	d. If no Tier 1, 2, or 3 sites are available, do all sites have plumbing materials commonly found at other locations in the system?	
☒	☐	e. Is the minimum number of lead service line samples taken (when applicable)?	

Comments:
A total of 175 sample bottles and instructions were distributed to city residents. We are continuing to solicit samples due to the fact that we did not reach the minimum number for this monitoring period.

Lead service - majority (30,000?)

10. NAME:

Name: Michael Glasgow

Title: Utilites Administrator Phone: 810-766-7135 Date: 7/28/2015

11. TAP SAMPLING DATA: (Use additional sheets as needed) DRAFT

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2205 Flusing Rd	2/15/15	1	L	C,P	N.D.	0.13	54663
212 Browning Ave.	2/18/15	1	L	P	104	N.D.	54945
1809 Stevenson St.	2/10/15	1	L	P	10	N.D.	54956
4202 Custer Ave.	3/4/15	1	L	C,P	6	0.27	56223
401 E. Newall St.	3/2/15	1	L	P	5	N.D.	56225
215 Browning Ave. ok	3/21/15	1	L	C,P	N.D.	0.16	56226
2615 Trumbull Ave.	2/27/15	1	L	C,P	3	N.D.	56227
201 Browning Ave. ok	3/5/15	1	L	P	N.D.	N.D.	56228
1224 Decker St.	3/17/15	1	L	C,P	13	0.10	57728
1220 Decker St.	3/17/15	1	L	P	4	N.D.	57730
1379 Washington Ave.	3/19/15	1	L	P	8	N.D.	57731
1383 Washington Ave.	3/19/15	1	L	C,P	6	0.17	57734
1372 Washington Ave.	3/19/15	1	L	C,P	2	0.14	57733
1367 Washington Ave.	3/17/15	1	L	P	1	N.D.	57735
1701 Marquettte Dr.	3/14/15	1	L	C,P	1	0.19	57736
778 Bundy Ave.	3/24/15	1	L	P	N.D.	N.D.	58413
3714 Beecher Rd.	3/24/15	1	L	C	2	0.52	58414
1016 Ingleside Ave.	4/9/15	1	L	C,P	7	0.07	59749
1818 Rock Creek Ln.	4/6/15	1	L	C,P	3	0.11	59750
3010 Cheyenne St.	4/3/15	1	L	C,P	5	0.10	59751

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed) DRAFT

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2606 Mountain Ave.	4/15/15	1	L	P	N.D.	N.D.	60546
2020 Crooked Ln.	4/24/15	1	L	C,P	5	0.10	61845
310 E. Moore St.	4/22/15	1	L	P	5	N.D.	61846
631 Alvord Ave.	5/6/15	1	L	P	42	N.D.	63410
216 Browning Ave.	5/7/15	1	L	C,P	22	0.31	63411
3714 Beecher Rd.	5/14/15	1	L	C,P	8	0.15	64283
~~625 S. Grand Traverse~~	~~5/18/15~~	~~5~~	~~L~~	~~C,P~~	~~20~~	~~0.14~~	~~64284~~ X
912 Lexington Ave.	5/15/15	1	L	P	6	N.D.	64285
349 Robbie Ln.	5/31/15	1	L	P	2	N.D.	67428
353 Robbie Ln.	5/30/15	1	L	C,P	5	0.11	67427
341 Robbie Ln.	5/31/15	1	L	C,P	3	0.05	67426
328 Robbie Ln.	5/30/15	1	L	C,P	2	0.09	67425
357 Robbie Ln.	5/31/15	1	L	C	3	0.20	67424
344 Robbie Ln.	5/31/15	1	L	C,P	4	0.11	67423
1807 Oren Ave.	6/8/15	1	L	P	21	N.D.	68023
421 Lyon St.	6/14/15	1	L	C,P	7	0.14	68788
1528 Delaware Ave.	6/12/15	1	L	P	3	N.D.	68789
3811 Brentwood Dr.	6/14/15	1	L	P	42	N.D.	68790
1615 S. Franklin Ave.	6/14/15	1	L	P	N.D.	N.D.	68791
853 E. 7th St.	6/12/15	1	L	C,P	7	0.07	68792

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

19

3

DRAFT

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
1150 Woodside Dr.	6/14/15	1	L	P	29	N.D.	68793
547 Copeman Blvd.	6/14/15	1	L	P	18	N.D.	68794
920 Stocker Ave.	6/21/15	1	L	P	1	N.D.	69622
742 Lincoln Ave.	6/19/15	1	L	P	2	N.D.	69623
3517 Bennett Ave.	6/24/15	1	L	C,P	3	0.06	69624
1730 Overhill Dr.	6/22/15	1	L	C,P	1	0.08	69625
2117 Stanford Ave.	6/23/15	1	L	C,P	5	0.08	69626
2432 Beta Ln.	6/21/15	1	L	P	N.D.	N.D.	69627
2023 Miller Rd.	6/21/15	1	L	C,P	3	0.06	69628
721 East St. Apt #2	6/25/15	4	L	C,P	10	0.16	70222
3814 Whitter	6/25/15	1	L	P	2	N.D.	70223
3120 Norwood	6/24/15	1	L	P	5	N.D.	70224
2122 Pierce St.	6/21/15	1	L	P	2	N.D.	70225
3521 Bennett Ave.	6/25/15	1	L	P	3	N.D.	70226
1602 Raspberry Ln.	6/24/15	1	L	P	N.D.	N.D.	70227
1809 Lynbrook	6/26/15	1	L	P	3	N.D.	70228
2112 Sherff	6/24/15	1	L	C,P	9	0.06	70229
1205 Blanchard Ave.	6/24/15	1	L	C,P	11	0.05	70230
860 Schafer St.	6/26/15	1	L	C,P	N.D.	0.06	70231
2110 Flushing Rd.	6/30/15	1	L	C	N.D.	0.10	71158

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

20

11. TAP SAMPLING DATA: (Use additional sheets as needed)

DRAFT

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2300 Flushing Rd.	6/29/15	1	L	C	3	0.28	71159
2130 Flushing Rd.	6/28/15	1	L	C,P	6	0.05	71160
2202 Flushing Rd.	6/29/15	1	L	C,P	2	0.06	71162
2429 Flushing Rd.	6/30/15	1	L	C,P	N.D.	0.06	71163
4013 Brownell Blvd.	6/29/15	1	L	C,P	2	0.08	71165
2414 Flushing Rd.	6/30/15	1	L	P	N.D.	N.D.	71166
1914 Penbrook Ln	6/29/15	1	L	P	2	N.D.	71167
3901 Leedra St.	6/26/15	1	L	P	N.D.	N.D.	71168
3142 McClure	6/26/15	1	L	P	3	N.D.	71169
2114 Flushing Rd.	6/30/15	1	L	C,P	5	0.05	71170
709 Frost St.	6/30/15	1	L	P	2	N.D.	72033

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

Consumer Notice of Lead Result in Drinking Water DRAFT

Water Supply Name:	City of Flint		
County:	Genesee	WSSN:	2310
Sample Location:	401 E. Newall St.	Date Sampled:	3/2/15

Thank you for participating in the lead and copper monitoring of drinking water. The levels of lead and copper found at your location are in the table below.

Key to Table	Contaminant	AL	MCLG	Your Result
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. ppb: parts per billion or micrograms per liter.	Lead (ppb)	15	0	5
	Copper (ppb)	1300	1300	Not Detected

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and it can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

To reduce exposure to lead in drinking water:

- *Run your water to flush out lead.* Run the water until it becomes cold.
- *Use cold water for cooking and preparing baby formula.* Do not cook with or drink water from the hot water tap; lead dissolves more easily in hot water.
- *Do not boil water to remove lead.* Boiling water will not reduce lead levels.
- *Look for alternative sources or treatment of water.* If your lead result is above 15 ppb, you may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010, or www.nsf.org for information on performance standards for water filters.
- *Identify if your plumbing fixtures contain lead.* New faucets, fittings, and valves, may contain up to 8 percent lead including those advertised or labeled as "lead-free" and may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions.

Although the primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated soil, the U.S. EPA estimates that 10 to 20 percent of human exposure to lead may come from drinking water.

For more information, contact us at: City of Flint Water Plant (810) 787-6537
For more information on reducing lead exposure around your home and the health effects of lead, visit the U.S. EPA's Web site at www.epa.gov/lead, call the National Lead Information Center at 800-424-LEAD, or contact your health care provider.

Certification: WSSN: 2310
I certify that this public water supply has provided the consumer notice of lead result to persons served at each of the taps that was tested, either by mail or by another method approved by the DEQ, within 30 days of knowing the result. The Notice includes required content.

Signature	Title	Date Sent to Consumer
Michael Glasgow	UTILITIES ADMINISTRATOR	3/17/15

Reminder to water supplier: Complete this certification on only one (1) example copy of a notice sent to a consumer and submit it to the DEQ.

Rosenthal, Adam (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, August 03, 2015 9:57 AM
To: 'Michael Glasgow'
Subject: RE: PbCu Cert form

Morning Mike, I also need copies of all 68 consumer notices. I have 1 from 401 E. Newall St., so 67 more.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Friday, July 31, 2015 10:28 AM
To: Rosenthal, Adam (DEQ)
Subject: Re: PbCu Cert form

Adam,

Here is the lead & copper report. I have also sent a hard copy out via USPS.

On Thu, Jul 30, 2015 at 9:33 AM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Morning Mike, I'm preparing the 90th percentile letter and I need your lead copper certification form with the cert of notification to the customers. What I have are 68 results that are routine from 1/1 – 6/30/15. The link below is for the form if you don't have one.

http://www.michigan.gov/deq/0,4561,7-135-3313_3675_3691-61640--,00.html

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

--

Mike Glasgow
Utilities Administrator
City of Flint
1101 S. Saginaw St.
Flint, MI 48502
(810)766-7135 ext. 2602

Rosenthal, Adam (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Friday, July 10, 2015 11:28 AM
To: 'Michael Glasgow'
Cc: Brent Wright
Subject: RE: lead/copper

we are discussing options regarding this and future rounds of monitoring and will get back with you.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
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fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Thursday, July 09, 2015 2:19 PM
To: Rosenthal, Adam (DEQ)
Cc: Brent Wright
Subject: Re: lead/copper

Adam,

I just sent the last of the samples to the lab today. Unfortunately we did not reach 100 samples. I believe the count I have is 76 total. Since we have had a few more hits this round, we are going to continue to solicit samples for our own informational purposes. I am disappointed in the turnout of sampling, we distributed close to 200 sample bottles. With this monitoring violation will we be required to collect another round of 100 samples?

Also, I have attached a copy of our June bromate test results.

On Thu, Jul 9, 2015 at 9:55 AM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Morning Mike, do you have a count on how many lead/copper samples were turned in? I know they all haven't been run at the lab yet, but if I can verify how many there will be, that would be good. So far I have 70 results and the City is below the AL for lead – current 90th = 13 ppb. All the copper results are below.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

--

Mike Glasgow
Utilities Administrator
City of Flint
1101 S. Saginaw St.
Flint, MI 48502
(810)766-7135 ext. 2602

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE

LEAD AND COPPER REPORT AND CONSUMER NOTICE OF LEAD RESULT CERTIFICATE FOR COMMUNITY WATER SUPPLY

Issued under authority of 1976 PA 399, MCL 325.1001 *et al.*, and Administrative Rules, as amended.
Failure to submit this information is a violation of Act 399 and may subject the water supply to enforcement penalties.

Administrative Rule R 325.10710d requires water supplies to report lead and copper monitoring information within 10 days after the end of the monitoring period. This form may be used to meet this requirement. Submit the information to the appropriate Department of Environmental Quality (DEQ) district office. For district office addresses, visit www.michigan.gov/deq and click on Locations.

1. Water Supply Name: City of Flint Water Plant
2. County: Genesee 3. WSSN: 2310
4. Population: 99,763 5. Monitoring Period: From: 1/1/15 To: 6/30/15
6. Minimum # of Samples Required: 60 7. # of Samples Taken: 69
8. Name of Certified Laboratory: DEQ Drinking Water Laboratory

9. SAMPLE CRITERIA:

Yes	No	Explain No responses in Comments block.	
☐	☒	a. Are the same sampling points used as in the previous monitoring period?	
☐	☒	b. Are all samples from Tier 1 sites?	For more information see *Instructions* paragraph 11, subparagraph "Sample Category."
☒	☐	c. Are all samples from Tier 1, 2, or 3 sites giving Tier 1 priority?	
☒	☐	d. If no Tier 1, 2, or 3 sites are available, do all sites have plumbing materials commonly found at other locations in the system?	
☒	☐	e. Is the minimum number of lead service line samples taken (when applicable)?	

Comments: Revised report after conference call with DEQ staff. Two samples were removed from list for not meeting sample criteria, and due to population the number of samples required was reduced to 60.

10. NAME:

Name: Michael Glasgow

Title: Utilites Administrator Phone: 810-766-7135 Date: 8/20/2015

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2205 Flusing Rd	2/15/15	1	L	C,P	N.D.	0.13	54663
1809 Stevenson St.	2/10/15	1	L	P	10	N.D.	54956
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401 E. Newall St.	3/2/15	1	L	P	5	N.D.	56225
215 Browning Ave.	3/21/15	1	L	C,P	N.D.	0.16	56226
2615 Trumbull Ave.	2/27/15	1	L	C,P	3	N.D.	56227
201 Browning Ave.	3/5/15	1	L	P	N.D.	N.D.	56228
1224 Decker St.	3/17/15	1	L	C,P	13	0.10	57728
1220 Decker St.	3/17/15	1	L	P	4	N.D.	57730
1379 Washington Ave.	3/19/15	1	L	P	8	N.D.	57731
1383 Washington Ave.	3/19/15	1	L	C,P	6	0.17	57734
1372 Washington Ave.	3/19/15	1	L	C,P	2	0.14	57733
1367 Washington Ave.	3/17/15	1	L	P	1	N.D.	57735
1701 Marquettte Dr.	3/14/15	1	L	C,P	1	0.19	57736
778 Bundy Ave.	3/24/15	1	L	P	N.D.	N.D.	58413
3714 Beecher Rd.	3/24/15	1	L	C	2	0.52	58414
1016 Ingleside Ave.	4/9/15	1	L	C,P	7	0.07	59749
1818 Rock Creek Ln.	4/6/15	1	L	C,P	3	0.11	59750
3010 Cheyenne St.	4/3/15	1	L	C,P	5	0.10	59751
2606 Mountain Ave.	4/15/2015	1	L	P	N.D.	N.D.	60546

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2020 Crooked Ln.	4/24/15	1	L	C,P	5	0.10	61845
310 E. Moore St.	4/22/15	1	L	P	5	N.D.	61846
631 Alvord Ave.	5/6/15	1	L	P	42	N.D.	63410
216 Browning Ave.	5/7/15	1	L	C,P	22	0.31	63411
3714 Beecher Rd.	5/14/15	1	L	C,P	8	0.15	64283
912 Lexington Ave.	5/15/15	1	L	P	6	N.D.	64285
349 Robbie Ln.	5/31/15	1	L	P	2	N.D.	67428
353 Robbie Ln.	5/30/15	1	L	C,P	5	0.11	67427
341 Robbie Ln.	5/31/15	1	L	C,P	3	0.05	67426
328 Robbie Ln.	5/30/15	1	L	C,P	2	0.09	67425
357 Robbie Ln.	5/31/15	1	L	C	3	0.20	67424
344 Robbie Ln.	5/31/15	1	L	C,P	4	0.11	67423
1807 Oren Ave.	6/8/15	1	L	P	21	N.D.	68023
421 Lyon St.	6/14/15	1	L	C,P	7	0.14	68788
1528 Delaware Ave.	6/12/15	1	L	P	3	N.D.	68789
3811 Brentwood Dr.	6/14/15	1	L	P	42	N.D.	68790
1615 S. Franklin Ave.	6/14/15	1	L	P	N.D.	N.D.	68791
853 E. 7th St.	6/12/15	1	L	C,P	7	0.07	68792
1150 Woodside Dr.	6/14/15	1	L	P	29	N.D.	68793
547 Copeman Blvd.	6/15/14	1	L	P	18	N.D.	68794

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumbing[2]	Lead (ppb)	Copper (ppb)	Lab #
2114 Flushing Rd.	6/30/15	1	L	P	5	0.05	71170
709 Frost St.	6/30/15	1	L	P	2	N.D.	72033
920 Stocker Ave.	6/21/15	1	L	P	1	N.D.	69622
742 Lincoln Ave.	6/19/15	1	L	P	2	N.D.	69623
3517 Bennett Ave.	6/24/15	1	L	C,P	3	0.06	69624
1730 Overhill Dr.	6/22/15	1	L	C,P	1	0.08	69625
2117 Stanford Ave.	6/23/15	1	L	C,P	5	0.08	69626
2432 Beta Ln.	6/21/15	1	L	P	N.D.	N.D.	69627
2023 Miller Rd.	6/21/15	1	L	C,P	3	0.06	69628
721 East St. Apt #2	6/25/15	4	L	C,P	10	0.16	70222
3814 Whitter	6/25/15	1	L	P	2	N.D.	70223
3120 Norwood	6/24/15	1	L	P	5	N.D.	70224
2122 Pierce St.	6/21/15	1	L	P	2	N.D.	70225
3521 Bennett Ave.	6/25/15	1	L	P	3	N.D.	70226
1602 Raspberry Ln.	6/24/15	1	L	P	N.D.	N.D.	70227
1809 Lynbrook	6/26/15	1	L	P	3	N.D.	70228
2112 Sherff	6/24/15	1	L	C,P	9	0.06	70229
1205 Blanchard Ave.	6/24/15	1	L	C,P	11	0.05	70230
860 Schafer St.	6/26/15	1	L	C,P	N.D.	0.06	70231
2110 Flushing Rd.	6/30/15	1	L	C	N.D.	0.10	71158

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2300 Flushing Rd.	6/29/15	1	L	C	3	0.28	71159
2130 Flushing Rd.	6/28/15	1	L	C,P	6	0.05	71160
2202 Flushing Rd.	6/29/15	1	L	C,P	2	0.06	71162
2429 Flushing Rd.	6/30/15	1	L	C,P	N.D.	0.06	71163
4013 Brownell Blvd.	6/29/15	1	L	C,P	2	0.08	71165
2414 Flushing Rd.	6/30/15	1	L	P	N.D.	N.D.	71166
1914 Penbrook Ln	6/29/15	1	L	P	2	N.D.	71167
3901 Leedra St.	6/26/15	1	L	P	N.D.	N.D.	71168
3142 McClure	6/26/15	1	L	P	3	N.D.	71169

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE

LEAD AND COPPER REPORT AND CONSUMER NOTICE OF LEAD RESULT CERTIFICATE FOR COMMUNITY WATER SUPPLY

Issued under authority of 1976 PA 399, MCL 325.1001 *et al.*, and Administrative Rules, as amended.
Failure to submit this information is a violation of Act 399 and may subject the water supply to enforcement penalties.

Administrative Rule R 325.10710d requires water supplies to report lead and copper monitoring information within 10 days after the end of the monitoring period. This form may be used to meet this requirement. Submit the information to the appropriate Department of Environmental Quality (DEQ) district office. For district office addresses, visit www.michigan.gov/deq and click on Locations.

1. Water Supply Name: City of Flint Water Plant
2. County: Genesee 3. WSSN: 2310
4. Population: 99,763 5. Monitoring Period: From: 1/1/15 To: 6/30/15
6. Minimum # of Samples Required: 100 7. # of Samples Taken: 71
8. Name of Certified Laboratory: DEQ Drinking Water Laboratory

9. SAMPLE CRITERIA:

Yes	No	Explain No responses in Comments block.	
☐	☒	a. Are the same sampling points used as in the previous monitoring period?	
☐	☒	b. Are all samples from Tier 1 sites?	For more information see *Instructions* paragraph 11, subparagraph "Sample Category."
☒	☐	c. Are all samples from Tier 1, 2, or 3 sites giving Tier 1 priority?	
☒	☐	d. If no Tier 1, 2, or 3 sites are available, do all sites have plumbing materials commonly found at other locations in the system?	
☒	☐	e. Is the minimum number of lead service line samples taken (when applicable)?	

Comments:
A total of 175 sample bottles and instructions were distributed to city residents. We are continuing to solicit samples due to the fact that we did not reach the minimum number for this monitoring period.

10. NAME:

Name: Michael Glasgow

Title: Utilites Administrator Phone: 810-766-7135 Date: 7/28/2015

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2205 Flusing Rd	2/15/15	1	L	C,P	N.D.	0.13	54663
212 Browning Ave.	2/18/15	1	L	P	104	N.D.	54945
1809 Stevenson St.	2/10/15	1	L	P	10	N.D.	54956
4202 Custer Ave.	3/4/15	1	L	C,P	6	0.27	56223
401 E. Newall St.	3/2/15	1	L	P	5	N.D.	56225
215 Browning Ave.	3/21/15	1	L	C,P	N.D.	0.16	56226
2615 Trumbull Ave.	2/27/15	1	L	C,P	3	N.D.	56227
201 Browning Ave.	3/5/15	1	L	P	N.D.	N.D.	56228
1224 Decker St.	3/17/15	1	L	C,P	13	0.10	57728
1220 Decker St.	3/17/15	1	L	P	4	N.D.	57730
1379 Washington Ave.	3/19/15	1	L	P	8	N.D.	57731
1383 Washington Ave.	3/19/15	1	L	C,P	6	0.17	57734
1372 Washington Ave.	3/19/15	1	L	C,P	2	0.14	57733
1367 Washington Ave.	3/17/15	1	L	P	1	N.D.	57735
1701 Marquettte Dr.	3/14/15	1	L	C,P	1	0.19	57736
778 Bundy Ave.	3/24/15	1	L	P	N.D.	N.D.	58413
3714 Beecher Rd.	3/24/15	1	L	C	2	0.52	58414
1016 Ingleside Ave.	4/9/15	1	L	C,P	7	0.07	59749
1818 Rock Creek Ln.	4/6/15	1	L	C,P	3	0.11	59750
3010 Cheyenne St.	4/3/15	1	L	C,P	5	0.10	59751

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2606 Mountain Ave.	4/15/15	1	L	P	N.D.	N.D.	60546
2020 Crooked Ln.	4/24/15	1	L	C,P	5	0.10	61845
310 E. Moore St.	4/22/15	1	L	P	5	N.D.	61846
631 Alvord Ave.	5/6/15	1	L	P	42	N.D.	63410
216 Browning Ave.	5/7/15	1	L	C,P	22	0.31	63411
3714 Beecher Rd.	5/14/15	1	L	C,P	8	0.15	64283
625 S. Grand Traverse	5/18/15	5	L	C,P	20	0.14	64284
912 Lexington Ave.	5/15/15	1	L	P	6	N.D.	64285
349 Robbie Ln.	5/31/15	1	L	P	2	N.D.	67428
353 Robbie Ln.	5/30/15	1	L	C,P	5	0.11	67427
341 Robbie Ln.	5/31/15	1	L	C,P	3	0.05	67426
328 Robbie Ln.	5/30/15	1	L	C,P	2	0.09	67425
357 Robbie Ln.	5/31/15	1	L	C	3	0.20	67424
344 Robbie Ln.	5/31/15	1	L	C,P	4	0.11	67423
1807 Oren Ave.	6/8/15	1	L	P	21	N.D.	68023
421 Lyon St.	6/14/15	1	L	C,P	7	0.14	68788
1528 Delaware Ave.	6/12/15	1	L	P	3	N.D.	68789
3811 Brentwood Dr.	6/14/15	1	L	P	42	N.D.	68790
1615 S. Franklin Ave.	6/14/15	1	L	P	N.D.	N.D.	68791
853 E. 7th St.	6/12/15	1	L	C,P	7	0.07	68792

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

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	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
1150 Woodside Dr.	6/14/15	1	L	P	29	N.D.	68793
547 Copeman Blvd.	6/14/15	1	L	P	18	N.D.	68794
920 Stocker Ave.	6/21/15	1	L	P	1	N.D.	69622
742 Lincoln Ave.	6/19/15	1	L	P	2	N.D.	69623
3517 Bennett Ave.	6/24/15	1	L	C,P	3	0.06	69624
1730 Overhill Dr.	6/22/15	1	L	C,P	1	0.08	69625
2117 Stanford Ave.	6/23/15	1	L	C,P	5	0.08	69626
2432 Beta Ln.	6/21/15	1	L	P	N.D.	N.D.	69627
2023 Miller Rd.	6/21/15	1	L	C,P	3	0.06	69628
721 East St. Apt#2	6/25/15	4	L	C,P	10	0.16	70222
3814 Whitter	6/25/15	1	L	P	2	N.D.	70223
3120 Norwood	6/24/15	1	L	P	5	N.D.	70224
2122 Pierce St.	6/21/15	1	L	P	2	N.D.	70225
3521 Bennett Ave.	6/25/15	1	L	P	3	N.D.	70226
1602 Raspberry Ln.	6/24/15	1	L	P	N.D.	N.D.	70227
1809 Lynbrook	6/26/15	1	L	P	3	N.D.	70228
2112 Sherff	6/24/15	1	L	C,P	9	0.06	70229
1205 Blanchard Ave.	6/24/15	1	L	C,P	11	0.06	70230
860 Schafer St.	6/26/15	1	L	C,P	N.D.	0.06	70231
2110 Flushing Rd.	6/30/15	1	L	C	N.D.	0.10	71158

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2300 Flushing Rd.	6/29/15	1	L	C	3	0.28	71159
2130 Flushing Rd.	6/28/15	1	L	C,P	6	0.05	71160
2202 Flushing Rd.	6/29/15	1	L	C,P	2	0.06	71162
2429 Flushing Rd.	6/30/15	1	L	C,P	N.D.	0.06	71163
4013 Brownell Blvd.	6/29/15	1	L	C,P	2	0.08	71165
2414 Flushing Rd.	6/30/15	1	L	P	N.D.	N.D.	71166
1914 Penbrook Ln	6/29/15	1	L	P	2	N.D.	71167
3901 Leedra St.	6/26/15	1	L	P	N.D.	N.D.	71168
3142 McClure	6/26/15	1	L	P	3	N.D.	71169
2114 Flushing Rd.	6/30/15	1	L	C,P	5	0.05	71170
709 Frost St.	6/30/15	1	L	P	2	N.D.	72033

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

Consumer Notice of Lead Result in Drinking Water

Water Supply Name:	City of Flint		
County:	Genesee	WSSN:	2310
Sample Location:	401 E. Newall St.	Date Sampled:	3/2/15

Thank you for participating in the lead and copper monitoring of drinking water. The levels of lead and copper found at your location are in the table below.

Key to Table	Contaminant	AL	MCLG	Your Result
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. ppb: parts per billion or micrograms per liter.	Lead (ppb)	15	0	5
	Copper (ppb)	1300	1300	Not Detected

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and it can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

To reduce exposure to lead in drinking water:

- *Run your water to flush out lead.* Run the water until it becomes cold.
- *Use cold water for cooking and preparing baby formula.* Do not cook with or drink water from the hot water tap; lead dissolves more easily in hot water.
- *Do not boil water to remove lead.* Boiling water will not reduce lead levels.
- *Look for alternative sources or treatment of water.* If your lead result is above 15 ppb, you may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010, or www.nsf.org for information on performance standards for water filters.
- *Identify if your plumbing fixtures contain lead.* New faucets, fittings, and valves, may contain up to 8 percent lead including those advertised or labeled as "lead-free" and may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions.

Although the primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated soil, the U.S. EPA estimates that 10 to 20 percent of human exposure to lead may come from drinking water.

For more information, contact us at: City of Flint Water Plant (810) 787-6537.
For more information on reducing lead exposure around your home and the health effects of lead, visit the U.S. EPA's Web site at www.epa.gov/lead, call the National Lead Information Center at 800-424-LEAD, or contact your health care provider.

Certification: WSSN: 2310

I certify that this public water supply has provided the consumer notice of lead result to persons served at each of the taps that was tested, either by mail or by another method approved by the DEQ, within 30 days of knowing the result. The Notice includes required content.

Signature	Title	Date Sent to Consumer
Michael Glasgow	UTILITIES ADMINISTRATOR	3/17/15

Reminder to water supplier: Complete this certification on only one (1) example copy of a notice sent to a consumer and submit it to the DEQ.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF58413

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	778 E BUNDY AVE,FLINT	Source:	TYPE I	
Collected By:	SANDRA HULL	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/24/2015	06:25
Sample Point:	MAIN BATHROOM	Date Received:	03/31/2015	11:11
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	04/01/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	04/01/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF58414

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	3714 BEECHER RD,FLINT	Source:	TYPE I	
Collected By:	MELISSA MAYS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/24/2015	06:30
Sample Point:	KITCHEN	Date Received:	03/31/2015	11:11
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.52	04/01/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.002	04/01/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U .S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF59749

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1016 INGLESIDE AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	JAMES D JARVIS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/09/2015	07:00
Sample Point:	KITCHEN	Date Received:	04/14/2015	11:07
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.07	04/15/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.007	04/15/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810-257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF59750

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	1818 ROCK CREEK LN,FLINT	Source:	Single Family Dwelling
Collected By:	HELEN HUNTER	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	04/06/2015 06:50
Sample Point:	MAIN BATHROOM	Date Received:	04/14/2015 11:07
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.11	04/15/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.003	04/15/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U .S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L: milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF59751

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	3010 CHEYENNE ST,FLINT	Source:	Single Family Dwelling	
Collected By:	GERTRUDE MARSHALL	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/03/2015	08:50
Sample Point:	KITCHEN	Date Received:	04/14/2015	11:07
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.10	04/15/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	04/15/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U .S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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FAX: (517) 335-8562

Sample Number
LF61845

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	2020 CROOKED LN,FLINT	Source:	Single Family Dwelling	
Collected By:	TRACY & M IKE SARGENT	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/24/2015	07:00
Sample Point:	KITCHEN	Date Received:	05/04/2015	10:21
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.10	05/05/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	05/05/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U .S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF61846

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	310 E MOORE ST,FLINT	Source:	Single Family Dwelling
Collected By:	HUSTON BOLDEN	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	04/22/2015 07:00
Sample Point:	KITCHEN	Date Received:	05/04/2015 10:21
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	05/05/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	05/05/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
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FAX: (517) 335-8562

Sample Number
LF67423

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	344 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	CASSANDRA BROWN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/31/2015	08:15
Sample Point:	BATHROOM	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.11	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.004	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF67424

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	357 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	FRANK EVANS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/31/2015	08:00
Sample Point:	KITCHEN	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.20	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.003	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
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FAX: (517) 335-8562

Sample Number
LF67425

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	328 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	WILLIE TURNER	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/30/2015	06:00
Sample Point:	KITCHEN	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.09	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.002	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF67426

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:		
Collection Address:	341 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	FLORISSA STEBBINS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/31/2015	06:00
Sample Point:	KITCHEN	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.05	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.003	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
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Sample Number
LF67427

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	353 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	ZETAN EVANS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/30/2015	06:45
Sample Point:	BATHROOM	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.11	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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810 257-3603

CAS# : Chemical Abstract Service Registry Number
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AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF67428

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	349 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	DORIS NUNN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/31/2015	08:00
Sample Point:	KITCHEN	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.002	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

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MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF63410

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	631 ALVORD AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	JANICE BERRYMAN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/06/2015	07:00
Sample Point:	MAIN BATHROOM	Date Received:	05/13/2015	11:26
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	05/14/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.042	05/14/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF63411

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	216 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	DEB	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/07/2015	08:00
Sample Point:	KITCHEN	Date Received:	05/13/2015	11:26
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.31	05/14/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.022	05/14/2015	0.001	0.015	EPA 200.8	7439-92-1

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Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF59748

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	212 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	LEEANNE WALTERS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/02/2015	08:00
Sample Point:	PRE P O S FILTER	Date Received:	04/14/2015	11:07
Water System:	Treated Public Distribution System	Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.11	04/16/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.707	04/16/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF54663

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	2205 FLUSHING RD,FLINT	Source:	TYPE I
Collected By:	CHRIS BEATENHEAD	Site Code:	
Township/Well#/Section:	//	Collector:	Public Water Supply Operator
County:	Genesee	Date Collected:	02/15/2015 06:00
Sample Point:	KITCHEN	Date Received:	02/17/2015 10:47
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.13	02/18/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	02/18/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
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Sample Number
LF56223

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	4202 CUSTER AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	JACQUELINE PEMBERTON	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/04/2015	08:00
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.27	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.006	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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Flint, MI 48502-1540
810 257-3603

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MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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TEL: (517) 335-8184
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Sample Number
LF56224

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	212 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	LEEANNE WALTERS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/03/2015	06:00
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.397	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
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810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8662

Sample Number
LF56225

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	401 E NEWALL ST,FLINT	Source:	Single Family Dwelling	
Collected By:	MARK CROMWELL SR	Site Code:		
Township/Well#/Section:	//	Collector:	Other	
County:	Genesee	Date Collected:	03/02/2015	09:30
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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RL : Reporting Limit

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MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF56226

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	215 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	KEVIN & JENNIFER STARNES	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/02/2015	06:30
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.16	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF56227

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	2615 TRUMBULL AVE, FLINT	Source:	Single Family Dwelling	
Collected By:	JENNIFER PEDERSON	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	02/27/2015	10:00
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.003	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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Flint, MI 48502-1540
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CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
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FAX: (517) 335-8562

Sample Number
LF56228

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	201 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	FLOYD BELL	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/05/2015	09:30
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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USEPA Region V Drinking Water Cert. No. MI00003
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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF54945

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	212 BROWNING AVE,FLINT	Source:	TYPE I	
Collected By:	LEANNE WALTERS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	02/18/2015	07:15
Sample Point:	KITCHEN	Date Received:	02/19/2015	11:13
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	02/20/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.104	02/20/2015	0.001	0.015	EPA 200.8	7439-92-1

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810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pleper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF54946

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1809 STEVENSON ST,FLINT	Source:	TYPE I	
Collected By:	MIKE TAYLOR	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	02/10/2015	06:30
Sample Point:	KITCHEN SINK	Date Received:	02/19/2015	11:13
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	02/20/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.010	02/20/2015	0.001	0.015	EPA 200.8	7439-92-1

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Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
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AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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FAX: (517) 335-8562

Sample Number
LF57728

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	1224 DECKER ST,FLINT	Source:	Single Family Dwelling
Collected By:	LOU ANNE MALIS	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	03/17/2015 06:00
Sample Point:	KITCHEN	Date Received:	03/24/2015 11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.10	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.013	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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810 257-3603

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AL: Action Level
RL: Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57729

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT		WSSN/Pool ID:	2310	
Collection Address:	212 BROWNING AVE,FLINT		Source:	Single Family Dwelling	
Collected By:	MIKE GLASGOW		Site Code:		
Township/Well#/Section:	//		Collector:	Public Water Supply Operator	
County:	Genesee		Date Collected:	03/18/2015	11:10
Sample Point:	KITCHEN		Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System		Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.004	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57730

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	1220 DECKER ST,FLINT	Source:	Single Family Dwelling
Collected By:	CARMEN PULIDO	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	03/17/2015 06:00
Sample Point:	KITCHEN	Date Received:	03/24/2015 11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.004	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57731

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1379 WASHINGTON,FLINT	Source:	Single Family Dwelling	
Collected By:	ROXANNE PUTMAN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/19/2015	08:30
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.008	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

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MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
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FAX: (517) 335-8562

Sample Number
LF57732

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1383 WASHINGTON AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	ANTHONY PALLADENO	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/09/2015	08:00
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.16	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.007	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57733

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1372 WASHINGTON AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	ANTHONY PALLADENO JR	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/19/2015	08:00
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.14	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.002	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57734

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1383 WASHINGTON AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	ANTHONY PALLADENO III	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/19/2015	08:00
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.17	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.006	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57735

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	1367 WASHINGTON AVE,FLINT	Source:	Single Family Dwelling
Collected By:	LEAH PALLADENO	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	03/17/2015 06:00
Sample Point:	MAIN BATHROOM	Date Received:	03/24/2015 11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.001	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57736

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1701 MARQUETTE DR,FLINT	Source:	Single Family Dwelling	
Collected By:	CHARMA DOMPREH	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/14/2015	09:40
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.19	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.001	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF68791

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	1615 S FRANKLIN AVE,FLINT	Source:	Single Family Dwelling
Collected By:	VIVAN GRIER	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	06/14/2015 09:45
Sample Point:	KITCHEN	Date Received:	06/19/2015 11:02
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/22/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	06/22/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF68792

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	853 E 7TH ST,FLINT	Source:	Single Family Dwelling	
Collected By:	LAURA STUDACHER	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	06/12/2015	06:30
Sample Point:	BATHROOM	Date Received:	06/19/2015	11:02
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.07	06/22/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.007	06/22/2015	0.001	0.015	EPA 200.8	7439-92-1

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Flint, MI 48502-1540
810 257-3603

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mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Kriszlian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF68793

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1150 WOODSIDE DR,FLINT	Source:	Single Family Dwelling	
Collected By:	DEBORAH CONRAD	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	06/14/2015	07:30
Sample Point:	KITCHEN	Date Received:	06/19/2015	11:02
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/22/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.029	06/22/2015	0.001	0.015	EPA 200.8	7439-92-1

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810 257-3603

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RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF68794

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	547 COPEMAN BLVD,FLINT	Source:	Single Family Dwelling	
Collected By:	LINDA LEE	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	06/14/2015	09:00
Sample Point:	KITCHEN	Date Received:	06/19/2015	11:02
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/22/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.018	06/22/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

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mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF68023

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	1807 OREN AVE,FLINT	Source:	Single Family Dwelling
Collected By:	MARK RUSSEL	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	06/08/2015 07:30
Sample Point:	BATHROOM	Date Received:	06/16/2015 11:11
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/17/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.021	06/17/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

CAS#: Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL: Action Level
RL: Reporting Limit

mg/L: milligrams / Liter (ppm)
ppm : parts per million
MPN: Most Probable Number
CFU: Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF64282

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	625 S GRAND TRAVERSE,FLINT	Source:	TYPE III
Collected By:	MIKE GLASGOW	Site Code:	
Township/Well#/Section:	//	Collector:	Public Water Supply Operator
County:	Genesee	Date Collected:	05/15/2015 13:00
Sample Point:	BATHROOM	Date Received:	05/20/2015 11:24
Water System:	Treated Public Distribution System	Purpose:	Other

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.14	05/21/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.017	05/21/2015	0.001	0.015	EPA 200.8	7439-92-1

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Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

CAS#: Chemical Abstract Service Registry Number
MCL: Maximum Contaminant Level
AL: Action Level
RL: Reporting Limit

mg/L: milligrams / Liter (ppm)
ppm: *parts* per million
MPN: Most Probable Number
CFU: Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
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FAX: (517) 335-8562

Sample Number
LF64283

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	3714 BEECHER RD,FLINT	Source:	Single Family Dwelling	
Collected By:	MELISSA MAYS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/14/2015	06:00
Sample Point:	MAIN BATHROOM	Date Received:	05/20/2015	11:24
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.15	05/21/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.008	05/21/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF64284

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	625 S GRAND TRAVERSE,FLINT	Source:	TYPE III	
Collected By:	MIKE SARGENT	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/18/2015	08:30
Sample Point:	UTILITY SINK	Date Received:	05/20/2015	11:24
Water System:	Treated Public Distribution System	Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.14	05/21/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.020	05/21/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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Drinking Water Unit Mgr: Julia Pieper
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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF64285

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2810	
Collection Address:	912 LEXINGTON AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	LAURA HATT	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/15/2015	09:00
Sample Point:	MAIN BATHROOM	Date Received:	05/20/2015	11:24
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	05/21/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.006	05/21/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

lead/copper Inbox x

Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> Jul 9
to me

Morning Mike, do you have a count on how many lead/copper samples were turned in? I know they all haven't been run at the lab yet, but if I can verify how many there will be, that would be good. So far I have 70 results and the City is below the AL for lead – current 90th = 13 ppb. All the copper results are below.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

Michael Glasgow <mglasgow@cityofflint.com> Jul 9
to Brent, Adam

Adam,

I just sent the last of the samples to the lab today. Unfortunately we did not reach 100 samples. I believe the count I have is 76 total. Since we have had a few more hits this round, we are going to continue to solicit samples for our own informational purposes. I am disappointed in the turnout of sampling, we distributed close to 200 sample bottles.. With this monitoring violation will we be required to collect another round of 100 samples?

Also, I have attached a copy of our June bromate test results.

[redacted] TEST REPORT

[redacted]

[redacted] June 2015 Brom... [redacted]

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Thursday, September 17, 2015 3:39 PM
To: Olszewski, Rosemarie (DEQ)
Subject: FW: Flint Water Elected leader meeting ODWMA Final Draft documents
Attachments: Flint-QuadrantDiagram-Draft.xlsx; City of Flint Background-Draft.docx; FAQ-Flint Customer Tap water lead levels-draft.docx

Please print 2.

From: Busch, Stephen (DEQ)
Sent: Thursday, September 17, 2015 3:08 PM
To: Wurfel, Brad (DEQ); Pallone, Maggie (DEQ)
Cc: Thelen, Mary Beth (DEQ); Feuerstein, Heather (DEQ); Shekter Smith, Liane (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ)
Subject: Flint Water Elected leader meeting ODWMA Final Draft documents

Brad and Maggie,

Attached are my final edits to the documents you requested. Let me know if you have questions or need anything else.

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

DRAFT

DRINKING WATER - LEAD - DISTRIBUTION OF RESPONSIBILITIES

Environmental Protection Agency	Michigan Department of Environmental Quality
Promulgation of Federal Safe Drinking Water Act Rules	Primacy - Michigan Safe Drinking Water Act and Administrative Rules
1974 Safe Drinking Water Act	Oversight of public water systems
1991 Lead and Copper Rule	Inspections
2000 Lead and Copper Rule Minor Revisions	Construction Permitting
2007 Lead and Copper Rule Short Term Revisions	Provide loans to water systems for public infrastructure improvements
???? Lead and Copper Rule Long Term Revisions	State Laboratory Services
Granting Primacy of Federal Regulations to States	Laboratory Certification
Auditing of State Public Water Supply Programs	Establish monitoring requirements, quantity and frequency
Provide Funding to States	Verification of monitoring results and compliance determination
	Notify water systems of Action Level Exceedance
	Establish Water Quality Parameter Ranges, as necessary
	State Reporting to EPA
	Operator Training and Certification

City of Flint Water System	Water Customers
Certified Operation of public water system	Participate in lead sampling as requested
Establish Water Rates	Request lead testing if concerned
Obtain construction permits	Follow lead sampling Instructions
Reporting to MDEQ	Provide signed information on how sample was collected
Coordination of lead and copper sampling	Review individual result material
Establishing a Tiered Sampling Pool	Follow instructions for reducing lead exposure
Providing Sampling Kits and Instructions to customers	Replace private leaded service line and plumbing materials with lead-free products
Obtain signed statements from participating customers	Obtain plumbing permits and comply with code requirements
Obtain sample analysis	Pay Water Bills
Provide individual lead sample result to participants	Read Annual Report (CCR)
Comply with Action Levels for lead and copper	Read and follow Public Notification materials
Provide lead monitoring and notice Certification to MDEQ	
Provide Annual Report (CCR) to all customers	
Conduct Water Quality Parameter Monitoring	
Recommend and Install Optimized Corrosion Control Treatment	
Provide Public Notification, as necessary	

DRAFT 9/17/2015

City of Flint Water System Background

Water Service Land Area 34 square miles
550+ miles of public water mains
250+ miles of water mains 75+ years old
70% of public water mains are unlined cast iron pipe
Service population 99,763
Service connections 32,900
Flint Water System established in 1883
Flint Water Treatment Plant #2 completed in 1954
Connection to Detroit Water and Sewerage Department 1967
Flint Water Treatment Plant #2 rehabilitated 1999 – 2005

City of Flint Timeline

April 2013 – Flint notifies DWSD of contract discontinuation and joins the Karegnondi Water Authority
April 2013 – DWSD sets termination of Flint water service contract to April 17, 2014
June 2013 – Karegnondi Water Authority groundbreaking
June 2013 – Flint notifies DEQ of intent to use of Flint Water Treatment Plant full time with Flint River
May 2014 – Flint stops purchasing DWSD water. Starts using the City of Flint WTP and Flint River
August 2014 – Flint E.Coli Bacteria violation, Partial System Boil Water Advisory
August 2014 – Disinfection Byproducts, DEQ requests preemptive Operational Evaluation
September 2014 – Flint Total Coliform Bacteria violation, Partial System Boil Water Advisory
November 2014 – Disinfection Byproducts violation begins
January 2015 – 1st 6 month lead and copper sampling completed 100 samples, 90th% = 6 ppb
July 2015 – 2nd 6 month lead and copper sampling completed 69 samples, 90th% = 11 ppb
August 2015 – Disinfection Byproducts return to compliance
August 2015 – Flint required by DEQ to recommend and install Optimized Corrosion Control Treatment

January 2016 – Flint plans to have Optimized Corrosion Control Treatment operational
July 2016 – Planned connection to Karegnondi Water Authority (Lake Huron water to Flint WTP)

Frequently Asked Questions about Customer Tap water lead levels in the City of Flint – DRAFT 9/17

How was the Lead and Copper Rule Established?
Under the Safe Drinking Water Act, EPA sets public health goals and enforceable standards for drinking water quality. The Lead and Copper Rule was established as a treatment technique rule because lead contamination of drinking water often results from corrosion of the plumbing materials belonging to water system customers, and there is no safe level of lead exposure. Therefore, instead of meeting a maximum contaminant level (MCL) for lead or copper, the rule requires public water supplies to take certain actions to minimize lead and copper in drinking water, to reduce water corrosivity and prevent the leaching of these metals from the premise plumbing. When that isn't sufficient, replacement of lead service lines under their control could be required. The current rule sets a monitoring action level (AL) which is not the same as an MCL. An MCL is based on health effects and feasibility; whereas an AL is a screening tool for determining when certain treatment technique actions are necessary.

What is the source of lead in customer tap water?
Lead enters or leaches into water from lead service lines, lead solder, and leaded plumbing materials including fixtures, faucets, and fittings. Sampling at the Flint Water Treatment Plant has shown no lead in its treated water.

How is lead compliance determined?
Compliance with the Action Level (AL) is based on a 90th percentile level calculation. For example, if 100 compliance samples were collected, the 90th percentile would be based on the result of the 11th highest lead sample for that monitoring period. Therefore, if more than ten percent of these compliance samples report lead above the AL of 15 parts per billion, a water supply has an AL exceedance. An exceedance is not a violation. It triggers other requirements which could include public notification, additional water quality sampling, and possibly further treatment.

What is the frequency of lead and copper sampling?
Sampling periods can be as frequent as every six months to as little as once every three years. Reduction in sampling frequency is based on continued compliance with the Action Level and normally follows a progression of two six month periods, followed by annual sampling for three additional years, then one period every three years. Compliance samples can be collected at any time during six month sampling periods. When sampling is conducted annually or once every three years, all compliance samples are required to be collected between June 1 and September 30. This is done to capture warmest water conditions likely to produce the most leaching.

Why are customers asked to collect lead and copper samples?
Compliance sampling for lead requires the water to, "have stood motionless in the plumbing system of each sampling site for not less than six hours." In order to achieve this requirement, residents are provided with detailed instructions and requested in general to collect the sample as the first thing they do when they wake up in the morning. It would be difficult for City water staff to otherwise collect such samples within the limits of the monitoring period.

How long has the City of Flint conducted lead monitoring?
The City of Flint first began compliance monitoring for lead levels in customer taps as part of the Detroit Water and Sewerage Department (DWSD) consecutive system in January 1992 following the enactment of the Lead and Copper Rule. Two six month periods were collected in 1992. Sampling resumed with two six month periods in 1997 following the installation of Optimized Corrosion Control Treatment by

DWSD. A six month period was collected in 1998 and again in 1999. Annual sampling was completed in 2000, 2001, and 2002. Then triennial sampling was completed in 2005, 2008, and 2011 before the City of Flint changed sources and treatment in May 2014.

Has the City's compliance monitoring ever exceeded the lead action level?
No. While some individual samples do exceed the 15 part per billion (ppb) lead Action Level (AL), the AL is not a standard. Compliance is determined based on the 90th percentile value of all valid compliance sample results obtain during the established monitoring period. The City of Flint 90th percentile level has ranged between 0 ppb (2008 and 2011) and 15 ppb (1992), but never exceeded the AL. This includes the two most recent six month periods in 2014 and 2015 of 6 ppb and 11 ppb, respectively.

Why are some samples not included in the compliance determination?
Lead and Copper compliance sample sites must meet specific criteria that target customers with the highest potential for lead leaching. The sample must also be collected from a commonly used kitchen or bathroom tap, and in accordance with the provided sampling instructions. Customers that employ certain types of additional treatment are not allowed as such samples are not representative of water quality supplied by the water system. Samples must also be collected within the established monitoring period.

What is the timeline for installation of corrosion control treatment?
Under the Lead and Copper Rule treatment technique requirements, steps to complete the installation of optimal corrosion control treatment and follow-up monitoring are allowed to take up to five years. The City of Flint has committed to completing installation of optimal corrosion control treatment in less than six months.

What will happen when Flint obtains water from the Karegnondi Water Authority?
The City has committed to having Optimized Corrosion Control Treatment in place prior to its connection with the Karegnondi Water Authority (KWA). The water provided by KWA will come from a new source, Lake Huron. This change in source will require the City to return to two six month periods of lead and copper sampling and continued compliance with the Action Levels. The City of Flint water treatment plant will continue to operate with uninterrupted Optimized Corrosion Control Treatment.

When is customer and public notification regarding lead required?
Under the Lead and Copper Rule, public water supplies are required to provide individual lead results to those customers whose homes are sampled for compliance with the action level. Each of these customers is also provided information on actions they can take to limit lead exposure in their tap water. Furthermore, results from the most recent lead compliance monitoring determination are included each year in the annual consumer confidence report (CCR), also known as the annual water quality report that each water system must provide to all customers. As required by EPA, this report also includes general consumer awareness information regarding lead.

How can I reduce lead in drinking water in homes with materials containing lead?
Flush your pipes before drinking, and only use cold water for consumption. The more time water has been sitting in your home's pipes, the more lead it may contain. When water in a particular faucet has not been used for six hours or longer, "flush" your cold-water pipes by running the water until it becomes as cold as it will get. This could take as little as five to thirty seconds if there has been recent water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer. Use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water

DRAFT 9/17/2015

City of Flint Water System Background

Water Service Land Area 34 square miles
550+ miles of public water mains
250+ miles of water mains 75+ years old
70% of public water mains are unlined cast iron pipe
Service population 99,763
Service connections 32,900
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July 2016 – Planned connection to Karegnondi Water Authority (Lake Huron water to Flint WTP)

Eleven months?

August 17, 2015 – April 30, 2014 Flint Switches

– June 24, 2015 Del Toro MAMO

Sept. 2 – Va Tech – August 17, 2015 MDEQ Requires Action

→ Director / Z-1 GOV File

Olszewski, Rosemarie (DEQ)

cc: Flint File

From:	Thelen, Mary Beth (DEQ)
Sent:	Wednesday, September 16, 2015 3:24 PM
To:	Olszewski, Rosemarie (DEQ)
Subject:	FW: Document for Review - Flint Water Plan Support
Attachments:	Additional Support for Flint Water Improvement Plan, 9.14.15.pdf

Please print all.

Mary Beth

Mary Beth Thelen
Management Assistant to Director Dan Wyant
Department of Environmental Quality
Constitution Hall, 6th Floor South
Phone: 517-284-6712 or 284-6700 (new numbers)
Fax: 517-241-7401
Thelenm2@michigan.gov

From: Adamczyk, Lynne (GOV)
Sent: Wednesday, September 16, 2015 3:19 PM
To: Clayton, Stacie (GOV); Kennedy, Jordan (GOV); Rospond, Laurie (GOV); Brown, Eric (GOV); Dempkowski, Angela (Treasury); Pleyte, Beth (Treasury); Wurfel, Brad (DEQ); Pallone, Maggie (DEQ); Grijalva, Nancy (DCH); Thelen, Mary Beth (DEQ); Doyle, Maureen (Treasury); Minix, Connie (DTMB)
Subject: Document for Review - Flint Water Plan Support

Stacie, please have Harvey respond to this letter from Mayor Walling and send me a copy of the response letter.

Thanks,

Lynne

Lynne Adamczyk
Executive Assistant
Office of Governor Rick Snyder
517-373-3400 (o)
517-241-9412 (d)
adamczykl@michigan.gov

CITY OF FLINT

Dayne Walling
Mayor

September 14, 2015

The Honorable Rick Snyder
Governor, State of Michigan
P.O. Box 30013
Lansing, MI 48909

RE: Call for Additional Support for Flint Water Improvement Plan

Dear Governor Snyder:

On behalf of the Flint community, I am writing with a renewed request for additional support to address Flint's water challenges to ensure that water is affordable and secure for everyone in Flint especially our vulnerable populations. I am asking for an additional $30 million in funds for Flint's infrastructure and a new healthy homes initiative.

Significant progress has been made throughout this year to increase water safety and quality and I thank you for the involvement of your office, the Michigan Department of Environmental Quality, and the Michigan Department of Treasury. A majority of items in the Water Improvement Plan are completed or underway. Most importantly, Flint is now in compliance with the Safe Drinking Water Act due in large part to the installation of the new carbon filter. The infrastructure systems are being made more secure and efficient through the State grants. Now the City is committed to following the recommendation of the Michigan Department of Environmental Quality to optimize the treatment process, reduce corrosion and further minimize risks from lead.

The need to accelerate the City's capital improvement investments remains and has been further increased by the continued financial stress and legal issues. Previously I requested support for replacement or forgiveness of payment to the Drinking Water Revolving Loan Fund due to Flint's status as a distressed community and the gap in funding in the adopted capital improvement plan. I understand that the existing federal law does not allow the existing Drinking Water Revolving Loans that Flint is carrying to be forgiven in retrospect but the need still exists. Flint owes approximately $20 Million. One solution is for the State to grant a new $20 Million that is designed as forgivable from the start. Another solution is to provide

City of Flint • 1101 S. Saginaw Street • Flint, Michigan 48502
www.cityofflint.com • (810) 766-7346 • Fax: (810) 766-7218

equivalent funding through an expansion of the grant program to Michigan's Financially Distressed Cities, Villages and Townships with a supplemental budget amendment in cooperation with the State Legislature.

The community's heightened concern about lead leeching into the water from old service lines and home plumbing also needs to be addressed. We know that lead is an environmental contaminant and there have been many programs in place over the years to address sources in paint and pipes. Flint needs a new healthy homes initiative specifically focused on lead in water with $10 Million to start the process of replacing service lines for the most vulnerable households. Regardless of the source and treatment of Flint's water, this long term threat of lead in pipes needs to be removed in the interest of public health.

My approach continues to be to work with you and your appointed officials, State Senator Ananich, State Representatives Phelps and Neeley, Congressman Kildee, community groups, businesses, churches, foundations, the Flint City Council, and all of the City of Flint and State and Federal government personnel. We need every available expert and resource to address Flint's water problems.

Flint's safety is my top priority. Just as the City and State have worked together on public safety, we need additional support for fixing the water problems. We need $30 Million in new funds to repair and update the city-wide infrastructure and to assist households in becoming lead-free. The entire Flint community deserves sustainable, safe, secure and affordable water now and into the future. Thank you for the consideration Governor and I look forward to future discussions.

Sincerely,

Dayne Walling
Mayor, City of Flint

CC: Flint City Council President Joshua Freeman; Congressman Dan Kildee; State Senator Jim Ananich; State Representative Sheldon Neeley; State Representative Phil Phelps; EPA Regional Administrator Dr. Susan Hedman; Chief of Staff Dennis Muchmore

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

Thelen, Mary Beth (DEQ)

From:	DEQ-Legislative-Contact
Sent:	Wednesday, September 16, 2015 5:06 PM
To:	Jordan.Dickinson@mail.house.gov
Cc:	Ananich, Senator Jim ; Neeley, Rep Sheldon; Phelps, Rep Phil; dwalling@cityofflint.com; hcroft@cityofflint.com; hedman.susan@epa.gov; poy.thomas@epa.gov; Schock.michael@epa.gov; Lytle.darren@epa.gov; fortin.denise@epa.gov; Edwardsm@vt.edu; Hollins, Harvey (GOV); Mcbride, Bill (GOV); Brown, Eric (GOV); Thelen, Mary Beth (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ); Anderson, Madhu (DEQ); Copen, Leigh (DEQ); Pallone, Maggie (DEQ); Howes, Sarah (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Cook, Pat (DEQ)
Subject:	MDEQ Response to Congressman Kildee Letter re: Flint Drinking Water
Attachments:	Congressman Kildee Response re Flint Water.pdf

Attached please find the MDEQ's response to your September 9, 2015 letter regarding Flint drinking water.

Thank you,
Heather Feuerstein
Management Assistant to
Maggie Pallone, Deputy Director and
Brad Wurfel, Communications Director
Department of Environmental Quality
517.284.6715

Letter Buckslip

10-Sep-15

ID:	LEG00186
Date of letter:	9/9/2015
Date received:	9/9/2015
Date due:	9/21/2015
Reply date:	
Last name:	Kildee
First name:	Dan
Organization:	United States Representative
Subject:	Water quality issues in the city of Flint
Reply to:	
Author:	
Owner:	SHALERK

Deputy Director _____
Deputy's Mgmt. Asst. _____
Director's Office Staff _____
Division/Office Chief _____
Division/Office Chief's Mgmt. Asst. _____
Prepared by: _____
_____
Division/Office _____
Exec. Div. File No. _____
☐ Delogged

Action	Action Date	Due Date	Entity	Signature	Owner	CCs
Assigned 1	9/10/2015	9/21/2015	ODWMA	DIR	SHALERK	Thelen Sygo/Shaler Maggie Pallone Brad Wurfel DEQ-Legis-Contact Liane Shekter Smith Richard Benzie Steve Busch

Comments: Assigned to ODWMA

Note: Maggie Pallone will run the Director's response by Eric Brown, Governor's Washington office, for his approval before the Director signs.

Original to Shaler (T.F.)

LEG00186

Shaler, Karen (DEQ)

From: "Dickinson, Jordan" <Jordan.Dickinson@mail.house.gov>
Date: September 9, 2015 at 6:54:47 PM EDT
To: "Wurfelb@michigan.gov" <Wurfelb@michigan.gov>
Subject: FW: Congressman Kildee Letter on Lead in Flint Water

Hi Brad,

Can you please make sure the attached letter is passed along to Director Wyant? I will forward along a physical copy in the mail.

Thank you,

Jordan Dickinson
Legislative Assistant
Congressman Dan Kildee (MI-05)
227 Cannon House Office Building
Washington, D.C. 20515
Phone: (202) 225-3611
www.dankildee.house.gov

DANIEL T. KILDEE
5TH DISTRICT, MICHIGAN

COMMITTEE ON
FINANCIAL SERVICES

SUBCOMMITTEE ON
HOUSING AND INSURANCE

SUBCOMMITTEE ON
MONETARY POLICY AND TRADE

SENIOR WHIP

DEMOCRATIC POLICY AND
COMMUNICATIONS COMMITTEE

Congress of the United States
House of Representatives
Washington, DC 20515

September 9, 2015

WASHINGTON OFFICE

227 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-3611
(202) 225-6393 (FAX)

DISTRICT OFFICE

111 EAST COURT STREET #3B
FLINT, MI 48502
(810) 238-8627
(810) 238-8658 (FAX)

WWW.DANKILDEE.HOUSE.GOV
/REPDANKILDEE
@REPDANKILDEE

Ms. Gina McCarthy
Administrator
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, D.C. 20460

Mr. Dan Wyant
Director
Michigan Department of Environmental Quality
P.O. Box 30473
Lansing, MI 48909

Administrator McCarthy and Director Wyant:

The attached June 24, 2015, memorandum between two Environmental Protection Agency (EPA) employees, Miguel A. Del Toral and Thomas Poy, published recently by the American Civil Liberties Union of Michigan, suggests that there are high lead levels in the city of Flint, Mich., water transmission lines. Furthermore, this document reflects that children consuming this water had levels of lead in their blood in excess of three times what they were prior to the city of Flint switching its source water from the Detroit Water and Sewage Department (DWSD) to the Flint River.

In addition, this memorandum makes recommendations to Mr. Poy, Chief of the Ground Water and Drinking Water Branch of EPA Region 5, to do three things. First, for the EPA to work with the Michigan Department of Environmental Quality (MDEQ) to provide technical assistance to the city of Flint to deal with water quality issues. Second, it suggests the EPA review the compliance status of the city of Flint in respect to its compliance with the Lead and Copper Rule (LCR). Third, the memorandum recommends that the EPA conduct a review of the city of Flint testing procedures to ensure they are compliant with the LCR.

Regarding this memorandum and the surrounding water quality issues in the city of Flint, I have the following questions:

- Was this memorandum actually sent to Mr. Poy?

- Are the findings in the memorandum regarding the lead levels in the city of Flint water accurate?
- If there were in fact high levels of lead in the water in the city of Flint, when did the EPA and/or MDEQ plan to alert the public?
- What, if any, of the recommendations has the EPA followed from the memorandum?
- Given the demonstrated level of lead in the water in Flint, MI, is the water safe?

Regardless, I am very troubled by recent tests suggesting high levels of lead in the city of Flint's water system. As you know, on the EPA's website it says that lead above the "action level" in drinking water can cause a variety of adverse health effects, including delays in physical and mental development in babies and children.

According to the Safe Drinking Water Act, the EPA has the responsibility of enforcing water quality standards. EPA, however, has given the primary responsibility of enforcing water quality standards to the state of Michigan via MDEQ. As such, it is the responsibility of these agencies to ensure that the people of the city of Flint have safe drinking water.

Thank you and I look forward to hearing from you soon.

Sincerely,

Dan Kildee
MEMBER OF CONGRESS

cc:

State Senator Jim Ananich
State Representative Sheldon Neeley
State Representative Phil Phelps
Mayor Dayne Walling, City of Flint
Howard Croft, City of Flint
Susan Hedman, EPA
Thomas Poy, EPA
Michael Schock, EPA-ORD
Darren Lytle, EPA-ORD
Denise Fortin, EPA
Liane Shekter-Smith, MDEQ
Pat Cook, MDEQ
Stephen Busch, MDEQ
Brad Wurfel, MDEQ
Marc Edwards, Virginia Tech

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

WG-15J

June 24, 2015

MEMORANDUM

SUBJECT: High Lead Levels in Flint, Michigan – Interim Report

FROM: Miguel A. Del Toral
Regulations Manager, Ground Water and Drinking Water Branch

TO: Thomas Poy
Chief, Ground Water and Drinking Water Branch

The purpose of this interim report is to summarize the available information regarding activities conducted to date in response to high lead levels in drinking water reported by a resident in the City of Flint, Michigan. The final report will be submitted once additional analyses have been completed on pipe and water samples.

Following a change in the water source, the City of Flint has experienced a number of water quality issues resulting in violations of National Primary Drinking Water Regulations (NPDWR) including acute and non-acute Coliform Maximum Contaminant Level (MCL) violations and Total Trihalomethanes (TTHM) MCL violations as follows:

Acute Coliform MCL violation in August 2014
Monthly Coliform MCL violation in August 2014
Monthly Coliform MCL violation in September 2014
Average TTHM MCL violation in December 2014
Average TTHM MCL violation in June 2015

In addition, as of April 30, 2014, when the City of Flint switched from purchasing finished water from the City of Detroit to using the Flint River as their new water source, the City of Flint is no longer providing corrosion control treatment for lead and copper.

A major concern from a public health standpoint is the absence of corrosion control treatment in the City of Flint for mitigating lead and copper levels in the drinking water. Recent drinking water sample results indicate the presence of high lead results

in the drinking water, which is to be expected in a public water system that is not providing corrosion control treatment. The lack of any mitigating treatment for lead is of serious concern for residents that live in homes with lead service lines or partial lead service lines, which are common throughout the City of Flint.

In addition, following the switch to using the Flint River, the City of Flint began adding ferric chloride, a coagulant used to improve the removal of organic matter, as part of the strategy to reduce the TTHM levels. Studies have shown that an increase in the chloride-to-sulfate mass ratio in the water can adversely affect lead levels by increasing the galvanic corrosion of lead in the plumbing network.

Prior to April 30, 2014, the City of Flint purchased finished water from the City of Detroit which contained orthophosphate, a treatment chemical used to control lead and copper levels in the drinking water. When the City of Flint switched to the Flint River as their water source on April 30, 2014, the orthophosphate treatment for lead and copper control was not continued. In effect, the City of Flint stopped providing treatment used to mitigate lead and copper levels in the water. In accordance with the Lead and Copper Rule (LCR), all large systems (serving greater than 50,000 persons) are required to install and maintain corrosion control treatment for lead and copper. In the absence of any corrosion control treatment, lead levels in drinking water can be expected to increase.

The lack of mitigating treatment is especially concerning as the high lead levels will likely not be reflected in the City of Flint's compliance samples due to the sampling procedures used by the City of Flint for collecting compliance samples. The instructions from the City of Flint to residents direct the residents to 'pre-flush' the taps prior to collecting the compliance samples. A copy of the instructions provided by the City of Flint to residents will be included in the final report.

The practice of pre-flushing before collecting compliance samples has been shown to result in the minimization of lead capture and significant underestimation of lead levels in the drinking water. Although this practice is not specifically prohibited by the LCR, it negates the intent of the rule to collect compliance samples under 'worst-case' conditions, which is necessary for statistical validity given the small number of samples collected for lead and copper under the LCR. This is a serious concern as the compliance sampling results which are reported by the City of Flint to residents could provide a false sense of security to the residents of Flint regarding lead levels in the water and may result in residents not taking necessary precautions to protect their families from lead in the drinking water. Our concern regarding the inclusion of 'pre-flushing' in sampling instructions used by public water systems in Michigan has been raised with the Michigan Department of Environmental Quality (MDEQ). The MDEQ has indicated that this practice is not prohibited by the LCR and continues to retain the 'pre-flushing' recommendation in their lead compliance sampling guidance to public water systems in Michigan. A copy of the MDEQ guidance will be included in the final report.

In the case of the Flint resident that contacted U.S. EPA (Ms. Lee-Anne Walters), the initial results from drinking water samples collected by the City of Flint in her home

for lead were 104 ug/L and 397 ug/L. The level of iron in the water also exceeded the capability of the measurement (>3.3 mg/L). The lead results were especially alarming given that the samples were collected using the sampling procedures described above, which minimize the capture of lead. When contacted by U.S. EPA Region 5, the MDEQ indicated that the lead was coming from the Walters' plumbing. Ms. Walters had previously indicated that all of the plumbing in the home was plastic.

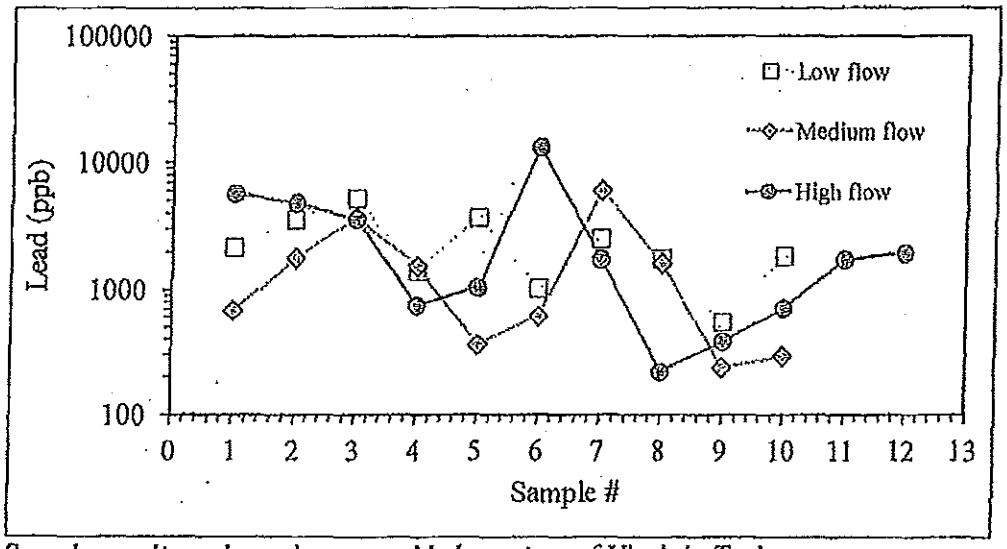
Following the confirmation of the initial high lead results, U.S. EPA Region 5 conducted two visits to the Walters' home on April 27, 2015 and May 6, 2015. Based on an inspection of the plumbing and subsequent sampling conducted at the Walters' residence, it was determined that except for a few minor metallic connectors, all interior plumbing, including the pipes, valves and connectors are made of plastic certified by the National Sanitation Foundation (NSF) for use in drinking water applications. Subsequent sampling showed that the faucets in the home appear to be compliant with the new lead-free requirements and are also not the source for the high lead levels. Our inspection of the interior plumbing and analysis of follow-up sampling results demonstrate that the home plumbing network is not the source of the high lead levels found at the Walters' residence. The photographs and all sampling results will be included in the final report.

Based on the U.S. EPA inspection and documentation of the plastic plumbing at the Walters' residence, it was suspected that the high lead was being introduced into the Walters' home plumbing from outside the home, likely from a lead service line. Three portions of the service line were extracted during a subsequent trip on May 6, 2015 and sent for analysis, when the Walters' service line was replaced. Analyses performed to date indicate that a portion of the service line is made of galvanized iron pipe. Inspection of the remaining portion from the water main to the external shut-off valve confirmed that the portion from the water main to the external shut-off valve is a lead service line.

Ms. Walters has also provided U.S. EPA with medical reports on her child's blood lead testing indicating that the child had a low blood lead level (2 ug/dL) prior to the source water switch and an elevated blood lead level following the switch (6.5 ug/dL). Redacted copies of these reports will also be included in the final report.

Subsequent to the discovery of high lead levels in the Walters' drinking water, the water to the Walters' home was shut off on April 3, 2015. The water was briefly turned back on to collect additional samples on April 28, 2015. Since the water had stagnated for an extended period of time, the kitchen tap was flushed for 25 minutes the night before collecting the samples. Three sets of samples were collected at different flow rates (10 at low flow, 10 at medium flow and 10 at high flow).

The drinking water samples collected from the Walters' residence on April 28, 2015 contained extremely high lead levels, ranging in value from 200 ug/L to 13,200 ug/L (see below).



Sample results and graph are provided courtesy of Virginia Tech

Additional sample results from resident-requested samples have also shown lead levels in excess of the lead action level. As with the samples collected by the City of Flint for compliance, the resident-requested samples are also being collected using the 'pre-flushing', so the lead levels captured in these samples likely do not represent the worst-case lead levels in the water and the actual lead levels at these homes may be much higher.

Pending completion of the final report, my interim recommendations are as follows:

1. The U.S. EPA should follow up with the MDEQ and the City of Flint on the recommendation made by U.S. EPA to MDEQ on June 10, 2015 to offer the City of Flint technical assistance on managing the different water quality issues in Flint, including lead in the drinking water. Although there have been two written assessments regarding water quality and operational issues in Flint at the time of this report, they do not address lead in drinking water. The first is an Operational Evaluation Report (OER) produced in November 2014 by Lockwood, Andrews and Newnam, Inc. to assess the factors contributing to high Total Trihalomethane (TTHM) levels in Flint following the source change. The focus of this report is to identify potential causes and remedial actions for lowering TTHM levels. The second report (Water Quality Report) produced by Veolia for the City of Flint on March 12, 2015, is an assessment of Flint's water quality and operations which provides advice to the City of Flint primarily focused on TTHM control and other operational issues. Both reports were written prior to the recent discovery of high lead results in Flint drinking water. As such, the reports do not take into account the potential effects on lead levels in drinking water.

As previously mentioned, the City of Flint currently has no mitigating treatment for lead and is also planning another source water change in the near future. U.S. EPA's Office of Research and Development in Cincinnati has extensive experience in corrosion and corrosion control treatment and distribution system issues and would be a valuable addition to the drinking water advisory group for the City of Flint. Copies of the qualifications and experience for Michael Schock and Darren Lytle have been forwarded to MDEQ.

2. U.S. EPA should review the compliance status of the City of Flint with respect to whether the system is in violation of the LCR requirement to install and maintain optimal corrosion control and whether the MDEQ is properly implementing the LCR provisions regarding optimal corrosion control treatment requirements for large systems. Pursuant to 40 CFR Section 141.82(i), the EPA Regional Administrator may review treatment determinations made by a State and issue federal treatment determinations consistent with the requirements of the LCR where the Regional Administrator finds: (1) A state has failed to issue a treatment determination by the applicable deadlines; (2) A State has abused its discretion in a substantial number of cases or in cases affecting a substantial population; or (3) The technical aspects of a State's determination would be indefensible in an expected Federal enforcement action taken against a system.

3. The U.S. EPA should review whether relevant resident-requested samples are being included by the City of Flint in calculating the 90th percentile compliance value for lead. Recent drinking water tests conducted at homes in Flint for lead that are not part of the compliance sampling pool have revealed high lead levels in the drinking water. The U.S. EPA memorandum signed on December 23, 2004 provides clarification on compliance determinations and states that customer-requested samples are to be included in the 90th percentile lead compliance calculation where the sampling is conducted during the monitoring period from sites and sampling procedures meeting the LCR criteria. Given the prevalence of lead service lines in the City of Flint, should these sample results be from homes with lead service lines, the sample results would be considered compliance samples under the LCR.

Also attached is a timeline of events for Flint, Michigan. Should you have any questions regarding the information or recommendations provided, please let me know.

cc: Liane Shekter-Smith (MDEQ)
Pat Cook (MDEQ)
Stephen Busch (MDEQ)
Michael Prysby (MDEQ)
Marc Edwards (Virginia Tech)
Michael Schock, EPA-ORD
Darren Lytle, EPA-ORD

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Tuesday, September 15, 2015 10:19 PM
To: Olszewski, Rosemarie (DEQ)
Cc: Shaler, Karen (DEQ)
Subject: Fwd: EPA's response to Rep. Kildee re: Flint water
Attachments: Hon. Daniel Kildee 09-15-15.pdf; ATT00001.htm

R,
1 for Director
1 for 2-2 EPA File
1 for 3-1 US congressional file

Thanks.

Mb

Sent from my iPad

Begin forwarded message:

> **From:** "Pallone, Maggie (DEQ)" <PalloneM@michigan.gov>
> **Date:** September 15, 2015, 7:25:03 PM EDT
> **To:** "Wyant, Dan (DEQ)" <WyantD@michigan.gov>, "Thelen, Mary Beth (DEQ)" <THELENM2@michigan.gov>, "Howes, Sarah (DEQ)" <HowesS1@michigan.gov>, "Wurfel, Brad (DEQ)" <WurfelB@michigan.gov>, "Busch, Stephen (DEQ)" <BUSCHS@michigan.gov>, "Benzie, Richard (DEQ)" <BENZIER@michigan.gov>, "Shekter Smith, Liane (DEQ)" <SHEKTERL@michigan.gov>, "Sygo, Jim (DEQ)" <SygoJ@michigan.gov>
> **Subject: Fwd: EPA's response to Rep. Kildee re: Flint water**

Begin forwarded message:

> **From:** "Fortin, Denise" <Fortin.Denise@epa.gov>
> **Date:** September 15, 2015 at 6:28:38 PM EDT
> **To:** "Pallone, Maggie (DEQ)" <PalloneM@michigan.gov>
> **Cc:** "Beckmann, Ronna Erin" <beckmann.ronna@epa.gov>, "Deamer, Eileen" <deamer.eileen@epa.gov>
> **Subject: EPA's response to Rep. Kildee re: Flint water**
>
> Here you go, Maggie. I'll be sending this letter to Jordan Dickinson shortly.
>
> Please keep me posted on the location for Monday's meeting.
>
> Thanks,
> Denise

Denise Fortin
Congressional Liaison
Office of Regional Administrator
U.S. Environmental Protection Agency
312-886-9859

United States Environmental Protection Agency
Regional Administrator
Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

SEP 15 2015

The Honorable Daniel Kildee
Member, U.S. House of Representatives
Washington, D.C. 20515-1313

Dear Congressman Kildee:

Thank you for your September 9, 2015 letter regarding drinking water quality in the City of Flint. EPA is actively working with the Michigan Department of Environmental Quality (MDEQ) to help the City provide clean and safe water.

Consistent with the recommendations in the internal memorandum cited in your letter, EPA is working with MDEQ to monitor Flint's compliance with the federal Lead and Copper Rule. On August 17, 2015, MDEQ notified Flint that additional treatment will be required to optimize corrosion control and the City is taking steps to do so. Experts from EPA's Office of Research and Development are providing technical assistance to Flint to implement those corrosion control improvements.

Flint residents who are concerned about lead in drinking water may request water sampling by the local water utility. General information about lead in drinking water and tips to reduce lead exposure are available at http://water.epa.gov/drink/info/lead/index.cfm

Again, thank you for your letter. We look forward to a more detailed discussion at the meeting that is being set up on Monday. In the meantime, if you have further questions, please contact me or your staff may contact Denise Fortin or Ronna Beckmann, the Region 5 Congressional Liaisons, at (312) 886-3000.

Sincerely,

Susan Hedman
Regional Administrator

Frequently Asked Questions:
Water Lead Levels in the City of Flint
September 2015

How can lead get into drinking water?
Lead detections in Flint drinking water exist at the home level. Sampling at the Flint Water Treatment Plant has shown no lead in its treated water. However, this contaminant leaches into water from a home's lead service lines, lead solder, and leaded plumbing materials including fixtures, faucets, and fittings.

Does the city meet federal drinking water standards for lead and copper?
Yes, the city is meeting state and federal guidelines for lead and copper.

The City of Flint has regularly monitored for lead and copper since federal law began requiring it in 1991.

When the City changed water sources in May 2014, state and federal law required the city to sample for lead and copper for a full year to determine how the water may be interacting with residential lead plumbing to increase lead levels. While the city's results show residential lead levels below the federal threshold for immediate response activities, Flint is moving quickly to optimize corrosion control measures in its water system.

Some individual homes showed high numbers for lead. Isn't that a concern?
For the homeowner, yes it is. There is no "safe" level for lead, and while the leading cause of lead poisoning around the country is lead paint, any source of lead ingestion is worthy of concern.

But the State and federal guidelines for lead and copper acknowledge an important reality: Any home that has a lead service connection or lead plumbing will impart some varying amount of lead into the home's water. The only way to eliminate lead in a home water system is to remove lead plumbing or replace lead service connections to the city system.

The lead and copper rule requires the local operator to sample dozens, sometimes hundreds of homes in the service area to get a general sense of how the water supply is interacting with lead plumbing and service connections. The tests are done specifically at homes with lead service connections. Individual results vary and all participants are

Are there other ways the city monitors for lead exposure?
The County Health Department, overseen statewide by the Michigan Department of Health and Human Services, regularly monitors blood levels in children throughout Michigan communities. The leading cause of lead poisoning is exposure to lead paint.

Blood lead level testing results for the 12-month period just after the City of Flint changed its water source (May 2014 – April 2015) showed no significant change in the pattern of blood lead levels in Flint, compared to the previous three years. This data suggests the recent change in water source by the City of Flint has not contributed to an increase in lead exposure throughout the community.

How does the state decide if the water is creating a lead problem?
Compliance with the federal lead rule is based on a 90th percentile calculation. If more than 10 percent of samples report lead above the federal action level of **15 parts per billion**, a water supply has an "action level exceedance." An exceedance is not a violation. It triggers other requirements which could include public notification, additional water quality sampling, and possibly further treatment.

While some of Flint's individual samples exceeded the 15 parts-per-billion lead action level, compliance is based on **the 90th percentile of samples.** The City of Flint's 90th percentile level has ranged between 0 parts per billion in 2008 and 2011, and 15 parts per billion in 1992, but never exceeded the action level.

The two most recent sampling periods, in 2014 and 2015, were 6 parts per billion and 11 parts per billion, respectively.

Did the city use <u>every</u> sample they got back?
Sampling requirements for lead and copper are designed to target the most common pathways to lead ingestion in homes with the least protection. The sample must be collected from a commonly used kitchen or bathroom tap, and in accordance with the provided sampling instructions. Homes that employ filtration or additional treatment cannot be included. Samples must also be collected within the established monitoring period.

I have a lead service connection or lead plumbing. What should I do?
Replacement is the only way to eliminate lead exposure. However, here are some interim steps homeowners can take to reduce it:

Flush pipes before drinking, and only use cold water for consumption.

The more time water has been sitting in your home's pipes, the more lead it may contain. When water in a particular faucet has not been used for six hours or longer, "flush" cold-water pipes by running the water until it becomes as cold as it will get. This could take five to 30 seconds if there has been recent water use elsewhere in the home, such as showering or flushing toilets. Otherwise, it could take two minutes or longer.

Use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead.

Who is responsible for replacement of leaded materials?
Replacement of service pipes on private property and any leaded plumbing materials within the home is a **homeowner's responsibility.** The City of Flint owns the service pipe from the water main to the curb stop valve, and that is **the City's responsibility.** This valve is normally located two feet in from the street curb. From there to the house is private property and the responsibility of the homeowner.

Why doesn't the city at least replace its portion of lead service lines?
Partial lead service line replacement has been shown to mobilize more lead and make the situation worse. Only full lead service line replacement has been demonstrated effective in achieving long-term reductions in drinking water lead levels.

What is the City's timeline for installation of corrosion control treatment?
The federal government allows the steps to complete the installation of optimal corrosion control treatment and follow-up monitoring to take up to five years.

However, the City of Flint has committed to completing installation of Optimized Corrosion Control Treatment in **less than six months.**

What will happen when Flint joins the Karegnondi Water Authority next year?
The City has committed to having Optimized Corrosion Control Treatment in place prior to its connection with the Karegnondi Water Authority (KWA). The water provided by KWA will come from a new source, Lake Huron. The city will continue its lead and copper sampling every six months. Additionally, the city's water treatment plant will continue to operate with uninterrupted Optimized Corrosion Control Treatment.

How long would it take to replace lead service lines throughout Flint?
The city has about 32,900 service connections in total. **More than 15,000** of these connections are considered lead service lines. Even if many crews were contracted, it would likely take up to 15 years to complete this work.

What would it cost to replace the lead service line at my house?
Average costs to replace a lead service line at an individual home range from $2,000 to $8,000. Costs vary depending on the length and size of service line that is needed, as well as the ground cover and soil conditions encountered.

With more than 15,000 lead service lines at an estimated average cost of $4,000 for each replacement, total cost could **be $60 million or more.**

Olszewski, Rosemarie (DEQ)

From:	Feuerstein, Heather (DEQ)
Sent:	Thursday, September 17, 2015 7:43 PM
To:	'Ananich, Senator Jim '; 'Neeley, Rep Sheldon'; 'Phelps, Rep Phil'
Cc:	'Jordan.Dickinson@mail.house.gov'; 'dwalling@cityofflint.com'; 'hcroft@cityofflint.com'; 'hedman.susan@epa.gov'; 'poy.thomas@epa.gov'; 'Schock.michael@epa.gov'; 'Lytle.darren@epa.gov'; 'fortin.denise@epa.gov'; 'Edwardsm@vt.edu'; Hollins, Harvey (GOV); Mcbride, Bill (GOV); Brown, Eric (GOV); Thelen, Mary Beth (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ); Anderson, Madhu (DEQ); Copen, Leigh (DEQ); Pallone, Maggie (DEQ); Howes, Sarah (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Cook, Pat (DEQ)
Subject:	MDEQ response to letter regarding Flint water
Attachments:	Flint Water Response.pdf

Attached please find the MDEQ's response to your September 10, 2015, letter regarding Flint drinking water.

Thank you,
Heather Feuerstein
Management Assistant to
Maggie Pallone, Deputy Director and
Brad Wurfel, Communications Director
Department of Environmental Quality
517.284.6715

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

September 17, 2015

VIA E-MAIL

The Honorable Jim Ananich
State Senator
State Capitol
P.O. Box 30036
Lansing, Michigan 48909-7536

The Honorable Sheldon Neeley
State Representative
State Capitol
P.O. Box 30014
Lansing, Michigan 48909-7514

The Honorable Phil Phelps
State Representative
State Capitol
P.O. Box 30014
Lansing, Michigan 48909-7514

Dear Senator Ananich and Representatives Neeley and Phelps:

Thank you for your letter of September 10, 2015, regarding water quality in the city of Flint (City). Your interest in this matter is appreciated. The Michigan Department of Environmental Quality (MDEQ) takes seriously its responsibility to ensure safe drinking water for all Michigan residents. The MDEQ maintains a robust public water supply regulatory program through long-standing partnerships with the United States Environmental Protection Agency (USEPA) and the state's regulated public water systems.

With respect to the draft memo referenced in your letter, the MDEQ does not review or receive draft memos from the USEPA, nor would we expect to while it is a draft.

Regulations associated with lead, copper, and corrosion control require communities to monitor water quality at customer taps. The monitoring protocols for sampling home water attempt to represent actual home water use, and they allow the MDEQ to get consistent results for year-over-year comparisons.

It is important to recognize that any home with lead plumbing or service connections will impart some amount of lead to water samples. While the compliance monitoring for lead in the City has not exceeded the federally-established Action Level, either before or after the City switched sources and treatment methods, there has always been

detectable lead in the City's water sampling program for homes that have lead plumbing or service connections. The City's monitoring program's purpose is to show aggregated levels throughout the entire system, not individual home levels.

The law requires the City to provide individual lead results to customers whose homes are sampled for compliance with the Action Level. Each customer with an individual sample result that exceeds 15 parts per billion is provided information on actions they can take to limit lead exposure in their drinking water. System-wide results from the most recent lead compliance monitoring are included each year in the City's annual Consumer Confidence Report, which is provided to customers and available online.

It is important to note that the City performed extensive home water tests for lead and copper last year and this year, and is meeting state and federal drinking water standards. Local health departments also administer annual blood level testing on children in Flint; results show no discernable rise in levels that might be expected if there was an elevated lead level in the City water supply. The City currently has no unresolved violations of state and federal drinking water standards.

The MDEQ continues to work with the City and federal regulators on the shared goal of ensuring safe, reliable drinking water in this community.

I look forward to discussing this issue in greater detail at the meeting next week. If you should have additional questions before then, please contact Ms. Maggie Pallone, Deputy Director, Policy and Legislative Affairs, at 517-284-6715 or pallonem@michigan.gov; or you may contact me.

Sincerely,

Dan Wyant
Director
517-284-6700

cc: U.S. Representative Dan Kildee
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. Richard Benzie, MDEQ
Mr. Stephen Busch, MDEQ
Mr. Pat Cook, MDEQ

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
EXECUTIVE OFFICE
LANSING

BRIAN CALLEY
LT. GOVERNOR

CONTACTS:	FOR IMMEDIATE RELEASE
Sara Wurfel or Dave Murray, Governor's Office 517-335-6397 Terry Stanton, Department of Treasury 517-335-2167	September 16, 2015

Gov. Rick Snyder awards Flint $2 million in Distressed Cities grants for water system infrastructure improvements

Funding to be used for leak detection, waste incinerator replacement

LANSING, Mich. – Gov. Rick Snyder today awarded Flint $2 million in grants for water system infrastructure improvements, part of an overall $8 million plan to help cities through the Financially Distressed Cities, Villages, and Townships Grant Program.

Flint is among six municipalities receiving grants through the program. The city will use the funding to detect leaks in its water lines and replace its Water Pollution Control Facility Incinerator.

"There are opportunities for the state government to assist Flint city leaders as they address issues related to the city's water system," Snyder said. "These grants will help recovering cities improve public services and infrastructure, improving the quality of life for all residents."

The grants to Flint were announced today at the Haskell Community Center by Harvey Hollins, director of the state's Office of Urban Initiatives and Wayne Workman, the state's deputy treasurer. They were joined by Dan Wyant, director of the Michigan Department of Environmental Quality, Flint Emergency Manager Jerry Ambrose, Mayor Dayne Walling, state Senate Minority Leader Jim Ananich, state Reps. Sheldon Neeley and Phil Phelps.

Flint was awarded $900,000 to allow the city to hire a contractor to perform a leak detection survey of the city water lines. The city will receive a map of leak locations and an assessment of leak severity, allowing the city to prioritize leak repair. The project also covers the expense of conducting a water pipe line wall thickness condition assessment on a portion of the city's pipes. The assessment will guide the city's water main replacement program.

The city also was awarded $1.1 million to shut down its current Water Pollution Control Facility incinerator and replace it with new facilities which will allow for the disposal of waste in landfills. The existing facilities are not up to federal Environmental Protection Agency standards.

Municipalities are eligible for the grants of they are experiencing one or more conditions indicative of "probable financial stress," as defined by Public Act 436 of 2012, the Local Financial Stability and Choice Act.

Under the grant program, funding may be used to pay for specific projects, services, or strategies that move a city, village, or township toward financial stability. There was $8 million appropriated for the program with a $2 million cap, per local unit.

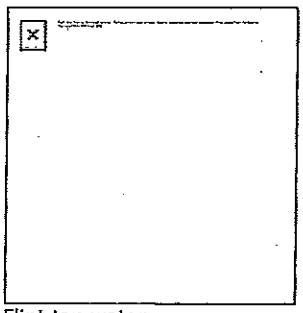
##

Thelen, Mary Beth (DEQ)

From:	Caleb Laieski <caleb_m_laieski@yahoo.com>
Sent:	Tuesday, August 25, 2015 12:36 AM
To:	mayor@cityofflint.com
Cc:	McCarthy.Gina@epamail.epa.gov; r5hotline@epa.gov; hedman.susan@epa.gov; Hyde.Tinka@epa.gov; Wyant, Dan (DEQ); Creal, William (DEQ); NRC@uscg.mil
Subject:	Water Emergency

Emergency Personnel and Honorable Officials:

I am extremely concerned after being sent the following photo and this issue needs to be investigated ASAP -



Flint tap water.

In 2014, Flint's emergency manager disconnected the city from the Detroit Water and Sewerage Department (DWSD) and started providing residents with water from the Flint River. Since that time, residents have been struggling to maintain access to a clean, safe drinking water supply.

Residents of Flint report having tap water with high levels of copper, lead, THMs (chemicals that result when chlorine mixes with organic matter), tin, lime and iron. The water is often brown or bluish-green in color and contains sediment. As a result, people are experiencing symptoms including hair loss, lead poisoning and diseases related to consuming high levels of copper (to name a few).

The Flint River clearly is not a safe, reliable source for the city's drinking water. It was as easy as pushing a button to disconnect from DWSD; it's time to push the button again, reconnecting Flint to DWSD and providing Flint residents with the clean, safe water they deserve.

Please reconnect Flint to the Detroit Water and Sewerage Department immediately and make water safe and clean for all.

Begin forwarded message:

Date: August 4, 2015 at 4:08:13 PM EDT
From: "Lynna Kaucheck, Food & Water Watch" <act@fwwatch.org>
Reply-To: "Lynna Kaucheck, Food & Water Watch" <act@fwwatch.org>
To: Caleb Laieski <caleb_m_laieski@yahoo.com>
Subject: Dangerously toxic drinking water

food&waterwatch

Residents of Flint, Michigan Have Dangerously Toxic Drinking Water

Sign the Petition: Demand Clean, Safe Drinking Water for Flint!

Dear Caleb,

It's hard to believe that in 2015, residents of an American town are being poisoned by their public water system.

About a year ago, Flint, Michigan residents were switched from getting water from the Detroit Water and Sewerage Department to getting water from the Flint River, all in an attempt to cut costs. **But this change has cost the people of Flint greatly.**

Sign the petition to tell the Flint City Council and Mayor to switch Flint back to Detroit's clean drinking water — it's as easy as pushing a button!

Flint residents like Melissa Mays are trying to get their story out nationally to bring more attention to their fight.
In April 2014, a button was pushed that changed my life and thousands of others in Flint, Michigan. For over a year now, we have been drinking toxic water and suffering the severe health challenges that have come as a result.

Would you drink water with dangerous levels of lead and copper?

Flint tap water.

No One Should Have to Drink Toxic Water!

Since Flint started providing us with water from the Flint River, my water has turned bluish-green from all the copper in the water, the levels of lead have quadrupled and we have been notified about high levels of TTHMs (chemicals that are formed when chlorine mixes with organic matter). And the pH of my water is 4, which means that it's as acidic as tomato juice!

Other neighbors have experienced brown water and have found traces of tin, lime and iron in their water. Members of my community have been reporting cases of lead poisoning, and many neighbors have reported that their hair is falling out because of our toxic water. Due to the high levels of copper in my water, I am suffering from osteoarthritis and bone spurs at the age of 36.

Access to safe drinking water is a human right. Demand that Mayor Walling and Flint City Council give the people of Flint clean, safe water!

Like other Michigan cities, Flint is struggling financially. In 2014, Flint's emergency manager decided that, as a cost-saving measure, the city would stop buying clean, safe water from Detroit and start providing residents with water from the Flint River.

But the Flint River experiment has not panned out. The city has failed to adequately treat the water from the Flint River to make it safe to drink. Almost immediately after the switch, residents noticed changes in smell, color and taste of the water coming out of their taps, and tests showed high levels of bacteria that forced the city to issue boil advisories.

To kill the bacteria, the city increased the amount of chlorine in the water, which resulted in the high levels of toxic trihalomethanes (TTHMs that Melissa mentions). Samples show levels of lead contamination in the water that's off the charts (likely due to Flint's inability to prevent lead from the old pipes from leaching into the water). A well-known neurotoxin, lead poisoning can have severe long-term impacts on children's developing brains.[1]

It is abundantly clear that the Flint River is not a safe, reliable source for the city's drinking water.Sign the petition to tell Flint Mayor Walling and the Flint City Council to switch back to Detroit Water to ensure clean, safe drinking water for Flint.

It was as easy as pushing a button to disconnect from Detroit's water service, it's time to push the button again to reconnect Flint to Detroit Water and provide Flint residents with the clean, safe water they deserve.

I am collecting petitions from people all over the country to deliver in person to the Flint City Council and Mayor at the end of August. **I hope you'll help bring national attention to this issue by signing the petition to the Flint Mayor and City Council to give residents access to safe drinking water.**

Thank you for taking action,

Lynna Kaucheck
Senior Organizer
Food & Water Watch
act(at)fwwatch(dot)org

1. Aging Pipes Are Poisoning America's Tap Water, *The Atlantic*, July 29, 2015.

Donate »

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FOOD & WATER WATCH • 1616 P STREET NW, SUITE 300
WASHINGTON, DC 20036 • TEL: (202) 683-2500

Manage your subscription or unsubscribe

Thelen, Mary Beth (DEQ)

From: Sygo, Jim (DEQ)
Sent: Thursday, August 06, 2015 12:17 PM
To: Shekter Smith, Liane (DEQ)
Cc: Wurfel, Brad (DEQ); Pallone, Maggie (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Cook, Pat (DEQ); Devereaux, Tracy Jo (DEQ); Shaler, Karen (DEQ); Thelen, Mary Beth (DEQ); Feuerstein, Heather (DEQ)
Subject: Re: University of Michigan inquiry re: Flint

Sounds like a good approach.

Sent from my iPhone

On Aug 6, 2015, at 11:52 AM, Shekter Smith, Liane (DEQ) <SHEKTERL@michigan.gov> wrote:

> Yesterday, Steve Busch and I participated in a conference call with Professors Lutgarde Raskin and Krista Wigginton (Dept. of Civil and Environmental Engineering) and Prof. Stuart Batterman (School of Public Health) and several of their graduate students.
>
> They wanted to discuss recent events in Flint and are interested in possibly providing sampling, analysis, and education/outreach to address potential lead exposure issues, TTHM issues, possibly microbial activity and/or aesthetic problems. They are aware of the report published on the ACLU website identifying lead as an issue in Flint and were interested in helping to obtain analytical data to determine the potential extent of the problem and to help residents understand what it means for them.
>
> We suggested they begin by having discussions with the City to determine what level of assistance might be helpful to the City.
>
> If this moves forward, we would recommend that DEQ, DHHS staff, LHD staff, and a group of local residents/stakeholders be included in discussions to guide future activities.
>
> Today, Steve provided UM with contacts at the City. UM is interested in quickly arranging a preliminary meeting to flesh out what might happen going forward.
>
> We'll keep you updated if this progresses.
>
> Liane.

Liane J. Shekter Smith, P.E., Chief
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
517-284-6543

Thelen, Mary Beth (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Thursday, August 06, 2015 11:52 AM
To: Wurfel, Brad (DEQ); Sygo, Jim (DEQ); Pallone, Maggie (DEQ)
Cc: Busch, Stephen (DEQ); Benzie, Richard (DEQ); Cook, Pat (DEQ); Devereaux, Tracy Jo (DEQ); Shaler, Karen (DEQ); Thelen, Mary Beth (DEQ); Feuerstein, Heather (DEQ)
Subject: University of Michigan inquiry re: Flint

Yesterday, Steve Busch and I participated in a conference call with Professors Lutgarde Raskin and Krista Wigginton (Dept. of Civil and Environmental Engineering) and Prof. Stuart Batterman (School of Public Health) and several of their graduate students.

They wanted to discuss recent events in Flint and are interested in possibly providing sampling, analysis, and education/outreach to address potential lead exposure issues, TTHM issues, possibly microbial activity and/or aesthetic problems. They are aware of the report published on the ACLU website identifying lead as an issue in Flint and were interested in helping to obtain analytical data to determine the potential extent of the problem and to help residents understand what it means for them.

We suggested they begin by having discussions with the City to determine what level of assistance might be helpful to the City.

If this moves forward, we would recommend that DEQ, DHHS staff, LHD staff, and a group of local residents/stakeholders be included in discussions to guide future activities.

Today, Steve provided UM with contacts at the City. UM is interested in quickly arranging a preliminary meeting to flesh out what might happen going forward.

We'll keep you updated if this progresses.

Liane

Liane J. Shekter Smith, P.E., Chief
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
517-284-6543

Thelen, Mary Beth (DEQ)

From:	Busch, Stephen (DEQ)
Sent:	Tuesday, June 09, 2015 12:39 PM
To:	Howes, Sarah (DEQ); Pallone, Maggie (DEQ); Wurfel, Brad (DEQ)
Cc:	Prysby, Mike (DEQ); Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ); Rosenthal, Adam (DEQ); Thelen, Mary Beth (DEQ); Devereaux, Tracy Jo (DEQ)
Subject:	Flint Drinking Water TTHM Standard Violation - 2nd quarter 2015
Attachments:	Flint VN TTHM 6_9_15.pdf

Attached is a copy of the Violation Notice and Public Notice Template being mailed to the City of Flint by the DEQ Office of Drinking Water and Municipal Assistance regarding an exceedance of the Maximum Contaminant Level (MCL) standard for Total Trihalomethanes at certain locations within the City's drinking water distribution system.

This violation notice is in response to updated monitoring completed in May 2015, which shows the locational running annual average for one of the City's eight compliance sampling locations continues to exceed MCL standard of 0.080 mg/L. It is however, important to note that all individual compliance sample results collected in both May and February were below the 0.080 mg/L levels.

You are being provided an electronic copy of this notice as exceedance of this drinking water standard is expected to generate inquiries from water system customers, news media, and the general public.

Sarah Howes or Maggie Pallone will be informing members of the Michigan legislature.

If you have any questions or would like any additional information, you may contact Michael Prysby, District Engineer, DEQ-ODWMA at 517-290-8817, or you may contact me at the number below.

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

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

DAN WYANT
DIRECTOR

June 9, 2015

Mr. Brent Wright, Operations Supervisor
City Of Flint – Department of Public Works
Flint Water Plant
4500 North Dort Highway
Flint, Michigan 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Violation Notice (VN) – Maximum Contaminant Level for Total Trihalomethanes (TTHM)
2nd Quarter 2015 Monitoring Period

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the city of Flint (City) is in violation of the Safe Drinking Water Act,1976 PA 399, as amended (Act 399); R 325.10610, *Maximum contaminant levels for disinfection byproducts (MCLs)*, of the 1979 Administrative Code.

In accordance with R 325.10610, *MCLs*, of the 1979 Administrative Code, the MCL for disinfection byproduct TTHM is 0.080 milligrams per liter (mg/L) as a Locational Running Annual Average (LRAA) at each monitoring location. As listed in the table below, our records show that the City's highest TTHM LRAA, based on the last four quarters, ending June 30, 2015, is 0.094 mg/L which exceeds the standard, and at this time only one of the eight sample site locations exceed the LRAA standard of 0.080 mg/L.

Our investigation consisted of a review of ODWMA files for laboratory reports received for compliance monitoring. Our investigation is considered complete. This violation began on June 1, 2015, and will continue until the TTHM LRAA is below the MCL at all sample sites.

TTHM Results (mg/L)						
	8/21/14	11/20/14	2/17/15	5/18/15	LRAA	OEL
DBP1 McDonalds 3719 Davison	**0.145**	0.059	0.0162	0.0514	0.068	0.044
DBP2 Liquor Palace 3302 South Dort Highway	**0.127**	0.033	0.0168	0.0635	0.060	0.044
DBP3 North Flint Auto 6204 North Saginaw St.	**0.118**	0.041	0.0149	0.0452	0.055	0.037
DBP4 University Market 2501 Flushing Road	**0.196**	**0.094**	0.0245	0.0598	**0.094**	0.059
DBP5 Taco Bell 3606 Corunna Road	**0.181**	0.034	0.0151	0.0547	0.072	0.040
DBP6 Rite-Aid Pharmacy 5018 Clio Road	**0.144**	0.054	0.0192	0.0605	0.069	0.048
DBP7 Salem Housing 3216 MLK Boulevard	**0.112**	0.050	0.0285	0.0727	0.066	0.056
DBP8 BP Gas Station 822 South Dort Highway	**0.112**	0.036	0.0199	0.0461	0.054	0.037

We are encouraged by the results from the most recent round of compliance samples collected on May 18, 2015, which again show individual TTHM levels below 0.080 mg/L at all locations throughout the City's system. Operational Evaluation Reports from December 2014, February 2015, and May 2015, have identified possible causes and corrective measures for the previous elevated TTHM levels which we encourage the City to continue implementing. These modifications have likely contributed in part to the reduction in TTHM levels reported for the most recent quarter in comparison to levels in May 2014, and suggest the City may be able to achieve compliance with the TTHM standard at all sites by continuing these efforts.

Our office is currently reviewing the Operational Evaluation Report dated May 29, 2015, and will provide the City and their consultant with comments, as needed, to help address this MCL violation.

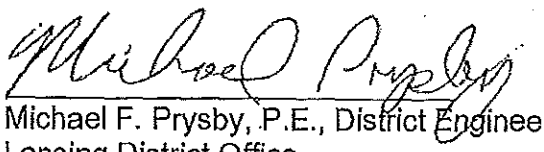
Further, the TTHM operational evaluation level (OEL) calculated in accordance with R 325.10719l, *Disinfection byproducts: operational evaluation levels*, of the 1979 Administrative Code, is now below the 0.080 mg/L operational evaluation trigger at all eight sample site locations. However, our office is requesting that an operational evaluation again be conducted incorporating the most recent sample results, given the increase in TTHM levels from February 2015 results, and that the next monitoring period of August has been identified as the City's peak month for TTHM levels. **Please provide our office with an updated Operational Evaluation Report by Monday, August 31, 2015.**

If you have any other factual information you would like us to consider regarding the violation identified in this VN, please provide them in a written response by June 23, 2015.

Administrative rule R 325.10403 of Act 399 requires that suppliers provide public notice (PN) as soon as practical, but no later than thirty (30) days after the supplier learns of this type of violation, by mail or direct delivery **and** by any other means reasonably calculated to reach customers not normally reached by mail. Enclosed is a sample PN which contains the minimum required language. The City is encouraged to include additional information regarding its response efforts to this violation. **Please notify your consumers by July 1, 2015, and send us a signed and dated copy of the notice that you issued within ten (10) days of distributing the PN.** This violation must also be included in your 2015 Consumer Confidence Report, due by July 1, 2016. The PN must be repeated every quarter until you no longer exceed the TTHM standard. Failure to issue a PN for this violation will result in a fine of at least $1,000 per event, with a maximum of $5,000 per violation.

We anticipate and appreciate your continued cooperation in resolving this matter. If you have any questions regarding this VN, please contact us at the numbers below; at prysbym@michigan.gov; or rosenthala@michigan.gov; or at DEQ, P.O. Box 30242, Lansing, Michigan 48909-7742.

Sincerely,



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

Adam Rosenthal, Environmental Quality
Analyst
Lansing District Office
Office of Drinking Water and
Municipal Assistance
517-284-6644

Enclosure

cc: Ms. Jennifer Crooks, U.S. Environmental Protection Agency, Region 5
Mr. Robert Bincsik, City of Flint
Mr. Howard Croft, City of Flint
Mr. Michael Glascow, City of Flint
Genesee County Health Department
Ms. Liane Shekter Smith, DEQ
Mr. Richard Benzie, DEQ
Mr. Stephen Busch, DEQ

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

City of Flint Did Not Meet Treatment Requirements

Our water system recently violated a drinking water standard. Although this incident was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Samples were collected for total trihalomethanes (TTHM) analysis from eight locations on a quarterly basis (August 21, November 20 of 2014, and February 17 & May 18 of 2015). The average of the results at **ANY** of the eight locations must not exceed the maximum contaminant level (MCL) for TTHMs, otherwise our water system exceeds the MCL. The standard for TTHMs is 80 micro grams per liter (µg/L). The location reporting the highest TTHM level was 94 ug/L; thus, our water system exceeds the TTHM MCL.

What should I do?

- There is nothing you need to do unless you have a severely compromised immune system, have an infant, or are elderly. These people may be at increased risk and should seek advice about drinking water from their health care providers.
- You do not need to boil your water or take other corrective actions. If a situation arises where the water is no longer safe to drink, you will be notified within 24 hours.

What does this mean?

This is not an emergency. If it had been an emergency, you would have been notified within 24 hours.

People who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

What is being done?

We are currently working on solutions to correct the problem. We anticipate resolving the problem in 2015. Our most recent individual sample results were all less than the 80 µg/L standard, however since compliance is calculated using a locational running annual average (LRAA) of the most recent four quarters, we are still out of compliance with the MCL at one of eight locations.

For more information, please contact Mr. Brent Wright at 517-787-6537, or the Flint Water Plant at 4500 North Dort Highway, Flint, Michigan 48505.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by the City of Flint.

CERTIFICATION: WSSN: 02310

I certify that this water supply has fully complied with the public notification requirements in the Michigan Safe Drinking Water Act, 1976 PA 399, as amended, and the administrative rules.

Signature	Title	Date Distributed

Reminder to water supplier: This notice/certification must be sent to the Department of Environmental Quality.

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Sunday, September 13, 2015 10:35 AM
To: Thelen, Mary Beth (DEQ)
Subject: FW: Communications between City of Flint and DEQ
Attachments: Flint-2015-02-13-AnnualMonSched.pdf; Flint-2015-03-05-TTHM-VN-15-1.pdf; Flint-2015-03-30-PbCu90.pdf; Flint-2015-04-03-LT2ESWTR.pdf; Flint-2015-04-03-Permit151018.pdf; Flint-2015-05-06-CCR-reminder.pdf; Flint-2015-05-11-CCCP.pdf; S2 Grant Project No 9204.01 City of Flint.pdf; RE: Premise plumning; Water Quality Optimization Strategy; call; Flint MORs; Flint River Source Water Assessment; FW: PEAS call; FW: Schematics for LT2 sampling plans; FW: Water Supply Sources; Premise plumning; RE: City of Flint - March Bromate Results; RE: City of Flint March 2015 MOR; RE: City Water Tech Team; RE: HC Letter & FAQ's; RE: May_Technical Advisory Meeting; RE: PEAS call; RE: RE: Flint Water Age map; RE: TTHM Draft Letter; RE: Water Supply Sources; Residential customers; Watermain breaks; distribution WQPs; January '15 MOR; Lead Copper Cert form; RE: City of Flint Water Plant Monitoring Results; RE: distribution WQPs; RE: distribution WQPs; RE: January '15 MOR

From: Busch, Stephen (DEQ)
Sent: Thursday, May 28, 2015 12:15 PM
To: Howes, Sarah (DEQ)
Cc: Benzie, Richard (DEQ); Devereaux, Tracy Jo (DEQ); Shaler, Karen (DEQ); Potter, Jodi (DEQ); Shekter Smith, Liane (DEQ); Prysby, Mike (DEQ); Wurfel, Brad (DEQ); Wyant, Dan (DEQ); Thelen, Mary Beth (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ); Potter, Jodi (DEQ); Pallone, Maggie (DEQ)
Subject: RE: Communications between City of Flint and DEQ

Sarah,

Per the request from Representative Neely, attached are communications from the DEQ Office of Drinking Water and Municipal Assistance (ODWMA) to the City of Flint dating back to February 2015.

This includes:
1 construction permit
7 letters
7 emails from Adam, Rosenthal, Environmental Quality Analyst
18 emails from Mike Prysby, District Engineer
2 emails from Steve Busch, District Supervisor

Please let us know if we can provide any further assistance in addressing Representative Neely's request or if they have any questions or issues we could help answer.

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

From: Shekter Smith, Liane (DEQ)
Sent: Tuesday, May 26, 2015 1:59 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)

Cc: Benzie, Richard (DEQ); Devereaux, Tracy Jo (DEQ); Howes, Sarah (DEQ); Shaler, Karen (DEQ); Potter, Jodi (DEQ)
Subject: FW: Communications between City of Flint and DEQ
Importance: High

Note the deadline of COB Thursday to Sarah.

From: Pallone, Maggie (DEQ)
Sent: Tuesday, May 26, 2015 1:21 PM
To: Shekter Smith, Liane (DEQ)
Cc: Wurfel, Brad (DEQ); Wyant, Dan (DEQ); Howes, Sarah (DEQ); Thelen, Mary Beth (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ); DEQ-Legislative-Contact; Potter, Jodi (DEQ)
Subject: Communications between City of Flint and DEQ

Liane,
Rep Neely has requested any communications that DEQ has had with City of Flint between February 2015 and today. Could you please pull that information together and get it to Sarah by COB on Thursday? She will then forward it the Representative's office.

Please let me know if you need any additional details.

Thanks,
Maggie

Maggie Pallone
Director of Legislative Affairs
Department of Environmental Quality
517-599-6190 (cell)
PalloneM@michigan.gov

2910

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

February 13, 2015

Mr. Brent Wright
City Of Flint - D P W
Flint Water Plant
4500 North Dort Highway
Flint, MI 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Drinking Water Monitoring Schedule – 2015
Annual Reports

Enclosed is your Drinking Water Monitoring Schedule for calendar year 2015 outlining the minimum requirements for your public water supply. Collect samples early in the monitoring period of the year indicated on the schedule. If you use a private laboratory you are required to report the results to us within the first ten days of the month following the month that you received the results. To receive credit for monitoring, the **"WSSN"** (water supply serial number), the **"Site Code,"** and **"County"** must appear on the sample result. Bottles will NOT be mailed automatically. If you use the DEQ Laboratory, you can order bottles by calling 517-335-8184. Be certain of the EPA sampling and analysis method requirements for hold times.

The Michigan Safe Drinking Water Act requires certain reports to be submitted to this office each year. Please remember that cross connection reports and annual pumpage reports are due by March 31, and the **Consumer Confidence Report** is due by July 1.

Also enclosed is the document "2015 Monitoring and Reporting Requirements." This provides additional details about monitoring and reporting requirements. If you have any questions, please contact us by telephone or email using the information below.

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

Adam Rosenthal, EQA
Lansing District Office
Office of Drinking Water and
Municipal Assistance
517-284-6644

MFP:AR:JR

Enclosure
cc/encl: Mr. Mike Glasgow, City Of Flint

2015 Monitoring Schedule

FLINT, CITY OF

WSSN: 02310

Collect samples early in the monitoring period. This schedule reflects your expected routine monitoring and is subject to change. To receive credit for monitoring, include the WSSN, Site Code, and County on your request for analysis form. Collect Bacteriological and Automated Partial Chemistry samples close to the shipping time and send overnight delivery. Send all sample results to your Department of Environmental Quality (DEQ) district office unless you use the DEQ laboratory. Test codes, sample units, and costs are listed to help you complete the DEQ laboratory form. Prices are subject to change without notice. The DEQ laboratory is closed on state holidays.

Location: Plant Tap

Collect these samples at the entry point to the distribution system (after treatment, if applicable.)

Sample Type	# Samples/ Frequency	Collect Before	Site Code	Fee	Unit Number	Test Code
Automated Partial Chemistry	This DEQ lab scan includes nitrate, nitrite, fluoride, and sodium whose monitoring frequency requirements differ from one another. Before requesting analyses from a laboratory other than the DEQ laboratory, check with your DEQ district staff for the specific monitoring requirements.					
	1/3 months	Quarterly	TP001	$18.00	32	R
Volatile Organic Compounds	1/3 months	Quarterly	TP001	$100.00	36VO	CXVO
Complete Metals	1/36 months	09/30/2017	TP001	$102.00	36ME	CMET2
Arsenic	1/3 months	Quarterly	TP001	$18.00	36ME	CAS
Cyanide	1/3 months	Quarterly	TP001	$25.00	36CNa	CCN
SOC – Pesticides	1/3 months	Quarterly	TP001	$125.00	36PT	CXPT
SOC – Herbicides	1/3 months	Quarterly	TP001	$120.00	36HB	CXHB
SOC – Carbamates	1/3 months	Quarterly	TP001	$120.00	36LP	CXLP
Bromate	1/1 months	Monthly	TP001	Not performed at the DEQ Laboratory. A list of certified labs is at www.michigan.gov/DEQ. Select Water, Drinking Water, Community Water Supply, then Certified Labs under Programs and Activities.		
Gross Alpha (Radiological)	1/3 months	Quarterly	TP001			
Radium 226 & Radium 228	1/3 months	Quarterly	TP001			
Water Quality Parameters	25/3 months	Quarterly	TP001	Various	Various	Various
Total Organic Carbon (TOC)	Pair/Monthly	Monthly	TP001	$35.00	36TO	CTOC
	Monitor for TOC in the source water before any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as "paired samples." Collect the treated water sample not later than the point of combined filter effluent turbidity monitoring and representative of treated water.					
Expanded SOCs						
Dalapon & Haloacetic Acids	1/12 months	Between 04/01 and 09/30/2015	TP001	$130.00	36HA	CXHA
Diquate	1/12 months	Between 04/01 and 09/30/2015	TP001	$150.00	36DQ	CXDQ
Endothall	1/12 months	Between 04/01 and 09/30/2015	TP001	$150.00	36EN	CXEN
EDB & DBCP	1/12 months	Between 04/01 and 09/30/2015	TP001	$70.00	36VO	CXEV

2015 Monitoring Schedule

FLINT, CITY OF

WSSN: 02310

Collect samples early in the monitoring period. This schedule reflects your expected routine monitoring and is subject to change. To receive credit for monitoring, include the WSSN, Site Code, and County on your request for analysis form. Collect Bacteriological and Automated Partial Chemistry samples close to the shipping time and send overnight delivery. Send all sample results to your Department of Environmental Quality (DEQ) district office unless you use the DEQ laboratory. Test codes, sample units, and costs are listed to help you complete the DEQ laboratory form. Prices are subject to change without notice. The DEQ laboratory is closed on state holidays.

Location: Distribution System

Sample Type	Collect Samples According to the	# Samples/ Frequency	Collect	Site Code	Fee	Unit Number	Test Code
Bacteriological – coliforms	TCR Sampling Site Plan	100/Monthly	Monthly	DIST	$16.00	30	BPTC
Chlorine Residual	DBP Monitoring Plan	If serving chlorinated water, measure the residual disinfectant level at the same point and at the same time as the bacteriological sample and report the average to the DEQ.					
Total Trihalomethanes	DBP Monitoring Plan	8/3 months	During February, May, August and November 2015	See DBP Monitoring Plan	$65.00	36VO	CXTM
Haloacetic Acids		8/3 months	During February, May, August and November 2015	See DBP Monitoring Plan	$130.00	36HA	CXHA
Water Quality Parameters	Representative Sites	25/Quarterly	Quarterly	DIST	Various	Various	Various
Lead Copper for Corrosion Control	Lead and Copper Sampling Pool	100/6 months	Between 1/1 and 6/30/2015	DIST	$26.00	36CC	CCUB

Community Water Supply
2015 Monitoring and Reporting Requirements

Please Monitor Early: Collect samples early in the monitoring period (month, quarter, year) of the year indicated on the schedule. Bacteriological and partial chemistry samples should be collected close to the shipping time and sent overnight delivery to assure sample holding times are not exceeded (30 and 48 hour hold times respectively). We also recommend avoiding mailing bacteriological samples immediately preceding or following a holiday because samples tend to exceed the 30 hour hold time. When this occurs, a repeat sample must be collected as soon as possible upon notification.

If you use a private laboratory please report the results to us within the first ten days of the month following the month that you received the results. A list of certified laboratories is available on request. If samples are not collected as indicated on your monitoring schedule, you will incur a monitoring violation and possibly a fine. For information on the fines policy, visit http://michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, and Administrative Fines (under Laws and Rules).

To receive credit for monitoring, you must include the **"WSSN"** (water supply serial number), the **"Site Code,"** and the **"County"** when you submit samples for analysis. Site codes are listed on your monitoring schedule.

Special Instructions If You Use The DEQ Laboratory: Bottles will NOT be mailed automatically. To order bottles, call the DEQ Laboratory at 517-335-8184 or download the form EQP 2301 *Requisition for Water Sample Units* from www.michigan.gov/deq. Click on Key Topics, Laboratory Services, Drinking Water, Obtaining The Necessary Sampling Units, and 'test list'. Please note that the DEQ laboratory is closed on most state holidays. The DEQ laboratory prices are subject to change without notice.

Special Instructions For Automated Partial Chemistry, VOC and TTHM Samples: These sample bottles must be cooled and preserved during shipment to the laboratory. If you use the DEQ laboratory, you will receive the ice pack, acid dropper (if necessary) and small cooler when you request the bottles. Samples must be preserved correctly to be used for compliance purposes. To avoid resampling follow instructions contained with the sample bottle. If you would like more information, contact the DEQ lab, at 517-335-8184, or contact this office.

Cyanide: Previously, supplies that chlorinated the water were waived from monitoring for cyanide. The U.S. EPA now requires all supplies to sample the entry point for cyanide.

UCMR3 Monitoring: You may have monitoring requirements in 2015 under the third Unregulated Contaminant Monitoring Rule (UCMR3). The U.S. EPA will contact you directly if your water supply is required to monitor in 2015. A list of laboratories certified to analyze the samples collected for UCMR3 is available at http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/upload/lablist.pdf. Contact the U.S. EPA with questions.

Reminder if Lead and Copper Monitoring Due This Year: Provide individual lead tap results to people who receive water from sites that you sampled, even if lead was not detected, within 30 days of learning the results. Send us a certification that you met all the delivery requirements along with a sample copy of the customer notice within 3 months after the end of the monitoring period. Water supplies that failed to distribute the Consumer Notice of Lead Results must include the following statement in their CCR, "During the year, we failed to provide lead results to persons served at the sites that were tested as required by the Lead and Copper Rule." To download the *Lead and Copper Report and Consumer Notice of Lead Result Certificate* in Microsoft Word or PDF format, visit www.michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, and Reporting Forms (under Manuals, Forms & Brochures).

Annual Reports: These reports are due to this office each year.

- The **Cross Connection Report**, due by March 31, describes the status of your local cross connection control program. Manufactured housing communities are exempt from this requirement until 2016.

  Each year, water supplies must submit this report, even if a formal program has not been implemented. If cross connections do not exist in your water system, indicate so on the report. Download the Cross Connection Report form from http://michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, Reporting Forms (under Manuals, Forms & Brochures). Instructions are included with the form.

- The **Annual Pumpage/Usage Report**, due by March 31, is required of water supplies that do not submit monthly operation reports.

  This summary of water pumpage and water use must be submitted by each water supply that does not submit a monthly operation report. To manage our natural resources, pumpage data are compiled to determine water use demands in Michigan. Download the Annual Pumpage/Usage Report form from http://michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, Reporting Forms (under Manuals, Forms & Brochures). Please be sure to indicate the appropriate units on the report (e.g. million gallons or gallons).

- The **Consumer Confidence Report**, due by July 1 to your customers, to your local health department and to this office, describes the quality of the water and characterizes the risks, if any, from exposure to contaminants detected..

  Electronic delivery methods may be used to distribute the CCR to bill-paying customers, provided the method is direct. A paper copy must be delivered to bill-paying customers who request it or known to be unable to receive the CCR electronically. For more information on e-delivery, visit www.michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, Consumer Confidence Report Rule (under Laws and Rules).

2310

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

March 5, 2015

Mr. Brent Wright, Operations Supervisor
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, Michigan 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Violation Notice (VN) – Maximum Contaminant Level for Total Trihalomethanes (TTHM)
Operational Evaluation – Total Trihalomethanes
1st Quarter 2015 Monitoring Period

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the city of Flint (City) is in violation of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399); R 325.10610, *Maximum contaminant levels for disinfection byproducts (MCLs)*, of the 1979 Administrative Code.

In accordance with R 325.10610, *MCLs*, of the 1979 Administrative Code, the MCL for disinfection byproduct TTHM is 0.080 milligrams per liter (mg/L) as a Locational Running Annual Average (LRAA) at each monitoring location. As listed in the table below, our records show that the City's highest TTHM locational running annual average (LRAA), based on the last four quarters, ending February 28, 2015, is 0.105 mg/L which exceeds the standard, and that two of the eight sample site locations exceed the standard of 0.080 mg/L.

Further, in accordance with R 325.10719l, *Disinfection byproducts: operational evaluation levels*, of the 1979 Administrative Code, when an operational evaluation level (OEL) at a monitoring location for TTHM exceeds 0.080 mg/L, a supply shall conduct an operational evaluation and submit a written report of the evaluation to the DEQ not later than 90 days after being notified of the analytical result that causes the supply to exceed the operational evaluation level. As listed in the table below, our records show that the TTHM OELs for the City exceed 0.080 mg/L at one of the City's eight sample site locations.

TTHM Results (mg/L)						
	5/21/14	8/21/14	11/20/14	2/17/15	LRAA	OEL
DBP1 McDonalds 3719 Davison	**0.162**	**0.145**	0.059	0.0162	**0.096**	0.059
DBP2 Liquor Palace 3302 S. Dort Highway	**0.112**	**0.127**	0.033	0.0168	0.072	0.049
DBP3 North Flint Auto 6204 N. Saginaw St.	**0.097**	**0.118**	0.041	0.0149	0.068	0.047
DBP4 University Market 2501 Flushing Road	**0.106**	**0.196**	**0.094**	0.0245	**0.105**	**0.085**
DBP5 Taco Bell 3606 Corunna Road	0.079	**0.181**	0.034	0.0151	0.078	0.063
DBP6 Rite-Aid Pharmacy 5018 Clio Road	**0.088**	**0.144**	0.054	0.0192	0.076	0.059
DBP7 Salem Housing 3216 MLK Boulevard	**0.082**	**0.112**	0.050	0.0285	0.068	0.055
DBP8 BP Gas Station 822 S. Dort Highway	0.075	**0.112**	0.036	0.0199	0.061	0.047

Our investigation consisted of a review of ODWMA files for laboratory reports received for compliance monitoring. Our investigation is considered complete. This violation began on March 1, 2015, and will continue until TTHM LRAA is below the MCL at all sample sites.

We are encouraged by the results from the most recent round of compliance samples collected on February 17, 2015, which now show individual TTHM levels at less than half of the 0.080 mg/L standard at all locations throughout the City's system. Operational Evaluation Reports from December 2014, and February 2015, have identified possible causes and corrective measures for the previous elevated TTHM levels which we encourage the City to continue implementing. These modifications have likely contributed in part to the reduction in TTHM levels reported in the most recent quarter, and suggest the City may be able to achieve compliance with the TTHM standard at all sites by continuing these efforts.

Our office is currently reviewing the Operational Evaluation Report dated February 27, 2015, and will provide the City and their consultant with comments, as needed, to help address this MCL violation.

Water systems that exceed the OEL must complete and submit an Operational Evaluation in accordance with Administrative Rule 719l (R 325.10719l) within 90 days of being notified of the violation. **An updated Operational Evaluation report, which incorporates the most recent sample results, must now be completed and received by our office by no later than Friday, May 29, 2015.**

If you have any other factual information you would like us to consider regarding the violation identified in this VN, please provide them in a written response by March 19, 2015.

Administrative rule R 325.10403 of Act 399 requires that suppliers provide public notice (PN) as soon as practical, but no later than thirty (30) days after the supplier learns of this type of violation, by mail or direct delivery **and** by any other means reasonably calculated to reach customers not normally reached by mail. Enclosed is a sample PN which contains the minimum required language. The City is encouraged to include additional information regarding its response efforts to this violation. **Please notify your consumers by April 1, 2015, and send us a signed and dated copy of the notice that you issued within ten (10) days of distributing the public notice.** This violation must also be included in your 2015 Consumer Confidence Report, due by July 1, 2016. The PN must be repeated every quarter until you no longer exceed the TTHM standard. Failure to issue a PN for this violation will result in a fine of at least $1,000 per event, with a maximum of $5,000 per violation.

We anticipate and appreciate your continued cooperation in resolving this matter. If you have any questions regarding this VN, please contact us at the numbers below; at prysbym@michigan.gov; or rosenthala@michigan.gov; or at DEQ, P.O. Box 30242, Lansing, Michigan 48909-7742.

Sincerely,

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

Adam Rosenthal, Environmental Quality Analyst
Lansing District Office
Office of Drinking Water and Municipal Assistance
517-284-6644

Enclosure

cc: Ms. Jennifer Crooks, U.S. Environmental Protection Agency, Region 5
Mr. Jerry Ambrose, Emergency Manager, City of Flint
Mr. Robert Bincsik, City of Flint
Mr. Howard Croft, City of Flint
Mr. Daughtry Johnson, City of Flint
Genesee County Health Department
Ms. Liane Shekter Smith, DEQ
Mr. Richard Benzie, DEQ
Mr. Stephen Busch, DEQ

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

City of Flint Did Not Meet Treatment Requirements

Our water system recently violated a drinking water standard. Although this incident was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Samples were collected for total trihalomethanes (TTHM) analysis from eight locations on a quarterly basis (May 21, August 21, November 20 of 2014, and February 17, 2015). The average of the results at ANY of the eight locations must not exceed the maximum contaminant level (MCL) for TTHMs, otherwise our water system exceeds the MCL. The standard for TTHMs is 80 micro grams per liter (µg/L). The location reporting the highest TTHM level was 105 ug/L; thus, our water system exceeds the TTHM MCL.

What should I do?

- There is nothing you need to do unless you have a severely compromised immune system, have an infant, or are elderly. These people may be at increased risk and should seek advice about drinking water from their health care providers.
- You do not need to boil your water or take other corrective actions. If a situation arises where the water is no longer safe to drink, you will be notified within 24 hours.

What does this mean?

This is not an emergency. If it had been an emergency, you would have been notified within 24 hours.

People who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

What is being done?

We are currently working on solutions to correct the problem. We anticipate resolving the problem in 2015. Our most recent individual sample results were all less than half the 80 µg/L standard, however since compliance is calculated using a locational running annual average (LRAA) of the most recent four quarters, we are still out of compliance with the MCL at two of eight locations.

For more information, please contact Mr. Brent Wright at 517-787-6537, or the Flint Water Plant at 4500 North Dort Highway, Flint, Michigan 48505.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by the City of Flint.

CERTIFICATION: WSSN: 02310

I certify that this water supply has fully complied with the public notification requirements in the Michigan Safe Drinking Water Act, 1976 PA 399, as amended, and the administrative rules.

Signature	Title	Date Distributed

Reminder to water supplier: This notice/certification must be sent to the Department of Environmental Quality.

2310

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

March 30, 2015

Mr. Brent Wright
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, Michigan 48505

Dear Mr. Wright:

Subject: City Of Flint WSSN: 02310
Lead and Copper Monitoring of Drinking Water Taps

We received your report for the monitoring period July 1, 2014, through December 31, 2014.

Action Levels	Results this monitoring period		Next monitoring period	
	90th Percentile	# of Samples Above Action Level	# of Samples Required	Take Samples Within These Dates
Lead 15 parts per billion (ppb)	6.0 ppb	2	100	1/1 and 6/30/2015 Submit results to this office by July 10, 2015
Copper 1.3 parts per million (ppm)	0.11 ppm	0		

Ninety percent of the sites you tested are within action levels under the administrative rules promulgated under the Michigan Safe Drinking Water Act, 1976 PA 399, as amended. These results must be reported on your 2014 Consumer Confidence Report (CCR) due to our office, your customers, and the local health department, by July 1, 2015. Also include the following statement in the CCR, regardless of the lead and copper levels:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Flint is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or at http://water.epa.gov/drink/info/lead.

Recent changes to the Lead and Copper Rule require you to provide individual lead tap results to people who receive water from sites that were sampled, even if lead was not detected, within 30 days of learning of results. You must also send us a certification that you met all the delivery requirements along with a sample copy of your customer notice by 3 months after the end of the monitoring period. To download the *Lead and Copper Report and Consumer Notice of Lead Result Certificate* in Microsoft Word or PDF format, visit http://michigan.gov/deq. Click on Water, Drinking Water, Community Water Supply, and Reporting Forms. Water supplies that fail to distribute the Consumer Notice of Lead Results must include the following statement in their CCR, "During the year, we failed to provide lead results to persons served at the sites that were tested as required by the Lead and Copper Rule."

Samples due the next monitoring period mark your second six month round of monitoring. Please make every attempt to select the same sites used in the previous monitoring period, giving Tier 1 sites first priority. If original sites are unavailable, select replacement sites based on the Tier 1, 2, and 3 criteria. We strongly encourage you to sample early in the monitoring period.

Bottles will NOT be mailed automatically. To order bottles, call the Department of Environmental Quality laboratory at 517-335-8184, or download the form EQP 2301 *Requisition for Water Sample Units* from www.michigan.gov/deq. Click on Key Topics, Laboratory Services, Drinking Water, Obtaining the Necessary Sampling Units, and test list.

Sincerely,

Adam Rosenthal, EQA
Office of Drinking Water and Municipal Assistance
Lansing District
517-284-6644
rosenthala@michigan.gov

ar/jlr
Enclosures

cc: Mr. Michael Glasgow, City of Flint

2310

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

April 3, 2015

Mr. Brent Wright
City of Flint Water Plant
4500 North Dort Highway
Flint, Michigan 48505

Dear: Mr. Wright

SUBJECT: Long Term 2 Enhanced Surface Water Treatment Rule (LT2 Rule)
2nd Round of Source Water Monitoring Requirements

The LT2 Rule was promulgated by the United States Environmental Protection Agency on January 5, 2006. The Department of Environmental Quality (DEQ) adopted this rule into the Administrative Rules in December, 2009. All public water systems that are supplied by a surface water source, and systems supplied by a ground water source under the direct influence of surface water (GWUDI), are subject to this rule.

According to the LT2 Rule, systems are required to conduct an initial and a second round of source water monitoring for each plant that treats a surface water or GWUDI source. Please keep in mind that grandfathering data will not be accepted for the second round of monitoring. This monitoring includes at least one source water *Cryptosporidium*, *E. coli*, and turbidity sample per month for a period of 24 months for systems serving populations greater than 10,000 people. Systems will be assigned to a "treatment bin" based on the results of source water monitoring. The treatment bin specifies the level of *Cryptosporidium* removal and/or inactivation that the system must achieve.

Our records indicate that your system is required to comply with the source water monitoring requirements on Schedule 2 as stated below in Table 1. Therefore, your system is required to submit to the DEQ, a source water monitoring plan for each plant by July 1, 2015, and start the 2nd round of monitoring in October, 2015.

Table 1 – LT2 Milestone Dates for 2nd Round of Source Water Sampling

System Population	Schedule	Must submit Source Water Sampling Plan by...	Must begin second round of source water monitoring...
At least 100,000	1	January 1, 2015	April 1, 2015
50,000 – 99,999	2	July 1, 2015	October 1, 2015
10,000 – 49,999	3	July 1, 2016	October 1, 2016
<10,000	4	July 1, 2017	October 1, 2017

Enclosed with this letter is a Source Water Sampling Plan template that you can complete and submit to this office to comply with the July 1, 2015, deadline. The template includes instructions and a worksheet that will assist the DEQ in determining if your plan meets the requirements of the LT2 Rule.

If you have any questions about this subject, feel free to contact me at 517-290-8817; prysbym@michigan.gov; or Department of Environmental Quality, Office of Drinking Water and Municipal Assistance, Lansing District Office, 525 West Allegan Street, 1st Floor South, P.O. Box 30242, Lansing, Michigan 48909-7742.

Sincerely,

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

Enclosures

cc: Mr. Howard Kroft, City of Flint

2310

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

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
Water Service Center
3310 E. Court Street
Flint, MI 48506
WSSN: 2310

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

Contact: Rob Bincsik
Title: Supervisor of Water Distribution & Sewer
Phone: (810)766-7202

Permit Stamp Area (DEQ use only)

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMIT NO. W 151018 APR 3 2015

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

MFP

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

4-Inch Water Main Replacement (contract/phase 1)

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

5. County (location of project):
Genesee

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

cc:

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.

8400 Feet of 24-inch water main from Pasadena Avenue and Iroquois Avenue, South, 20 blocks, along Iroquois Avenue from Pasadena Ave. to Stockdale St.
East, Jog of Approx. 100 feet, along Stockdale Street from Iroquois Ave. to Euclid Ave.
South, 1 block, along Euclid Avenue from Stockdale St. to Welch Blvd.
West, 1 block, along Welch Boulevard from Euclid Ave. to Seminole St.
South Southwest, 3 blocks, along Seminole Street from Welch Blvd. to DuPont St.
South, 10 blocks, along Dupont Street from Seminole St. to Mackin Road.
Water main is stubbed south of Mackin Road for future additions.

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:

Jeffrey B. Markstrom, P.E.
ROWE Professional Services Company
P.O. Box 3748
Flint, MI 48502
(810)341-7500 jmarkstrom@rowepsc.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) City of Flint

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, Daugherty Johnson (print) (name), acting as the Utilities Administrator (print) (title/position) for City of Flint (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* 3/20/15 Date 810 766-7135 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: _____

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 _____

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

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) _____
2. Initial design maximum day flow (mgd) _____
3. Total design average day flow (mgd) _____
4. Total design maximum day flow (mgd) _____
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.

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

DAN WYANT
DIRECTOR

TO: Water Supply Superintendent or Operator-in-Charge

FROM: Adam Rosenthal, Office of Drinking Water and Municipal Assistance, Lansing District Office

DATE: May 6, 2015

SUBJECT: New Lansing District e-mail address for all submittals
2014 Consumer Confidence Report Reminder
Updated Lansing District Responsibilities

New Lansing District e-mail address for all submittals:
The Lansing District Office has created a new e-mail account to be used for all future submittals: **DEQ-DWMA-Lansing@michigan.gov**

Please forward future electronic submittals to the above e-mail address. This includes monthly operating reports, laboratory reports, reporting forms and siting plans. No further submittals will be accepted into an individual's e-mail inbox after May 31, 2015. Please make sure to inform any laboratory or consultant who has agreed to submit documents on your behalf of this change. Mailed hard copies and faxed documents will still be accepted.

2014 Consumer Confidence Report Reminder:
Your annual Consumer Confidence Report (CCR) is due to be delivered by July 1st.

You may use any combination of mail, door-to-door, or electronic methods to deliver to bill paying customers. This means you may mail and/or e-mail a message that the CCR is available on the internet or attached to the e-mail. If using the internet, the CCR must be on the internet when customers receive the message and the internet address displayed in the message must lead directly to the entire CCR. The message should tell customers how to request a paper copy. If you normally publish a non-English language CCR, then the notification of CCR availability should also be in that language.

Refer to last year's report and your most recent sample results when preparing this year's report. For more information on preparing your CCR, visit http://michigan.gov/deq. Click on Water, Drinking Water, Community Water Supply, and Consumer Confidence Report Rule.

In addition to delivering your CCR to your consumers by July 1st, you are required to send a copy to the Department of Environmental Quality and to your local health department. Also send us documentation certifying how you delivered the CCR. Certification of delivery is due to us by October 1st, but we encourage you to send it to us when you deliver the CCR by July 1st. You can download the *CCR Certificate of Distribution Form* from the web page noted above. **If you e-delivered the CCR, send**

us a sample copy of the notification of CCR availability. For example, you may have put the notification on a water bill.

Did anybody monitor UCMR in 2014? Did the United States Environmental Protection Agency (U.S. EPA) direct you to monitor for unregulated contaminants during 2014? Report the average and range of each contaminant detected. Also, provide an explanation of this required monitoring, such as, "Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. Monitoring helps the U.S. EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. We monitored for these contaminants and results of monitoring are available on request."

Please contact us with your questions. We would like to be available to answer all your questions as you draft your CCR, but we have found that our office is inundated with questions as the deadline nears. You might be best served if you contact us before the end of May.

Failure to deliver the CCR by July 1st is a reporting violation and will result in an administrative fine. Contact our office for more information.

Updated Lansing District Responsibilities:
Please make note of the following updates to the Lansing staff and their responsible areas:

Michael Prysby, P.E., is responsible for District 11, which includes Genesee County. Mike can be reached on his cell phone at 517-290-8817.

Bethel Skinker, P.E., is responsible for District 12, which includes the counties of Eaton, Ingham, and Clinton (minus manufactured housing). Bethel can be reached on her cell phone at 517-290-0686.

Mark Joseph, P.E., is responsible for District 13, which includes Livingston County and the City of Ann Arbor in Washtenaw County. Mark can be reached on his cell phone at 517-290-0170.

Kurt Swendsen, Engineer, is responsible for District 14, which includes the counties of Gratiot, Lapeer, Shiawassee, and all manufactured housing community supplies in Clinton County. Kurt can be reached at 517-525-1487.

All Livingston County water supplies are again regulated through the Lansing District Office.

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

DAN WYANT
DIRECTOR

May 11, 2015

Mr. Howard Kroft, Director of Public Works
City of Flint
1101 South Saginaw Street
Flint, Michigan 48502

WSSN: 02310

Dear Mr. Kroft:

SUBJECT: Flint Cross Connection Control Program

This letter confirms my site visit on April 29, 2015, with Mr. Glen Thomas, Utilities/Cross Connection Division Inspector for the city of Flint. Mr. Stephen Busch from our office was also present. The purpose of the visit, in part, was to discuss the city's Cross Connection Control Program (CCCP).

The city of Flint has made significant progress in recent years regarding the implementation of the city's approved CCCP. This effort has included identification of accounts, inspection and re-inspection of accounts at the approved frequencies, and ensuring the testing of backflow prevention assemblies in accordance with approved frequencies. However, the city's most recent report of annual CCCP activities for 2014 indicates a significant decrease in these activities below minimum requirements, and this deficiency must be address.

Our office fully recognizes the recent staffing loss of the city's previous plumbing inspector and the importance of these plumbing inspection services in providing public health protection, but these activities should not be borne at the cost of the city's CCCP and the protections it provides. Given the bacterial detections that occurred in the city's water distribution system in August and September 2014, along with customer complaints regarding aesthetic water quality, the need for protection through cross connection control are very evident.

We also realize that implementing a CCCP of for a community water system of this magnitude requires a significant commitment of time and personnel. We encourage the city to review CCCP staffing needs and authorize the workforce necessary to comply with the city's approved CCCP requirements.

Should you require further information, please contact me at the telephone number below; via e-mail at prysbym@michigan.gov; or Department of Environmental Quality, P.O. Box 30242, Lansing, Michigan 48909.

Sincerely,

Michael F. Prysby

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

mfp/jlr

cc: Mr. Glen Thomas, City of Flint
Mr. Stephen Busch, P.E.

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Sunday, September 13, 2015 10:35 AM
To: Thelen, Mary Beth (DEQ)
Subject: FW: Communications between City of Flint and DEQ

From: Pallone, Maggie (DEQ)
Sent: Tuesday, May 26, 2015 1:21 PM
To: Shekter Smith, Liane (DEQ)
Cc: Wurfel, Brad (DEQ); Wyant, Dan (DEQ); Howes, Sarah (DEQ); Thelen, Mary Beth (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ); DEQ-Legislative-Contact; Potter, Jodi (DEQ)
Subject: Communications between City of Flint and DEQ

Liane,
Rep Neely has requested any communications that DEQ has had with City of Flint between February 2015 and today. Could you please pull that information together and get it to Sarah by COB on Thursday? She will then forward it the Representative's office.

Please let me know if you need any additional details.

Thanks,
Maggie

Maggie Pallone
Director of Legislative Affairs
Department of Environmental Quality
517-599-6190 (cell)
PalloneM@michigan.gov

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Thursday, May 14, 2015 9:50 AM
To: Michael Glasgow
Subject: RE: distribution WQPs

thank you sir.

Adam

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Thursday, May 14, 2015 8:53 AM
To: Rosenthal, Adam (DEQ)
Subject: Re: distribution WQPs

Adam,

Here is the 1st quarter WQP for 2015.

Mike

On Wed, May 13, 2015 at 3:07 PM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

got it. Now I need the 1st qtr 2015.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Wednesday, May 13, 2015 11:54 AM
To: Rosenthal, Adam (DEQ)
Subject: Re: distribution WQPs

Adam,

Here are the 2014 WQM parameters during full time plant operation.

Mike

On Tue, May 12, 2015 at 4:32 PM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Good afternoon Mike, we did not receive a 2nd half 2014 water quality parameters in the distribution system for the City of Flint. Please email me a copy when you get this.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Wednesday, May 13, 2015 3:08 PM
To: Michael Glasgow
Subject: RE: distribution WQPs

got it. Now I need the 1st qtr 2015.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Wednesday, May 13, 2015 11:54 AM
To: Rosenthal, Adam (DEQ)
Subject: Re: distribution WQPs

Adam,

Here are the 2014 WQM parameters during full time plant operation.

Mike

On Tue, May 12, 2015 at 4:32 PM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Good afternoon Mike, we did not receive a 2nd half 2014 water quality parameters in the distribution system for the City of Flint. Please email me a copy when you get this.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

Olszewski, Rosemarie (DEQ)

From:	Rosenthal, Adam (DEQ)
Sent:	Tuesday, May 12, 2015 4:33 PM
To:	Mike Glasgow
Subject:	distribution WQPs

Good afternoon Mike, we did not receive a 2nd half 2014 water quality parameters in the distribution system for the City of Flint. Please email me a copy when you get this.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, May 08, 2015 9:47 AM
To: Howard Croft
Subject: RE: May_Technical Advisory Meeting

Howard,

The May 20th Distribution Practices Seminar that I am registered for has been postponed; thus, I will be available to participate in the TAC meeting on Wed. May 20th in Flint. See you on the 20th.

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

From: Howard Croft [mailto:hcroft@cityofflint.com]
Sent: Monday, May 04, 2015 2:06 PM
To: Brent Wright; Daugherty Johnson; donna. cole; Elizabeth Murphy; gdn2@aol.com; Gerald Ambrose; Howard Croft; James Henry; Jason Lorenz; jmikewright; JoAnne Herman; John O'Brien; Kirk Smith; larry.koehler@mcc.edu; Laura Sullivan; Michael Glasgow; Michael Wright; Mike Lane; Prysby, Mike (DEQ); Norb Birchmeier; Pete Levine; Robert Bincsik; rosejo@msu.edu; Russell Hudson; Samir Matta; Warren Green; Michael Sargent
Cc: Natasha Henderson
Subject: May_Technical Advisory Meeting

Technical Advisory team,

We are planning to hold our next advisory meeting on Wednesday May 20th 2:00 pm at City Hall. The focus points of the meeting will be to convey the advancements in the current water quality, the summer implementation plans and timelines, and the latest information on test results.

We continue to offer testing and to look for any residential concerns about the water. I encourage all of the hospital and college representatives to bring forward any recent issues that may have arisen and we will look to discuss those as well as any other situations that we are aware of. I will send out an agenda early next week and we will plan on having a conference line available to call in.

Please send any questions or comments to me if there are items that you would like to see addressed.

Thank you,

--
Howard Croft
Public Works Director
City of Flint
1101 S. Saginaw Street
Flint, MI 48502
PH# 810.766.7135 Ext.2043

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, May 01, 2015 10:01 AM
To: 'rbincsik@cityofflint.com'
Subject: Watermain breaks

Robert,

Based upon the discussion during our April 29th site visit, you have forwarded available information concerning the occurrence (location & date) of watermain breaks in the city of Flint during 2014. Please provide us with a copy of this information at your earliest convenience. Thanks.

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

Olszewski, Rosemarie (DEQ)

From:	Prysby, Mike (DEQ)
Sent:	Friday, May 01, 2015 9:56 AM
To:	gthomas@cityofflint.com
Cc:	Busch, Stephen (DEQ)
Subject:	Premise plumning
Attachments:	Premise Plumbing.doc

Glen,

Based upon our discussion during our April 29th, 2015 site visit, approximately 40-45 commercial/industrial customers were identified as a potential candidate for needing a premise plumbing Water Safety Plan (WSP). Attached is a list of mechanical components within building premise plumbing to assist you in confirming this and/or identifying additional customers that could serve as WSP candidates. Please send us your completed list at your earliest convenience. Thanks.

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

Building Plumbing & Appurtenances to Consider

1. Cooling Towers *
2. Evaporative Condensers *

*evap fluid coolers/closed circuit cooling towers typically used for cooling industrial processes, refrigeration plants in cold stores, and cooling of make-up water for large building AC units

3. Gravity fed storage tanks
4. Boiler systems
5. Plate heat exchangers
6. Circulating/non-circulating hot water systems
7. Buildings with extensive plumbing (large runs of hot water piping and/or dead-end piping).

Olszewski, Rosemarie (DEQ)

From: Busch, Stephen (DEQ)
Sent: Friday, May 01, 2015 12:17 PM
To: Prysby, Mike (DEQ); gthomas@cityofflint.com
Subject: RE: Premise plumning
Attachments: Final Genesee supplemental questionnaire 2-23-15.docx

Glen,

The attached questionnaire that would be utilized by the Local Health Department and Department of Health and Human Services provides additional detail of what to be on the lookout for (See Questions 12 and 13). As we indicated almost every service connection could potentially have some element associated with what is listed in this questionnaire, but we are just looking for a rough list of those with more non-typical appurtenances such as spas, grocery stores with spray/mist system, garden/nurseries with mist irrigation, etc., and those that Mike provided. Thanks.

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

From: Prysby, Mike (DEQ)
Sent: Friday, May 01, 2015 9:56 AM
To: gthomas@cityofflint.com
Cc: Busch, Stephen (DEQ)
Subject: Premise plumning

Glen,

Based upon our discussion during our April 29th, 2015 site visit, approximately 40-45 commercial/industrial customers were identified as a potential candidate for needing a premise plumbing Water Safety Plan (WSP). Attached is a list of mechanical components within building premise plumbing to assist you in confirming this and/or identifying additional customers that could serve as WSP candidates. Please send us your completed list at your earliest convenience. Thanks.

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

MDSS ID _____

Legionellosis Questionnaire
Genesee County, 2014-2015

Interviewer Identification

Date of Interview: _____ Interviewer's Name: _____
Health Dept.: _____ Phone Number: _____ E-mail: _____

What was the patient's outcome? ☐ *RECOVERED* ☐ *STILL ILL* ☐ *DIED* ☐ *UNK*

Patient Contact Information

Name: _____ Age: _____ Sex: ☐ M ☐ F
Street address: _____ City: _____
State: _____ Zip: _____ County: _____
Daytime Phone: _____ Evening Phone: _____

Surrogate Contact Information <*List surrogate contact information if patient is too unwell or has died*>

Name: _____
Daytime Phone: _____ Evening Phone: _____
Relationship to Patient: _____

Hello, my name is _____ and I'm calling from _____ (health department). We are investigating a cluster of respiratory illnesses in Genesee County. At this point, the source of these illnesses is still under investigation. We are hoping this interview will provide further information and answers about the illnesses. I'd like to ask you a few questions about your home and your exposures during the 2 weeks before you got sick. You do not have to answer any of the questions, but any assistance you can provide is appreciated. Do you have about 30 minutes to talk? If not now, when would be a good time for me to call back? _____

<If the case is from more than 1 month prior, the following text may be used: >
It might be helpful for you to collect documents such as a calendar, receipts, credit card or bank statements to jog your memory about your activities and where you were in the 2 weeks prior to getting sick. The only information we would ask you to share from these are dates and locations. Would you like me to call you back after you have time to collect these materials? When would be a convenient day and time for me to call you back? _____

I have that your first symptom started on *<insert onset date>* _____. Is this correct?
☐ Yes ☐ No ☐ Not sure

If no, what was the first date you started feeling sick? ___/___/_____

List dates of exposure period: from ___/___/___ *to* ___/___/___ *<The exposure period includes the 2 weeks before the date of illness onset>*

MDSS ID _____

Illness Information

1.) During your illness, did you have any of the following symptoms?

	Check one:		
	YES	NO	UNK
Diagnosis of pneumonia			
Fever If yes, highest temp: ____			
Chills			
Cough			
Nausea			
Vomiting			
Diarrhea			
Aches or muscle pains			
Chest pain			
Shortness of breath			
Sore throat			
Headaches			
Other symptoms (*specify*):			

Exposure Information

2.) How long have you lived at your current residence? _____

<If they have moved since the listed exposure period, indicate that you are asking about the house they lived in prior to becoming sick>

a.) If you moved after the exposure period/illness, what was your previous residence address? _____

3.) Where did you get your tap (drinking and other household use) water from between ___/___/___ and ___/___/___ ? *<Exposure period from above>*

- ☐ 1. City of Flint Water
- ☐ 2. City of Flint Township Water
- ☐ 3. Other municipal water system
- ☐ 4. Private well
- ☐ 5. Unknown
- ☐ 6. Other _____

4.) During the last year, has the water pressure at your residence changed? ☐ Yes ☐ No ☐ Not Sure

a.) If yes, did the water pressure: ☐ Increase ☐ Decrease

b). If yes, when did the water pressure change occur? _____

MDSS ID _____

5.) During the last year, has the water quality (appearance, taste, smell) at your residence changed?
☐Yes ☐No ☐Not Sure
a.) If yes, please describe the change in the water quality:_____
_____
b). If yes, when did the water quality change occur? _____

6.) Prior to your illness, did you make any recent plumbing changes or repairs at your residence?
☐Yes ☐No ☐Not sure
a.) If yes, please describe the changes/repairs and give the dates the work was done.
_____
_____

7.) Prior to your illness, were there any water main breaks or other water line issues that affected the water at your residence, including boil water advisories? ☐Yes ☐No ☐Not sure
a.) If yes, please describe the water main/line issues or boil water advisories and give the dates they occurred.
_____
_____

I'd like to ask you some questions about what you did during the 2 weeks **before** you got sick.
The time period I'm asking about is between __/__/__ and __/__/__.*<Exposure period>*
During this 2 week period, did you:

8.) Work or volunteer, either full or part time? ☐Yes ☐No ☐Not sure
a.) If yes, complete the following table:

Job description	Company	Location	Any exposure to misty water?

9.) Spend any time in a hospital, doctor's office, clinic, or dentist office as a patient, visitor, employee, or volunteer? ☐Yes ☐No ☐Not sure
a.) If yes, check all that apply:

Exposure	Date(s)	Reason for Visit	Name & City of Hospital/ Office/ Clinic	Name of Doctor
Inpatient ☐	Admission_____ Discharge_____			
Outpatient ☐				
Visitor ☐				
Employee ☐				
Volunteer ☐				

MDSS ID _____

10.) Visit, reside, or work in a long term care facility, nursing home, assisted living facility, or senior living facility? ☐Yes ☐No ☐Not sure

a.) If yes, complete the following table:

Exposure	Date(s)	Name & City of Facility
Resident ☐		
Visitor ☐		
Employee ☐		

11.) In the 2 weeks before you before you got sick (___/___/___ to ___/___/___), did you spend any nights away from home (excluding healthcare settings)? ☐Yes ☐No ☐Not sure

a.) If yes, complete the following table: *<prompts: hotel, campground, cabin, cruise, second home, with family, etc.>*

Accommodation Type/Name	Address Street, City, State	Floor/Room No.	Dates of Stay	
			Arrival	Departure

12.) In the 2 weeks before you before you got sick (___/___/___ to ___/___/___), did you visit any of the following community venues?

	Check one:					
Venue	YES	NO	UNK	Date(s)	Name of Venue	Address
Hotel (*without* staying overnight – e.g. dinner, wedding)						
Auditorium						
Barbershop or Hair salon						
Car wash						
Casino						
Church or Place of worship						
Gym or Work out facility						
Grocery store						
Home improvement store						
Spa or Nail salon						
Mall or Department store						
Movie theater						
Other (*specify*)						

MDSS ID _____

13.) In the 2 weeks before you before you got sick (__/__/__ to __/__/__), did you have exposure to any of the following water sources, either ***at home*** or while ***away from home***?

	Check one:				
Exposures *at home*	YES	NO	UNK	Dates(s)	Description: Name (or Type)/Location
Shower					
Use a detachable shower head or hose					
Hot tub, whirlpool spa, Jacuzzi tub					
Sat NEAR a working hot tub or whirlpool spa but did not get in					
Steam room or wet sauna					
Humidifier (whole house or portable)					If yes, specify type: If yes, what type of water is used in device? □Bottled □Tap □Other:_____
Respiratory therapy machine (e.g. nebulizer, CPAP, BiPAP, etc.)					If yes, specify type: If yes, what type of water is used in device? □Bottled □Tap □Other:_____
Other (*specify*)					

Exposures *away from home*	YES	NO	UNK	Dates(s)	Description: Name (or Type)/Location
Shower at gym, work, other location					
Use a detachable shower head or hose					
Hot tub, whirlpool spa, Jacuzzi tub					
Sat NEAR a working hot tub or whirlpool spa but did not get in					
Humidifier (whole house or portable)					If yes, specify type: If yes, what type of water is used in device? □Bottled □Tap □Other:_____
Pool/splash pad/waterpark					
Recreational or cooling misters					
Steam room or wet sauna					
Decorative fountain					
Outdoor watering hose or sprinkler					
Beach, lake, pond, river, creek, etc.					
Other (*specify*)					

MDSS ID _____

Medical History

Now I'm going to ask a few questions about your medical history and health behaviors.

14.) Have you ever been told by a healthcare provider that you had any of the following conditions:

	Check one:			
Condition	YES	NO	UNK	Comments
Chronic kidney disease				
Weakened immune system (due to cancer, chemotherapy, radiation therapy, immunosuppressive meds, HIV, organ transplant, etc.)				
Diabetes				
Chronic lung disease (COPD, emphysema)				
Asthma or chronic bronchitis				
Heart disease or congestive heart failure				
Liver disease				
Other conditions (*specify*)				

15.) Health behaviors:

	Check one:			
	YES	NO	Quantity per day (packs or drinks)	Duration (years)
Are you currently a smoker?				
Are you a former smoker?				
Do you drink alcohol?				

16.) Do you know anyone else with similar symptoms? ☐ Yes ☐ No ☐ Not sure

a.) If yes, complete the following table:

Name	Phone	State of Residence	Details of Shared Exposure

Additional Comments _____

_____

_____

_____

_____

Thank you so much for taking the time to answer these questions. Do you have any questions that I can help answer? If you have any questions or remember any further details later, please contact the _____ (health department) at phone: _____.

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, April 13, 2015 4:30 PM
To: Michael Glasgow
Subject: RE: City of Flint March 2015 MOR

Thanks Michael....

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Monday, April 13, 2015 4:21 PM
To: Prysby, Mike (DEQ)
Subject: City of Flint March 2015 MOR

Mike,

Here is the completed MOR for March.

Mike Glasgow
City of Flint Water Plant

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, April 06, 2015 9:00 AM
To: Michael Glasgow
Cc: Rosenthal, Adam (DEQ)
Subject: RE: City of Flint - March Bromate Results

Michael,

The March result is encouraging....we need a copy of the sample result from the sample collected in October of 2014...

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Monday, April 06, 2015 7:24 AM
To: Rosenthal, Adam (DEQ)
Cc: Prysby, Mike (DEQ)
Subject: City of Flint - March Bromate Results

Adam,

Here are the results of our March bromate sampling.

Mike Glasgow
City of Flint Water Plant

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, April 03, 2015 11:55 AM
To: Michael Glasgow; 'bwright@cityofflint.com'
Subject: Flint MORs

Mike, Brent

I was looking at Flint's MORs and I just noticed that ozone treatment parameters (ozone dosage and residuals) are not included. Ozone treatment parameters need to be included in the MOR. Please include this in future MORs. Also, if you can resurrect the ozone treatment parameters from previous months of operation (since going to the Flint River).....we would like that information to include in the previous MORs. Thanks.

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

Olszewski, Rosemarie (DEQ)

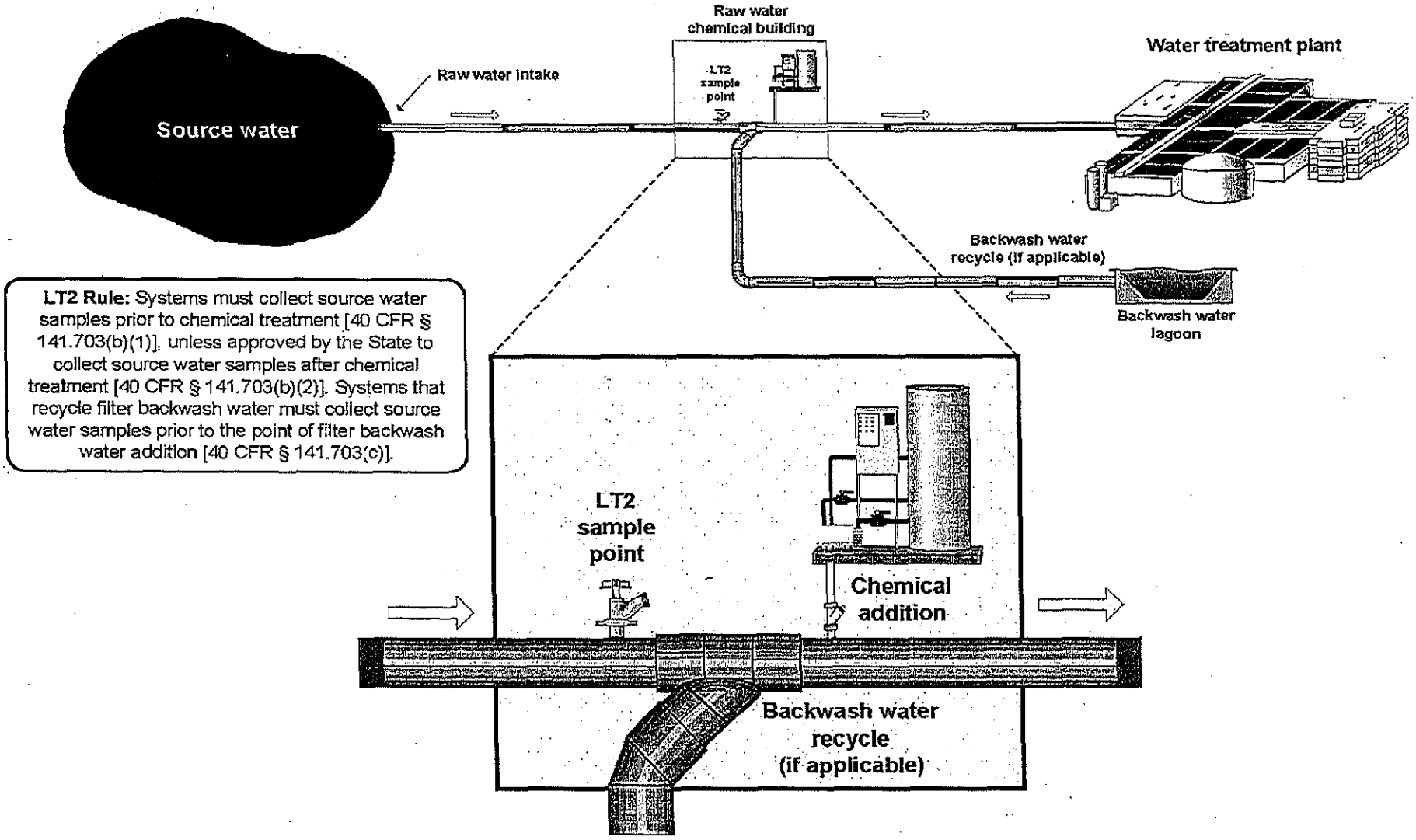
From:	Prysby, Mike (DEQ)
Sent:	Friday, April 03, 2015 2:47 PM
To:	'bwright@cityofflint.com'; Michael Glasgow
Subject:	FW: Schematics for LT2 sampling plans
Attachments:	Schematics_combined.pdf; SCHEMATIC_01.pdf; SCHEMATIC_02.pdf; SCHEMATIC_03.pdf; SCHEMATIC_04.pdf; SCHEMATIC_05.pdf; SCHEMATIC_06.pdf; SCHEMATIC_07.pdf; SCHEMATIC_08.pdf; SCHEMATIC_09.pdf; SCHEMATIC_10.pdf

Brent, Mike

Attached are the example schematics that the plants on Schedule 2 may use to indicate where the source water sampling location is in relation to the intake, chemical feed points, recycle streams (if any) and the plant. You can select the schematic that best fits your situation and mark the sampling location and other pertinent information on it. If you can't find a schematic that doesn't fit Flint's exact setup, you can use the generic/blank one (schematic 10). Your Schedule 2 Crypto. monitoring letter is being mailed to you today.

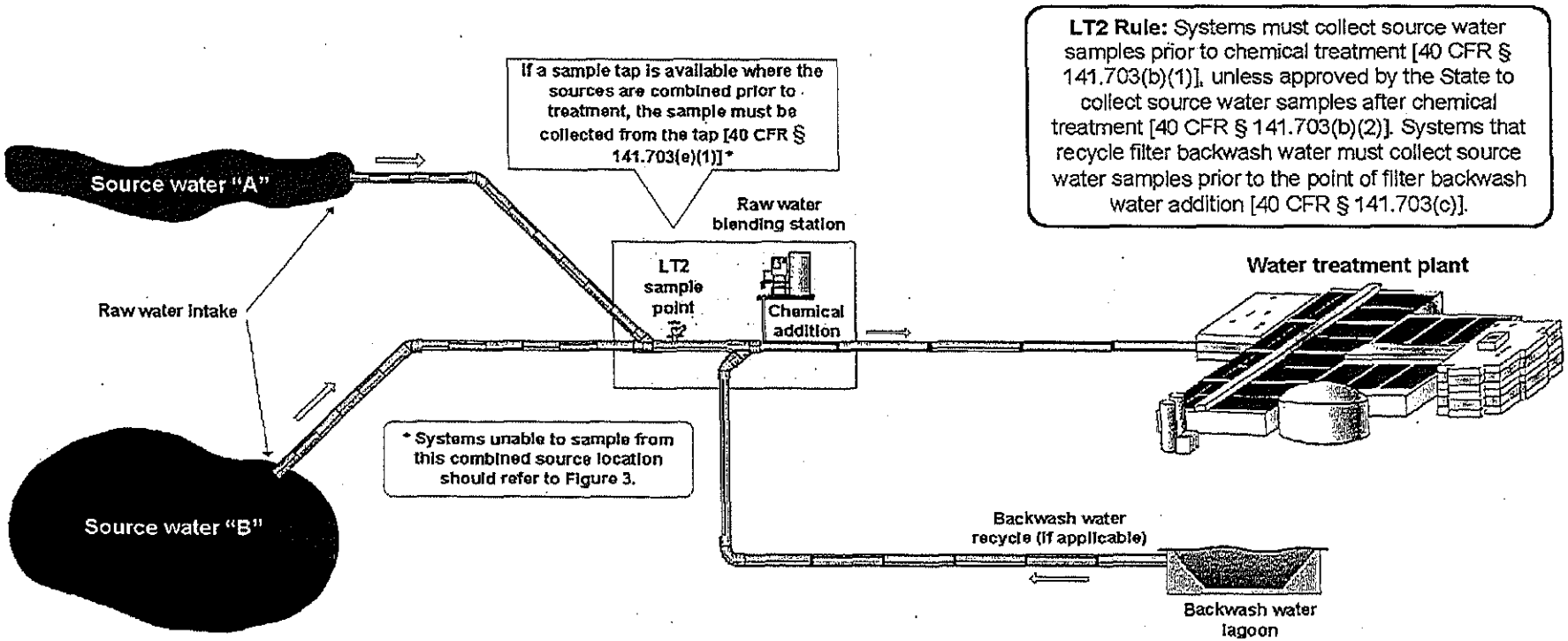
Michael Prysby, P.E.
District Engineer
Office of Drinking Water and Municipal Assistance
517 290-8817

Figure 1. Sample Tap before Chemical Treatment and Backwash Water Recycle (if applicable)



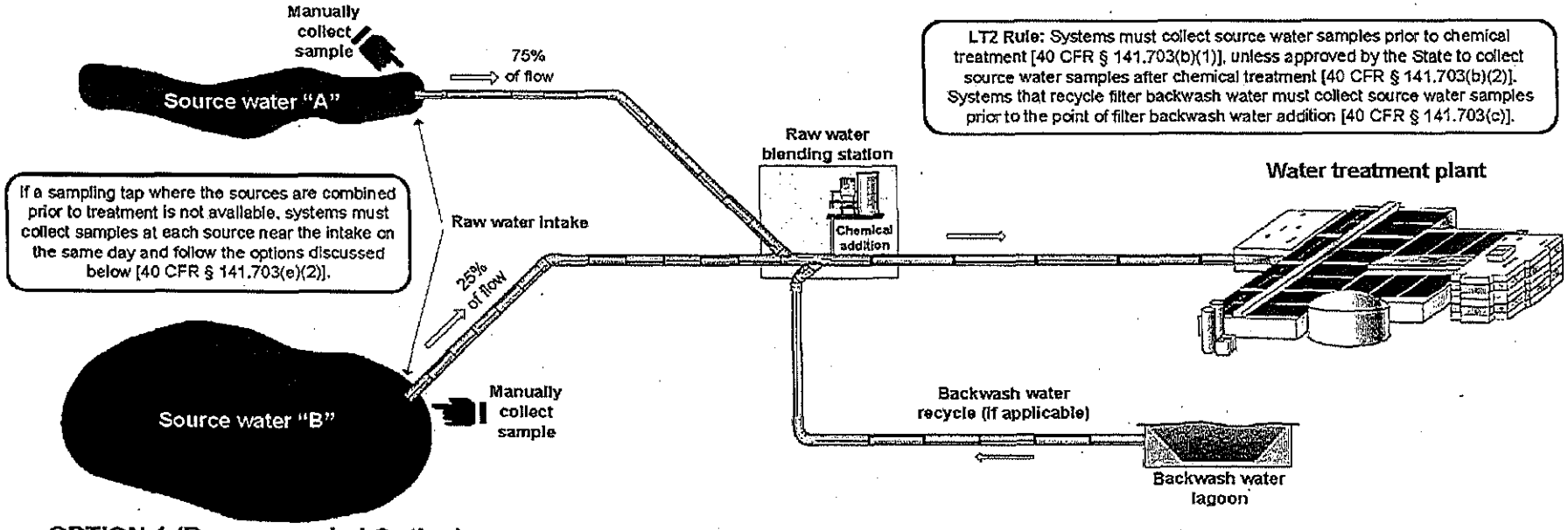
LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].

Figure 2. Multiple Sources: Sample Tap after Two Combined Sources



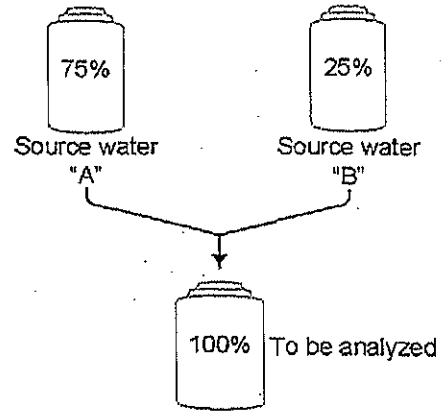
Multiple Alternating Sources:
Systems that use multiple alternating sources (seasonal or due to water quality changes) must sample from the source water in use on the designated sampling date following normal operating practices [40 CFR § 141.703(e)].

Figure 3. Multiple Sources: Two (or More) Sources to be Composited



OPTION 1 (Recommended Option):

Collect samples manually at each source near the intake on the same day and composite them into one sample to be analyzed. The volume of sample from each source must reflect its proportion of the total plant flow at the time the samples were collected [40 CFR § 141.703(e)(2)(i)].



OPTION 2:

Collect samples manually at each source near the intake on the same day and analyze each independently, then calculate a weighted average of the analysis results. This is done by multiplying the result for each source by the percentage of its contribution to the total plant flow at the time the samples were collected, and then summing these values [40 CFR § 141.703(e)(2)(ii)].

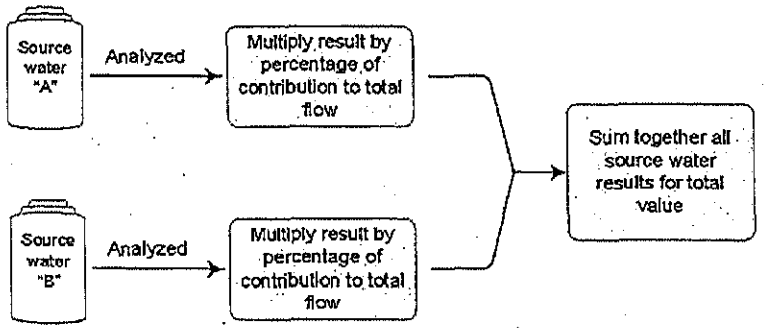


Figure 4. Multiple Plants with the Same Influent

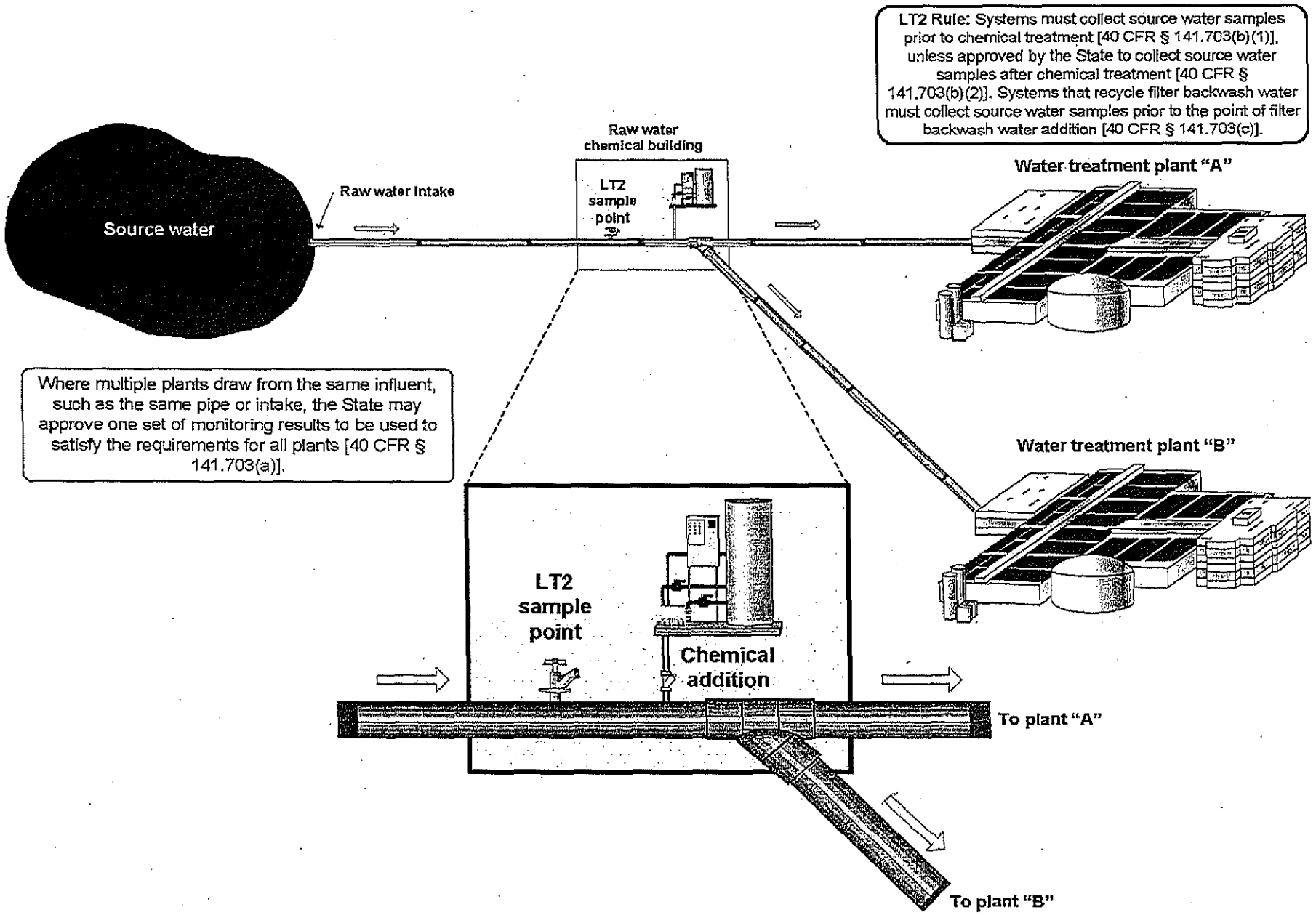
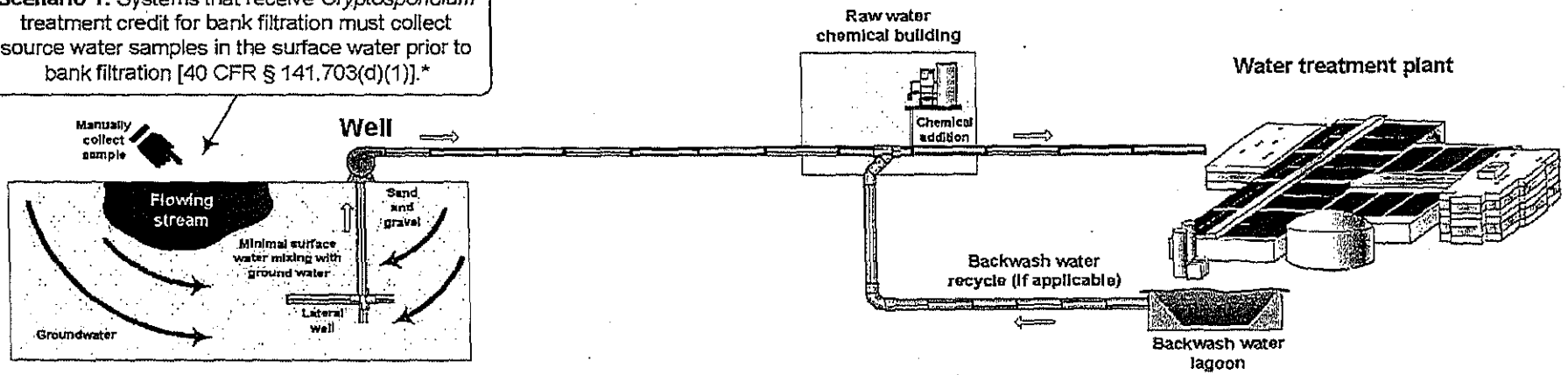


Figure 5. Bank Filtration

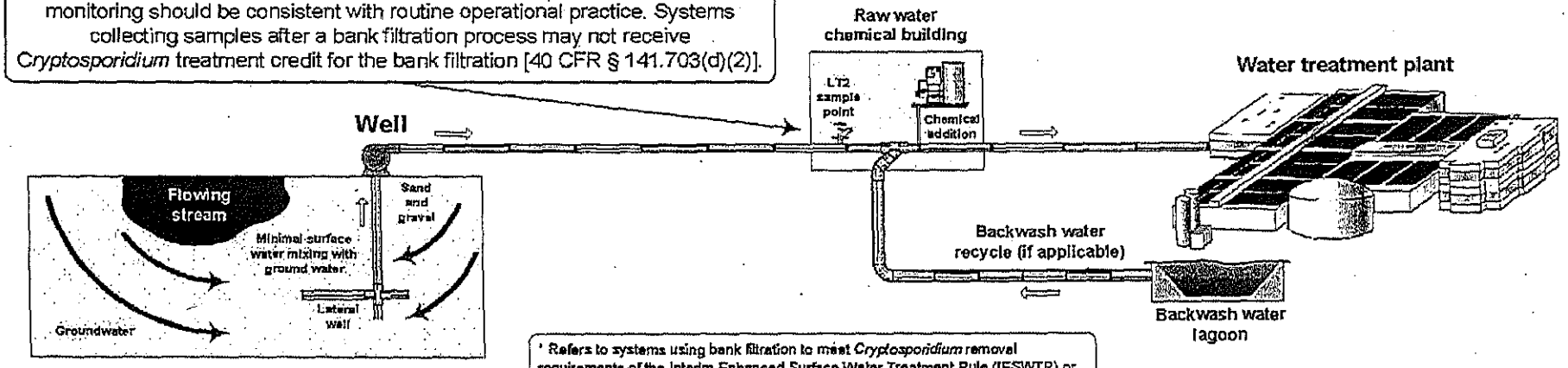
The correct sampling location for systems using bank filtration differs depending on whether the bank filtered water is treated by subsequent filtration:

Scenario 1: Systems that receive *Cryptosporidium* treatment credit for bank filtration must collect source water samples in the surface water prior to bank filtration [40 CFR § 141.703(d)(1)].*



Bank filtration cross section

Scenario 2: Systems using bank filtered water that is treated by subsequent filtration must collect source water samples from the well source (i.e., after bank filtration) but before any other treatment.**.Use of bank filtration during monitoring should be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive *Cryptosporidium* treatment credit for the bank filtration [40 CFR § 141.703(d)(2)].



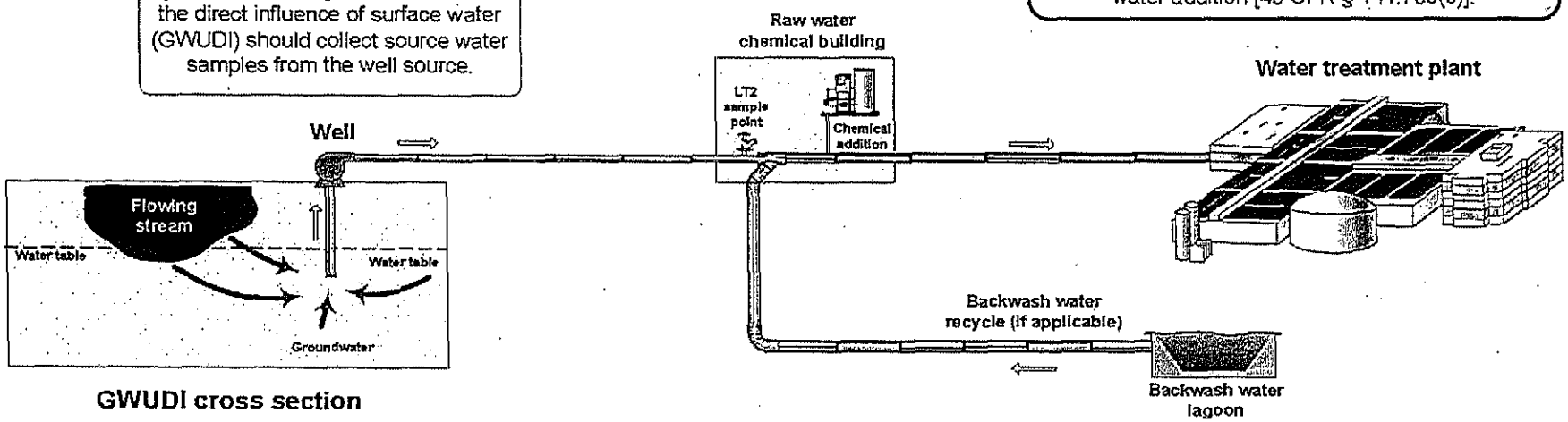
Bank filtration cross section

* Refers to systems using bank filtration to meet *Cryptosporidium* removal requirements of the Interim Enhanced Surface Water Treatment Rule (IESWTR) or Long Term 1 ESWTR under 40 CFR § 141.173(b) or 40 CFR § 141.522(a).
** Refers to systems where bank filtration serves as pretreatment to a filtration plant.

Figure 6. Ground Water Under the Direct Influence of Surface Water (GWUDI)

LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].

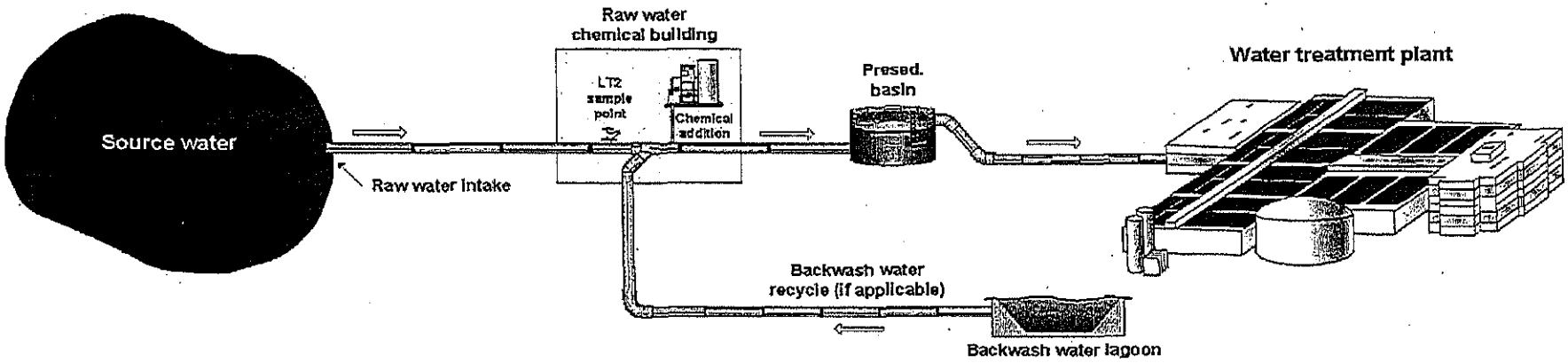
Systems that use ground water under the direct influence of surface water (GWUDI) should collect source water samples from the well source.



GWUDI cross section

Figure 7. Presedimentation Basin

Scenario 1:
Systems using a presedimentation basin with chemical addition should collect source water samples prior to chemical treatment, unless approved by the State to collect source water samples after chemical treatment. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].



Scenario 2:
Systems without chemical addition prior to or in a presedimentation basin, or that have been approved by the State to collect source water samples after chemical treatment, may sample after the presedimentation basin but will not receive any treatment credit for presedimentation.

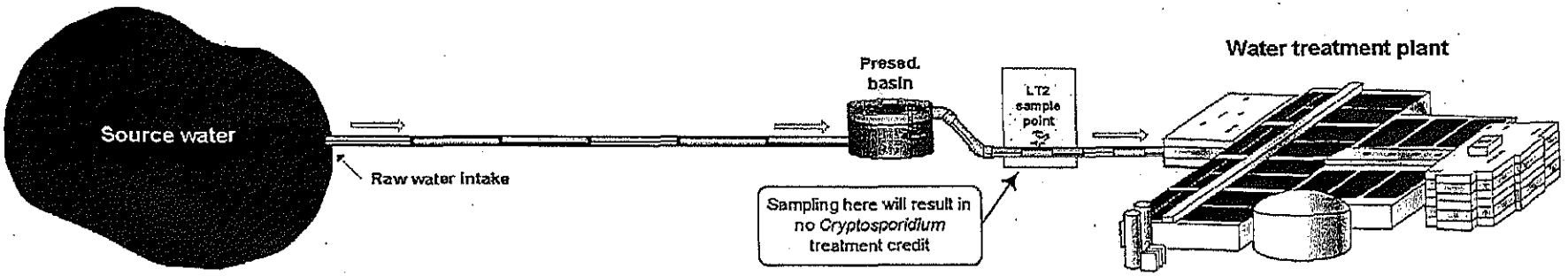


Figure 8. Raw Water Off-Stream Storage

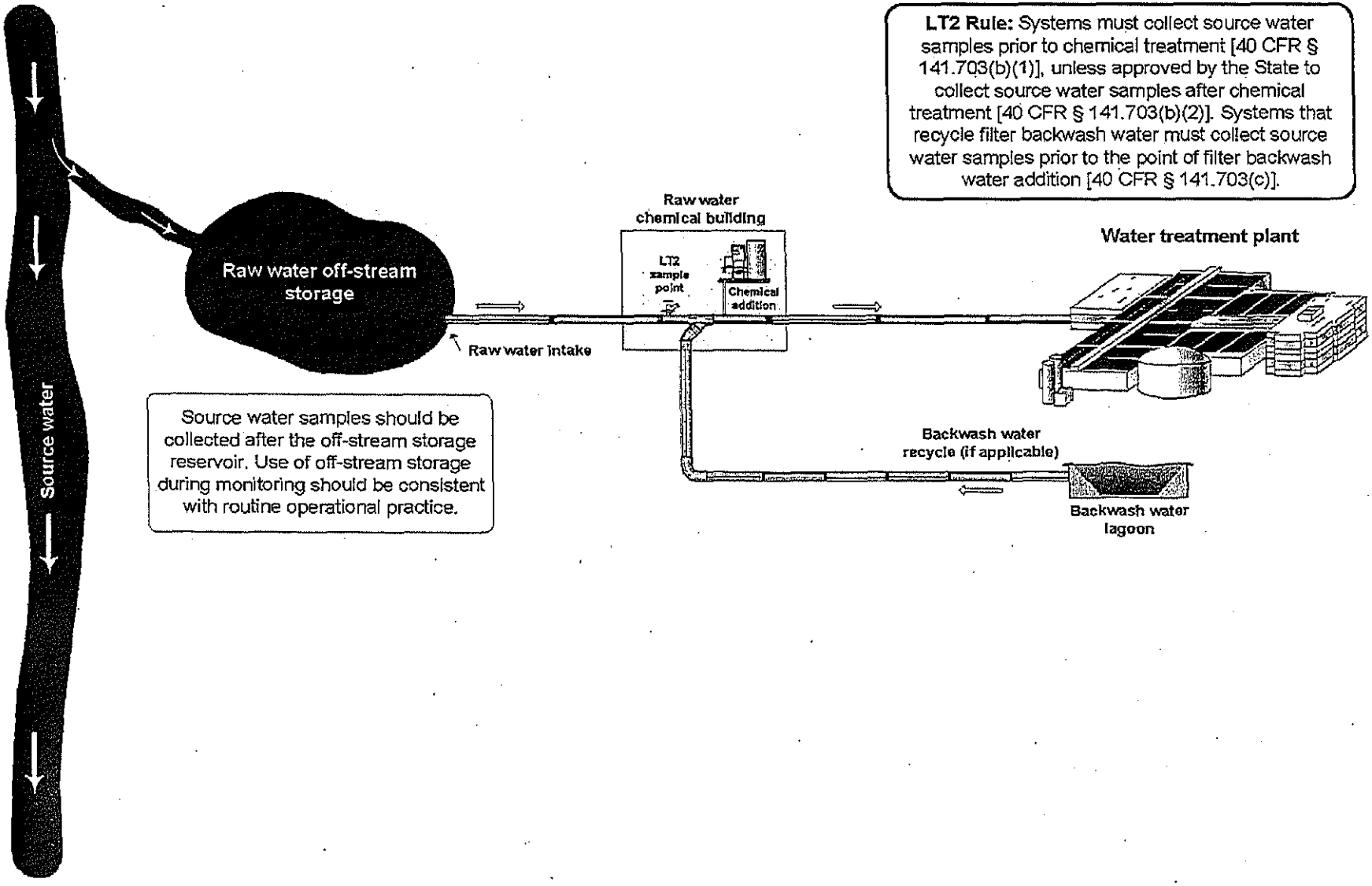


Figure 9. Mixed Source Water: Ground Water and Surface Water Sources

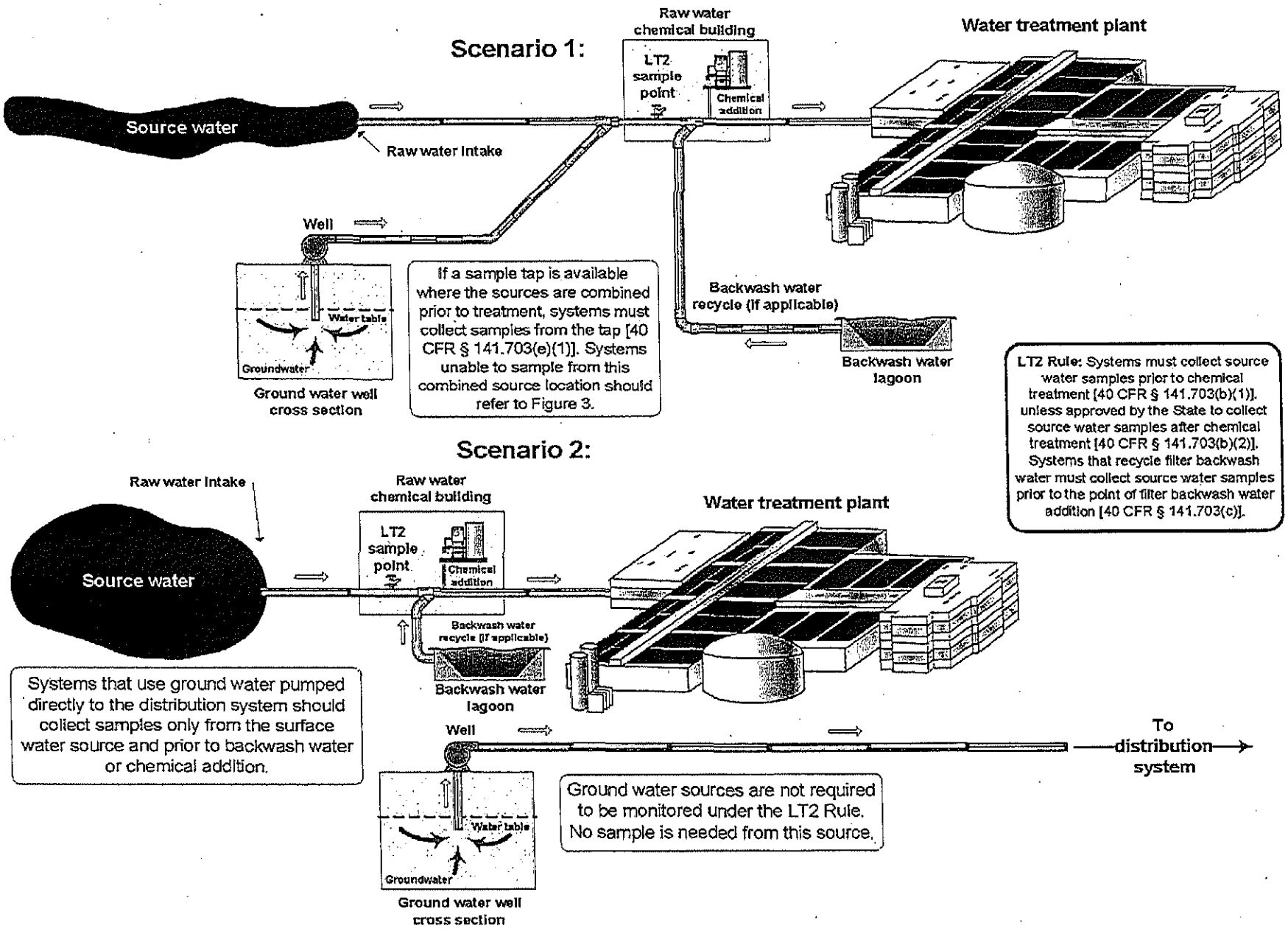


Figure 10. Blank Schematic for Submission to EPA

Public Water System (PWS) name: _____

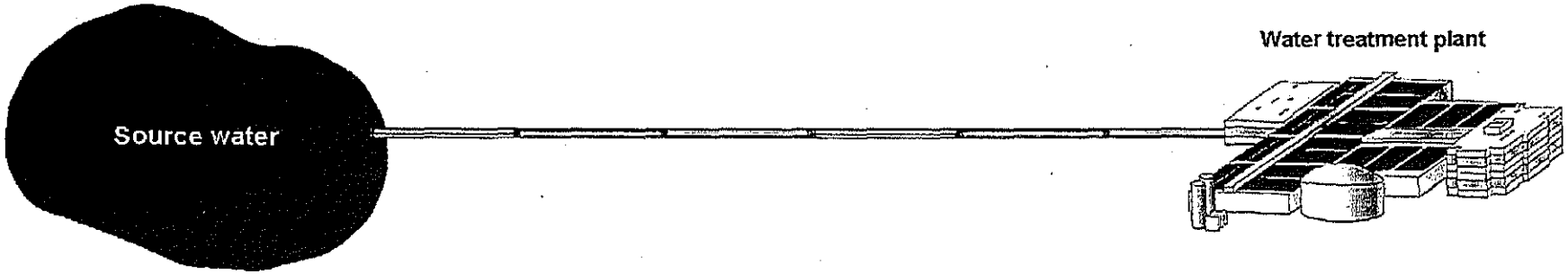
PWS ID: _____

Water treatment plant name: _____

Water system facility ID: _____

Indicate the following on the diagram that best represents your facility type (if applicable):

1. LT2 sampling location
2. Points of chemical treatment prior to the treatment plant
3. Filter backwash water addition
4. Pretreatment processes (e.g., presedimentation basins, bank filtration)
5. Multiple source waters (show by adding additional sources)



Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 10:03 AM
To: Rennaker, Joanne (DEQ); Blayer, Steve (DEQ); Arduin, Jim (DEQ)
Cc: Busch, Stephen (DEQ); Bennett, Charles (DEQ)
Subject: RE: WRD - PEAS - Oil Sheen

I notified the city – Brent Wright (WTP OIC) of the situation given that this just upstream of their WTP intake. Brent and his staff will go out to investigate. Based on past history, he is speculating that it is a break in their lime sludge line. This line is located close to the Flint River in this area and has experienced breaks in the past. I also provided Brent with the caller's name and suggested to contact him and let him know that the city is following up on this incident.

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

From: Rennaker, Joanne (DEQ)
Sent: Thursday, March 19, 2015 9:05 AM
To: Prysby, Mike (DEQ); Blayer, Steve (DEQ); Arduin, Jim (DEQ)
Subject: FW: WRD - PEAS - Oil Sheen

Jo Anne Rennaker
Secretary
Department of Environmental Quality - Lansing District Office
Office of Drinking Water & Municipal Assistance
Office of Waste Management & Radiological Protection
517-284-6643

From: Jesko, Roxanne (DEQ)
Sent: Thursday, March 19, 2015 9:02 AM
To: Gutting, Karen (DEQ); DEQ-PEAS-Lansing
Cc: Bennett, Charles (DEQ)
Subject: RE: WRD - PEAS - Oil Sheen

WRD has it Chuck Bennett will be the lead.

From: Gutting, Karen (DEQ)
Sent: Thursday, March 19, 2015 8:44 AM
To: DEQ-PEAS-Lansing
Subject: WRD - PEAS - Oil Sheen
Importance: High

PEAS Form 2014			revised July 23
First Response please "Reply All" to receipt of this PEAS Notification ASAP. Media: Water County: Genesee Ticket # 1498			
Incident Description: There is a sanitary sewer that runs parallel with the Flint river that has had several line breaks. This is causing a sheen on the water. Some of this has solidified along the river bank and is white in color. This is approximately ¼ mile down the bike trail where Bray Rd. ends S of Carpenter. Whatever is coming out of the line, is coming out steady. Caller has photos if needed.			
Complainant (C)		Party Involved (PI) – Company	
Name	James Joseph	Person Name	
Street Address		Company Name	
City or Township		Street Address	
State		City or Township	
Phone	810-820-5526	State	
Alt Phone		Phone	
Type		Alternate Phone	
Incident Street Address	S. of Carpenter and Bray Rd (where Bray Rd. stops and now it's a bike path)		
Cross Streets		Name of Pollutant	unsure
City or Township	Flint	Release to Water (g)	unknown
County		Release to Ground (g)	
Water Body Impacted	Flint River	Release to Air (lbs)	
Occurred Date/Time/Ongoing	unsure	Cleanup Contractor	
Release Secured Y or N		Cleanup Contractor on site: Y or N	

Comments:

Karen Gutting
Department of Environmental Quality
Office of Environmental Assistance
Environmental Assistance Center
800-662-9278

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 10:24 AM
To: Howard Croft
Cc: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ)
Subject: RE: HC Letter & FAQ's

Howard,

It appears that my edits were not included in the final letter. The 6th paragraph down should be revised such that residents understand the difference between the Locational Running Annual Average (LRAA) and the results from the individual quarter (Feb 2015) ...to avoid possible confusion when they read the DEQ PN template which states that two of the eight sites are above the TTHM standard (this being based on the LRAA). Also, the words "annual average" needs to be replaced with Locational Running Annual Average (LRAA).

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

From: Howard Croft [mailto:hcroft@cityofflint.com]
Sent: Thursday, March 19, 2015 9:09 AM
To: Brent Wright; Daugherty Johnson; Dayne Walling; donna. cole; gdn2@aol.com; Howard Croft; James Henry; jmikewright; JoAnne Herman; John O'Brien; Kirk Smith; larry.koehler@mcc.edu; Laura Sullivan; Michael Glasgow; Mike Lane; Prysby, Mike (DEQ); Natasha Henderson; Norb Birchmeier; Pete Levine; Robert Nicholas; rosejo@msu.edu; Russell Hudson; Samir Matta; Warren Green; Elizabeth Murphy; Robert Bincsik; Robert Case; Jason Lorenz; Kelly Rossman-McKinney; Sharon Emery; Gerald Ambrose
Subject: HC Letter & FAQ's

Technical Team Members,

Attached please find the final copy of a letter to the health community along with a Frequently Asked Question list.

These documents are ready for distribution among your peers and others. We anticipate mailing out the actual violation notice at the beginning of next week.

I will email everyone on this list when we determine a date for the next Technical Committee Meeting.

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 11:07 AM
To: Daugherty Johnson
Cc: Busch, Stephen (DEQ)
Subject: RE: RE: Flint Water Age map

Daugherty,

Based upon the most recent information provided to us from the city and your consultant, we are comfortable with either size transmission main (20-inch or 24-inch) for the transmission main project. An Act 399 permit (Permit No. W131020) issued March 18, 2013 (expired yesterday) inlcuded 23,550 LF of 24-inch WM, 1068 LF of 8-inch WM and 6800 LF of 8-inch WM. Given the reduced scope (lineal footage) of the project and expired permit...A new Act 399 permit seems more appropriate. Also, if the remaining work in the future (to complete the rest of the project) is completed under a separate contract, then, a separate Act 399 permits needs to be issued for that contract. A revised Act 399 permit application and set of plans (reduced scope) are needed. Assuming no changes in actual location of the proposed watermain and appurtenances, we should be able to expedite the review and issuance permit in a timely manner.

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

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Thursday, March 19, 2015 9:43 AM
To: Prysby, Mike (DEQ)
Subject: Fwd: RE: Flint Water Age map

Hello Mike. Here are the referenced exhibits in the 24 in. main reduction letter

Daugherty

---------- Forwarded message ----------
From: "Mack, Melissa" <MCMack@lan-inc.com>
Date: Mar 19, 2015 9:34 AM
Subject: RE: Flint Water Age map
To: "Daugherty Johnson" <djohnson@cityofflint.com>
Cc:

Hi Duffy,

Please see attached.

Melissa

Melissa C. (Henderson) Mack, PE

Associate, Project Manager

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

2925 Briarpark Drive, Suite 400 • Houston, TX 77042-3720

T 713.266.6900 **x** 2436 **D** 713.821.0436

www.lan-inc.com • MCMack@lan-inc.com

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Thursday, March 19, 2015 6:57 AM
To: Mack, Melissa
Subject: RE: Flint Water Age map

For clarification, I need the exhibits referenced in the letter you sent me discussing the downsizing of the 24 inch transmission main.

On Mar 19, 2015 7:55 AM, "Daugherty Johnson" <djohnson@cityofflint.com> wrote:

Hello Melissa. Could you send the exhibits referenced in the letter. DEQ wants to see them.

Thanks
Duffy

On Mar 15, 2015 5:26 PM, "Mack, Melissa" <MCMack@lan-inc.com> wrote:

You should be able to print to any size. Try 11x17 portrait. I'm attaching again in case the file got corrupt when it was sent last time.

Melissa C. (Henderson) Mack, PE

Associate, Project Manager

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

2925 Briarpark Drive, Suite 400 • Houston, TX 77042-3720

T 713.266.6900 x 2436 D 713.821.0436

www.lan-inc.com • MCMack@lan-inc.com

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Friday, March 13, 2015 1:46 PM
To: Mack, Melissa
Subject: RE: Flint Water Age map

I cannot print the map in its entirety. Do I need to scale a specific way?

On Mar 13, 2015 8:54 AM, "Mack, Melissa" <MCMack@lan-inc.com> wrote:

Duffy,

As discussed here is the water age map from January showing the water sample locations.

Thanks,

Melissa

Melissa C. (Henderson) Mack, PE

Associate, Project Manager

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

2925 Briarpark Drive, Suite 400 • Houston, TX 77042-3720

T 713.266.6900 x 2436 D 713.821.0436

www.lan-inc.com • MCMack@lan-inc.com

From: Mack, Melissa
Sent: Thursday, March 12, 2015 1:12 PM
To: Daugherty Johnson; Green, Warren; Matta, Samir
Subject: Re: Flint Water Age map

Duffy,

We heard back from Innovyze. The model file got corrupted, but they are walking us through a fix. We are documenting the process so we'll know what do do if it happens in the future.

We expect to have fixed this afternoon and have the maps to you thereafter.

Thank you,

Melissa

Sent from my iPhone

On Mar 11, 2015, at 5:04 PM, Mack, Melissa <MCMack@lan-inc.com> wrote:

> Duffy,
>
> We ran into a technical issue with the model creating the water age maps without the 24-inch highlighted. We have to send the model to Innovyze. They weren't able to help us over the phone. We will get you the maps as soon as possible.
>
> Thanks,
>
> Melissa
>
> **Melissa C. (Henderson) Mack**, PE
>
> Associate, Project Manager
>
> <image001.gif>

2925 Briarpark Drive, Suite 400 • Houston, TX 77042-3720

T 713.266.6900 x 2436 D 713.821.0436

www.lan-inc.com • MCMack@lan-inc.com

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Wednesday, March 11, 2015 9:07 AM
To: Mack, Melissa; Green, Warren; Matta, Samir
Subject: Flint Water Age map

Hello Melissa. Would you please send me a copy of the latest Water Age map for Flint.

Thanks

Duffy

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 11:28 AM
To: Bennett, Charles (DEQ); Thomas Hutchings (thutchings@cityofflint.com)
Cc: Kammer, Stephanie (DEQ); Case, Robert; Busch, Stephen (DEQ); 'bwright@cityofflint.com'
Subject: RE: PEAS call

Brent investigated the PEAS call and left me a voicemail with his findings. He confirmed that the residue was a previous lime sludge leak and frozen residue still needs to be cleaned up. The source of the sheen was from a previous storm sewer discharge; however, there was no storm sewer discharge this morning and conditions appeared clear. Brent also followed up with the concerned citizen. Brent will provide further follow-up (via e-mail) concerning this PEAS call.

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

From: Bennett, Charles (DEQ)
Sent: Thursday, March 19, 2015 10:10 AM
To: Thomas Hutchings (thutchings@cityofflint.com)
Cc: Kammer, Stephanie (DEQ); Prysby, Mike (DEQ); Case, Robert; Busch, Stephen (DEQ)
Subject: PEAS call

Tom, I just spoke with a gentleman that reported a discharge to the Flint River south of Carpenter Rd at Bray. The complainant stated that the material is whitish and may have a sheen also. He said it looks like crews have done some excavating along the bike path near this discharge. Attached are photos that I received a moment ago from the caller.

Also, you may want to contact Brent Wright about this matter as well, since our Drinking Water engineer has contacted him about this also (see attachment). Please let me know what you find.

thanks,
chuck

Charles Bennett, PE
DEQ Water Resources Division
Lansing District Office
BennettC4@michigan.gov
ph 517-284-6659; fax 517-241-3571

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 10:03 AM
To: Rennaker, Joanne (DEQ); Blayer, Steve (DEQ); Arduin, Jim (DEQ)
Cc: Busch, Stephen (DEQ); Bennett, Charles (DEQ)
Subject: RE: WRD - PEAS - Oil Sheen

I notified the city – Brent Wright (WTP OIC) of the situation given that this just upstream of their WTP intake. Brent and his staff will go out to investigate. Based on past history, he is speculating that it is a break in their lime sludge line. This line is located close to the Flint River in this area and has experienced breaks in the past. I also provided Brent with the caller's name and suggested to contact him and let him know that the city is following up on this incident.

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

From: Rennaker, Joanne (DEQ)
Sent: Thursday, March 19, 2015 9:05 AM
To: Prysby, Mike (DEQ); Blayer, Steve (DEQ); Arduin, Jim (DEQ)
Subject: FW: WRD - PEAS - Oil Sheen

Jo Anne Rennaker
Secretary
Department of Environmental Quality - Lansing District Office
Office of Drinking Water & Municipal Assistance
Office of Waste Management & Radiological Protection
517-284-6643

From: Jesko, Roxanne (DEQ)
Sent: Thursday, March 19, 2015 9:02 AM
To: Gutting, Karen (DEQ); DEQ-PEAS-Lansing
Cc: Bennett, Charles (DEQ)
Subject: RE: WRD - PEAS - Oil Sheen

WRD has it Chuck Bennett will be the lead.

From: Gutting, Karen (DEQ)
Sent: Thursday, March 19, 2015 8:44 AM
To: DEQ-PEAS-Lansing
Subject: WRD - PEAS - Oil Sheen
Importance: High

PEAS Form 2014	revised July 23,

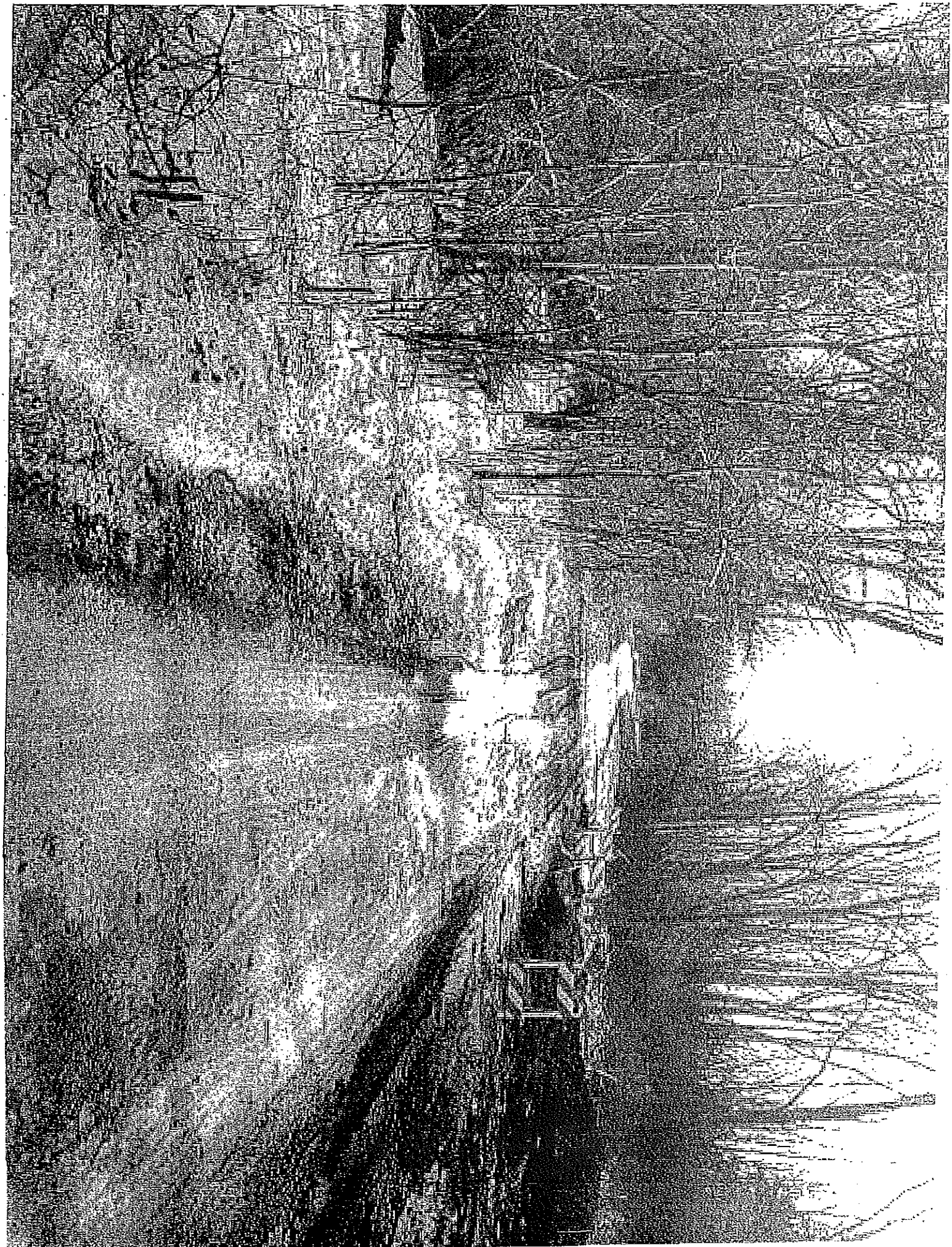
First Response please "Reply All"
to receipt of this PEAS Notification ASAP.
Media: Water
County: Genesee
Ticket # 1498

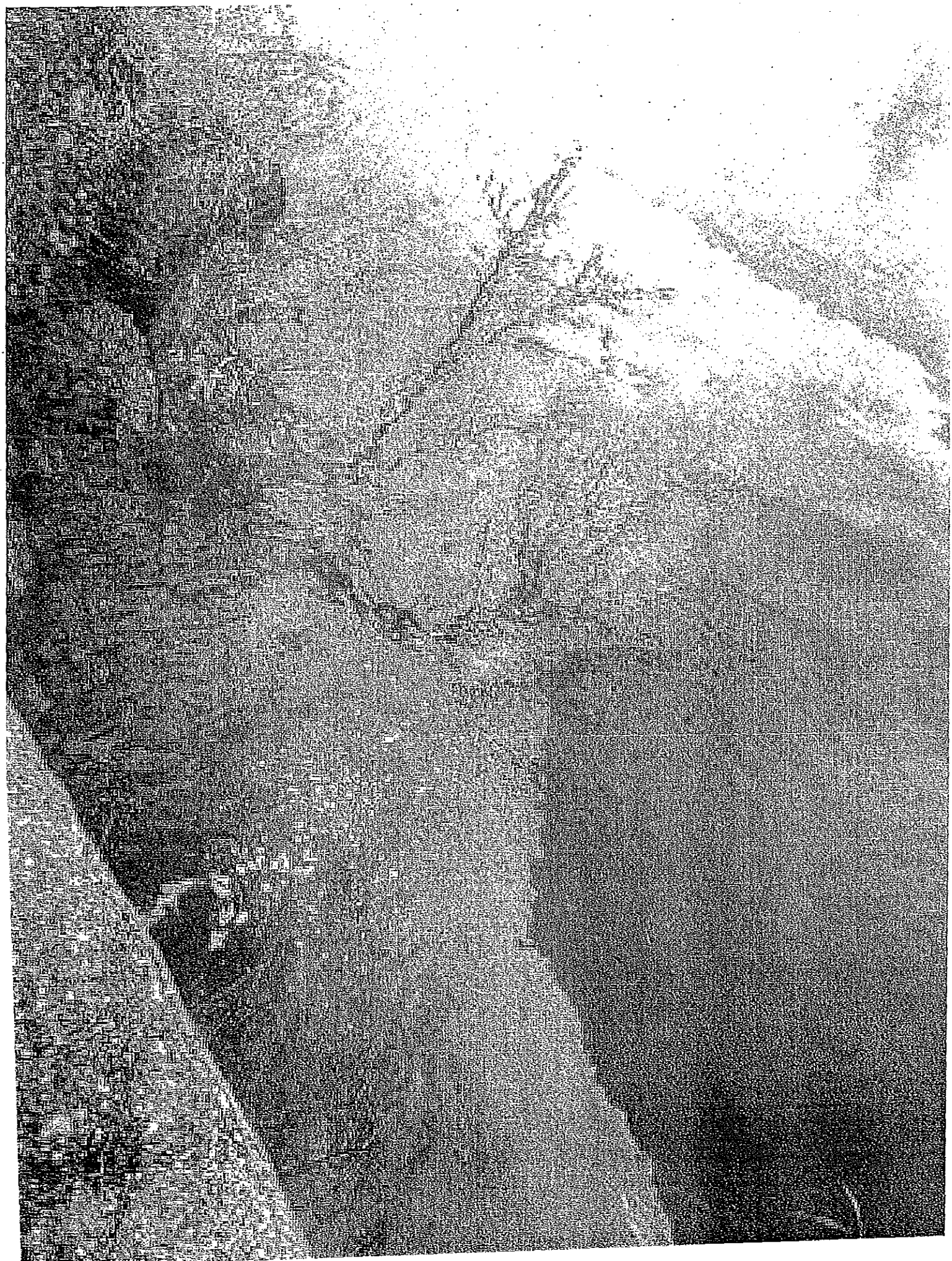
Incident Description: There is a sanitary sewer that runs parallel with the Flint river that has had several line breaks. This is causing a sheen on the water. Some of this has solidified along the river bank and is white in color. This is approximately ¼ mile down the bike trail where Bray Rd. ends S of Carpenter. Whatever is coming out of the line, is coming out steady. Caller has photos if needed.

Complainant (C)		Party Involved (PI) = Company	
Name	James Joseph	Person Name	
Street Address		Company Name	
City or Township		Street Address	
State		City or Township	
Phone	810-820-5526	State	
Alt Phone		Phone	
Type		Alternate Phone	
Incident Street Address	S. of Carpenter and Bray Rd (where Bray Rd. stops and now it's a bike path)		
Cross Streets		Name of Pollutant	unsure
City or Township	Flint	Release to Water (g)	unknown
County		Release to Ground (g)	
Water Body Impacted	Flint River	Release to Air (lbs)	
Occurred Date/Time/Ongoing	unsure	Cleanup Contractor	
Release Secured Y or N		Cleanup Contractor on site Y or N	

Comments:

Karen Gutting
Department of Environmental Quality
Office of Environmental Assistance
Environmental Assistance Center
800-662-9278





Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 10:11 AM
To: 'bwright@cityofflint.com'
Subject: FW: PEAS call
Attachments: 20150318_174119.jpg; 20150318_173619.jpg; 20150318_174108.jpg; RE: WRD - PEAS - Oil Sheen

Brent,

More info.....

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

From: Bennett, Charles (DEQ)
Sent: Thursday, March 19, 2015 10:10 AM
To: Thomas Hutchings (thutchings@cityofflint.com)
Cc: Kammer, Stephanie (DEQ); Prysby, Mike (DEQ); Case, Robert; Busch, Stephen (DEQ)
Subject: PEAS call

Tom, I just spoke with a gentleman that reported a discharge to the Flint River south of Carpenter Rd at Bray. The complainant stated that the material is whitish and may have a sheen also. He said it looks like crews have done some excavating along the bike path near this discharge. Attached are photos that I received a moment ago from the caller.

Also, you may want to contact Brent Wright about this matter as well, since our Drinking Water engineer has contacted him about this also (see attachment). Please let me know what you find.

thanks,
chuck

Charles Bennett, PE
DEQ Water Resources Division
Lansing District Office
BennettC4@michigan.gov
ph 517-284-6659; fax 517-241-3571

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Tuesday, March 17, 2015 4:51 PM
To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Cc: Sygo, Jim (DEQ); Thelen, Mary Beth (DEQ); Devereaux, Tracy Jo (DEQ)
Subject: FW: City of Flint Information - Consultants

Importance: High

Liane/Stephen, Please see below.
Do you know? Thanks.

From: Hollins, Harvey (GOV)
Sent: Tuesday, March 17, 2015 4:47 PM
To: Thelen, Mary Beth (DEQ)
Cc: Wyant, Dan (DEQ); Wurfel, Brad (DEQ); Clayton, Stacie (GOV); Sygo, Jim (DEQ)
Subject: Re: City of Flint Information - Consultants

Thank you. Has anyone from DEQ talked with them? Do they know I will be calling?

Best,
Harvey

On Mar 17, 2015, at 9:54 AM, Thelen, Mary Beth (DEQ) <THELENM2@michigan.gov> wrote:

> Good Morning Harvey,
>
> The consultants listed below are working with Flint and are in the best position to recommend a water filter system. The locals should be asked to use their consultants to recommend a technology.
>
> Warren Green with Lockwood, Andrews & Newman, Inc.
> 630-918-2494
>
> and
>
> Marvin Gnagy with Veolia North America
> 419-450-2931
>
> Thank you.
>
> Dan Wyant
> Director

Mary Beth

Mary Beth Thelen
Management Assistant to Director Dan Wyant
Department of Environmental Quality
Constitution Hall, 6th Floor South
Phone: 517-284-6712 or 284-6700 (new numbers)
Fax: 517-241-7401
Thelenm2@michigan.gov

Flint

Thelen, Mary Beth (DEQ)

From:	Thelen, Mary Beth (DEQ)
Sent:	Tuesday, March 17, 2015 11:39 AM
To:	Hollins, Harvey (GOV); Clayton, Stacie (GOV)
Cc:	Wyant, Dan (DEQ); Wurfel, Brad (DEQ); Sygo, Jim (DEQ); Thelen, Mary Beth (DEQ)
Subject:	SDWA Violations - Flint
Importance:	High

Dear Harvey,

Director Dan Wyant asked that I send you the following information regarding Flint.

As requested, the following information has been gleaned from our database regarding violations:

In calendar years 2013 and 2014, we've identified 1100 violations (200 are standards violations, i.e., MCLs; and 910 other violations).

This represents 326 community water supplies that had violations over these two years.

Flint has 5 violations in those 2 years (TTHM MCLs at 2 sites and 2 bacti MCLs (1 with E. coli that counts as an additional violation)).

Please let us know if you need anything further. Thank you.

Mary Beth

Mary Beth Thelen
Management Assistant to Director Dan Wyant
Department of Environmental Quality
Constitution Hall, 6th Floor South
Phone: 517-284-6712 or 284-6700 (new numbers)
Fax: 517-241-7401
Thelenm2@michigan.gov

Flint

Thelen, Mary Beth (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Tuesday, March 17, 2015 9:55 AM
To: Hollins, Harvey (GOV)
Cc: Wyant, Dan (DEQ); Wurfel, Brad (DEQ); Thelen, Mary Beth (DEQ); Clayton, Stacie (GOV); 'Sygo, Jim (DEQ) (SygoJ@michigan.gov)'
Subject: City of Flint Information - Consultants

Importance: High

Good Morning Harvey,

The consultants listed below are working with Flint and are in the best position to recommend a water filter system. The locals should be asked to use their consultants to recommend a technology.

Warren Green with Lockwood, Andrews & Newman, Inc.
630-918-2494

and

Marvin Gnagy with Veolia North America
419-450-2931

Thank you.

Dan Wyant
Director

Mary Beth

Mary Beth Thelen
Management Assistant to Director Dan Wyant
Department of Environmental Quality
Constitution Hall, 6th Floor South
Phone: 517-284-6712 or 284-6700 (new numbers)
Fax: 517-241-7401
Thelenm2@michigan.gov

Olszewski, Rosemarie (DEQ)

From: Wyant, Dan (DEQ)
Sent: Tuesday, March 17, 2015 9:44 AM
To: Thelen, Mary Beth (DEQ)
Subject: Re: Flint

Yes. Please. With note:

Harvey, the attached consultants are working with Flint and are in the best position to recommend a water filter system. The locals should be asked to use their consultants to recommend a technology.

Dan Wyant

On Mar 17, 2015, at 9:30 AM, Thelen, Mary Beth (DEQ) <THELENM2@michigan.gov> wrote:

> Dan,
> Do you want me to send this info to Harvey? Please advise. Thanks.
>
> Mary Beth

From: Wurfel, Brad (DEQ)
Sent: Tuesday, March 17, 2015 9:17 AM
To: Thelen, Mary Beth (DEQ); Wyant, Dan (DEQ)
Subject: Fwd: Flint

Here's one of the things we talked about getting for Harvey.

Sent from my iPhone

Begin forwarded message:

> **From:** "Busch, Stephen (DEQ)" <BUSCHS@michigan.gov>
> **Date:** March 17, 2015 at 8:23:17 AM EDT
> **To:** "Wurfel, Brad (DEQ)" <WurfelB@michigan.gov>, "Shekter Smith, Liane (DEQ)" <SHEKTERL@michigan.gov>, "Benzie, Richard (DEQ)" <BENZIER@michigan.gov>
> **Subject: RE: Flint**
>
> The City has currently contracted with two main engineering consulting firms. The primary contact for each firm is listed below.
>
> Warren Green with Lockwood, Andrews & Newman, Inc.
> 630-918-2494
> and
> Marvin Gnagy with Veolia North America
> 419-450-2931

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

-----Original Message-----
From: Wurfel, Brad (DEQ)
Sent: Monday, March 16, 2015 4:44 PM
To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Subject: Flint

Hey, all. Harvey has a meeting with city residents Wednesday. Need that enforcement info ASAP, tomorrow at latest and sooner is better. Also, on the water filter issue, spoke with Wyant today and and he much liked the idea of having a specific product recommendation come from one of the cities contractors.
Steve, can you please get contact information for the best contractor in Flint to address this?
Thank you!
Sent from my iPhone

Olszewski, Rosemarie (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Tuesday, March 17, 2015 9:17 AM
To: Thelen, Mary Beth (DEQ); Wyant, Dan (DEQ)
Subject: Fwd: Flint

Here's one of the things we talked about getting for Harvey.

Sent from my iPhone

Begin forwarded message:

> **From:** "Busch, Stephen (DEQ)" <BUSCHS@michigan.gov>
> **Date:** March 17, 2015 at 8:23:17 AM EDT
> **To:** "Wurfel, Brad (DEQ)" <WurfelB@michigan.gov>, "Shekter Smith, Liane (DEQ)" <SHEKTERL@michigan.gov>, "Benzie, Richard (DEQ)" <BENZIER@michigan.gov>
> **Subject: RE: Flint**
>
> The City has currently contracted with two main engineering consulting firms. The primary contact for each firm is listed below.
>
> Warren Green with Lockwood, Andrews & Newman, Inc.
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>
> Stephen Busch, P.E.
> Lansing and Jackson District Supervisor
> Office of Drinking Water and Municipal Assistance
> MDEQ
> 517-643-2314
>
> -----Original Message-----
> From: Wurfel, Brad (DEQ)
> Sent: Monday, March 16, 2015 4:44 PM
> To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ)
> Subject: Flint
>
> Hey, all. Harvey has a meeting with city residents Wednesday. Need that enforcement info ASAP, tomorrow at latest and sooner is better. Also, on the water filter issue, spoke with Wyant today and and he much liked the idea of having a specific product recommendation come from one of the cities contractors.
> Steve, can you please get contact information for the best contractor in Flint to address this?
> Thank you!
> Sent from my iPhone

Olszewski, Rosemarie (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Tuesday, March 17, 2015 6:33 AM
To: Wyant, Dan (DEQ)
Cc: Thelen, Mary Beth (DEQ)
Subject: Fwd: Flint

Just FYI. Still no word from drinking water. Will get it to you as soon as I have it.
On Tarmac in Detroit. Plane departs in 10 minutes. Get a couple hours in Miami starting around 10 am.
b

Sent from my iPhone

Begin forwarded message:

> **From:** <WurfelB@michigan.gov>
> **Date:** March 16, 2015 at 4:43:34 PM EDT
> **To:** "Liane Shekter Smith (DNRE)" <SHEKTERL@michigan.gov>, Stephen Busch <BUSCHS@michigan.gov>, Richard Benzie <BENZIER@michigan.gov>
> **Subject: Flint**
>
> Hey, all. Harvey has a meeting with city residents Wednesday. Need that enforcement info ASAP, tomorrow at latest and sooner is better. Also, on the water filter issue, spoke with Wyant today and and he much liked the idea of having a specific product recommendation come from one of the cities contractors.
> Steve, can you please get contact information for the best contractor in Flint to address this?
> Thank you!
> Sent from my iPhone

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, March 17, 2015 4:26 PM
To: Howard Croft; Brent Wright; Daugherty Johnson; Dayne Walling; donna. cole; gdn2 @aol.com; James Henry; jmikewright; JoAnne Herman; John O'Brien; Kirk Smith; larry.koehler@mcc.edu; Laura Sullivan; Michael Glasgow; Mike Lane; Natasha Henderson; Norb Birchmeier; Pete Levine; rob.nicholas@veolia.com; Robert Nicholas; rosejo@msu.edu; Russell Hudson; Samir Matta; Warren Green
Cc: Busch, Stephen (DEQ)
Subject: RE: TTHM Draft Letter
Attachments: Draft - Flint Letter to Healthcare Providers.docx

Howard,

I made a few changes to the draft letter...in red (see attached)....mainly to make a more clear distinction between the locational running annual average and the stand-alone quarter (February 2015) results and how it affects the number of sites in compliance. If you have any questions, feel free to call me.

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

From: Howard Croft [mailto:hcroft@cityofflint.com]
Sent: Monday, March 16, 2015 4:28 PM
To: Brent Wright; Daugherty Johnson; Dayne Walling; donna. cole; gdn2@aol.com; Howard Croft; James Henry; jmikewright; JoAnne Herman; John O'Brien; Kirk Smith; larry.koehler@mcc.edu; Laura Sullivan; Michael Glasgow; Mike Lane; Prysby, Mike (DEQ); Natasha Henderson; Norb Birchmeier; Pete Levine; rob.nicholas@veolia.com; Robert Nicholas; rosejo@msu.edu; Russell Hudson; Samir Matta; Warren Green
Subject: TTHM Draft Letter

Team,

We have received our notice from the DEQ and our next step is to have this group preview the letter that we intend to send to the public along with it. I have forwarded everyone a draft of the letter for any comments and I am also sending again all of the literature that was forwarded from Mr. Wright of the EPA and DR. Rose of MSU.

We expect to have an additional FAQ ready and out to this group on Tuesday and we anticipate the violation notice going out in the near future.

The **citizens advisory group** will meet again on this Thursday, we are currently looking to have another **Technical Advisory Committee** with this group in early April.

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

DRAFT Letter to Flint Healthcare Providers

The safety and quality of Flint's water has been in the news for months. We have worked hard to address these issues and have succeeded in bringing Flint's water within the state's safety guidelines on all measures, including TTHM (total trihalomethanes). Excess TTHM triggered the initial letter to our customers earlier this year.

Even though Flint water now meets the standards and is testing significantly below the state's allowable contamination levels, we are required to send out another letter to residents because the *annual* quarterly testing average is not yet below the state's allowable average.

Flint tests for TTHM – a byproduct of the water chlorination process – at eight different sites in the city. When we began using the Flint River as a source in April of 2014, our first round of quarterly testing for TTHM was conducted in May. At that time, only two testing sites were below the allowable maximum; in August, every site was above the allowable maximum.

The City, with the help of LAN engineering, developed an Operation Evaluation Report (OER) which contained an action plan to address the issue. That plan was implemented with steps including upgrading the ozone treatment process at the Water Treatment Plant (WTP), **complete softening,** increasing water main/hydrant flushing to decrease stagnation, small scale testing of treatment to identify areas of improvement, applying overall improvements to the WTP through operational changes and to the distribution system through water circulation modeling

Because the public notice is based on a **locational running** annual average of quarterly results a notice was not required until November, at which time all but one testing **location** was below the allowable levels. **Our most recent testing in February 2015 showed all locations well below state allowable levels; however, the locational running annual average (based on the four most recent quarters – May 2014 – Feb. 2015) results in all but two locations being below the allowable level.** (See the attached graph outlining our progress.)

We have taken many steps to continue to improve the safety and quality of Flint's water, including bringing in international urban water system consultants, Veolia North America, and establishing two advisory committees, a Citizens Advisory Committee, along with a Technical Advisory Committee made up of representatives from the University of Michigan, Michigan State University, Kettering University, Mott Community College, Genesys, McLaren, and Hurley Hospitals along with local health officials including the Genesee Medical Society the Genesee County Public Health Department, the Michigan Department of Environmental Quality and the U.S. Environmental Protection Agency.

We have also established a hotline 810-787-6537 and a place for continuing updates on the city's website cityofflint.com and have encouraged residents who are concerned about their water to report it to us immediately so that we can make arrangements for on-site testing. Although we have been offering this for more than a month, to date only a few residents have requested on-site testing. All residents wishing to have their water tested can call the hotline number or send an email to flintwater@cityofflint.com.

Despite our progress, we are required by law to once again advise residents about what *was* an excess of TTHM in Flint's water system at the eight testing sights last year. The letter – a draft of which is enclosed for your information – includes legally required language recommending that residents who have (severely compromised immune systems, have an infant, or are elderly) should contact their physician. This is standard language from the U.S. EPA which is included in every water quality or water related report the City publishes, regardless of whether there are specific health or quality concerns, and is used by other municipalities nationwide. We failed to alert you in advance of our original letter we were required to send out earlier this year – and we don't want to make that mistake again. We have enclosed a fact sheet and a list of Frequently Asked Questions in an effort to help you respond to any inquiries you may get from patients.

We recognize that Flint's water system may still be challenged with *quality* issues such as discoloration or odor but we assure you the *safety* of the water meets all state standards. You should also know that the City also publishes its monthly tests for a wide variety of water treatment components, including chloride levels, on its website at cityofflint.com/?page_id=5643.

We urge you to contact the City of Flint Water Treatment Plant with any specific questions or concerns you may have on this issue. We will do our absolute best to get you the answers you need.

Sincerely,

RF

Olszewski, Rosemarie (DEQ)

From:	Busch, Stephen (DEQ)
Sent:	Tuesday, March 17, 2015 2:02 PM
To:	Howard Croft (hcroft@cityofflint.com); Brent Wright (bwright@cityofflint.com); mglasgow@cityofflint.com; Daugherty Johnson (djohnson@cityofflint.com)
Cc:	Gerald Ambrose (gambrose@cityofflint.com); nhenderson@cityofflint.com; Prysby, Mike (DEQ)
Subject:	Water Quality Optimization Strategy

Howard,

As Mike Prysby and I mentioned during our phone call earlier today, the City should be taking action to optimize water quality in the City's distribution system which will in turn provide the City's water customers with water quality that helps limit the potential for legionella occurrence in premise plumbing. It is recognized that contraction of Legionnaires' Disease is not from ingestion of potable water and not regulated under Safe Drinking Water Act requirements. Further, there is currently no direct evidence of legionella in the City's public water system. However, actions by the City of Flint water system can help minimize the potential for an outbreak in customer plumbing systems.

These actions include the following:

- Water main pigging and flushing to remove biofilm, tuberculation, and sediment throughout the distribution system. Failure to remove such material will limit the effectiveness of any disinfectant. Pigging is the preferred process and equipment can be obtained at minimal cost. As the growth range for legionella starts at 68 degrees F, conducting this work as soon as possible in the spring and early summer with cooler temperatures would help reduce the potential for formation under warmer water conditions.

- Maintain pH levels of 7.2-7.8 in finished water and distribution system when possible to maximize the disinfection and oxidation potential of the hypochlorous acid residual (versus the less potent hypochlorite ion). Any optimized corrosion control plan practices regarding pH levels must be taken into consideration.

- Maintain a minimum free chlorine residual of 0.5 mg/L throughout the distribution system when possible. Continuous residual at this level has been shown to be effective in control of legionella. (This will need to be balanced with requirements to limit TTHM formation and comply with the TTHM standard.)

- Continuous operation and optimization of the ozone treatment equipment to treat raw source water. Ozone is highly effective in the destruction of legionella bacteria.

- Conduct routine monitoring for legionella bacteria at the water treatment plant tap and at locations in the distribution system. Note: sample locations must take water directly off the main and not be from premise plumbing systems. Distribution locations could include storage tank inlets or pumping stations. Monitoring at the WTP plant tap would demonstrate removal of any legionella present in raw source water. A private laboratory that specializes in water sample analysis for legionella would need to be used.

- Optimize water treatment plant operation for pathogen reduction under surface water treatment rule requirements. Optimizing the removal for similar pathogens can help reduce the potential for legionella.

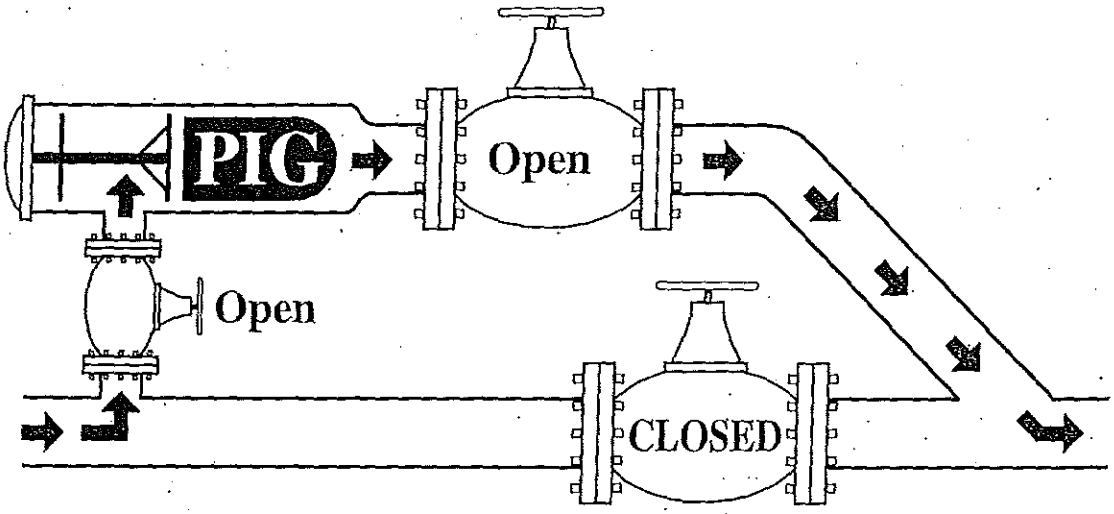
A conference call with City staff would probably be best to facilitate further discussions of these actions in more detail. Mike and I can make ourselves available this week to discuss and answer any questions.

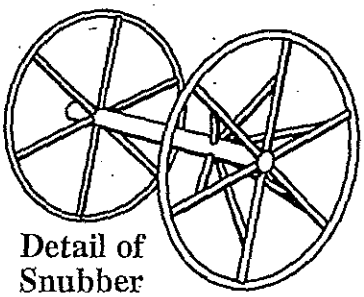
Stephen Busch, P.E.
Lansing and Jackson District Supervisor
Office of Drinking Water and Municipal Assistance
MDEQ
517-643-2314

Pipeline Pigging Products Inc.

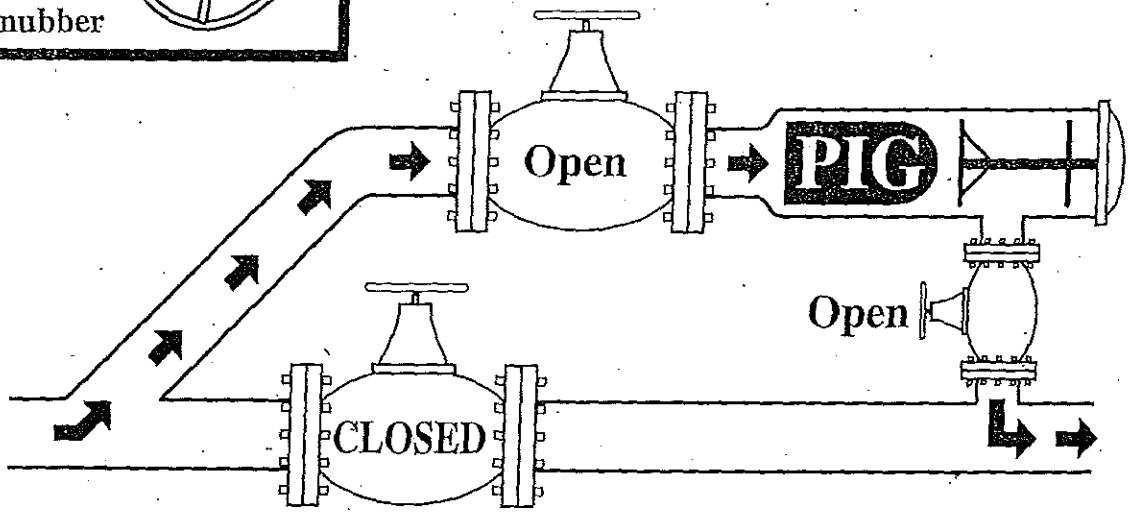
LAUNCH & RETRIEVAL METHODS

On Stream Entry





On Stream Exit

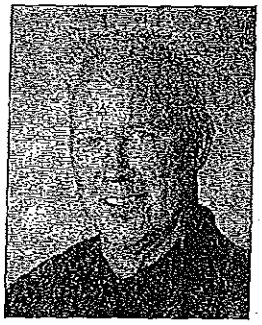


Pipeline Pigging Products Inc. • P.O. Box 692005 • Houston, Texas 77269 • 281/351-6688

by Gary Armentrout

Flushing and pigging: basic waterline maintenance

The daily operation of a public water system involves different aspects of many separate business and technical disciplines. In the course of a normal workday, operators will take a minimum of one to as many as 10 or 12 water samples. They may look for a water leak somewhere in the distribution system and will talk to three, four or more system customers about a variety of subjects. Operators may change out or add a customer water meter, repair a water leak, discuss purchases with sales reps and recheck meter readings on customer meters because "they just couldn't have used that much water." They might also have discussions with the project engineer about an upcoming project, and still make time to do some maintenance to the distribution system and equipment.



Gary Armentrout
Technical Assistant

Speaking of maintenance, there are many different types of equipment maintenance. They go by the more mundane maintenance monikers of "Before Operations Maintenance Checks," or "During Operations Maintenance Checks" and the not to be left out, "After Operations Maintenance Checks." There is also the entirely separate category of "Preventive Maintenance Checks."

"Maintenance Shmaintenance," it all means the same thing!

Maintenance has to be performed on trucks, cars, meters, pumps, hand tools, power tools. It must also be performed on computers, buildings, wells, towers, clear wells, clarifiers and just about every component in the entire system that has zero or more moving parts. Operators need to take care of system equipment if it is to provide long and reliable service.

In this article, the focus is on the part of the system that is nearly invisible and out of sight. It is the distribution system. These pipelines are buried in the cool, dark, damp underground. It is the wish and hope of everyone involved that they stay there, causing no problems – in total silence.

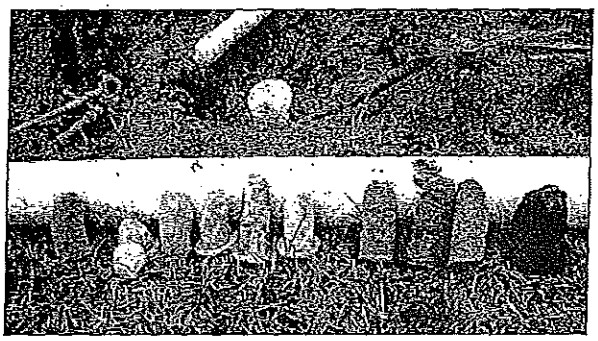
Unwanted buildup on the inside of most water distribution systems has been going on since the day the first valve was turned, and water started to flow through the system.

Unwanted buildup on the inside of most water distribution systems has been going on since the day the first valve was turned, and water started to flow through the system.

Unwanted buildup on the inside of most water distribution systems has been going on since the day the first valve was turned, and water started to flow through the system. How does a system avoid this buildup or deal with it?

There are many things that can be done to correct this problem.

A Fort Scott, Kan. city crew inserts a soft pig into a 4-inch ductile iron line.



Left: The before and after look of a soft pig in the hands of Fort Scott Water Distribution Supervisor Bill Lemke.

Above: Pigs in a row, 10 of 12 pigs used in a water line maintenance operation. The missing two pigs came out in pieces less than a quarter dollar in size.

Some actions include changing the pH of the water, adding certain types of chemicals, and cleaning the inside of the pipe.

Flushing, as a prevention

The purpose of flushing of a water system is to remove any accumulated sediments or other impurities that have been deposited in the pipe. Flushing can also improve the flow of water, in effect, restoring the pipeline to its original capacity. Flushing is performed by isolating sections of the distribution system and then opening flush or fire hydrants to allow a large volume of water to move through the isolated pipeline and scour out any sediment.

Pigging, as a remedy

Water mains may also be mechanically cleaned with the use of swabs or pigs, as well as a variety of other means. KRWA has published numerous articles on the topic of pigging, describing the benefits of the projects from improved water quality to greater energy efficiency,

Pigs are devices that are forced through a section of line to scrape the accumulated deposits off the inside of the pipe. Pigging is now routinely conducted at the time of installing new waterlines. While some might contend that a requirement to pig a pipeline adds to the cost, I respectfully suggest that if project circumstance were to prohibit a contractor from pigging, the cost should increase. It's been proven that pigging newly installed pipelines reduces water loss due

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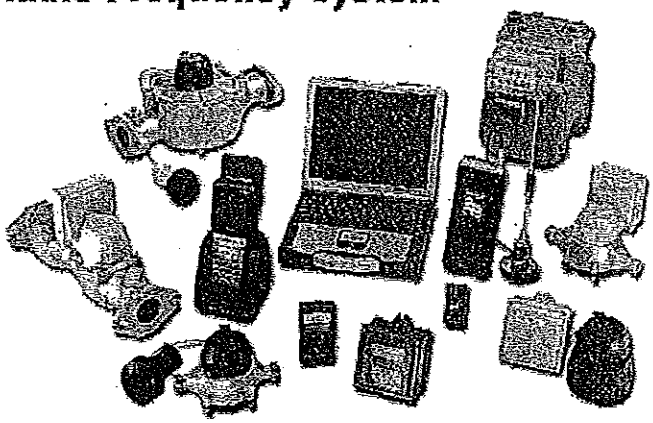

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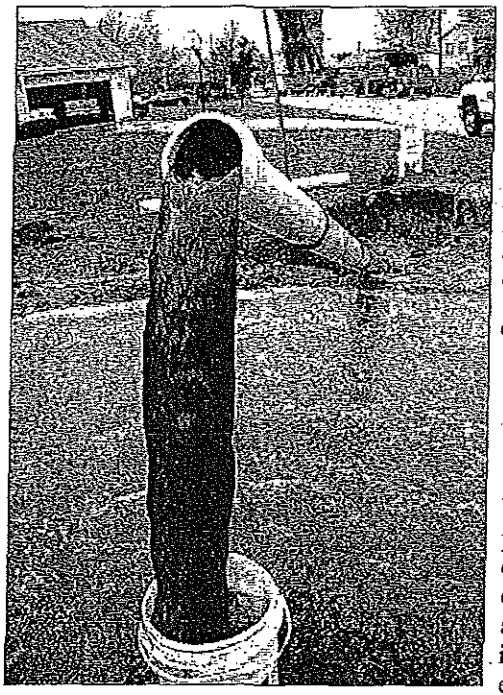
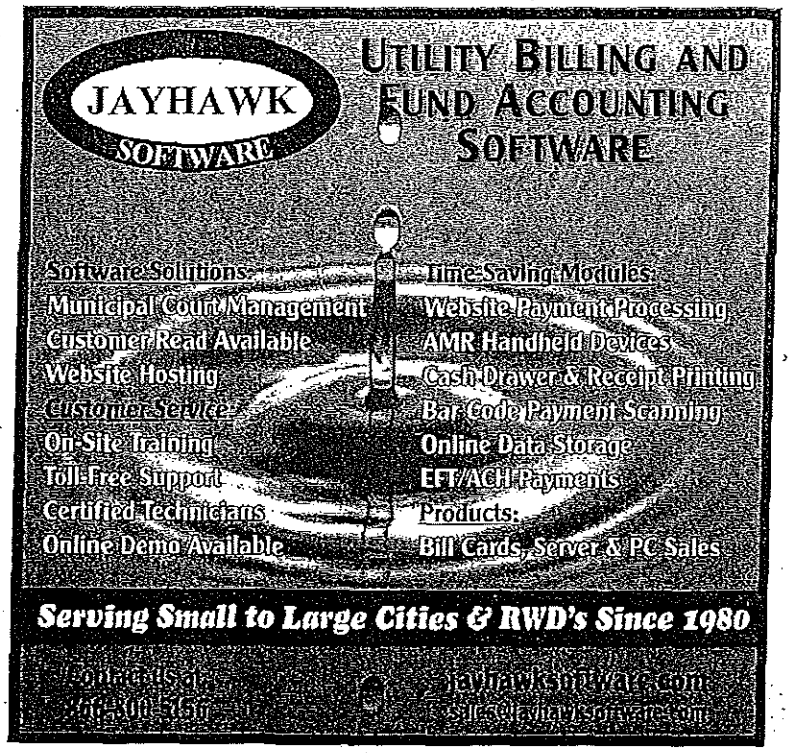


The concentration of buildup is evident coming from the inside of a ductile iron main. After years of operation and depending on water quality, excessive mineral deposits often build up inside waterlines. Pigging can often remove the deposits, improving water quality and flow characteristics.

to flushing by 75%, to say nothing for the reduction of labor to complete the process of getting a new extension or pipeline into service.

When there is a buildup inside water lines that cannot be removed by simple flushing, pigging is a cost efficient, effective and environmentally friendly alternate. Most important, it is an economical alternate to line replacement. No matter what type of pipe is in the distribution system, there is a pig to do the job as needed. There are four basic types of pigs used today. Each pig is designed for a specific job. They are the polyurethane foam pigs, mandrel or mechanical pigs, solid cast urethane pigs and the high tech "smart pigs." If a system's water lines are cast iron or ductile iron, there is a very good chance of needing to pig at least some sections. The deposits in the pipelines can cause enough restriction that flow will be reduced. PVC lines normally are not subjected to the same degree of buildup as cast iron or ductile iron pipelines. PVC however will often have sediment at the bottom of the pipeline along with a thin coating covering the entire inside. A foam pig can normally remove this type of buildup. This type of pig can also be reused after traversing segments of PVC pipe. If, on the other hand the pig is used in a cast or ductile iron pipe, it is usually torn to shreds as it moves through the line. It is KRWA's experience that pigging small diameter iron pipelines may not be practical if there is a high degree of buildup. It may be impossible to remove hardened deposits from small diameter lines of one to four inches. KRWA techs have experienced pigging projects where a city system had some 4-inch pipeline with so much buildup that no daylight could be seen through even a 20-foot section.

Pipe maintenance is a very important part of the overall maintenance program of any water system. I suggest that systems practice flushing as a preventive measure and pigging as a remedy. If assistance is needed in setting up a maintenance program for a city or RWD, or there is a need to discuss flushing or pigging, contact KRWA at 785/336-3760 or e-mail KRWA at krwa@krwa.net.



Tech Brief

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Line Pigging

By **Zane Satterfield, P. E.**, NESC Engineering Scientist

Summary

Line pigging is an internal pipe-cleaning process used to remove biofilms or other foreign matter from the inside of water pipes. If performed correctly, line pigging will renew the flow rates to restricted piping systems and reduce pumping pressures. This Tech Brief discusses some of the techniques and processes used in cleaning waterlines in distributions systems.

Line Pigging

Line pigging (or line swabbing, as it sometimes known), is the process of cleaning distribution lines by inserting a small device known as a pig into the lines and pushing it through them. The term "pigging" originated in the gas and oil industry, where metal discs connected by a rod were moved through the oil pipelines to remove buildup of paraffin wax on the internal wall of the pipe. The action of metal on metal made a squealing noise like a pig and the name stuck. More and more, pigs are being used to clean pipelines in all types of industry including waterlines in municipal distribution systems.

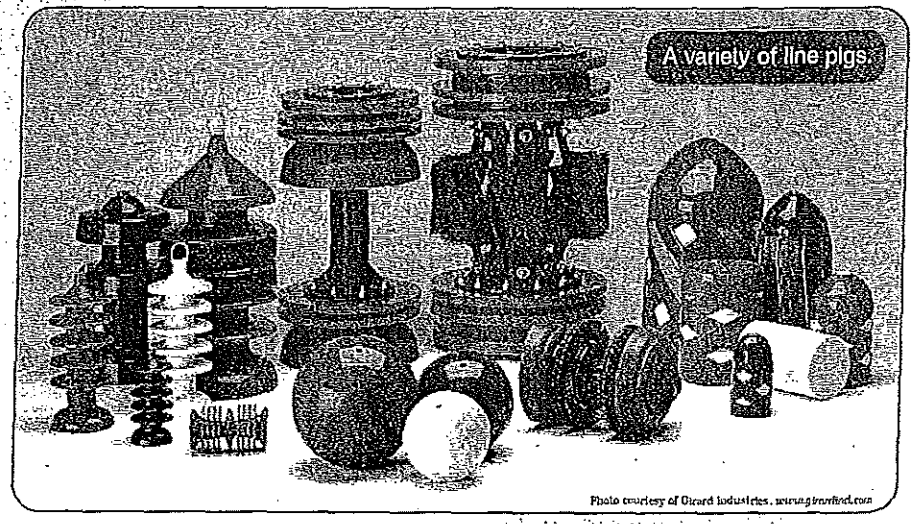
What is a pig?

A pig is the object, usually bullet shaped, that is pushed by the water in the pipe in the direction of normal flow. The pig can be made of different materials (foam, steel, plastic, polyurethane), but generally is food-grade silicon, which is tough yet flexible and safe to be in contact with drinking water.

Pigs range in size from 2- to 48-inches in diameter and can be made to order in varying lengths, styles, and configurations for specific applications. Not only are pigs used for cleaning but also for inspecting the inside of pipelines and determining interior dimensions.

Is pigging waterlines really necessary?

States and municipalities typically do not require regular pigging or swabbing of distribution lines in water systems. Some may only require pigging after initial construction of a new line to remove any debris left in the line because flushing alone will not always clean the dirt and debris out of the line.



A variety of line pigs.

Photo courtesy of Girard Industries, www.girardind.com

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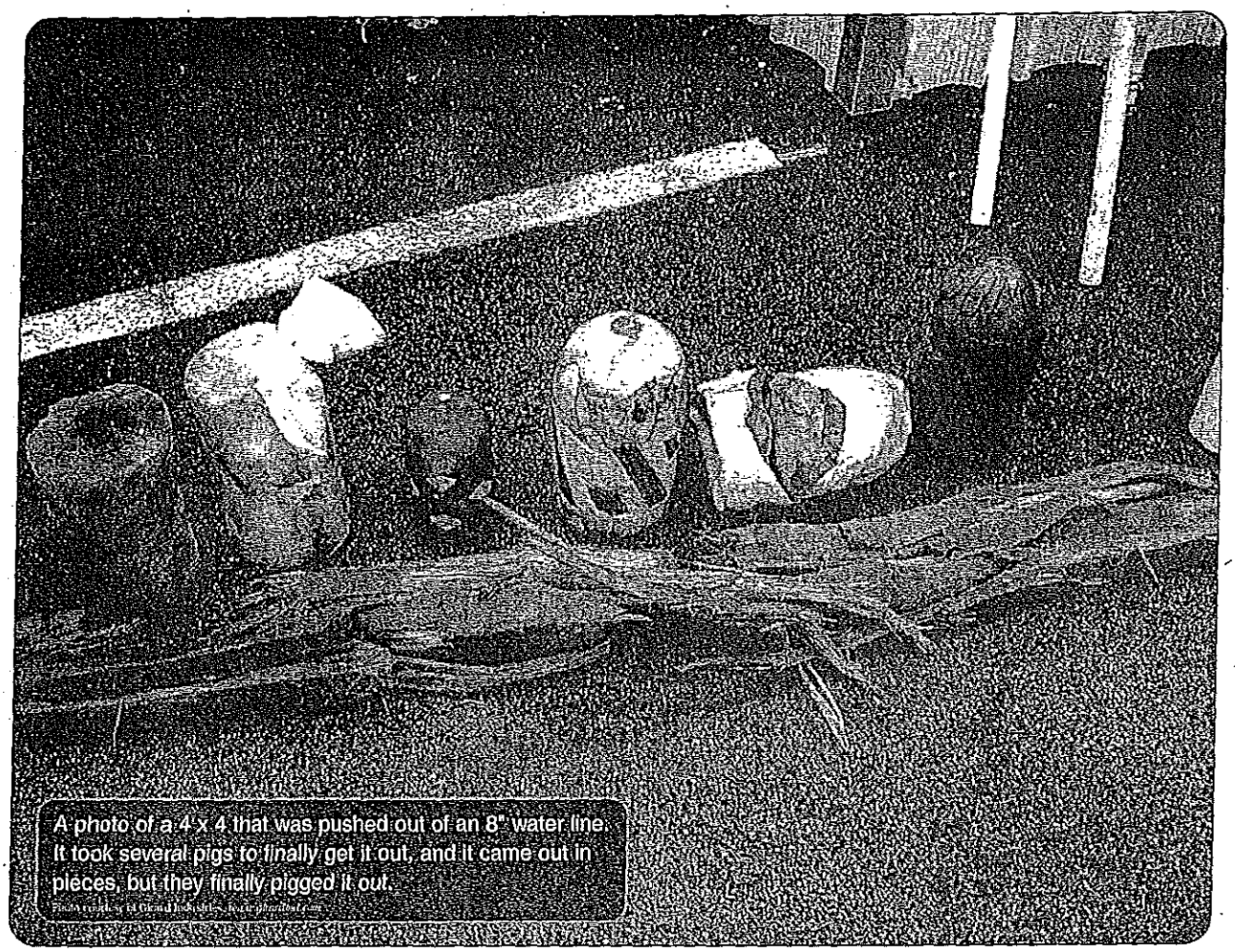


A photo of a 4 x 4 that was pushed out of an 8" water line. It took several pigs to finally get it out, and it came out in pieces, but they finally pigged it out.

One reason to pig a waterline is that all distribution lines tend to have a biofilm coating the inside of the pipe. The bacteria are dormant until certain conditions activate the bacteria, causing problems. Regular flushing will not eliminate this biofilm. Regular pigging with flushing will reduce or eliminate biofilms.

A second reason to pig a line is inadequate water flow. More flow (volume) of water may be needed to support development or a growing population in the water system or to provide adequate water for fire fighting. In areas of water systems where increased development has caused water demand to surpass the flow output of an existing line, the system will usually need to replace the existing waterline with a line that can support the demand needed. If the existing flow is restricted due to excessive deposits, however, pigging may be the solution to the problem.

Third, most states require a minimum of a 6-inch diameter waterline when connecting a fire hydrant to provide adequate flow. After years of service, the inside of the pipe can become restricted with deposits making the fire hydrant less effective if not useless for its intended job. If fire flow is needed, the solution in the past has been to replace the whole waterline, which is very costly and time consuming. Pigging may restore adequate flow for fighting fires at a fraction of the time and cost.

Finally, pigging waterlines may lessen complaints from water customers regarding the very same deposits that have or can restricted fire flow. These deposits are unwanted foreign matter such as iron oxide (red water), alum, calcium carbonates, barium sulfide and sediment. Pigging, in most cases, provides a solution. Cleaning these deposits can also reduce pumping pressures in areas of water systems that have booster pump stations. Increased pumping pressures can result in line leaks and pipe failures.

Procedure

The procedure starts by determining if the waterline can be pigged. Not every water line is a candidate for line pigging. Is the water line so corroded that pigging can cause failure?

Does the waterline have reducers (i.e., the line getting smaller) that can cause the pig to get stuck? Does the line have increased pipe diameter sizes where the water pressure would be insufficient to move the pig?

One of the main things to look at is the condition of the interior of the pipe. If the pH of the water is low, the interior of the line could be so corroded that pigging could result in failure. If in doubt about the condition of the line, refer to past line repairs or talk to operators who have worked on any repairs of the particular line.

Much of this information can be obtained from as-built drawings or operators who have fixed leaks or installed the original water line. The line will have to be dug up to launch the pig. At that time, a visual inspection should be done to determine if pigging is possible. Another option is to use a low density foam pig in any unknown line and examine the foam pig for wear patterns, tears, or gouges. This may even help determine if the line can be successfully cleaned with a pig.

Before the pigging begins, it's useful to have information about the line:

1. Locate and mark all valves and meters.
2. Approximate all elbows and fittings in the line (again, refer to the as-built drawing if available).
3. Know the pressure and flows in the lines. This will also help determine if any flow increase and possibly pressure decrease was achieved by the pigging.

The more you know before you start, the fewer surprises you'll encounter once you start pigging.

Once the line has been inspected and appears suitable, the actual pigging begins. A pig is inserted into the line to be cleaned by means of a launcher. This is simply an oversized barrel with a reducer mating to the existing line. This allows for easy insertion of the pig, because the pig's outer diameter is larger than the pipe's internal diameter to maintain a good seal. Once in the launcher, clean water is introduced to send the pig on its way. This is usually the same water that is in the line from a nearby flushing hydrant or fire hydrant, or a tanker truck. The pig's path is determined by direction of flow and by isolating the line to be cleaned by closing valves to laterals, if present.

If the waterline is in service, you must notify your customers about the water interruption and possible dirty water after bringing the line back in service. If the water line has a lot of unwanted deposits, it may be wise to pull all water meters just before the pigging process starts and flush at the connection at the end of the process before you replace the meters. Foreign matter could stop-up the meter or cause the meter to malfunction. The debris could also get into the customers' plumbing and cause problems such as plugging the aerators on the faucets, dishwashers, or washing machines.

If the waterline to be pigged has severe scaling (tuberculation) due to iron oxide (red water), alum, calcium carbonates, barium sulfide, or sediment, a progressive or stepped approach must be taken to avoid getting a pig stuck or losing a pig. This approach is simply using a smaller diameter pig at first and working your way up incrementally to the inside diameter of the pipe. The stepped technique will minimize the risk of the pig getting stuck or large amounts of debris plugging the line by cleaning a little bit at a time.

Articles about locating distribution lines and valve exercising programs are available on the National Environmental Services Center Web site at *www.nesc.wvu.edu/ndwc*.

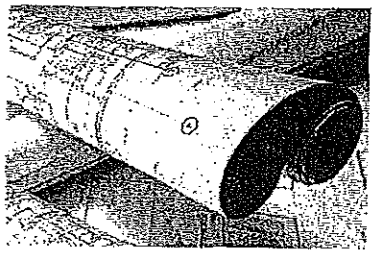
Smart Pigs

There are many different types and sizes of pigs. For waterline use, some nonstandard pigs include:

- Gauging pigs are mainly used after constructing the pipeline or before pigging an old line to determine if there are any obstructions in the pipeline.
- Profile pigs are gauging pigs with multiple gauging plates used to help map the inside condition of the pipe walls.
- Magnetic cleaning pigs are used to pick up ferrous debris left in the pipeline.
- Transmitter pigs or detector pigs are used to map out the location of pipeline or help locate a stuck pig.
- Spheres are round for ease in negotiating short radius 90-degree elbows, irregular turns, bends, and sweeps.

Dealing with a Stuck or Lost Pig

If a pipeline has not been pigged on a routine basis or has never been pigged, a pig can get stuck. If a pig becomes stuck, the first priority



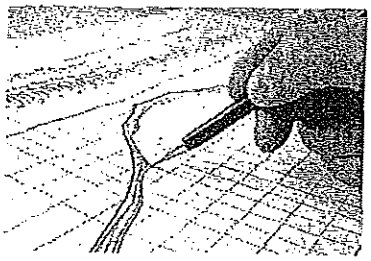
TECHNICAL SPECIFICATIONS FOR THE INTERNAL CLEANING OF POTABLE WATER AND SEWAGE PIPE LINES

EXECUTION:

•Pipeline shall be cleaned to remove most dirt, sludge, tuberculation and other foreign matter buildup from the interior wall of the pipeline. Equipment selected shall be capable of performing such cleaning. Satisfactory precautions shall be taken to prevent scratching or scraping of interior wall surfaces or other damage to pipes that might be inflicted by the improper use of cleaning equipment.

PIGGING:

•Prior to the use of plastic foam type pigs, a swab made of soft plastic foam shall be sent through the piping to insure that the piping systems fittings, valves and interior dimensions will allow the initial cleaning pig to pass through it without being trapped within the system. Upon examination of this initial swab, subsequent pigs of varying diameters and/or densities shall be sent through the piping system until desired results are readied.

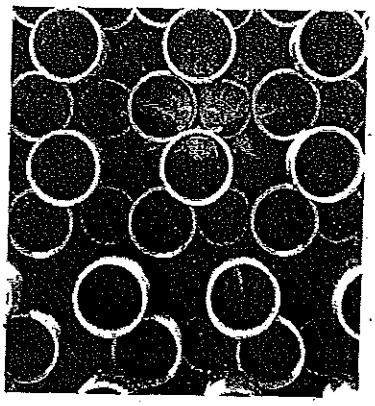


PIGS:

•Pigs shall be manufactured of an open cell polyurethane foam body. Densities may range between 1 1/2# per cubic loot up to 8# per cubic foot density. Some pigs may be wrapped with polyurethane spiral bands, as well as abrasives for longer life or removal of harder scale. Pigs should be able to pass through reduction of up to 60% to 65% of cross sectional area of nominal pipe. Pigs shall be able to traverse standard piping configurations such as 90° elbows, tees, crosses, wyes, gate valves, and ball valves.

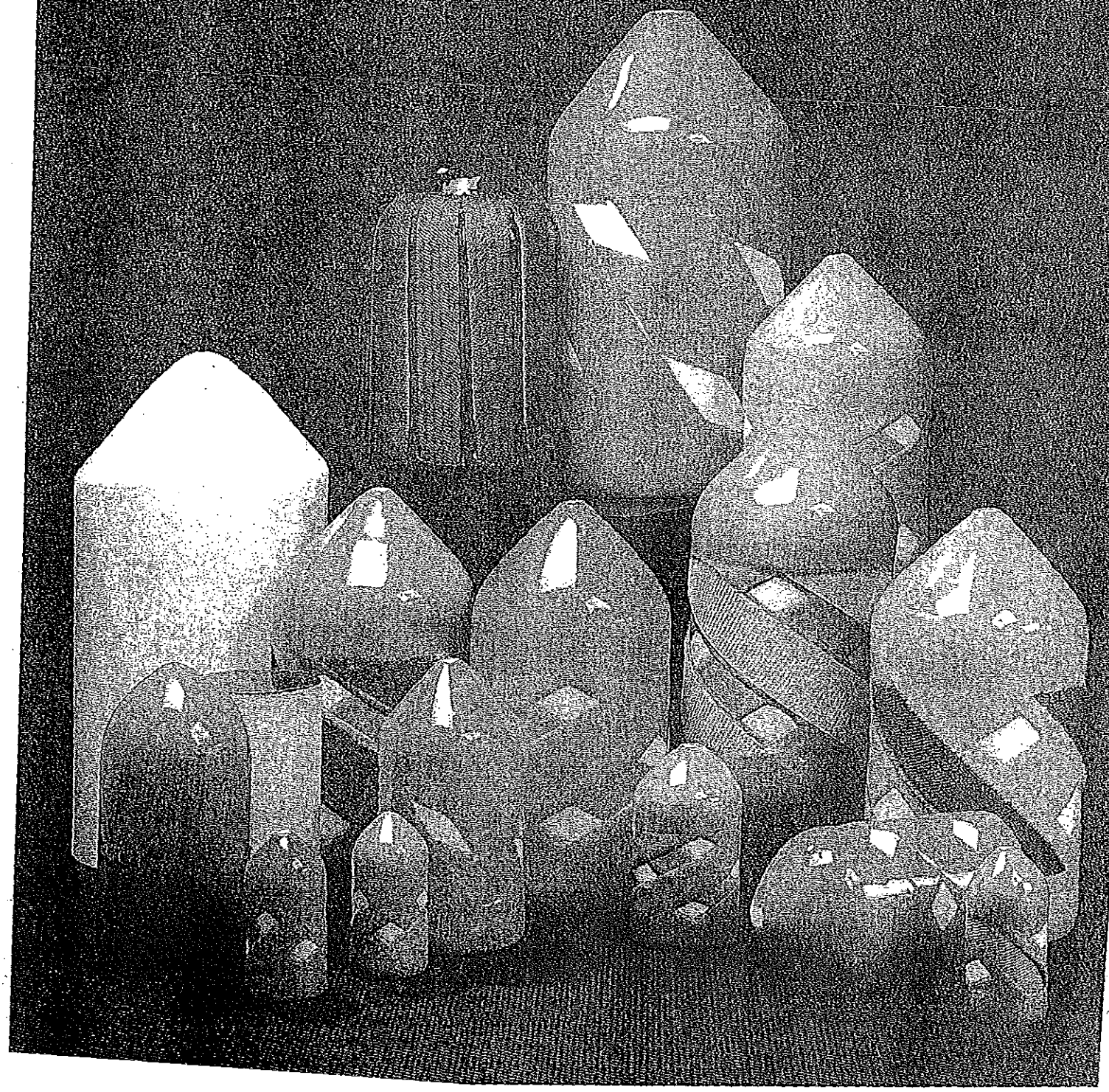
CONTRACTOR REQUIREMENTS:

•Contractor shall submit evidence of qualifications to include a list of ten (10) projects of equal or greater scope. Project list shall state the following: dates, feet of pipe, project cost, location, contact person, telephone number. Qualification submittal shall include three (3) letters on client letterhead from stated contact person from the above list of ten (10) projects. All projects must have been completed within the last three years. All contractors must submit valid certification of training issued by an established pig manufacturer:



Pipeline Pigging Products

INCORPORATED



PIPELINE PIGGING PRODUCTS INDUSTRY EXPERIENCE, RESEARCH, KNOW HOW

Pipeline Pigging Products is a manufacturer of internal pipeline cleaners referred to in the trade as "Poly Pigs."

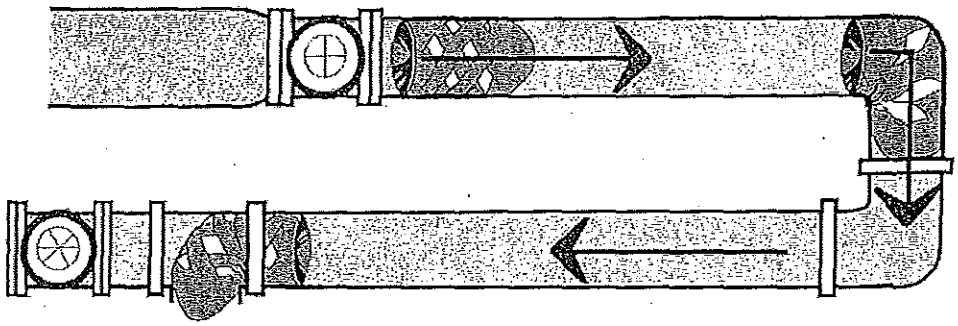
Constructed of flexible open cell polyurethane foam and various external wrappings, Poly Pigs have the ability to negotiate short radius bends, ells, tees, multi-dimensional piping and reduced port valves. The slightly oversized Poly Pig forms a "sliding seal" in the pipe, and is designed to remove product buildup, foreign matter and loose sediment.

A few of the benefits that Poly Pigs can offer are:

- Increased pipeline carrying capacity
- Improved product quality
- Power savings by reducing pump pressure
- Confirmation of pipe and flow integrity

Pipeline Pigging Products offers Poly Pigs in a wide variety of styles (drying, wiping and scraping) to accommodate almost any application, such as oil & gas transmission, municipal, petro chemical, pulp and paper and process piping systems.

With over 60 years of combined experience in manufacturing, research and application, our knowledge of Poly Pigs is unsurpassed in the industry.



MUNICIPAL SERIES

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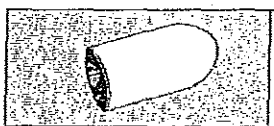
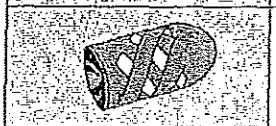
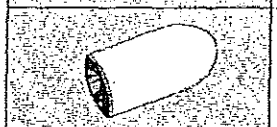
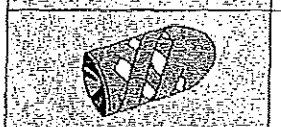
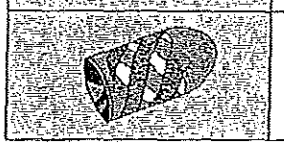
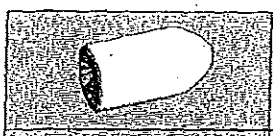
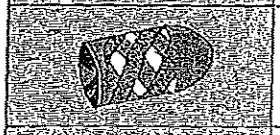
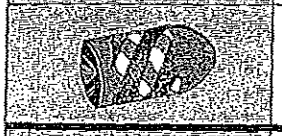
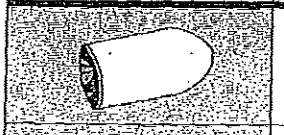
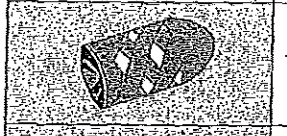
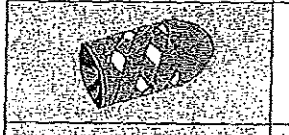
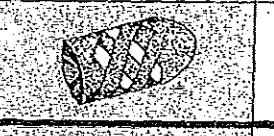
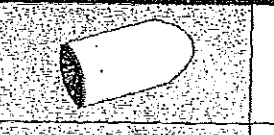
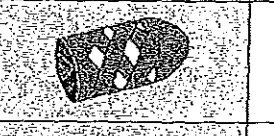
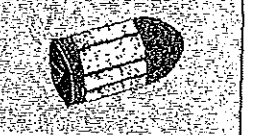
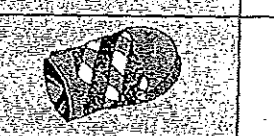
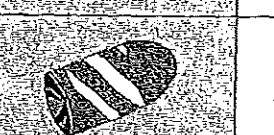
	B1	Swab	1-2 lbs. cubic foot (16 - 32 Kg/M³	Proving; Sweeping; Sealing
	B2*	Coated Swab	1-2 lbs. cubic foot (16 - 32 Kg/M³	Light Wiping
	B3	Bare	5-7 lbs. cubic foot (80 - 112 Kg/M³	Light Cleaning
	B4*	Coated	5-7 lbs. cubic foot (80 - 112 Kg/M³	Cleaning
	B5*	Wire	5-7 lbs. cubic foot (80 - 112 Kg/M³	Scraping

*Available with Rotating Pattern (see back page)

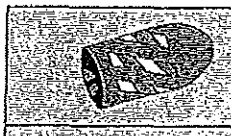
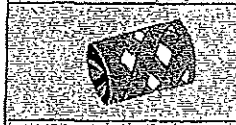
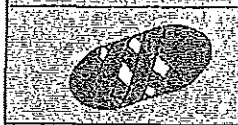
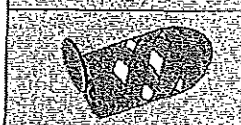
INDUSTRIAL SERIES

APPEARANCE	STYLE	TYPE	DENSITY	APPLICATIONS
	C3	Bare	8-10 lbs. cubic foot (128 - 160 Kg/M³	Heavy Duty Drying
	C4*	Coated	8-10 lbs. cubic foot (128 - 160 Kg/M³	Heavy Duty Wiping
	C5*	Wire	8-10 lbs. cubic foot (128 - 160 Kg/M³	Heavy Duty Scraping
	C6*	Carbide (Strap)	8-10 lbs. cubic foot (128 - 160 Kg/M³	Heavy Duty Scraping
	RX3	Bare	5-7 lbs. cubic foot (80 - 112 Kg/M³	Regular Duty Drying
	RX4*	Coated	5-7 lbs. cubic foot (80 - 112 Kg/M³	Regular Duty Wiping
	RX5*	Wire	5-7 lbs. cubic foot (80 - 112 Kg/M³	Regular Duty Scraping
	RX6*	Carbide (Grain)	5-7 lbs. cubic foot (80 - 112 Kg/M³	Regular Duty Scraping
	G1	Swab	1-2 lbs. cubic foot (16 - 32 Kg/M³	Light Duty Drying
	G2*	Coated Swab	1-2 lbs. cubic foot (16 - 32 Kg/M³	Light Duty Wiping
	G6*	Carbide (Grain)	1-2 lbs. cubic foot (16 - 32 Kg/M³	Light Duty Scraping

SPECIAL APPLICATION SERIES

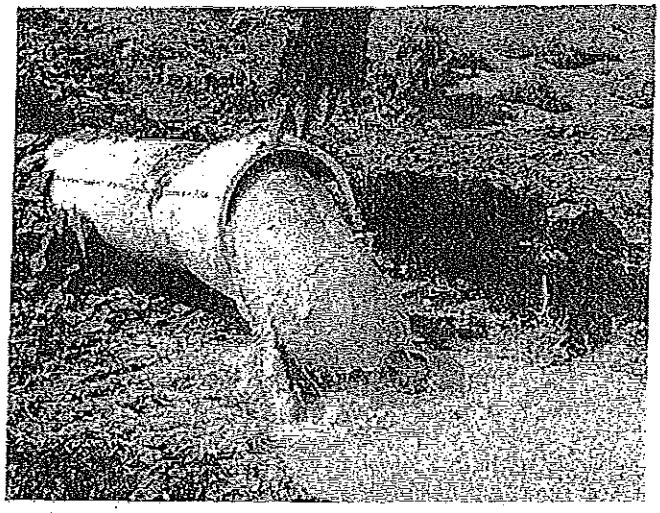
APPEARANCE	STYLE	TYPE	DENSITY	APPLICATIONS
	PB	Power Brush ™	8-10 lbs. cubic foot (128 - 160 Kg/M³	Maximum Scraping
	CPB	Plastic Brush	8-10 lbs. cubic foot (128 - 160 Kg/M³	Light Wiping
	RXSS	Single Spiral	5-7 lbs. cubic foot (80 - 112 Kg/M³	Economical Wiping

*Available with Rotating Pattern (see back page)

	Rotating Pattern	— Promotes longer even wear in most applications Available on all coated and wire styles
	Rope Loop(s) Cable Loop(s)	— For handling; pulling Available on all styles
	Double Dish	— Liquid removal; bi-directional runs Available on all styles
	Double Nose	— Bi-directional runs with pipe reductions Available on all styles
	Cavity	— For housing electronic tracking transmitter Available on all styles
	Stud Pig	— Extra hard scale removal

1. Poly Pig exits potable water piping system after traveling 1,300'.

2. A 12" Poly Pig exits piping system after traveling several miles.



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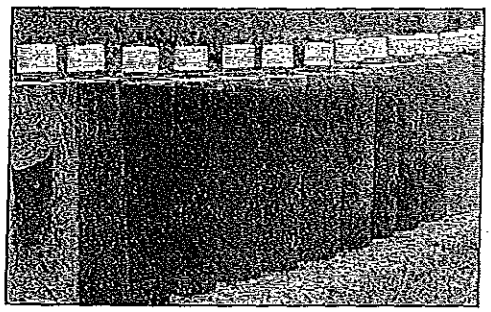

Utility Service Group Ice Pigging Program includes:

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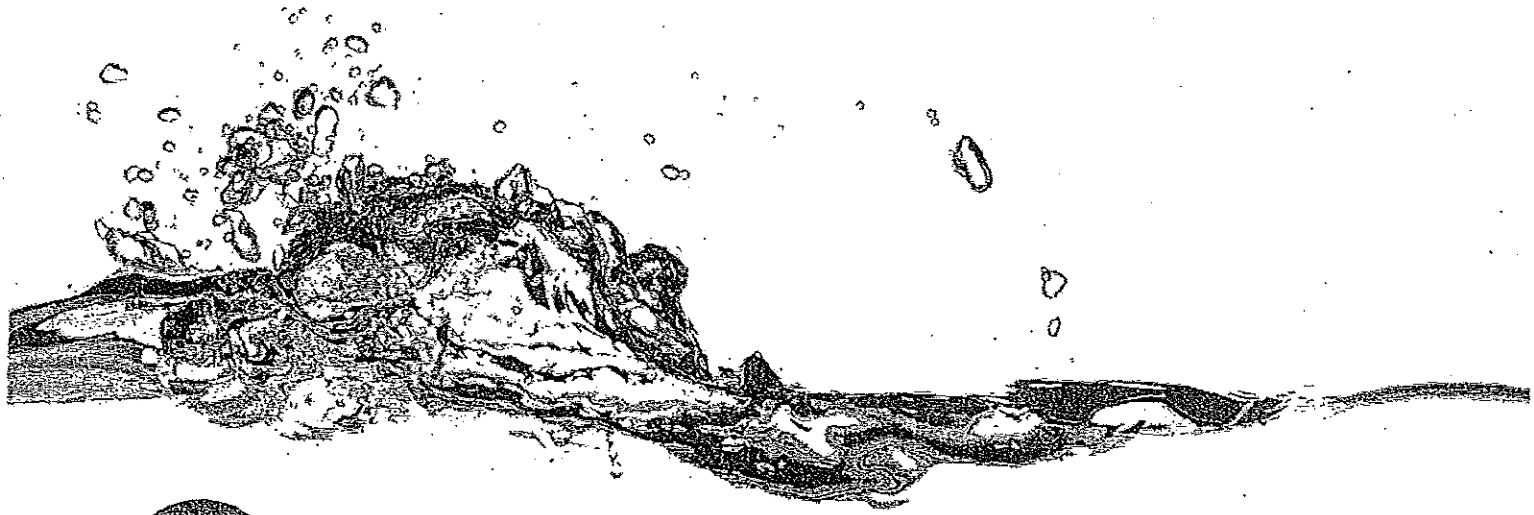

Utility Service Group

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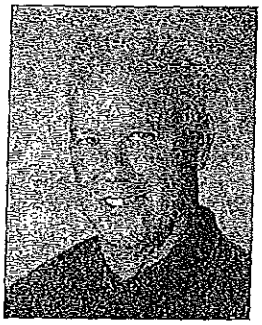
Phone 855.526.4413
utilityservice.com

by Gary Armentrout

Flushing and pigging: basic waterline maintenance

The daily operation of a public water system involves different aspects of many separate business and technical disciplines. In the course of a normal workday, operators will take a minimum of one to as many as 10 or 12 water samples. They may look for a water leak somewhere in the distribution system and will talk to three, four or more system customers about a variety of subjects. Operators may change out or add a customer water meter, repair a water leak, discuss purchases with sales reps and recheck meter readings on customer meters because "they just couldn't have used that much water." They might also have discussions with the project engineer about an upcoming project, and still make time to do some maintenance to the distribution system and equipment.



Gary Armentrout
Technical Assistant

Speaking of maintenance, there are many different types of equipment maintenance. They go by the more mundane maintenance monikers of "Before Operations Maintenance Checks," or "During Operations Maintenance Checks" and the not to be left out, "After Operations Maintenance Checks." There is also the entirely separate category of "Preventive Maintenance Checks."

"Maintenance Shmaintenance," it all means the same thing!

Maintenance has to be performed on trucks, cars, meters, pumps, hand tools, power tools. It must also be performed on computers, buildings, wells, towers, clear wells, clarifiers and just about every component in the entire system that has zero or more moving parts. Operators need to take care of system equipment if it is to provide long and reliable service.

In this article, the focus is on the part of the system that is nearly invisible and out of sight. It is the distribution system. These pipelines are buried in the cool, dark, damp underground. It is the wish and hope of everyone involved that they stay there, causing no problems – in total silence.

Unwanted buildup on the inside of most water distribution systems has been going on since the day the first valve was turned, and water started to flow through the system. How does a system avoid this buildup or deal with it?

There are many things that can be done to correct this problem.

Unwanted buildup on the inside of most water distribution systems has been going on since the day the first valve was turned, and water started to flow through the system.

A Fort Scott, Kan. city crew inserts a soft pig into a 4-inch ductile iron line.

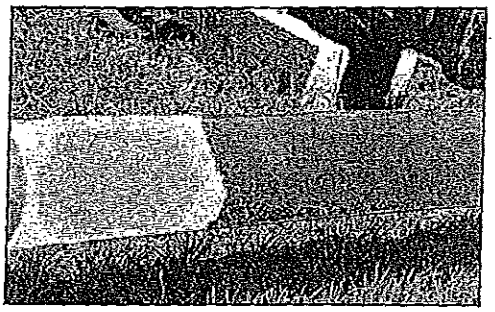
WATER QUALITY SERVICES

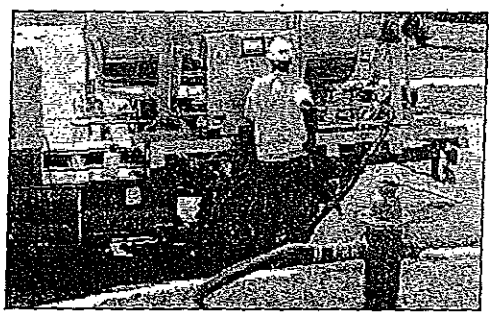
USG ADVANCED PIPE CLEANING (ICE PIGGING)

Utility Service Group

ICE PIGGING

ICE PIGGING FOR WATER & WASTEWATER MAIN CLEANING





SUSTAINABLE, SIMPLE, INNOVATIVE AND EFFECTIVE

ICE PIGGING combines the operational advantages of flushing with the cleaning impact of soft pigging. The Ice Pig is a semi-solid that is pumped like a liquid and flows through changes in diameter, bends and fittings without blockage. Ice Pigging has a minimum impact on operations. The ice pig is simply pumped into and recovered from a hydrant at each end of the pipe section without excavation or modification to the hydrant.

VALUE OF UTILITY SERVICE GROUP ICE PIGGING PROGRAM:

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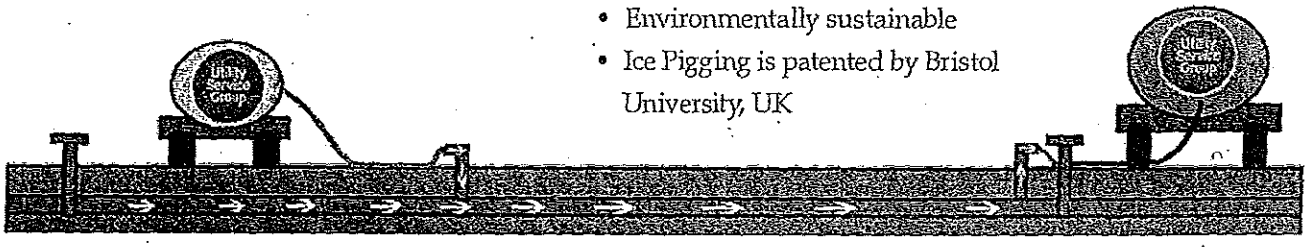
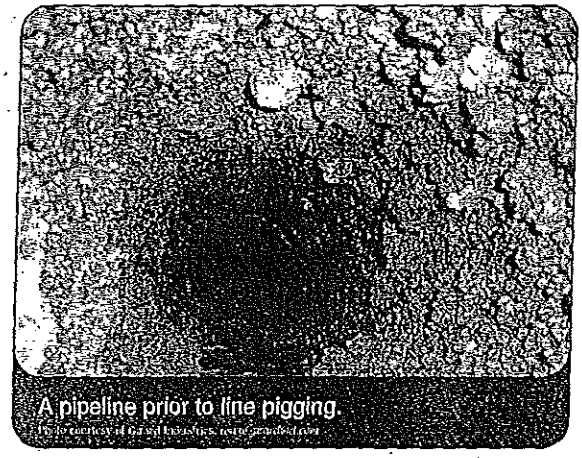
- No requirement to disinfect post cleaning
- Less disruptive/expensive than solid/foam pigging
- Uses 50% less water than conventional flushing
- Environmentally sustainable
- Ice Pigging is patented by Bristol University, UK





A pipeline prior to line pigging.

is to find and retrieve it, but you must identify the cause. Usually one of two conditions exists when a pig is stuck: fluid bypassing around the pig (not pushing the pig) or a blockage of the flow.

In water distribution systems that have loops and multiple tee connections a pig can find its way out of the work area and get lost. It is important to locate all valves and close off the lines that are not being pigged and know the direction of water flow.

If you lose a pig, a smart pig such as a detector pig or transmitter pig can be launched to help find the lost pig. A transmitter can also be installed in the cleaning pig so that a second pig does not have to be launched to help locate it if it should get lost or stuck. Sometimes a pig gets stuck because of a broken or shut gate valve.

Procedures for dealing with a stuck pig or fluid going around the pig:

1. Increase the line pressure and flow rate, but do not exceed the safe limits of the pipeline allowing for age and/or condition of the line. The flow rate and pressure can be increased with a pumper and tanker fire truck.
2. Release pressure from the line and drain the line back toward the launcher. Releasing pressure allows the pig to relax to its normal shape and may even cause the pig to back up in the line. After pressure has dissipated completely for several minutes, re-pressurize the line in an attempted to drive the pig through the restriction. This may be repeated two or three times.
3. For a bypass situation, run a soft swab in behind the stuck pig to try and create a positive seal, stopping the bypass. Repeat step one above.
4. Back the pig up by applying pressure from the opposite end of the waterline using a pump or possibly a pumper fire truck.
5. If a foam pig is used and gets stuck a super-chlorinate mixture (3,000 to 5,000 ppm) in a slug form can be used to dissolve the pig. The line must be flushed and tested to be sure the chlorine residual is allowable limits after the super chlorination.

Water systems are advised not to undertake line pigging on their own. Shop around and find a reputable company with experience in line pigging with water lines. Start with an area of the water system that the line location, size, type, and condition are all known and the lines can be dug up easily if needed.

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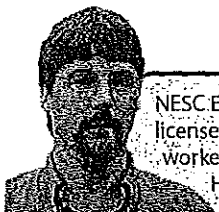
Special thanks to Jon Burris at Girard Industries for his assistance.



NESC Engineering Scientist **Zane Satterfield** is a licensed professional engineer and previously worked for the West Virginia Bureau of Public Health, Environmental Engineering Division.

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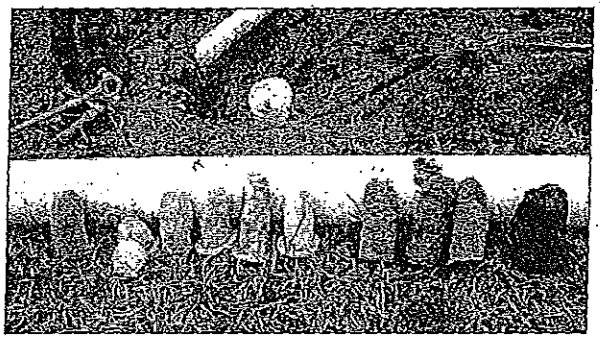

Left: The before and after look of a soft pig in the hands of Fort Scott Water Distribution Supervisor Bill Lemke.

Above: Pigs in a row, 10 of 12 pigs used in a water line maintenance operation. The missing two pigs came out in pieces less than a quarter dollar in size.

Some actions include changing the pH of the water, adding certain types of chemicals, and cleaning the inside of the pipe.

Flushing, as a prevention

The purpose of flushing of a water system is to remove any accumulated sediments or other impurities that have been deposited in the pipe. Flushing can also improve the flow of water, in effect, restoring the pipeline to its original capacity. Flushing is performed by isolating sections of the distribution system and then opening flush or fire hydrants to allow a large volume of water to move through the isolated pipeline and scour out any sediment.

Pigging, as a remedy

Water mains may also be mechanically cleaned with the use of swabs or pigs, as well as a variety of other means. KRWA has published numerous articles on the topic of pigging, describing the benefits of the projects from improved water quality to greater energy efficiency,

Pigs are devices that are forced through a section of line to scrape the accumulated deposits off the inside of the pipe. Pigging is now routinely conducted at the time of installing new waterlines. While some might contend that a requirement to pig a pipeline adds to the cost, I respectfully suggest that if project circumstance were to prohibit a contractor from pigging, the cost should increase. It's been proven that pigging newly installed pipelines reduces water loss due

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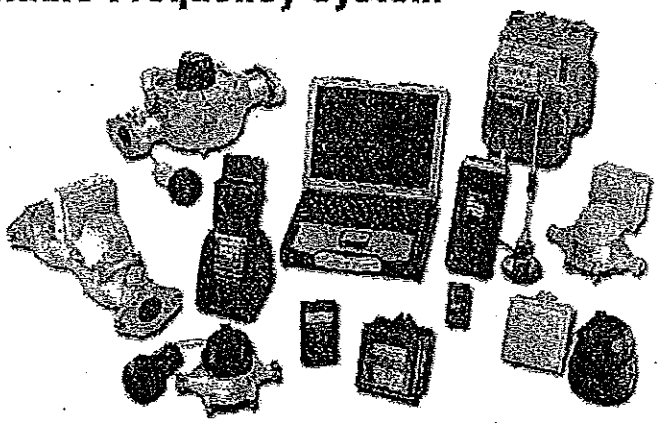

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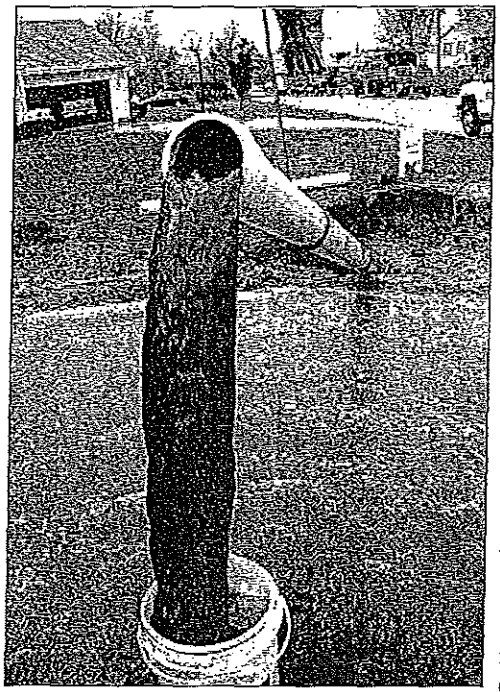
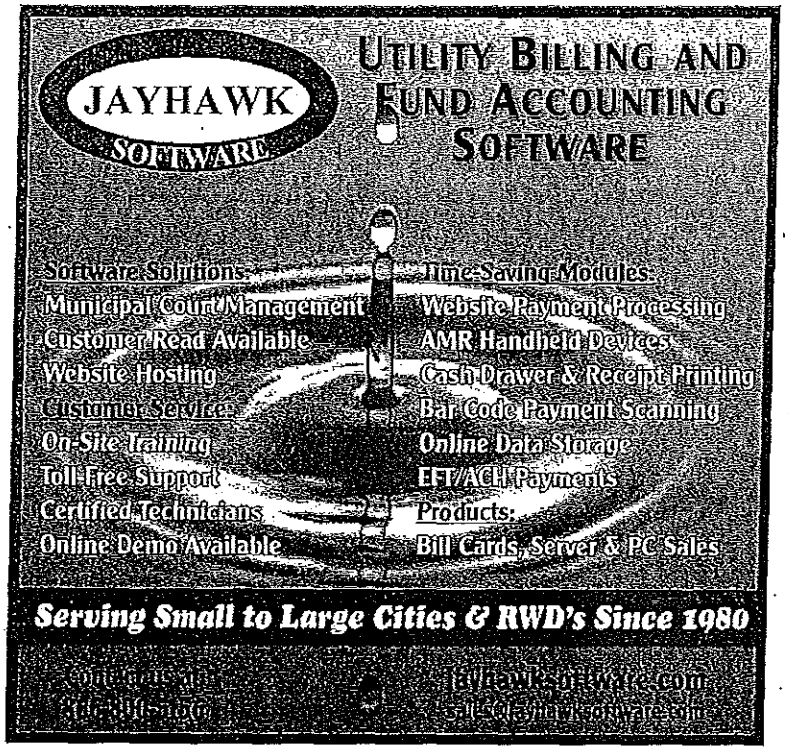


The concentration of buildup is evident coming from the inside of a ductile iron main. After years of operation and depending on water quality, excessive mineral deposits often build up inside waterlines. Pigging can often remove the deposits, improving water quality and flow characteristics.

to flushing by 75%, to say nothing for the reduction of labor to complete the process of getting a new extension or pipeline into service.

When there is a buildup inside water lines that cannot be removed by simple flushing, pigging is a cost efficient, effective and environmentally friendly alternate. Most important, it is an economical alternate to line replacement. No matter what type of pipe is in the distribution system, there is a pig to do the job as needed. There are four basic types of pigs used today. Each pig is designed for a specific job. They are the polyurethane foam pigs, mandrel or mechanical pigs, solid cast urethane pigs and the high tech "smart pigs." If a system's water lines are cast iron or ductile iron, there is a very good chance of needing to pig at least some sections. The deposits in the pipelines can cause enough restriction that flow will be reduced. PVC lines normally are not subjected to the same degree of buildup as cast iron or ductile iron pipelines. PVC however will often have sediment at the bottom of the pipeline along with a thin coating covering the entire inside. A foam pig can normally remove this type of buildup. This type of pig can also be reused after traversing segments of PVC pipe. If, on the other hand the pig is used in a cast or ductile iron pipe, it is usually torn to shreds as it moves through the line. It is KRWA's experience that pigging small diameter iron pipelines may not be practical if there is a high degree of buildup. It may be impossible to remove hardened deposits from small diameter lines of one to four inches. KRWA techs have experienced pigging projects where a city system had some 4-inch pipeline with so much buildup that no daylight could be seen through even a 20-foot section.

Pipe maintenance is a very important part of the overall maintenance program of any water system. I suggest that systems practice flushing as a preventive measure and pigging as a remedy. If assistance is needed in setting up a maintenance program for a city or RWD, or there is a need to discuss flushing or pigging, contact KRWA at 785/336-3760 or e-mail KRWA at krwa@krwa.net.



Thelen, Mary Beth (DEQ)

From:	Wurfel, Brad (DEQ)
Sent:	Friday, March 13, 2015 6:49 PM
To:	Hollins, Harvey (GOV)
Cc:	Wyant, Dan (DEQ)
Subject:	Part II
Attachments:	FOIA Request Flint Water.doc
Importance:	High

OK D-

This is the second issue I mentioned earlier today.
In December, our staff became peripherally aware that the hospitals in Genesee were seeing an uptick in Legionnaires cases.

Legionnaires is a water-borne illness. It essentially is a type of pneumonia caused by a bacteria. It is treated with antibiotics. Untreated, it can be deadly. It most often manifests in nursing homes and assisted living facilities, because the transmission is through water vapor getting into lungs – via air conditioners, vaporizers or low-flow shower heads that produce a lot of misting. You can drink water with this bacteria in it and not get sick – it has to enter the lungs in vapor.

I don't have any details on the cases, but here is what I understand to this point:

- More than 40 cases reported since last April. That's a significant uptick – more than all the cases in the last five years or more combined.

- April / May is usually the start of Legionnaires season – it proliferates in warmer months – but April also is the point at which the city switched to the Flint River as a source.

- County Health Departments are supposed to perform epidemiological tracebacks on all confirmed cases of this disease, to locate the source and address it. Genesee County Health had not done this work as of November. At a January meeting with area hospitals, MDCH, DEQ and others, Nick Lyon reportedly directed the county health folks, in terms not uncertain, to get this done as a priority. As I'm sitting here today, it still is not done to my knowledge.

- My counterparts at MDCH informed me today that they cannot step in unless they are invited or unless the outbreak is multi-county. They've not been invited until, I believe, today. That may be in part because of the email string and letter I've enclosed here, which was unknown to MDCH until I shared it over to them.

The email thread below is best read bottom-to-top, and read prior to reading the enclosed FOIA to the city.

Essentially, Jim Henry with Genesee County Health is putting up the flare. He's made the leap formally in his email that the uptick in cases is directly attributable to the river as a drinking water source – this is beyond irresponsible, given that is his department that has failed to do the necessary traceback work to provide any conclusive evidence of where the outbreak is sourced, and it also flies in the face of the very thing a drinking water system is designed to do.

DEQ did not receive this FOIA, which appears designed to buttress his position in the email -- that sections of the water delivery system may be harboring this bacteria. We think it would be highly unlikely that anything would be found around the plant, where the water is treated. Most often, this bacteria forms at the building / residential point in the system. Legionnaires is NOT among the 90 water contaminants screened in the Safe Drinking Water Act, but in the absence of action by county health, our staff are now considering taking samples from various points in the system and working with DCH's lab to test for it, if for no other reason than to rule it out.

Regardless, the accusation is serious and the nature of the communication leaves me thinking we would be advantaged to bring together all the agencies asap to share what information we have and develop a response / screening strategy before the weather gets warm again.

I realize these are long emails. Thanks for your patience.
b

Brad Wurfel
Communications Director
Michigan Department of Environmental Quality
517-284-6713
517-230-8006 cell

From: Shekter Smith, Liane (DEQ)
Sent: Thursday, March 12, 2015 8:41 AM
To: Wurfel, Brad (DEQ); Sygo, Jim (DEQ); Howes, Sarah (DEQ)
Cc: Shaler, Karen (DEQ); Benzie, Richard (DEQ); Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ)
Subject: FW: Information Request and Documentation
Importance: High

The district received this late Tuesday.

Steve Busch has indicated that the district has not received a meeting request from Jim Henry or the Genesee County Health Department as indicated in his email below.

The FOIA is specifically directed to the City of Flint not the DEQ.

While the change in source may have created water quality conditions that could provide additional organic nutrient source to support legionella growth, there is no evidence or confirmation of legionella coming directly from the Water Treatment Plant or in the community water supply distribution system at this time.

Seems like the next step is to communicate with DCH and possibly develop a joint strategy/response. Not sure who in Exec wants to take the lead on this. Steve Busch and Mike Prysby will continue to be lead for us on this. They have been in contact with DCH recently but only to learn that little progress has been made in identifying a source or sources for the illnesses.

EMAIL FROM DEQ TO HENRY SENT THIS AFTERNOON:

Mr. Henry,

The January 27, 2015, FOIA request you provided was directed to the City of Flint, not the DEQ. The DEQ has no record of a FOIA request from your office for such information. It is our understanding that the City has responded to your FOIA request, has helped you adequately redefine your request within the City's scope of public record to address such ambiguities as "any additional areas of concern", and provided you with additional information beyond the scope of your request.

The DEQ fully recognizes the public health threat posed to individuals that contract Legionnaires' Disease with the understanding that the disease is not contracted by ingestion of potable water and therefore not regulated under the federal Safe Drinking Water Act. Your email below claims that you have explicitly explained the situation to our Department. However, since contacting our office early last October to indicate a rise in cases, we have not received any further information regarding your epidemiological investigation into this matter.

Further, conclusions that legionella is coming from the public water system without the presentation of any substantiating evidence from your epidemiologic investigation appears premature and prejudice toward that end.

It is highly unlikely that legionella would be present in treated water coming from the City of Flint water treatment plant given the treatment plant's use of ozone along with complete treatment and chlorine disinfect contact time to comply with federal surface water treatment rules for potable water. Detections of total coliform or heterotrophic bacteria in the City's public water distribution system indicate an environment where bacterial growth may be supported. However, there is no direct correlation that can be made to the presence of legionella. While total organic carbon levels in potable water may serve as a food source for bacteria growth in private plumbing system, water temperatures in the City's distribution system are below legionella growth range, and chlorine residual levels would also limit such growth.

Our office agrees that water main breaks, water leaks, and system repairs are possible vectors for legionella to enter the public water system. These should be investigated as part of your epidemiology. DEQ staff can be made available to assist GCHD and the City regarding such matters, but to date no request by GCHD for any such meeting has been received, let alone declined as alleged in your email.

If GCHD is seeking assistance to complete its epidemiological investigation regarding this matter, such resource requests should be directed to the Michigan Department of Community Health. Our Office agrees that a multi-agency partnership would be beneficial to move forward and develop a unified response. In that respect, if our Office can be of any further assistance you may contact me directly.

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

From: "Henry, James" <jhenry@gchd.us>
Date: March 10, 2015 at 6:40:17 PM EDT
To: Howard Croft <hcroft@cityofflint.com>, "Mike Prysby (DEQ)" <prysbym@michigan.gov>, Elizabeth Murphy <emurphy@cityofflint.com>, "Natasha Henderson" <nhenderson@cityofflint.com>, Jerry Ambrose <gambrose49@gmail.com>, Dayne Walling <dwalling@cityofflint.com>
Cc: "Valacak, Mark" <MVALACAK@gchd.us>, "Cupal, Suzanne" <scupal@gchd.us>, "Hasan, Shurooq" <shasan@gchd.us>, "Childs, Bonnie" <BCHILDS@gchd.us>, "Hallwood, Dawn" <dhallwood@gchd.us>, "Johnson, M.D., Gary" <GJOHNSON@gchd.us>
Subject: Information Request and Documentation

Hello everyone,

The Genesee County Health Department has made several written and verbal requests for specific information since October, 2014, including a Freedom of Information Act Request on January 27, 2015. The information still has not been received and the city's lack of cooperation continues to prevent my office from performing our responsibilities.

The Genesee County Health Department has the responsibility to conduct illness investigations and consider all potential sources, this is not optional. In 2014, Genesee County experienced a significant increase of confirmed Legionella illnesses relative to previous years. Legionella can be a deadly, waterborne disease that typically affects the respiratory system.

The increase of the illnesses closely corresponds with the timeframe of the switch to Flint River water. The majority of the cases reside or have an association with the city. Also, McLaren Hospital identified and mitigated Legionella in their water system. This is rather glaring information and it needs to be looked into now, prior to the warmer summer months when Legionella is at its peak and we are potentially faced with a crisis.

This situation has been explicitly explained to MDEQ and many of the city's officials. I want to make sure, in writing that there are no misunderstandings regarding this significant and urgent public health issue. The Trihalomethane issues "pale in comparison" to the potential public health risks of Legionella.

I am submitting the attached FOIA request again and requesting that the legal obligations of the request are met. If the information is not available, please let me know. In the past, I have requested to meet with the water plant staff and MDEQ regarding Legionella concerns. I did not receive a response from the water plant staff and MDEQ declined. I think it is in the best interest for all stakeholders that we meet and discuss the issues.

Respectfully,

Jim

Jim Henry
Jim Henry RS, MBA
Environmental Health Supervisor
Genesee County Health Department www.gchd.us
630 S. Saginaw St., Suite 4
Flint, MI 48502-1540
Phone (810) 257-3618 Fax (810) 257-3125
E-mail jhenry@gchd.us

Genesee County Health Department

Mark Valacak, M.P.H., Health Officer
Gary K. Johnson, M.D., M.P.H., Medical Director

January 27, 2015

FOIA Coordinator, City of Flint
1101 S. Saginaw Street, 3rd floor
Flint, MI 48502

RE: Flint Water Plant Information Request

Dear FOIA Coordinator,

Under provisions of the Michigan Freedom of Information Act (MCLA 15.231 et seq; MSA 4.1801 (1) et seq) please provide copies of the following:

Provide specific water testing locations and laboratory results within the City of Flint public water system for Coliform, E-coli, Heterotrophic Bacteria and Trihalomethanes from January 1, 2010 to January 27, 2015. Provide any additional water testing that has been conducted for identifying potential public health risks. Include any available mapping of the water testing areas.

Provide a map delineating the boundaries of the City of Flint water distribution system. Include any changes to the boundaries, along with corresponding dates from January 1, 2014 to January 27, 2015.

Provide a map or list of locations, detailing dead ends, pooling, low pressure and any additional areas of concern within the City of Flint water distribution system. Include any modifications to the water distribution system addressing concerns, along with corresponding dates from January 1, 2014 to January 27, 2015.

If you determine that any of the requested information is exempt from disclosure, please detail what is being withheld and cite the exemption under FOIA. I anticipate the request being filled within five working days of receipt of this letter, as provided under FOIA. Please contact me at (810) 257-3618 if there are fees associated to comply with this request.

Sincerely,

Jim Henry

Jim Henry
Environmental Health Supervisor
Genesee County Health Department
630 S. Saginaw Street
Flint, MI 48502

Olszewski, Rosemarie (DEQ)

From:	Rosenthal, Adam (DEQ)
Sent:	Tuesday, March 10, 2015 9:53 AM
To:	Michael Glasgow
Subject:	RE: City of Flint Water Plant Monitoring Results

Got it, thanks Mike.

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Tuesday, March 10, 2015 9:51 AM
To: Rosenthal, Adam (DEQ)
Subject: City of Flint Water Plant Monitoring Results

Adam,

Good morning, here are the results of our February monthly bromate monitoring, and our first quarter radiological testing.

Mike Glasgow
City of Flint Water Plant

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Sunday, September 13, 2015 10:37 AM
To: Thelen, Mary Beth (DEQ)
Subject: FW: Flint Water Meeting
Attachments: SomnioGlobal_Ozone disinfection technology.pdf

From: Clayton, Stacie (GOV)
Sent: Friday, March 06, 2015 2:05 PM
To: Hollins, Harvey (GOV); 'Gerald Ambrose'; 'Maxine Murray'; Thelen, Mary Beth (DEQ); Wurfel, Brad (DEQ); Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); 'Natasha Henderson'; Shekter Smith, Liane (DEQ)
Subject: Flint Water Meeting

Greetings All,

Attached is a brief overview of the information to be presented on Monday at the 1:00pm meeting with Steve Linder of the Sterling Corporation regarding Flint Water. The meeting will be held at the Sterling Corporation's offices on 106 W. Allegan, Ste. 2 in Lansing. I have sent the appointment and here are the list of attendees:

Harvey Hollins, Director, Governor's Office of Urban and Metropolitan Initiatives
Gerald Ambrose, Flint Emergency Manager
Natasha Henderson, Flint, City Manager
Liane Shekter Smith, Chief, Office of Drinking Water and Municipal Assistance (DEQ)
Stephen Busch, Office of Drinking Water and Municipal Assistance (DEQ)
Brad Wurfel, Director of Communications (DEQ)

Please let me know if you have any questions, thank you.

Stacie

Stacie Clayton, Assistant Director
Harvey Hollins III, Director
Governor's Office of Urban and Metropolitan Initiatives
3044 West Grand Boulevard, Ste. 14-650
Detroit, MI 48202
313.456.4994 (office)
claytons3@michigan.gov

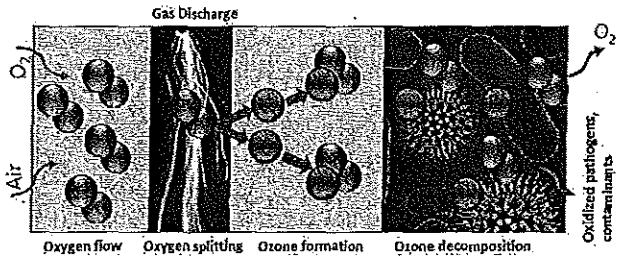
SOMNIO GLOBAL

Air_2O_3

Chemical Free Water Disinfection by Ozone

Today about 98% of water treatment facilities in the U.S. use some form of chlorine to disinfect drinking water supplies. It is a cost effective method for destroying potentially harmful bacteria and viruses. However, chlorine's ability to interact with organic compounds in water leads to trihalomethanes (THMs) formation. Especially, river or lake water with high level of organic matter require heavy chlorination to combat high level of bacteria, resulting in dangerous levels of THMs and bad smell. THMs, when ingested can encourage the growth of free radicals that can destroy or damage vital cells in the body. Besides cancer, exposure to THMs has been linked to other health issues including asthma, eczema, heart disease and higher miscarriage and birth defect rates. Further, high level of chlorine also poses serious risk to the aging infrastructure.

Chemical free water disinfection technologies such as UV light and ozone have long been recognized to be much safer than chlorination, however, their high cost has prevented wider adoption. The basic mechanism of ozone generation and disinfection is shown in the picture. Ozone has a high oxidation potential (much higher than chlorine) and a superior response time compared to other sanitizing products. Its high oxidizing potential enables ozone to break down organic matters that chlorine cannot. Some pollutants can only be oxidized by ozone. For example, ***Cryptosporidium Parvum***, a drinking water pollutant, is resistant to most disinfectants, but is effectively destroyed by ozone. Most importantly, the emission from ozone is pure oxygen and it leaves no residues.



UV light is a competing non-chemical sterilization technique. Intense UV rays break down the sensitive RNA and/or DNA of microorganisms, thus preventing the organism from reproducing. Ozone, on the other hand, oxidizes the microorganisms, thus destroying their cells completely. UV sterilization being a line of sight process, to be effective, one needs to remove most of the suspended matter prior to the treatment. In contrast, ozone oxidizes the soil or particulate matter, changing or destroying the chemistry of the soiling materials such as organic compounds.

Despite the great benefits of ozone, its widespread adoption is limited due to the high total ownership cost of current commercial ozone generators. Somnio's AiR_2O_3™ ozone generator is a paradigm shift in ozone generation technology. The first and only commercial barrier less ozone generator eliminates the requirement of dielectric barriers and highly filtered dried oxygen (pure or enriched) supplies, which restrain current commercial ozone generators. This groundbreaking technology brings a market-competitive, robust, energy efficient, and scalable modular device that offers a financially attractive alternative with the capability of producing varying levels of ozone depending on the application at hand.

Producing ozone cost effectively is only part of the greater story of the far reaching benefits of ozone. Applying ozone effectively for a given application requires careful and intelligent design, sensing and monitoring. In addition to its revolutionary AiR_2O_3™ ozone generator, Somnio

collaborates with end users to provide complete and economical turnkey solutions. Somnio's current in-house test plant incorporates all necessary safety features and automation.

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Sunday, September 13, 2015 10:37 AM
To: Thelen, Mary Beth (DEQ)
Subject: FW: Flint Water Meeting
Attachments: SomnioGlobal_Ozone disinfection technology.pdf

From: Thelen, Mary Beth (DEQ)
Sent: Friday, March 06, 2015 3:12 PM
To: Feuerstein, Heather (DEQ)
Cc: Thelen, Mary Beth (DEQ)
Subject: FW: Flint Water Meeting

FYI

Karen for MBT

Mary Beth Thelen
Management Assistant to Director Dan Wyant
Department of Environmental Quality
Constitution Hall, 6th Floor South
Phone: 517-284-6712 or 284-6700 (new numbers)
Fax: 517-241-7401
Thelenm2@michigan.gov

From: Clayton, Stacie (GOV)
Sent: Friday, March 06, 2015 2:05 PM
To: Hollins, Harvey (GOV); 'Gerald Ambrose'; 'Maxine Murray'; Thelen, Mary Beth (DEQ); Wurfel, Brad (DEQ); Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); 'Natasha Henderson'; Shekter Smith, Liane (DEQ)
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Brad Wurfel, Director of Communications (DEQ)

Please let me know if you have any questions, thank you.

Stacie

Stacie Clayton, Assistant Director
Harvey Hollins III, Director
Governor's Office of Urban and Metropolitan Initiatives
3044 West Grand Boulevard, Ste. 14-650
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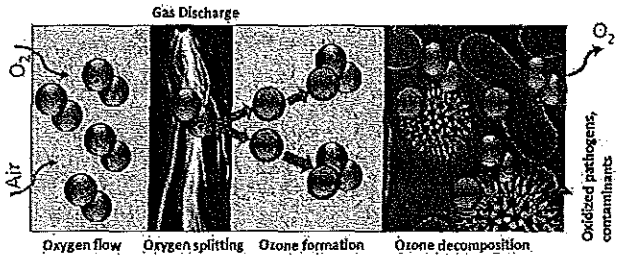

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collaborates with end users to provide complete and economical turnkey solutions. Somnio's current in-house test plant incorporates all necessary safety features and automation.

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Sunday, September 13, 2015 10:38 AM
To: Thelen, Mary Beth (DEQ)
Subject: FW: Flint Leak Detection
Attachments: hppscan185.pdf

From: Andy Dillon [mailto:adillon@conwaymackenzie.com]
Sent: Tuesday, March 03, 2015 4:38 PM
To: Wyant, Dan (DEQ)
Cc: Thelen, Mary Beth (DEQ)
Subject: Fwd: Flint Leak Detection

Dan,

I hope this finds you well.

Email below is an FYI. You may recall Tucker Young assisted me in evaluating the KWA oppty. They asked me to advise you they are familiar (obviously) w/ Flint and would like to help w/ leak detection/correction.

Actually, I have another matter I am working on I think you will find very interesting. I am off this week but will follow up when I return to Michigan as its a cutting edge, technology play that I believe the DEQ will find of interest. I introduced it to Tony Earley and he expressed great interest. Will advise in greater detail when I return from vacation (ugh, yes working while on vacation).

Best,

Andy Dillon
Conway MacKenzie Inc.
401 S. Old Woodward Avenue, Suite 340, Birmingham, MI 48009
248.952.8868 (office) | 517.420.6825 (cell) | 248.433.3143 (fax)
adillon@conwaymackenzie.com

---------- Forwarded message ----------
From: **George Karmo** <GKarmo@tyjt.com>
Date: Fri, Feb 27, 2015 at 1:28 PM
Subject: Flint Leak Detedtion
To: "adillon@conwaymackenzie.com" <adillon@conwaymackenzie.com>
Cc: David Guastella <DGuastel@tyjt.com>

Andy,

It was good talking to you this morning.

I'm referencing the Crain article attached related to City of Flint Water issues.

As you are aware when TYJT completed its report for the State of Michigan Treasury (assessment of Flint continuing with DWSD or partnering with Karegnondi Water Authority), we had recommended that Flint implement a program for leak detection of its water system. It was believed that the system experienced up to 50% leakage! We had indicated that the effort was necessary so that Flint could dramatically reduce the amount of water it needed to purchase from the Karegnondi Water Authority prior to designing and constructing the new pipe line.

As you are aware, TYJT is knowledgeable of the Flint area water system and well experienced in conducting leak detections and water audits. We therefore ask, based on the fact that the State of Michigan maybe granting Flint some funds to do the leak detection (see attached article) that TYJT use its existing DTMB as-needed contract with the State to accomplish this task.

Please let me know if you need additional information. We will be available to immediately meet with representatives of the State and City of Flint to discuss this leak detection program.

Regards,

George Karmo, P.E., BCEE

President

Tucker, Young, Jackson, Tull Inc.

615 Griswold Street

Detroit, Michigan 48226

313-234-0337 office direct

313-402-0356 cell

gkarmo@tyjt.com

MICHIGAN BRIEFS

Survey: More small firms leave it to workers to buy health coverage

Only 28 percent of small-business owners who offer employee health coverage indicated they intend to continue those benefits into 2016, according to a **Grand Valley State University** survey that asked how they were reacting to the Affordable Care Act. That move stems in part from the option available for individuals to buy coverage through public health exchanges created under Obamacare, *MiBiz* reported.

The results confirm much of what insurance carriers have seen and heard from small employers, said Scott Norman, vice president of sales and client services at **Priority Health**, which sponsored the GVSU survey. The results also point to the expected rise of the individual market.

How can you save a mall? Some developers turn to 'de-malling'

Despite numerous headlines touting the death of the American shopping mall, West Michigan developers have avoided an untimely demise. One key has been a push to effectively "de-mall" the sprawling shopping complexes where stores are connected via interior corridors. Instead, they're rearranging the traditional shopping malls so that the stores are only accessible from outside entrances.

The de-malling strategy effectively breathed new life into Grand Rapids' **Centerpointe Mall**, now about 98 percent occupied, according to **Colliers International**. The de-malling of Centerpointe has inspired developers to do a similar project at another mall that has fallen on hard times in recent years: Holland's **Westshore Mall** on U.S. 31.

State turns on money spigot to end Flint water torture

The problems for the Flint water system just keep going drip, drip, drip. ... Last week, the **Genesee Intermediate School District** said it had stopped using city water and was giving bottled water to about 1,300 preschoolers.

Also last week, Gov. Rick Snyder and the state stepped in, pledging $2 million in grants. The money will pay for a contractor to perform a leak detection survey of city water lines and shut down the Water Pollution Control Facility incinerator, replacing it with facilities allowing for waste disposal in landfills, The Associated Press reported.

Flint's emergency manager, Jerry Ambrose, said the financial relief also will free money to accelerate the replacement of major pipelines, which he said will increase water circulation and improve quality.

In January, Flint's system was in violation of the Safe Drinking Water Act because of high levels of a disinfectant byproduct. Flint, formerly a major customer of the **Detroit Water and Sewerage Department**, severed those ties last year to build a pipe into Lake Huron, ostensibly to save money.

Until the pipe is ready in 16 months, Flint gets water from the Flint River, which residents say has the smell, taste and appearance of something that looks less like water and more like, well ...

Last year, a **General Motors Co.** engine plant stopped using water from the Flint River after the automaker said it caused rusting on its engine parts.

The decision is expected to cost the city about $400,000 per year in lost revenue.

"The water today is within all acceptable guidelines — and that's an improvement over where it was a couple months ago," Ambrose said. "That says the water is safe. It doesn't say the quality is acceptable, and that's not acceptable to us."

MICH-CELLANEOUS

■ **Amway Corp.** President Doug DeVos told *The Grand Rapids Press* that the direct-sales giant will not cut back on its expansion plans or workforce despite an 8 percent decline in sales last year. Amway attributed the decline to a strong U.S. dollar and lower sales in China, the Ada-based company's largest market.

■ The latest quarterly survey of office furniture executives by **Michael A. Dunlap & Associates** found the industry "very steady," heading in the new year. "We are confident that the industry is still on course to achieve its best year in more than a decade," said Michael Dunlap, head of the Holland consultancy.

■ The **U.S. Army Corps of Engineers** will spend an additional $12 million this year on improvements to the Great Lakes navigational system, The Associated Press reported. The additional money allocated to the Detroit district will pay for eight projects involving dredging of shipping channels or other repairs, replacement or construction.

■ A subsidiary of Grand Rapids-based **Universal Forest Products Inc.** acquired assets of **Rapid Wood Mfg. LLC** of Caldwell, Idaho, *MiBiz* reported. In January, Universal acquired a majority stake in Australia's **Integra Packaging Proprietary Ltd.**

■ **Carson Health** in Montcalm County was acquired by **Sparrow Health** of Lansing, Sparrow said in a statement. Carson, with 61 beds, had been an affiliate of the Sparrow system since 1997.

■ The *Daily News* in New York City reports that **Dow Chemical Co.** Chairman and CEO Andrew Liveris bought a condominium in Manhattan's Chelsea neighborhood for $10.75 million. The 2,500-square-foot abode on the 17th floor has three bedrooms, "sweeping views of Midtown ... and 12-foot ceilings." It is said that his neighbors include actress Cameron Diaz.

Find business news from around the state at crainsdetroit.com/crainsmichiganbusiness.

Sign up for the Crain's Michigan Morning e-newsletter at crainsdetroit.com/emailsignup.

CORRECTION

■ The cost of **Oakland University's** Executive MBA health care leadership emphasis is $42,500. An incorrect price was published in a list of selected area leadership programs in the Feb. 2 edition.

Read AheadOfTheCurve.wmj.com, the definitive law blog for navigating the automotive [illegible]

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Friday, February 27, 2015 9:13 AM
To: Mike Glasgow
Subject: Lead Copper Cert form

Morning Mike, I need your lead/copper cert form – it was due by 1/10/15. I also need your 4th quarter WQPs for 2014. EPA is asking due to your 104 hit on lead. If you can, I need them today.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, February 17, 2015 4:03 PM
To: Howard Croft
Cc: Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Subject: RE: City Water Tech Team

Howard,

After further discussion with ODWMA staff, I am available to participate in the TAC. My main role will be review water system reports and provide comments and/or guidance primarily from a regulatory standpoint. Please keep me informed as to when the first meeting will be held. Finally, I wish to extend my thanks for the invitation to participate in the TAC.

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

From: Howard Croft [mailto:hcroft@cityofflint.com]
Sent: Saturday, February 14, 2015 8:45 AM
To: Prysby, Mike (DEQ)
Subject: City Water Tech Team

Mike,

The City of Flint has contracted with Veolia North America in order to have an additional review of the water system. As part of this review, we are working to develop a Technical Advisory Committee (TAC) that will that will receive reports and interact with the technical staff from Veolia. The City has identified 8 - 12 entities or individuals that we are extending an invitation to participate on this committee.

I would like to extend this invitation to you or your designee to be a representative on the TAC team which we hope to have established by early next week.

I understand that this is short notice but if you would consider the offer and confirm or deny your participation I would greatly appreciate it. We are hoping to announce the names of this team at a Public Works Committee meeting Wednesday February 18th. The details of the first meeting and the ongoing agenda which is anticipated to extend through the implementation of the Karegnondi Water Authority as a water source will also be unveiled next week..

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, February 12, 2015 11:43 AM
To: 'bwright@cityofflint.com'; 'rbincsik@cityofflint.com'
Subject: Residential customers

Brent, Rob....

I need Flint's most recent number of active residential service connections as part of updating MDEQ's estimated population served. Also, add in commercial and industrial accounts; however, keep them separate. Thanks.

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

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, February 09, 2015 1:21 PM
To: Mike Glasgow
Subject: January '15 MOR

Hi Mike, any chance you have your January MOR ready? I need a copy, EPA is asking for some data as they are getting calls. Please send what you have.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, February 09, 2015 2:36 PM
To: Michael Glasgow
Subject: RE: January '15 MOR

ok, thanks.

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Monday, February 09, 2015 2:00 PM
To: Rosenthal, Adam (DEQ)
Subject: Re: January '15 MOR

Adam,

I'm just about finished with it, just finishing up with some of the operational chemical feed data, I will send a pdf copy to you tomorrow when it will be fully complete. Attached is what I have done so far.

Mike

On Mon, Feb 9, 2015 at 1:20 PM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Hi Mike, any chance you have your January MOR ready? I need a copy, EPA is asking for some data as they are getting calls. Please send what you have.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

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For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

Olszewski, Rosemarie (DEQ)

From:	Prysby, Mike (DEQ)
Sent:	Friday, February 06, 2015 1:48 PM
To:	emurphy@cityofflint.com
Cc:	'bwright@cityofflint.com'
Subject:	Flint River Source Water Assessment
Attachments:	Flint River Source Water Assess..doc

Elizabeth,

Attached is a copy of the Flint River Source Water Assessment report for your information. Water treatment plant staff should have a copy of this report, if not, please provide them with a copy.

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, February 06, 2015 12:57 PM
To: emurphy@cityofflint.com
Subject: RE: Water Supply Sources

Elizabeth,

Yes, a source water assessment was completed for the Flint River and a report is available. I will send it to you asap (later today or on Monday).

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

From: Prysby, Mike (DEQ)
Sent: Friday, February 06, 2015 11:01 AM
To: 'emurphy@cityofflint.com'
Subject: FW: Water Supply Sources

Elizabeth,

Below is a link to our website that lists all of surface water systems in Michigan. You will need to scroll down to the bottom of the list to see the listing of supplies using a river as their source. Also, I am not aware of any source water assessment conducted for the Flint River watershed; however, I would like to confirm that. I will let you know asap once I obtain the confirmation.

http://www.michigan.gov/deq/0,4561,7-135-3313_3675_3691-9775--,00.html

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

Olszewski, Rosemarie (DEQ)

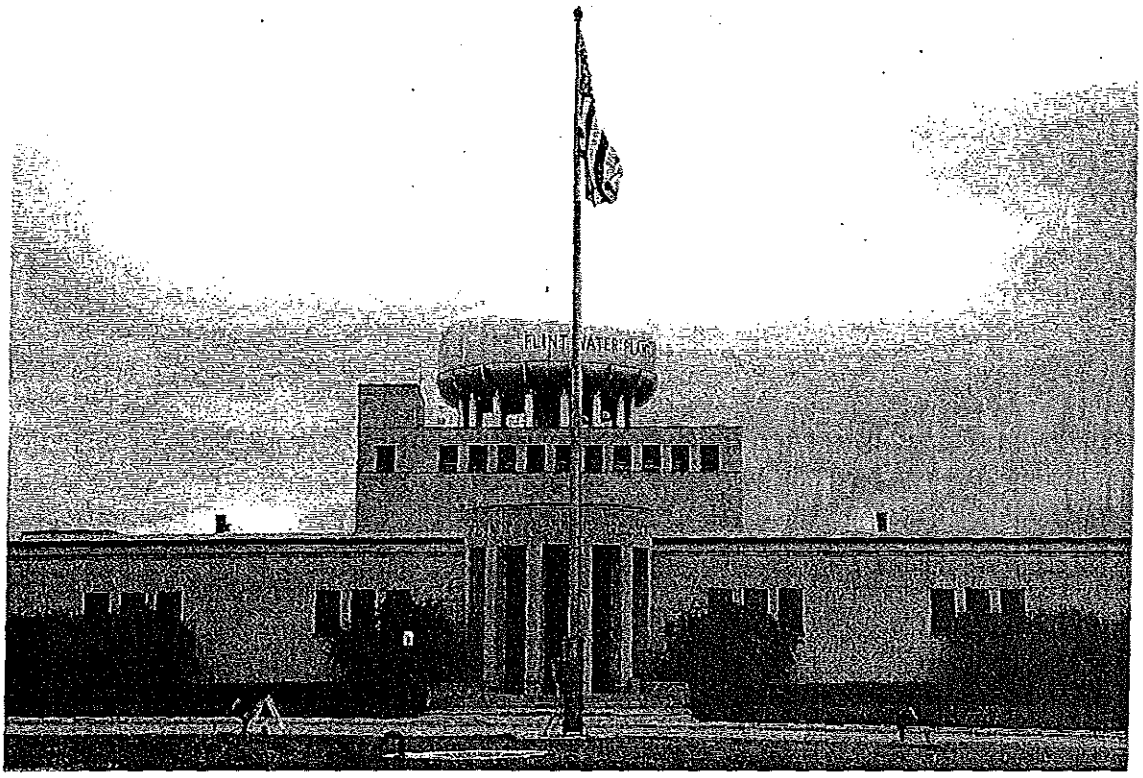
From:	Prysby, Mike (DEQ)
Sent:	Friday, February 06, 2015 1:48 PM
To:	emurphy@cityofflint.com
Cc:	'bwright@cityofflint.com'
Subject:	Flint River Source Water Assessment
Attachments:	Flint River Source Water Assess..doc

Elizabeth,

Attached is a copy of the Flint River Source Water Assessment report for your information. Water treatment plant staff should have a copy of this report, if not, please provide them with a copy.

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

Source Water Assessment Report for the City of Flint Water Supply Flint River Emergency Intake February 2004



City of Flint Water Treatment Plant, Flint, Michigan

Prepared for:

City of Flint Water Supply; WSSN 2310

Prepared by:

U.S. Geological Survey, Water Resources Division, Michigan District
Michigan Department of Environmental Quality, Water Division
City of Flint Water Utilities Department

Michigan Source Water Assessment Report 54

Executive Summary

The purpose of the Source Water Assessment is to analyze the sensitivity and determine susceptibility of a community's source of drinking water to potential sources of contamination.

Sensitivity is determined from the natural setting of the source water (raw water to the water treatment plant), and indicates natural protection afforded the source water. Using procedures established in the Great Lakes Protocol, Michigan Source Water Assessment Program, the ***emergency*** *intake for the Flint Water Treatment Plant has a very high degree of sensitivity to potential contaminants. When the effects of agricultural and urban runoff in the Flint River watershed are considered, the Flint intake is categorized as very highly sensitive.*

Susceptibility identifies factors within the community's source water area that may pose a risk to the water supply. The susceptibility determination provides information with respect to listed facilities and land areas within the source water area that should be given greater priority and oversight in implementing a source water protection program. The source water area for the Flint ***emergency*** *intake includes 96 potential contaminant sources, 16 listed potential contaminant sources within the susceptible area, plus urban and agricultural runoff from the Flint River watershed into the Flint River. The potential contaminant sources, in combination with the very highly sensitive intake, indicate that the Flint* ***emergency*** *intake source water is very highly susceptible to potential contamination.*

The Flint ***emergency*** *intake source water is categorized as very highly susceptible, given land uses and potential contaminant sources within the source water area. However, it is noted that when operating, the City of Flint Water Treatment Plant has effectively treated this source water to meet drinking water standards. The City of Flint has instituted pollution prevention programs, but should be cognizant of additional potential threats to its source of drinking water that are identified in this report. This report explains the background and basis for these determinations.*

Using this Assessment

Clean, safe drinking water is fundamental to the viability of any community. Protecting the drinking water source is a wise and relatively inexpensive investment in your community's future. The overall intent of this assessment is to provide background information for your community to use in developing a local source water protection program. The assessment benefits your community by providing the following:

- ***A basis for focusing limited resources within the community to protect the drinking water source(s).***

  The assessment provides your community with information regarding activities within the **source water area (SWA)** that directly affect your water supply. It is within this SWA that a spill or improper use of **potential contaminants** may cause these contaminants to migrate toward the water **intake**. By examining where the source waters are most susceptible to contaminants, and where potential contaminants are located, the assessment clearly illustrates the potential risks that should be addressed.

- ***A basis for informed decision-making regarding land use within the community.***

  The assessment provides your community with a significant amount of information regarding where your drinking water comes from (the source) and what the risks are to the quality of that source. Knowing where the resource is allows your community planning authorities to

make informed decisions regarding proposed land uses within the SWA that are compatible with both your drinking water resource and the vision of growth embraced by your community.

- ***A basis for dealing with future regulations.***

  The assessment has been designed to functionally meet proposed requirements for surface-water supplies. Information needed to address regulatory needs and requirements has been collected and made available to your community through this report.

This source water assessment also provides the basis for a locally developed, voluntary source water protection program. Communities interested in voluntarily developing source water protection programs should contact the Michigan Department of Environmental Quality (MDEQ) or visit the Department web page at http://www.deq.state.mi.us.

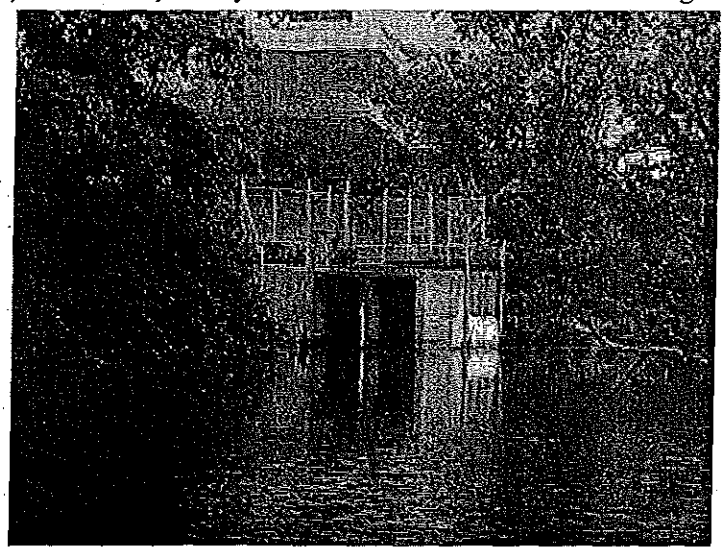
Introduction

In 1996, Congress amended the **Safe Drinking Water Act** and provided resources for state agencies to conduct source water assessments by identifying SWAs, analyzing the **sensitivity** of the source to natural conditions, conducting contaminant source inventories, and determining the **susceptibility** of the source to potential contamination. Delineations, sensitivity analyses, contaminant inventories, and susceptibility determinations comprise a "source water assessment." Assessments will be completed for every public water supply source in Michigan. To support this effort, the MDEQ Water Division established a partnership with the U.S. Geological Survey (USGS) to develop a method for conducting source water assessments for surface water supplies (Sweat and others, 2000; Sweat and others, 2001).

The requirements for public water supplies in Michigan to meet United States Environmental Protection Agency (USEPA) **maximum contaminant levels** (MCLs) provide some degree of assurance of safe drinking water; however, all systems are vulnerable to potential contamination. One of the best ways to ensure safe drinking water is to develop a local program designed to protect the source of drinking water against potential contamination. Not only does this add a margin of safety, but it also raises the awareness of consumers and/or the community of the risks of drinking water contamination. It is expected that source water assessment results will provide a basis for developing a source water protection program.

Background

Flint is located in Genesee County, about 55 miles northwest of Detroit, Michigan (fig. 1). The city of Flint water supply serves a population of 125,000. In 1967, the city connected to the Detroit Water and Sewage Department (DWSD) water supply and the Flint Water Treatment Plant (WTP) was placed on stand-by operation. The city is required by the MDEQ to maintain this treatment facility for reliabilty since the city obtains treated water through a single pipeline from the DWSD Lake Huron WTP which is subject to interruption of service. The present intake at the Flint WTP was constructed in 1948 and consists of a concrete box structure on the edge of the Flint River. The intake structure has a bottom elevation of 700.00 and connects through a 72-inch concrete pipe to the low service pump station. Low service pumps lift the river water through the WTP processes of conventional treatment and lime-soda softening .



Flint WTP Emergency, Flint River Intake Structure (Viewed from downstream)

Treatment at the plant includes the addition ferric chloride as a coagulant, lime and soda ash for softening, chlorine for disinfection, and fluoride addition for dental health.

Water treatment plants are periodically inspected to identify construction, maintenance, operational or source defects that could make them vulnerable to contamination, particularly from contaminants that are microbial in nature, such as fecal coliforms. Water suppliers are provided a sanitary survey report that notes deficiencies in the system, and the State may direct the system to make necessary corrections. The sanitary survey is an important part of a safe drinking water program.

Climate

The Flint water supply is located in the central Lower Peninsula hydrologic province (Rheaume, 1991), in the Flint River watershed (USGS, 1974, 1982). The region experiences temperate summers with moderate winters. The Flint Bishop International Airport Weather Bureau station reports that the average annual precipitation for the climatic years 1887-2001 was 30.28 inches and the average from the past 5 years is 31.42 inches (NOAA, 2001), with about 13 percent of that as snowfall between November and March. Annual average runoff for the Flint SWA, extrapolated from Miller and Twenter (1986, fig. 1) is 9 to 10 inches.

Source Water Area Geology and Hydrology

The study area for evaluating the extent of the Flint emergency intake SWA includes the upper reaches of the Flint River watershed (fig. 1). Flint is located roughly in the middle of the Flint River watershed. The SWA consists of lacustrine clays and silts; end moraines of coarse- and medium-textured till; fine-, medium-, and coarse-textured glacial tills ; and postglacial alluvium. The SWA is underlain by Bayport Limestone, Marshall Sandstone and mixed shales, sandstones, and limetsones of the Saginaw and Michigan Formations (Martin, 1955; Milstein, 1987). Soils underlying the Flint SWA are primarily associations of the Blount, Boyer, Brookston, Capac, Ceresco, Celina, Chelsea, Cohoctah, Conover, Del Ray, Kibbie, Lapeer, Lenawee, McBride, Metea, Miami, Montcalm, Sloan, Spinks series (U.S. Department of Agriculture, 1961; BASINS, 1998; MIRIS, 2000). They include loams, loamy sands, fine sandy loams, silty clay and muck.

Flint River – Source Water for City of Flint WTP

Soil permeability is based on the calculated time of travel, in inches per hour (in/hr), for water to move vertically through a saturated soil zone. Soil thickness and permeability values are available in soil survey reports published by the National Cooperative Soil Survey and U.S. Department of Agriculture (1982, 1992, 1993, also 2 county reprints in press). Permeability ranges from less than 0.06 in/hr, rated as very slow, to more than 20 in/hr, rated as very rapid.

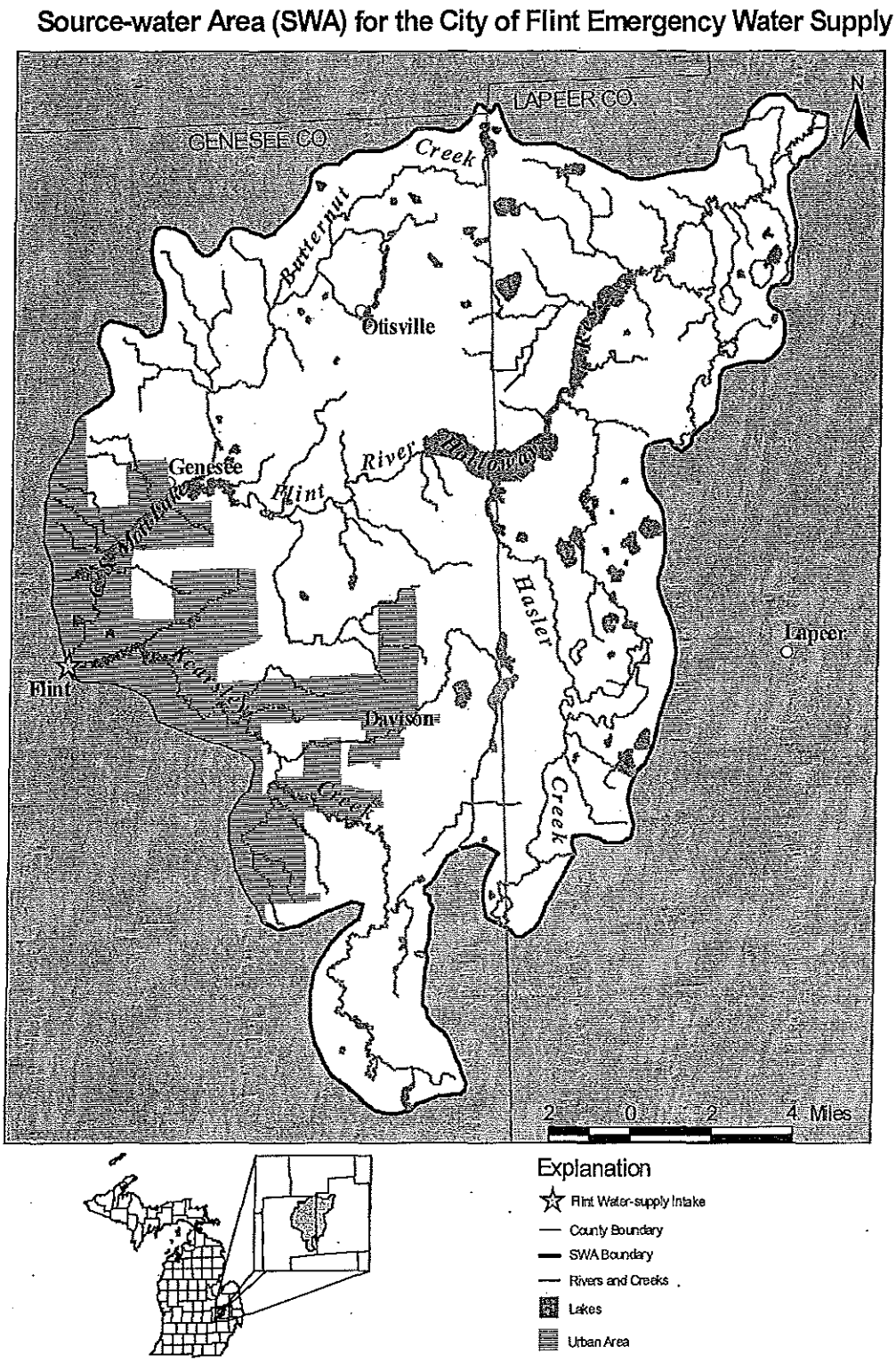
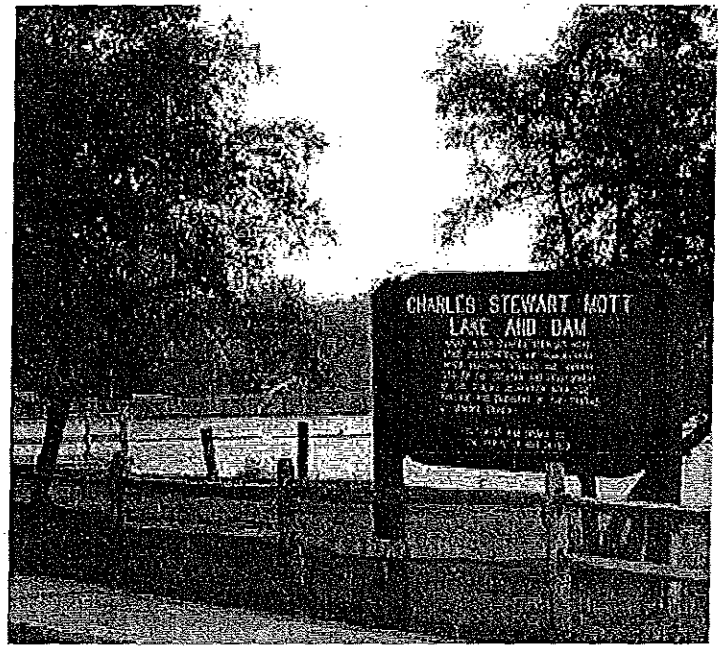


Figure 1. Source-water area (SWA) for the evaluation of the Flint emergency intake, Flint, MI.

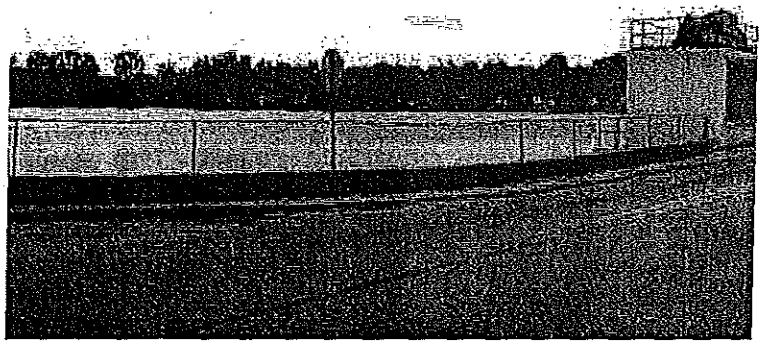


Mott Lake and Dam on Flint River upstream of Flint WTP

Very slowly permeable soils significantly reduce the movement of water through the soil zone and, as a result, allow greater time for natural degradation of contaminants. However, such soils also provide for rapid overland transport of contaminants directly to receiving waters, which in *turn* may affect the water supply intake. Erosion and transport of soils by surface waters can cause an increase in turbidity. In contrast, very rapidly permeable soils allow for rapid infiltration and passage through the soil zone from the surface. Such soils potentially allow rapid transport of contaminants with minimal contact-time available for contaminant breakdown.

Mean, area-weighted, depth-integrated permeabilities for the Flint SWA range from 0.6 to as much as 7.8 *in/hr*. The mean permeability is 3.1in/hr (Schneider and Erickson, undated, series of 5 maps; BASINS, 1998; MIRIS, 2000). Soil permeability ranges from moderately slow in the northeastern portion of the SWA to moderate over the eastern portion of the SWA to moderately rapid throughout the central and western portions of the SWA, and rapid around the Flint River (fig. 2; U.S. Department of Agriculture, 1961; BASINS, 1998; MIRIS, 2000). Areas adjacent to the Flint River are underlain by highly sensitive drift lithologies, whereas the remainder of the SWA is underlain by least sensitive drift lithology (Lusch and others, 1992).

The Flint SWA contains an area of about 237 square miles (mi2). There are is one operable gage within the Flint SWA and a Flint River gage which operates approximately 9 miles downstream from the Flint Emergency Intake. Between 1932 and 2002 discharge has been recorded at this station by the USGS (Blumer and others, 2002). Annual mean discharge at the Flint River at Flint gauging station was 339 cubic feet per second (cfs) between 1932 and 2001, and ranged from 153 to 1258 cfs. Velocity measured at this stream gage was used to estimate the distance in which contaminants could travel within 24 hours, or the 24-hour time-of-travel (TOT) for this area on the Flint River. The distance calculated for the 24-hour TOT was approximately 27 miles.



Kearsley Lake and Dam on Kearsley Creek Upstream of Discharge to Flint River and Flint WTP Emergency Intake

Soil Permeability for the Flint Source-water Area, Flint, MI

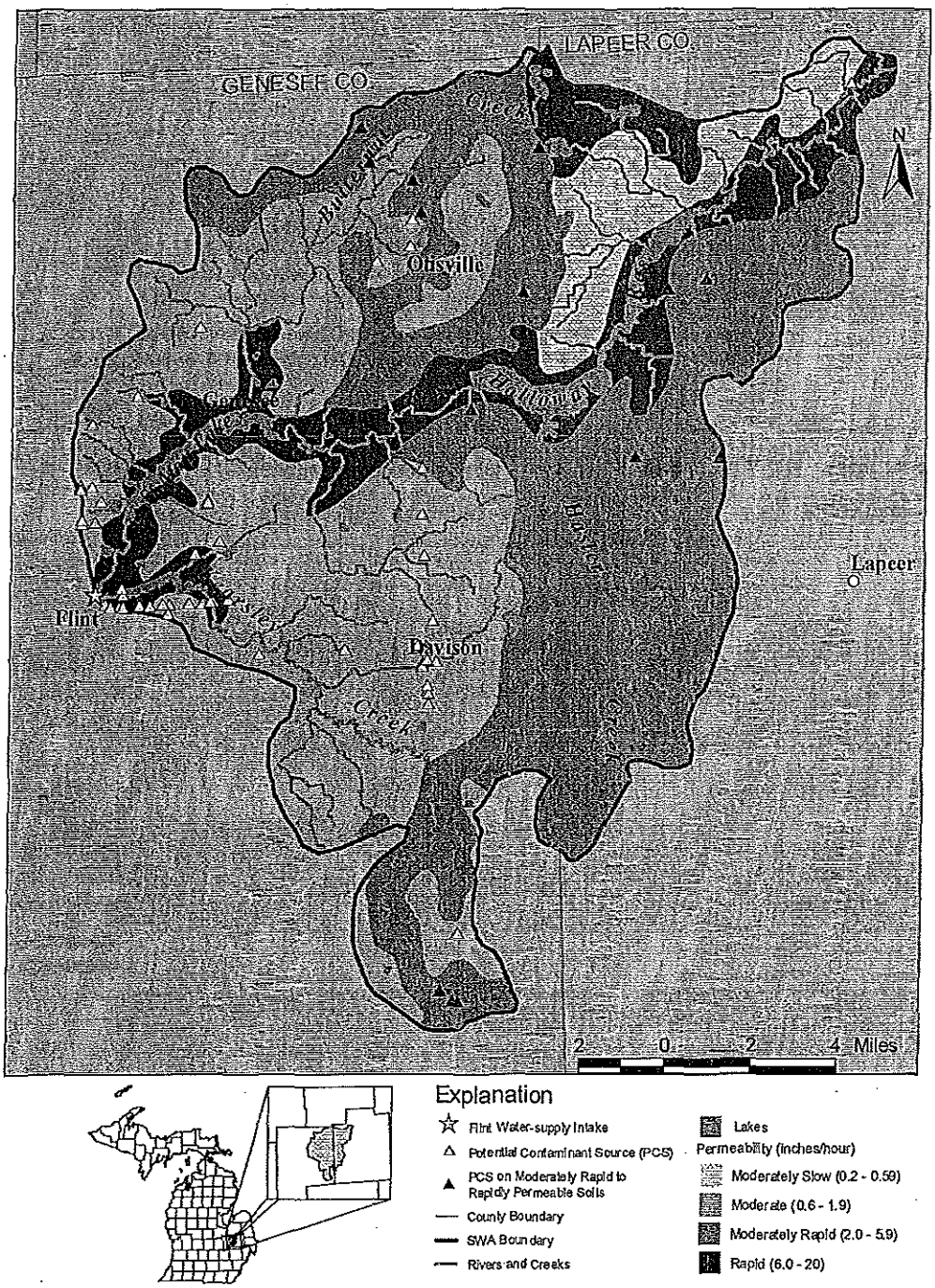


Figure 2. Soil permeability for the Flint emergency water-supply intake SWA. Flint, MI.

History of Raw Water Quality at the Source

Public water supplies are required to routinely monitor raw water quality for selected parameters to optimize treatment, and to monitor treated water quality for a list of contaminants that is determined by MDEQ and the Safe Drinking Water Act. A detection of any contaminant may indicate that a pathway exists for contaminants to reach the intake. It is important to realize that the results from a given sample only provide information regarding the water quality at the time the sample was collected. Water quality can change with time for a number of reasons. The fact that a water sample does not contain contaminants is no guarantee that contamination will not occur in the future. Conversely, the detection of a contaminant in the past does not indicate that it will occur in the future.

The Flint WTP records for the last 3 years of routine operation, 1965-1967 show that water use fluctuated between 34.4 and 46.5 million gallons per day (MGD), with an average daily use of 38.5 MGD. Raw water quality reported for these three years ranged from 5 to 183 nephelometric turbidity units (NTU) for turbidity, 203 to 375 mg/l total hardness as CaCO3, 116 to 235 mg/l alkalinity as CaCO3, 16 to 46 mg/l chlorides and 8.2 to 8.5 units for pH. Precipitation events were noted to increase turbidity and lower hardness. An analysis of flow duration for the Flint River and source water chemistry would probably indicate that there may be an indirect correlation between turbidity, suspended sediments, and coliforms and high flows associated with spring snowmelt and precipitation runoff events.

In recent years, the Flint WTP has undergone operational and process improvements for water treatment. Raw water quality during these testing periods when the WTP was operating but discharging to waste are noted in the table below.

Date of Tests	Turbidity	Total Organic Carbon	pH	Alkalinity	Hardness
	(NTU)	(mg/l)	(pH units)	(mg/l)	(mg/l)
12/5-7/2000	4.2	8.75	7.8	249	324
1/16-18/2001	2.4	8.5	7.7	275	363
3/20-21-2001	5.4	N/A	7.9	196	266
4/16-18/2001	7.6	8.6	8.2	213	284

Source Water Assessment Methodology

Technical guidelines for completing source water assessments are contained in the Michigan Source Water Assessment Program, Assessment Protocol for Great Lakes Sources (Protocol) (MDEQ, 1999, Appendix L) available at http://www.deq.state.mi.us/dwr. In general, an assessment is a process for evaluating a drinking water supply and the potential for its treated water to exceed an MCL due to raw water contamination. A source water assessment considers the SWA, potential sources of contamination within the SWA, conditions of the water supply intake, and susceptibility to contaminants in order to identify potential risks to drinking water quality. Although the Protocol provides the minimum requirements and instructions on how to conduct an assessment, each water supply is unique with respect to how the process is carried out, due to local conditions and information. Sweat and others (2000, 2001) have developed and documented the methodology used in the preparation of this assessment.

Delineating Source Water Areas

Delineation of the SWA is accomplished by using geographic information system (GIS) software to map the watershed(s) that have the potential to affect source water at the intake. Using information from the water supply, a critical assessment zone (CAZ) is defined for the intake (MDEQ, 1999, Appendix L). A buffer is then created along any shoreline intersected by the CAZ, and from the edge of the CAZ to the mouth of any river(s) that might influence the intake. Finally, the buffer is extended along the shoreline of any river(s) that might influence the intake, from the mouth of the river to its headwaters. The area defined by the CAZ, river and shoreline buffers is termed the susceptible area. The susceptible area within the SWA defines locations where a water supply should focus its management strategies and resources to benefit the drinking water resources.

Using the Great Lakes Protocol and the Flint water supply information:

- The CAZ for the Flint intake is assigned as 3,000 ft since the intake is located in an inland river (fig. 3).
- The susceptible area along the shoreline is determined to be: A distance of 300 ft inland along the banks of the Flint River and its tributaries (fig. 4).

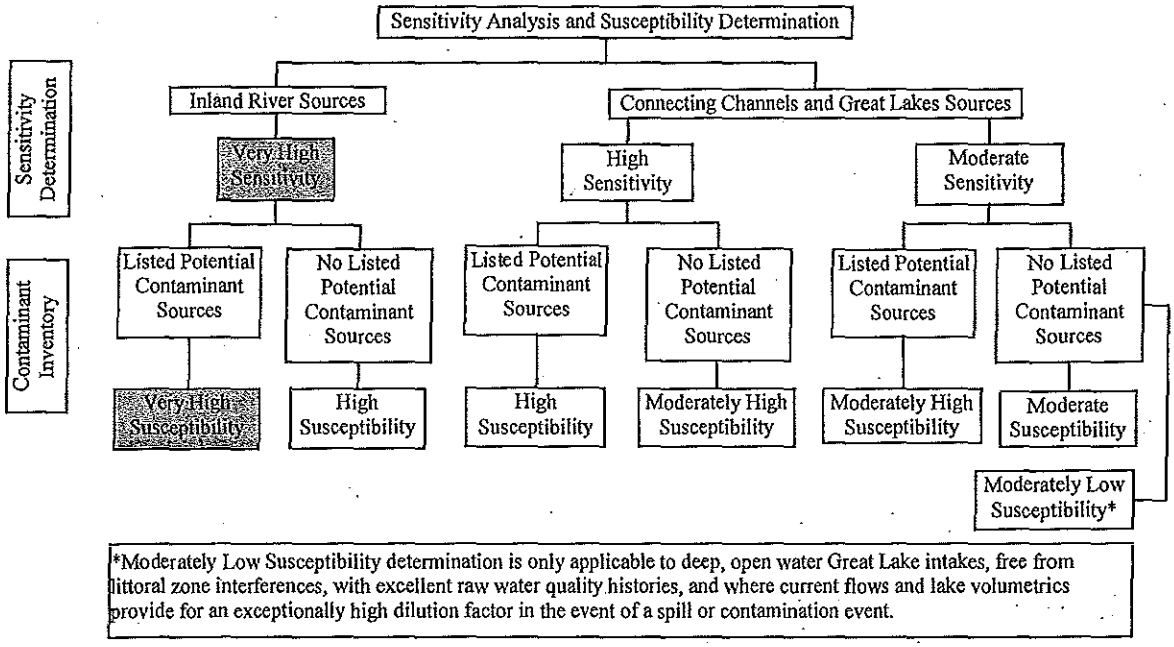


Figure 53. Surface-water sSource sSensitivity aAnalyses and sSusceptibility dDetermination for the ~~Ann Arbor~~Flint emergency water-treatment-plant source-water areas.

Contaminant Source Inventory

Past, current, and potential future sources of contaminants were inventoried to identify several categories of potential sources of contaminants including microorganisms (bacteria, oocysts, and viruses), inorganic compounds (nitrates and metals), organic compounds (solvents, petroleum compounds, pesticides), and disinfection by-product precursors (trihalomethanes, haloacetic acids).

It is important to remember that sites and areas identified by this process are only potential contaminant sources used and managed properly. In addition, assumptions were made about particular types of land uses and risks associated with those land uses. Assumptions are discussed further in the results portion of this report.

The process for completing the inventory included several steps, which are summarized as follows:

1. Reviewed readily available land use maps and historical/current aerial photographs.
2. Plotted relevant information from applicable state and federal regulatory databases including the following lists:
   - MDEQ leaking underground storage tank (LUST) sites;
   - MDEQ registered underground storage tank (UST) sites;
   - MDEQ Environmental Cleanup Site Information System (ECSI) sites;

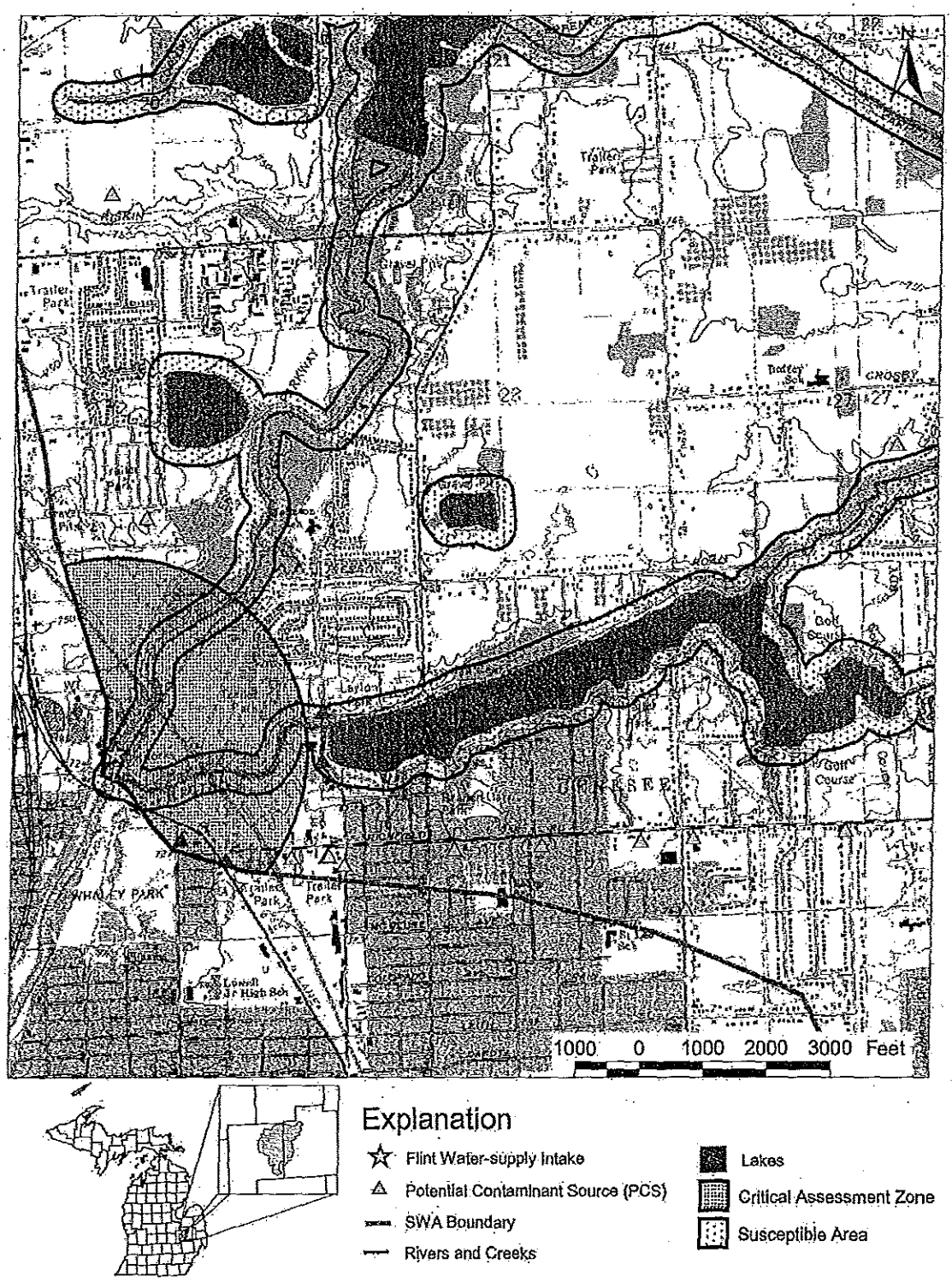


Figure 4. Critical Assessment Zone (CAZ) for the Flint emergency water-supply intake, Flint, MI.

- ·MDEQ Source Information System (for water discharge permit sites including National Pollutant Discharge Elimination System (NPDES) permits, Water Pollution Control Facility (WPCF) permits, storm water discharge permits, and on-site sewage (septic) system permits);
- ·MDEQ Underground Injection Control (UIC) database;
- ·MDEQ Active Solid Waste Disposal Permits list;
- ·Michigan Department of Transportation (MDOT) - Hazardous Materials database;
- ·State Fire Marshall registry of above-ground fuel storage tank sites;
- ·State Fire Marshall Hazardous Material Handlers and Hazardous Material Incidents (HAZMAT) sites;
- ·U.S. EPA BASINS software, version 2.1.
- ·U.S. EPA Envirofacts database;
- ·U.S. EPA Resource Conservation Recovery Act (RCRA) generators or notifiers list;
- ·U.S. EPA RCRA Treatment, Storage, and Disposal Facility (TSDF) Permits list;
- ·U.S. EPA National Priorities List (NPL);
- ·U.S. EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLA) List;
- ·U.S. EPA RCRA Corrective Action Activity List (CORRACTS);
- ·U.S. Department of Transportation (DOT) Hazardous Materials Information Reporting System (HMIRS);
- ·U.S. EPA Toxic Chemical Release Inventory System (TRIS); and
- ·U.S. EPA Oil Pollution Act of 1990 Spill Response Atlas

3. Met with public water supply and community officials on June 11, 2003 to identify potential sources not listed elsewhere in databases or on maps and completed a preliminary inventory form to be used in completing the SWA base map. Subsequent contacts by email and telephone on numerous occasions to request additional data, clarify data, and discuss results.
4. Land use and/or ownership (for example, residential/municipal; commercial/industrial; agricultural/forest; and other land uses) was mapped and evaluated in relation to PCS, soil characteristics, and proximity to the intake(s).
5. Conducted an informal field inventory to locate additional PCS.
6. Completed final inventory form of PCS and plotted locations of PCS on the base map.

The purpose of the inventory is three fold: first, to provide information on the location of PCS, especially those within the susceptible area; second, to provide an effective means of educating the public about PCS; and third, to provide a reliable basis for developing a management plan to reduce potential contaminant risks to the Flint water supply.

The inventory process attempts to identify potential point-source contaminants within the SWA. It does not include an attempt to identify specific potential contamination problems at specific sites, such as facilities that do not safely store potentially hazardous materials. However, assumptions were made about particular types of land use. For example, it is assumed that rural residences associated with farming operations have specific potential contamination sources such as fuel storage, chemical storage and mixing areas, and machinery repair shops. It should also be noted that although the inventory depicts existing agricultural uses (crops grown), these are likely to undergo continual change due to normal crop rotation practices. What is irrigated farmland now may be non-irrigated farmland next year, or vice versa.

The results of the inventory were analyzed in terms of current, past, and future land uses and their relationship to the susceptible area and the supply intake. In general, land uses and PCS that are closest to the supply intake pose the greatest threat to a safe drinking water supply. Inventory results are summarized in table 1, and are shown on figure 5.

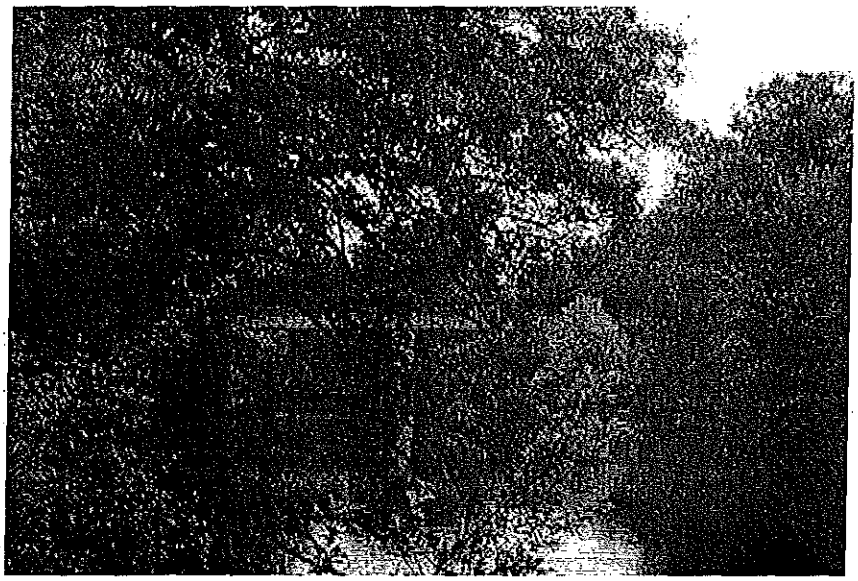
Many PCS are readily identifiable because they have a single discharge point, and often a permit is required for these discharges. However, other PCS have diffused, poorly defined discharge locations. These are known as non-point discharges because they occur over large areas and may not be quantifiable by readily accepted methods. These non-point source discharges are difficult to identify and control, and consequently to quantify, yet they are a major source of water pollution (Carpenter and others, 1998). Non-point sources also include atmospheric deposition over water and land, and include urban, rural, and

Table 1. Potential contaminant sources in the source water area

Type of Potential Contaminant Source (PCS)	Number of PCS	Number of PCS in Susceptible Area
Hazardous or solid waste site permits	71	11
Industrial facility discharge site permits	9	3
National priority list sites	1	0
Permit compliance system	12	2
Toxic release inventory permits	3	0
TOTALS	96	16

agricultural runoff from areas such as lawns, golf courses, farm fields, pastures, parking lots, and roadways. Runoff from these areas can contain many types of pollutants including sediments, metals, organic and inorganic chemicals, viral and bacterial pathogens, pharmaceuticals, and animal wastes. Transportation also represents a non-point source of contamination. Trucking and railroads transport potential contaminants through the SWA. An accident causing a spill could lead to potential contaminants entering a storm sewer, or in the case of boaters or rail transportation, directly to the Flint River. Petroleum pipeline crossing the upper reaches of the Flint River also pose contaminant threats.

Non-point sources of concern to the Flint water supply are primarily from storm sewers and from industrial, commercial, and residential sources in the SWA and communities upstream of the intake. A railroad bridge immediately upstream in the CAZ of the intake carries occasional train traffic described as hazardous. The West Boulevard storm sewer which discharges in the CAZ provides drainage to the Flint River from an industrialized area.



Railroad Trestle over Flint River Immediately Upstream of Flint WTP

The Michigan Department of Agriculture is working to identify dairies and concentrated animal feedlots (greater than 1000 animal units) in the Flint River watershed upstream of the intake.

The U.S. Environmental Protection Agency (USEPA) has identified one impaired water body in the Flint SWA on its Clean Water Act 303(d) list. The parameter of concern within the Holloway Reservoir is fish consumption advisories for PCBs. An additional impaired water body exists upstream of the SWA but not within the SWA itself. This water body is the collective of unnamed drains in Metamora, and the parameters of concern are untreated sewage discharge and pathogens (MDEQ, 2002).

In general, PCS within the susceptible area pose greater risks than those outside the susceptible area. The presence of PCS within the SWA indicates potential sources of chemicals that could, if improperly managed or released, impact the water quality at the intake. Small quantities of these chemicals, in some

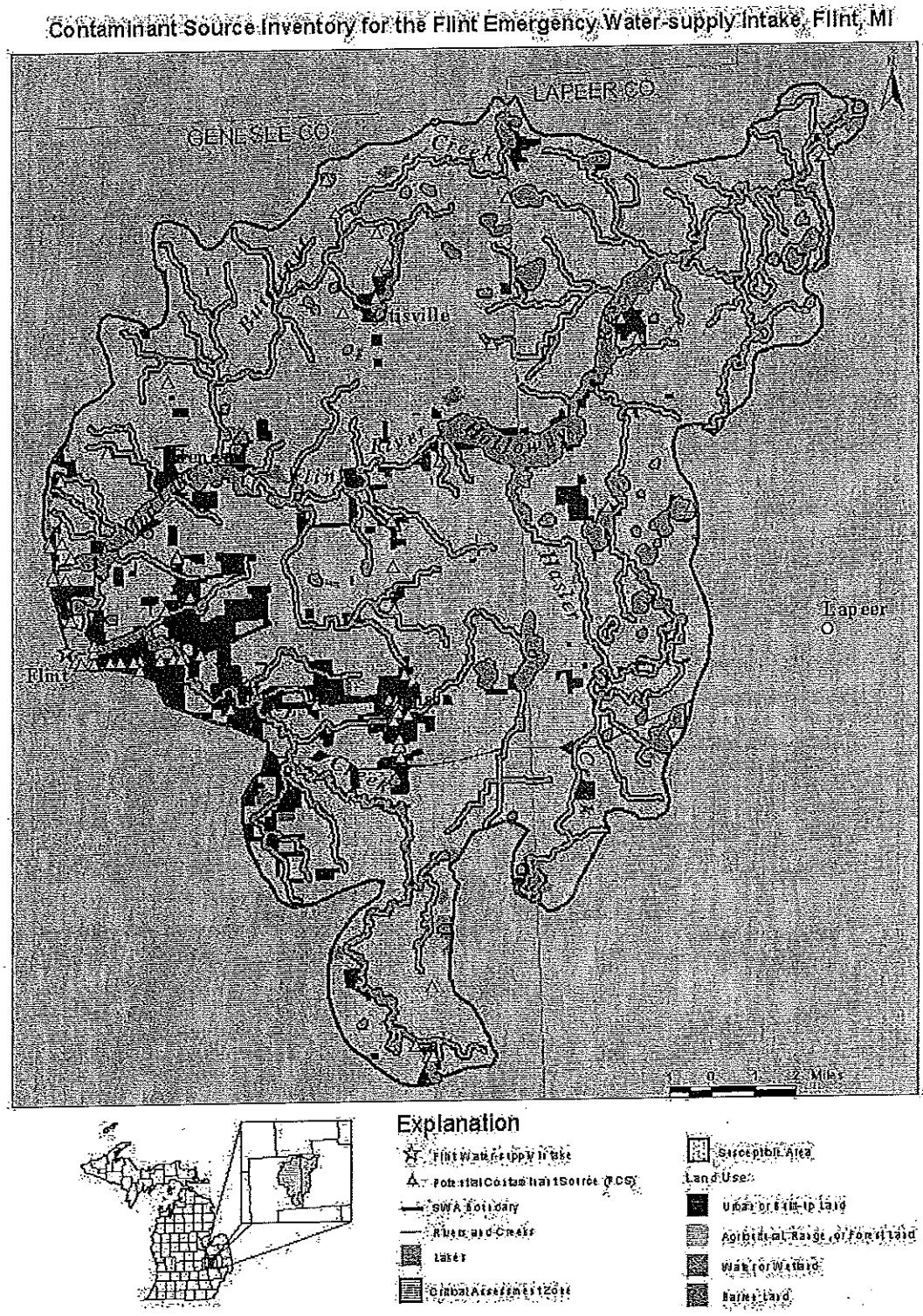


Figure 5. Potential Contaminant Sources in City of Flint Source Water Area, Flint, Michigan

cases less than a liter, can significantly affect the supply. Also of concern is the location and distribution of these sources with respect to highly permeable soils. The susceptible area consists of primarily agricultural and forested land with some urban areas. Overlaying the PCS locations and the moderately rapid to rapidly permeable soil map for the Flint SWA indicates that 21 of the located PCS are located on or very near to areas with moderately rapid to rapidly-permeable soils. All PCS within the SWA should be addressed; the susceptibility determination, however, provides the water supply with the tools to focus resources where the greatest risk occurs. The results of the PCS inventory performed for Flint water supply is shown on figure 5 and is summarized as a function of PCS locations relative to the susceptible area. The inventory results indicate that there are 7 PCS, holding 8 permits for discharge, within the susceptible area (table 2).

Table 2. Contaminant source inventory.

Site Name	Identification Number	Reason for Permit	Reason for Listing as Potential Contaminant Source
DAVISON OIL AND GAS BURTON STA 7	MI0000540310	On-Site Storage	Hazardous and Solid Waste Site
H AND M SVC	MID985612225		
KINNIES PARTY STORE	MID985597657		
ZACK CO	MID002975225		
EVERGREEN CLEANERS	MID981539711		
DORT HWY INC	MID985579945		
SUPER GO MARKETERS INC	MID985583053		
PIONEER CABINETRY INC	MID985605849		
DAVISON CITY OF	MID985625136		
MID MICHIGAN AUTO PARTS INC	MID985654789		
CLARK STORE 1849	MI0001853613		
FORD-NORTHVILLE PLT	MI0024643	Process, Treatment, and Waste Waters	Industrial Facilities Discharge Site
FOREST WASTE PRODUCTS	YCRCLA276		
OTISVILLE WWTP [a]	MI0028720		
ORCHARD COVE WWTP	MI0054755	Waste Water, Dust, and Process Water	Permit Compliance System
OTISVILLE WWTP [a]	MI0028720		

Note: Subscript denotes multiple permits

Sensitivity Analysis

Sensitivity is the natural ability of a SWA to provide protection against the contamination of the water supply intake, and includes physical attributes of lakes, rivers, and soils. The sensitivity analysis requires consideration of several different variables related to the natural environment, for example:

- ·Water quality history of the source.
- ·Distribution of moderately to highly-permeable soils.
- ·Amount of available water from precipitation or runoff.
- ·Potential for runoff to affect the intake.
- ·Nature of the intake, including: depth, distance from shore, age, and materials used.
- ·Surface water flow patterns in vicinity of intake.

To perform this analysis, USGS, MDEQ, and the operator of the Flint WTP collected, researched, and analyzed information from the WTP, monthly operator reports, sanitary surveys, soil maps, published reports, and historical plant operation and raw water quality data. The Michigan SWAP has three categories of sensitivity for surface water sources ranging from moderately sensitive to very highly sensitive. Analysis of this information, using guidelines provided in Brogren (1999) and Sweat and others (2000, in press), indicates that the Flint intake is at the high end of this range or very highly sensitive (fig. 3). This means that the natural environment offers little protection against contamination of the water supply intake.

Susceptibility Determination

Susceptibility is the relative potential for contamination to reach the public water supply intake used for drinking water purposes. Whereas the sensitivity of a water supply is the natural ability of the area to protect the intake against contamination, the susceptibility determination also takes into account other factors that will affect whether a contaminant reaches the intake. Whether or not a particular drinking water source becomes contaminated depends on three factors:

(1) The distribution of PCS;
(2) The source water area; and
(3) The natural protection, or sensitivity, of the source.

In conducting a susceptibility determination, the part of the SWA that yields water to the water supply-system intake is identified by establishment of the susceptible area within the source water area. PCS within the susceptible area are then located. Based on the distribution of PCS within the susceptible area, the type of PCS, and the nature of the chemicals they use or store, PCS are analyzed for the risk they may represent to the water supply intake. Along with the presence and distribution of PCS, the sensitivity analysis is then used to determine the susceptibility of the water supply (fig. 3). This leads to a determination of whether the drinking water source is moderately susceptible, highly susceptible, or very highly susceptible to contamination (Brogren, 1999; Sweat and others, in press). It is important to understand that a system can have low sensitivity relative to some conditions (for example, intake construction and location), and high susceptibility because of other conditions (for example, the type of PCS). In Michigan, surface water sources of drinking water range from moderately-low to very-high susceptibility.

When a public water supply is determined to have a moderate, high, or very high susceptibility because of a particular condition or set of conditions, there is a significant risk of contamination of the drinking water source because of that condition or set of conditions. Although the susceptibility determination does not predict when or if contamination will actually occur, it does recognize conditions that are highly favorable for contamination of the supply. In the event of a contaminant release to soils or surface water within the susceptible area, it is very likely that contamination at the intake would occur without completion of remedial actions.

If a public water supply's drinking water source is determined to be highly susceptible, it is recommended that the system identify the condition(s) that lead to the high susceptibility. Immediate steps should be taken to protect the source, and action should be considered to remedy the condition (for example, repairing or replacing faulty intake construction, working directly with facility operators to implement sound management practices, etc.).

All water supplies, regardless of their susceptibility, should consider identified factors that could lead to higher susceptibility in the future, and should prepare a strategy to protect the water supply source. Raising public awareness through signs and other education programs, encouraging proper intake construction and the use of best management practices in existing facilities are good ways of ensuring that a surface water source maintains its moderate susceptibility rating.

Summary and Recommendations

The actual susceptibility of the drinking water source of a water supply depends on a number of contributing factors, some of which are only slightly related. Sensitivity is determined from the natural setting of the source and identifies the natural protection afforded to the source water. Susceptibility is determined by identifying those factors within the community's SWA that may pose a risk to the source water. The susceptibility determination provides information with respect to facilities within the SWA or

land areas within the SWA that should be given greater priority and oversight in the implementation of a drinking water protection program.

Sensitivity Analysis: Based on criteria adopted in the Great Lakes Protocol of the Michigan Source Water Assessment Program, the emergency intake for the Flint Water Treatment Plant has a very high degree of sensitivity to potential contaminants.

Susceptibility Determination: The SWA for the Flint intake includes 8 listed potential contaminant sources within the susceptible area, numerous storm drains discharging upstream of the intake, a railroad crossing plus urban, agricultural, and industrial runoff from the Flint River watershed. Combining these potential contaminant sources with the very highly sensitive intake yields a very highly susceptible determination for Flint source water (fig. 5).

Effective Treatment:

The results of this assessment and the recommendations based on these results are summarized as follows:

- *Intake* - The Flint Water WTP intake was installed in 1948 and draws water from the Flint River from a shoreline structure making the intake very highly sensitive.
- *Soils* - Using a mean, area-weighted, depth-integrated permeability estimation, the soil and subsoil permeability in the SWA range from 0.6 in/hr to as much as 7.7 in/hr. The mean permeability is 3.1 in/hr (Schneider and Erickson, undated, series of 5 maps; BASINS, 1998; MIRIS, 2000). About two thirds of the soils in the Flint SWA are moderately rapid or rapidly permeable. Sixteen (16) PCS are located on these soils. These factors combine to make the SWA, and thus the intake, very highly sensitive. The community should take steps to evaluate current and future land use in areas of highly permeable soils, particularly those occurring within the susceptible area. Those PCS that have been identified either on or in close proximity to these soils should be informed of the sensitive nature of the area and encouraged to adopt best management practices designed to minimize the risk of a ground release. Residential areas that have been developed on these soils should be targeted for educational programs identifying steps that residents can take to protect the water supply.
- *Historical Contaminant Detections* – Since the Flint WTP has not utilized the Flint River since 1967 as a source of public drinking water, extensive raw water quality data is not available. However, as is typical for river water, the periodic presence of coliform bacteria is indicative of a relationship between runoff and soil conditions, causing the presence of bacteria at detectable levels in river source water. Background turbidity has recently been reported in the range of 2.4 to 7.6 NTU. These factors indicate that the SWA, and thus the intake, is very highly susceptible.
- *Sanitary Survey* – Defects reported as requiring repair either have been corrected or are scheduled for repair. The Flint WTP is undergoing extensive upgrades to improve treatment and reliability. It is important that the water supply continue to follow good management practices.
- *Potential Contaminant Sources* - A review of the PCS inventory and the rapidly and very rapidly permeable soil distribution indicates that the Flint SWA has 21 PCS located on moderately rapid to rapidly permeable soils. Within the susceptible area, there are 7 PCS with 8 discharge permits. In addition, there are numerous storm drains within the vicinity of the intake. A railroad crossing immediately upstream of the intake also poses a potential contaminant threat. It is recommended that the community focus initially on PCS that are within the susceptible area as they pose the greatest potential threat to the water supply. These facilities should be made aware of free technical assistance that is available through MDEQ's pollution prevention programs. Through chemical inventory, waste reduction, and by increasing awareness of best management practices, the risk these facilities pose to source waters can be reduced. The PCS inventory indicates that the source is very highly susceptible.
- *Source Water Assessment* - The Flint source water assessment is based on these site-specific parameters:

1. Definition of a Critical Assessment Zone around both intake for a very highly sensitive source;
2. Definition of a SWA for the Flint River, and shoreline near the intake;
3. Flow duration and discharge in the Flint River upstream of the intake, and the effects of upstream contaminant discharges on the source water quality; and
4. Listed and nonlisted potential contaminant sources.

- ***Source Water Protection*** - The City has initiated source water protection activities with an Industrial Pretreatment Program incorporating management plans, chemical containment, and spill response, spill response training, plus storm sewer and street cleaning programs.

The Flint WTP and/or the community should assemble a team to assist in the development and implementation of a source water protection program that uses this assessment to further protect the Flint source water area.

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GLOSSARY

Critical Assessment Zone (CAZ) - the area from the intake structure to the shoreline and inland, including a triangular water surface and a land area encompassed by an arc from the endpoint of the shoreline distance on either side of the on shore intake pipe location

Geographic Information System (GIS) - a system to capture, store, update, manipulate, analyze, and display all forms of geographically referenced information

Impaired water bodies - As defined by USEPA and listed on the 303 (d) list of the federal Clean Water Act.

Intake - the point at which source (raw) water is drawn into a pipe to be delivered to a water treatment plant

Lignins - an amorphous, cellulose-like, organic substance that acts as a binder for the cellulose fibers in wood and adds strength and stiffness to cell walls

Maximum Contaminant Level (MCL) - the maximum permissible level of a contaminant in water that is delivered to any user of a public water system

Potential Contaminant Sources (PCS) - listed and non-listed agricultural sites, businesses, and industries that have the potential to cause contaminants to be introduced into source water

Sensitivity - a measure of the physical attributes of the source area and how readily they protect the intake from contaminants

Source - the water body from which a water supplier gets its water

Source Water Area (SWA) - the land and water area upstream of an intake that has the potential to directly influence the quality of the water at the intake

Source Water Assessment Program (SWAP)- in Michigan, the process defined by the state Department of Environmental Quality to complete assessments of all the state's public water supplies

Susceptibility - the Susceptibility identifies factors that may pose a risk within the community's SWA

Susceptible Area - the area defined by the critical assessment zone and a buffer on either side of any drainages that contribute water to an intake

Synthetic Organic Contaminants (SOC) - Manmade organic chemical compounds such as pesticides, etc.

Tannins - naturally occurring phenolic compounds that precipitate proteins, alkaloids, and glucosides from solution that has a yellowish appearance

Volatile Organic Contaminants (VOC) - Unnatural, volatile organic chemical compounds such as gasoline components, solvents, degreasers, etc

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Sunday, September 13, 2015 10:38 AM
To: Thelen, Mary Beth (DEQ)
Subject: FW: Flint event on Tuesday
Attachments: 2 FDCVT Grant Awards draft.docx; ATT00001.htm; Briefing Flint grant announcement.docx; ATT00002.htm; RELEASE Flint water grants.docx; ATT00003.htm

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From: Wurfel, Brad (DEQ)
Sent: Monday, February 02, 2015 4:35 PM
To: Wyant, Dan (DEQ); Datema, Maggie (DEQ); Tommasulo, Karen (DEQ); Thelen, Mary Beth (DEQ)
Cc: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Subject: Fwd: Flint event on Tuesday

All,
Here is some early information about the event tomorrow in Flint. State leaders, including director Wyant, Will announce $2 million in distress community grants. Based on what little I know so far, it sounds a little bit like SAW grants.
Will share more details when I get them.
b
Sent from my iPhone

Begin forwarded message:

> **From:** "Murray, David (GOV)" <MurrayD1@michigan.gov>
> **Date:** February 2, 2015 at 1:34:21 PM EST
> **To:** "Agen, Jarrod (GOV)" <AgenJ@michigan.gov>, "Stanton, Terry A. (Treasury)" <StantonT@michigan.gov>, "Wurfel, Sara (GOV)" <WurfelS@michigan.gov>, "Wurfel, Brad (DEQ)" <WurfelB@michigan.gov>, "Biehl, Laura (GOV)" <BiehlL@michigan.gov>, "Hollins, Harvey (GOV)" <hollinsh@michigan.gov>, "Clayton, Stacie (GOV)" <claytons3@michigan.gov>, "Walsh, John (GOV)" <WalshJ@michigan.gov>, "Brownfield, Michael (GOV)" <BrownfieldM2@michigan.gov>, "Allard, Claire (GOV)" <allardc1@michigan.gov>, "Rexford, Tori (GOV)" <rexfordt@michigan.gov>
> **Subject: Flint event on Tuesday**
>
> Good afternoon team,
>
> Just wanted to touch base on Tuesday's event in Flint. Unless told otherwise, I'm continuing to prepare for the event.
>
> I touched base with Harvey and Stacie, who recommended we proceed. Harvey is approaching some stakeholders about appearing at the event, and will forward those names to me later today.
>
> I left a message with Dick Posthumus to see if he has any concerns about proceeding.
>
> The Senate Democrats said Sen. Ananich will want to appear. Katie Carey from the House said she would forward information to Rep. Neeley and Phelps. I have not heard back from her yet.
>
> I've attached the backgrounder and the draft releases from Governor's Communications and Treasury. I've sent a message to the mayor's office about a quote, but have not heard back yet.

Brad and I spoke about Director Wyant's role and potential comments. He will point out that there are things the state can do to help monitor the situation, but also will note that the city's water infrastructure is aging, which contributes to the problems.

We need some direction on an advisory. Should this be listed on a typical advisory from the governor's office, or come from Treasury? Do we even issue an advisory in favor of just contacting media directly in the morning?

Please give the draft releases a read for potential changes, or let me know of other concerns.

Thank you!

Dave

Dave Murray
Deputy Press Secretary | Executive Office of Governor Rick Snyder
MurrayD1@michigan.gov
517-335-6397, office
517-449-8343, mobile
Twitter:@michigandmurray

89 (Rev. 11-13)

STATE OF MICHIGAN
DEPARTMENT OF TREASURY
LANSING

RICK SNYDER
GOVERNOR

R. KEVIN CLINTON
STATE TREASURER

February 3, 2015

FOR IMMEDIATE RELEASE
www.michigan.gov/treasury

Contact: Terry Stanton, Treasury
(517) 335-2167
Dave Murray, Governor
(517) 335-6397

draft

Gov. Rick Snyder announces grants helping distressed municipalities with water, public safety, appraisal issues

$8 million awarded for projects aimed at improving services, quality of life

LANSING, Mich. -- Gov. Rick Snyder today awarded $8 million to six municipalities to fund various improvement projects, including water system and street lighting enhancements and technology upgrades through the Financially Distressed Cities, Villages, and Townships Grant Program.

Municipalities are eligible for the grants of they are experiencing one or more conditions indicative of "probable financial stress," as defined by Public Act 436 of 2012, the Local Financial Stability and Choice Act.

"Municipalities receiving this special funding are some of the areas hardest hit by the Great Recession," Snyder said. "I am pleased we can offer funding assistance to help these local governments improve various public services their taxpayers and residents expect and deserve."

Under the grant program, funding may be used to pay for specific projects, services, or strategies that move a city, village, or township toward financial stability. There was $8 million appropriated for the program with a $2 million cap, per local unit.

The following communities will receive funding this year, with projects and amounts noted (alphabetical order):

Local Unit	Project Description	Amount
City of Benton Harbor	Complete a property reappraisal to provide updated and accurate assessing records. Additionally, community enhancement through blight management and sidewalk replacement.	$475,000
City of Benton Harbor	Water system enhancement through water main replacements and fire hydrant repairs.	$434,960

City of Ecorse	Public safety enhancement through improved street lighting.	$350,000
City of Flint	Water system enhancement through improved waste management.	$1,100,000
City of Flint	Water system enhancement through leak detection and pipe assessments.	$900,000
City of Hamtramck	Complete a property reappraisal to provide updated and accurate assessing records.	$167,860
City of Hamtramck	Upgrade City Hall security.	$50,000
City of Hamtramck	Public safety enhancement through improved street lighting.	$404,600
City of Highland Park	Water system enhancement through meter replacement, leak detection, and system repairs.	$2,000,000
City of Inkster	Complete a property reappraisal to provide updated and accurate assessing records.	$73,460
City of Inkster	Water system enhancement through fire hydrant repairs.	$150,000
City of Inkster	Provide a backup power source for public safety.	$30,000
City of Inkster	Public safety enhancement through the creation of a multi-jurisdictional narcotic team.	$240,000
City of Inkster	Public safety enhancement through police officer training.	$41,970
City of Inkster	Public safety enhancement through the deployment of an additional police officer.	$320,000
City of Lincoln Park	Public safety enhancement through updated technology.	$143,490
City of Melvindale	Public safety enhancement through fleet replacement of police vehicles and updated technology.	$88,000
City of Pontiac	Community enhancement through blight management.	$125,000
City of River Rouge	Public safety enhancement through improved street lighting. Additionally, infrastructure replacements to City Hall.	$591,508
Royal Oak Township	Public safety enhancement through improved street lighting	$86,559
Royal Oak Township	Public safety enhancement of police services.	$217,593

Applications for the next round of Financially Distressed Cities, Villages, and Townships Grant Program will be available on the Department of Treasury website this spring. Applications must be submitted to Treasury by the close of business on XXX, XXX 31, 2015.

Preference is generally given to applicants from local units in which:

- A financial emergency has been declared in the past five years;
- An approved deficit elimination plan for the general fund is currently in place; or,
- Two or more conditions indicating "probable financial distress" currently exist.

For more information about FDCVT grants, including an application for cities, villages, and townships, visit www.michigan.gov/revenuesharing.

####

*Conditions of "probable financial distress" relating solely to school districts are not included as conditions for FDCVT, as school districts are not eligible.

Briefing: Grant announcement in Flint

Tuesday, Feb. 3, 2015, 3-4 p.m.
Haskell Community Center, 2201 Forest Hills Ave. Flint
Governor's communications: Dave Murray, murrayd1@michgian.gov, 517-449-8343
DEQ communications: Brad Wurfel, wurfelb@michigan.gov, 517-230-8006
Treasury communications: Terry Stanton, stantont@michigan.gov, 517-830-5807

Purpose

The state government is providing support for the Flint government as it addresses issues with its water system. The state on Tuesday is announcing that Flint is receiving two grants totaling $2 million related to water system improvements through the Financially Distressed Cities, Villages and Townships grant program. DEQ Director Dan Wyant will address ongoing efforts with his agency to test Flint water and explain why the city is facing some of its problems. Senate Minority Leader Jim Ananich, D-Flint, will discuss his appreciation for the ongoing support for the city and its residents.

Attending

- Harvey Hollins, director of the Michigan Office of Urban Initiatives
- Dan Wyant, director of the Michigan Department of Environmental Quality
- Wayne Workman, deputy treasurer, Michigan Department of Treasury
- Jerry Ambrose, Flint emergency manager
- Dayne Walling, Flint mayor
- State Sen. Jim Ananich
- State Rep. Sheldon Neeley
- State Rep. Phil Phelps

Agenda

3:00 PM – 3:05 PM:	Harvey Hollins announces that Flint has received two grants totaling $2 million.
3:05 PM – 3:10 PM:	Dan Wyant discusses the state's ongoing role in monitoring Flint's water and any assistance that has been provided and will continue to be provided.
3:10 PM – 3:15 PM:	Mayor Dayne Walling remarks about appreciation for state assistance.
3:15 PM – 3:20 PM:	Sen. Jim Ananich remarks about appreciation for state assistance.
3:20 PM – 3:25 PM:	Rep. Neeley remarks.
3:25 PM – 3:35 PM:	Harvey Hollins closing remarks, opens floor to media questions.
3:35 PM	Event ends, though this might be optimistic.

Background

- The quality of Flint water has been a high-profile concern in recent weeks, with residents complaining about the color, taste and smell of tap water since a switch to Flint River water as a temporary source as a pipeline is built to Lake Huron as a water source starting in 2016.
  - Residents have attended meetings with jugs of brownish water.
  - U.S. Kildee has worked with labor and community groups to distribute bottled water.

- Mayor Walling has issued a letter (included below) calling for state and federal assistance for the city, including forgiveness of some $20 million in debt through the Drinking Water Revolving Loan Fund and calling for the governor to come to Flint personally.
  - Walling also submitted a guest column to the Flint Journal with similar requests.
    - He said the loan forgiveness is needed for the city to upgrade its water treatment process.
  - Governor and Mayor Walling had a telephone conversation on Friday, and the mayor has pledged to work together on solutions.

- Rep. Sheldon Neeley also has sent the governor a letter, saying that his constituents "are on the verge of civil unrest."

- The Department of Environmental Quality has been monitoring the water situation, with a detailed backgrounder and talking points attached below.

- The Treasury Department is announcing Tuesday that Flint is among the cities receiving a combined $8 million the Financially Distressed Cities, Villages and Townships grant program.
  - The announcement of the other grants will follow the Flint announcement.
    - The Flint grants are $1.1 million to allow the city to replace the functions of the old incinerator with new water pollution control facility allowing for the disposal of waste to landfills.
    - The other is $900,000 to allow the city to hire a contractor to perform a leak detection survey, which will lead to prioritizing repairs.
  - A breakdown of the grants is included below.

<u>Treasury breakdown of Flint grants</u>

Flint Incinerator: The grant project entails shutting down the current Water Pollution Control Facility Incinerator (due to the incinerator not being up to new EPA standards). In order to meet EPA standards, it would cost roughly $8.8M in upgrades to the current incinerator. The grant funding will allow them to replace the functions of the old incinerator by constructing new facilities which will allow for the disposal of waste to landfills.

Budget Breakdown	
Construction Contractor	$1,050,000
Project Management	$50,000
Total	$1,100,000

Flint Leak Detection: The grant project will allow the city to hire a contractor to perform a leak detection survey of the city water lines. The city will receive a map of leak locations and an assessment of leak severity. This data will allow the city to prioritize leak repair. The project also covers the expense of conducting a water pipe line wall thickness condition assessment on a portion of the city's pipes. The assessment will guide the city's water main replacement program.

<u>Budget Breakdown</u>	
Project Planning	$90,000
Mobilization of Crew to Site	$27,000
Leak Detection < 16" diameter	$378,000

Leak Detection 16" diameter or >	$270,000
Pipe Condition Assessments	$135,000
Total	$900,000

DEQ backgrounder on Flint water

Following the formal approval of Flint into the KWA in 2012, DWSD sent Flint a letter saying their contract was thereby terminated (by early 2013).

Genesee County has been using DWSD water without a contract since May 2014. But Flint took the letter to imply a water cutoff, and promptly turned to DEQ with a proposal to use the Flint River (their historic backup system).

This proposed shift was pitched primarily as a money saver. But it put the city in the business of water production, where they historically had been in the business of water transmission. DEQ approved the use of the river as a source, based on the treatment plant's past performance as a standby facility and the improvements we outlined prior to a switchover.

Several municipalities around the state use surface water supplies (rivers): Blissfield near Monroe, Manistique, and Alma to name a few.

The city completed the upgrades at the water plant the facility and DEQ approved it April 2014.

There were some initial hiccups. Last summer, there were a couple of 'boil water' notices issued. One for a water test that showed e. coli, one for a break in the water main.

The challenge to using the Flint River as a source is that the condition of the water is variable and changes with season and weather. It has substantially more organic matter than deep lake sources like Lake Huron. This organic matter is mobilized by high water events, and warm weather also can account for more organic material in the water.

The treatment of the organic matter is done with chlorine. One might conclude that the continual answer is just to use more chlorine to achieve water safety. However, at some point on the continuum, the chlorine and organic matter create TTHM – total trihalomethanes – as a byproduct. When the standard for those is exceeded over several consecutive quarters of testing, the supply is required by law to issue public notice and submit an approved plan for addressing the situation.

You'll note that this regulatory approach means TTHM testing is done quarterly. That means people who use the system are exposed to TTHM for several months before the public notice is required. It's because TTHM is a chronic health threat. Over the long term (measured in decades), continued exposure can contribute to some known health problems. If this were an immediate health threat, customers would receive immediate notification to boil their water or not use it.

Put in context, the EPA (which established the standard and the rule) estimates the existence of the TTHM standard prevents an estimated 280 bladder cancer cases each year ... out of more than 330 million people who use public water supplies around the country.

It's not "nothing." State and federal law requires quarterly testing for TTHM and that the public be informed of it when the annual average of four quarters' worth of consecutive testing shows TTHM

levels exceeding 80 parts per billion. Flint's results managed to exceed the annual average in three quarters, and they must develop a plan to address it.

But it's not like an eminent threat to public health. Unlike an e. Coli or even total coliform bacteria maximum contaminant level, which require immediate public notification and response and are part of daily / hourly testing of public water supplies, TTHMs pose a public health concern with chronic, long-term exposure.

It's clear the nature of the threat was communicated poorly. It's also clear that folks in Flint are concerned about other aspects of their water – taste, smell and color being among the top complaints.

The Safe Drinking Water Act requires public water supplies be tested for more than 90 regulated contaminants, including microbial contaminants. The act, and the program here in Michigan, work to ensure that water is safe to drink. The act does not regulate aesthetic values of water. Here are some factors affecting the aesthetics of water in Flint.

1. It's the Flint River. The water supplied by DWSD historically came from Lake Huron. It's softer. With hard water, you get a different flavor and feel. It's why General Motors suspended use of Flint Water – it was rusting their parts. Also, there's the 'organics' factor (discussed previously).
2. The system is old. Flint has more than 500 miles of water pipes. More than half of those pipe miles are more than 75 years old. Much of it is cast iron. Hard water can react with cast iron and exacerbates the rusty factor, which creates that brown water that angry residents were holding up in jugs for the media cameras last week. Valve failure has also been a key challenge. The system has an estimated 7,500+ valves. When they stick open or stick shut, it affects the hydraulics of the system and increase areas of stagnation. The city has a backlog of valves that need to be addressed. They've done half a dozen or so since November.
3. Flint is old. Many of the homes served by the system are old. Brown water complaints may also be attributable to cast iron pipes in customers' service connection to the city lines. The DEQ has been encouraging people with water coloration concerns to contact the city and see whether it is the service line or the City's line causing the issue. Again, discoloration is not an indicator of water quality or water safety, but we recognize that nobody likes it.

In summary, the City of Flint has tremendous need to address its water delivery system. We are not aware that they have any capital improvement funds for preventative maintenance in place, much less line replacement project monies that will require hundreds of millions.

The City was approved for a Revolving Fund loan in 2008 or 2009. As a Distressed Community, they qualified for flexible terms and 2 percent interest rate Revolving Fund Loan. After they were notified they were approved for the loan, they declined it. Previous SRF loans from the state to Flint bear an outstanding balance of $20.7 million today.

The DEQ continues working with the city to address the TTHM issue. They can take interim steps – from scrubbing the insides of transmission lines to carefully monitoring the hydraulic challenges in their system – to address customers' aesthetic concerns. Their TTHM numbers already are showing dramatic improvement; the November testing showed only one of seven sample points exceeding the standard.

The key now is that the standard is an average of three quarters' worth of results. It will be some time before they are officially "not in violation." However, depending on weather in 2015, it's not unforeseeable that we will be having this conversation again by next Christmas.

The key to the conversation is that TTHM is not a top health concern. That's key because residents need to understand TTHM in context, and it is key because it appears the mayor has seized on the public panic (sparked, frankly, by their poor communication of the violation notice) to ask the state for loan forgiveness and more money for their infrastructure improvement.

Another key thing to remember is that once the city connects to the new KWA system in 2016, this issue will fade in the rearview.

Key messages:

1. The DEQ Drinking Water program works with communities around the state to ensure that municipalities provide customers with clean, safe drinking water.
2. Municipal water supplies are tested rigorously and regularly for more than 90 regulated contaminants, including microbial contaminants that pose an immediate public health concern.
3. Flint's exceedance of the TTHM standard should reassure residents that the testing program is effective.
4. TTHM is not an immediate health threat. It is a chronic concern, one that can be problematic over the course of several decades of exposure. The public was notified because the law requires the city to make public notification, so that everyone can make informed decisions. This is particularly true for people with infants or those with compromised immune systems.
5. The DEQ is working with the City to address the situation. Recent tests show the TTHM numbers dropping rapidly. The department will continue working with the city in the months ahead, and residents should feel confident that their water is safe to drink unless the DEQ or City notifies them otherwise.
6. The discoloration and odor issues some Flint residents are experiencing are separate issues from the TTHM issue. TTHM is odorless, colorless and measured in parts per billion.
7. Flint water customers who have questions or concerns about their water should first contact the city to get answers and help. They also can contact the Michigan DEQ.

Mayor Walling's Facebook post

Friend,

Access to clean, safe, affordable water is a basic human right.

That's why I just sent Gov. Snyder my Flint Water Improvement Plan. It focuses on the areas of safety, quality, access, investment and education. My letter urges the governor to quickly implement these ideas so that Flint's water is 100% safe.

Please contact Gov. Snyder by calling (517) 335-6397 (or by clicking here) and ask him to take action immediately to implement my plan and ensure Flint's water is safe.

My plan offers new ideas and also builds on successful models of utility, energy and assistance programs at the state and federal levels. Here is my plan:

Safety & Quality

- 100% Safety is the standard

- City of Flint releases testing data to assure safety and expands testing to households with support from the Michigan Department of Environmental Quality
- Support alternatives for those advised not to drink the water by their doctors through the Michigan Health Endowment Fund and community partners to protect the vulnerable like seniors and infants
- Bring on experienced river water treatment operational management in the City of Flint
- Require water testing data to be released quarterly by law in all Michigan communities

Access

- Announce an amnesty program for turn-ons and reduce the turn-on cost in Flint
- Develop a revised payment plan policy to allow customers to come back on to the Flint system
- New Federal and State partnership to establish new Drinking Water Emergency Assistance Fund for customers (modeled on Federal and State energy utility programs: Low Income Home Energy Assistance Program; Michigan Energy Assistance Program; State Emergency Relief)

Investment

- Accelerate water system improvements outlined in the City of Flint Capital Improvement Plan through Federal and State investments
- State approves City of Flint's Distressed Cities Fund applications
- Federal and State forgiveness of payment to Drinking Water Revolving Loan Fund
- Federal and State financing for future improvements
- City Water Department implements budgeted FY15 projects including leak detection, valve repairs, new pipes and meter replacements

Education

- Develop a community partnership to provide household and business customers with information on testing and conservation
- Ongoing partnership with Michigan Department of Human Services, United Way, Salvation Army and community organizations to provide information on water assistance
- Expand youth energy initiative to assist households with conservation and efficiency (piloted in summer 2014 with Northwestern High School students, EcoWorks and Consumers Energy)

The struggle with our water has gone on for too long. The state must take action and do its part. Please ask Gov. Snyder to take action immediately to implement my plan and ensure Flint's water is safe. Thank you for your ongoing support.

Links to coverage

- Mayor, governor have 'long, productive' talk about Flint's water problems, Jan. 30
- 2,000 more gallons of water headed to Flint for giveaway, Jan. 30, 2015
- Flint emergency manager says there are two big reasons not to reconnect Detroit water, Jan. 29
- Flint Democracy Defense League plans four meetings on city's water problems, Jan. 29
- Environmentalist sends out new warnings about Flint water, NBC, Jan. 27
- Erin Brockovich says on Facebook she's prepared to come to Flint, MLive, Jan. 27
- Mott Community College not waiting for Flint to ensure safe water, MLive, Jan. 26
- Detroit water chief says she's willing to sell emergency water to Flint -- no strings attached, Jan. 26
- Mayor says governor needs to visit Flint to see water crisis first hand, MLive, Jan. 26
- Need water? Flint groups collect 600 cases, plan distribution this week, MLive, Jan. 26

- Incoming Flint water expert would have 'continual oversight' until new pipeline connected, Jan. 25
- Looking back at Flint's water problems (photo gallery), MLive, Jan. 25
- Flint water problems: Switch aimed to save $5 million -- but at what cost?, MLive, Jan. 23
- State says its already 'working diligently' on Flint's water problems, MLive, Jan. 22
- Officials say Flint water is getting better, but many residents unsatisfied, MLive, Jan. 21

CC: 2-1 Gov File
CC: OOWMA File # ——

CC: Madhu
orig: mbt

CITY OF FLINT

Dayne Walling
Mayor

January 18, 2015

The Honorable Rick Snyder
Governor, State of Michigan
P.O. Box 30013
Lansing, MI 48909

This was a pdf printed off by Brad. This has not been as signed to us for response. OOWMA has a copy. mbt 1/27

RE: Flint Water Improvement Plan

Dear Governor Snyder:

On behalf of the Flint community, I am writing to convey serious concerns about water quality and to request your support for my proposed Flint Water Improvement Plan. Access to safe and clean water is a basic human right, and, therefore, policy and budget decisions need to ensure that water is affordable and secure for everyone in Flint and all across Michigan It is essential there is City, State and Federal cooperation to address the challenges here and to meet the needs of vulnerable populations.

The Flint Water Improvement Plan is focused in five areas: safety, quality, access, investment and education. The plan puts safety and quality first because this is fundamental. It is designed to be a sustainable solution for the City of Flint and the community as we move towards a new permanent water supply from Lake Huron through the Karegnondi Water Authority. My plan offers new ideas and also builds on successful models of utility, energy and assistance programs at the State and Federal levels.

<u>Safety & Quality</u>

- 100% Safety is the standard
- City of Flint reports testing data to the public to assure safety and expands testing sites and frequency
- Bring on experienced river water treatment operational management in the City of Flint

<u>Access</u>

- Announce an amnesty program for Flint water service turn-ons and reduce the turn-on fee
- Develop a revised affordable payment plan policy to encourage customers to return
- Design Federal and State partnership to establish new Drinking Water Emergency Assistance Fund for the elderly and vulnerable families

<u>Investment</u>

- Accelerate water system improvements outlined in the City of Flint Capital Improvement Plan through Federal and State investments
    - State approves City of Flint's Distressed Cities Fund applications

  - Federal and State support for replacement or forgiveness of payment to the Drinking Water Revolving Loan Fund due to Flint's status as a distressed community
  - Federal and State grants for infrastructure improvements in alignment with the Flint Master Plan
- City Water Department implements budgeted FY15 projects including leak detection, valve repairs, new pipes and meter replacements

Education

- Develop a community partnership with universities to provide household and business customers with information on testing and conservation
- Ongoing partnership with Michigan Department of Human Services, United Way, Salvation Army and community organizations to provide information and water assistance with the Keep the Water Flowing Fund and support services
- Expand youth energy initiative to assist households with conservation and efficiency (piloted in summer 2014 with Northwestern High School students, EcoWorks and Consumers Energy)

It is also critical to restore the public confidence in Flint Water. The implementation of this plan must be accompanied by extensive community engagement including local elected officials. My objective is to work with you and your appointed officials, State Senator Ananich, State Representatives Phelps and Neeley, Congressman Kildee, community groups, businesses, churches, foundations, the Flint City Council, and all of the City of Flint and government personnel.

It is imperative that we communicate better and provide residents more information. I understand representatives from the Michigan Department of Environmental Quality will be joining a public forum this week at City Hall. This engagement going forward is vital so thank you for supporting their efforts. I think this issue of transparency is important for communities all across the State. I recommend a review of the applicable laws and policies and, at a minimum, a new requirement that water testing data be reported publicly no less than quarterly by law in all Michigan communities in Flint's population category.

Thank you for the consideration Governor. There is nothing more important in Flint right now than fixing the water problems. We must work together to identify funds to repair and update the water treatment facilities and city-wide infrastructure and to help those persons without access to clean water so that the entire Flint community has sustainable, safe, secure and affordable water now and into the future. This is an important issue for the state of our State of Michigan and I urge you to work with us to implement solutions.

Sincerely,

Dayne Walling, Mayor
City of Flint

CC: Flint City Council President Joshua Freeman; Congressman Dan Kildee; State Senator Jim Ananich; State Representative Sheldon Neeley; State Representative Phil Phelps; Flint Emergency Manager Jerry Ambrose

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Thursday, October 16, 2014 2:41 PM
To: Olszewski, Rosemarie (DEQ)
Subject: FW: Flint Main Break and Valve replacement
Attachments: Robert T main break and valve replacement notice.pdf; Utility Repairs_Dort Hwy Oct 18 2014.pdf

Please print – please keep confidential. Thanks.

Mary Beth

Mary Beth Thelen
Management Assistant to Director Dan Wyant
Department of Environmental Quality
Constitution Hall, 6th Floor South
Phone: 517-284-6712 or 284-6700 (new numbers)
Fax: 517-241-7401
Thelenm2@michigan.gov

From: Busch, Stephen (DEQ)
Sent: Wednesday, October 15, 2014 4:31 PM
To: Shekter Smith, Liane (DEQ); Wurfel, Brad (DEQ); Wyant, Dan (DEQ); Sygo, Jim (DEQ); Howes, Sarah (DEQ)
Cc: Prysby, Mike (DEQ); Benzie, Richard (DEQ)
Subject: FW: Flint Main Break and Valve replacement

FYI. The City of Flint is doing some major repair work this weekend as indicated in the attached information. Customers in the affected area are being notified by the City that they may temporarily lose service and that when service is restored should boil their water until the City can verify that the line was properly disinfected through bacteria monitoring results. This protocol follows normal construction repair standards.

To be clear this advisory is not based on any confirmed contamination, but a standard precautionary measure as part of normal construction and repair work.

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

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Wednesday, October 15, 2014 4:11 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Brent Wright; Robert Bincsik
Subject: Re: Main Break and Valve replacement

I have attached the maps and press release we are sending out. The hand drawn is internal info. Please send comments as necessary.

Thanks
Duffy

CITY OF FLINT
OFFICE OF EMERGENCY MANAGER
DARNELL EARLEY
ICMA-CM, MPA

Jason Lorenz
Public Information Officer
(810) 237-2039
jlorenz@cityofflint.com

For Immediate Release

Major Water Line Repairs Will Take Place in Robert T. Longway Blvd & Dort Hwy. Area, More Repairs to System Scheduled

Flint, Michigan – October 15, 2014 – The City of Flint's Department of Public Works has today announced that work on a water main break in the area of Dort and Longway is taking place and will be followed by more scheduled repairs to the system in that area. A break in the sixteen inch water main was discovered a week ago and crews have been examining the surrounding system. As a result, a number of valves in the area have been identified for repairs which will begin on Saturday, October 18, 2014.

This work will be on a part of the City's water transmission system, to which no residential customers are connected. However, there will be a reduction of pressure to the system, which may cause low water pressure in the surrounding area. In accordance with DEQ regulations we will be issuing a Boil Water Notice for the highlighted area (see attached map). Only residents who have low pressure during this 12 hour period are affected. Once again, this is merely a precaution and no one in the affected area should be directly connected to the portion of the system being repaired.

–CONTINUE–

CITY OF FLINT
OFFICE OF EMERGENCY MANAGER
DARNELL EARLEY
ICMA-CM, MPA

In the unlikely event that any residents in the area should experience a loss of water or low pressure during the repairs Saturday, they should expect to boil water for 48 hours after service is restored based on testing. Low pressure and discoloration may occur for those affected. The City of Flint asks that residents watch their local news station for announcement of the completion of repairs.

The work being performed will result in improved operational control over our large transmission line down Dort Hwy. which will include improving chlorine residuals in the southern portion of Flint. All of the scheduled work taking place is part of an ongoing, broader plan to examine different sections of the water system citywide for needed repairs and upgrades. Upgrading critical infrastructure such as the water system is a key part of the City's Strategic Plan.

–END–

City Hall
1101 S. Saginaw Street - Flint, Michigan 48502
810-766-7346 FAX: 810-766-7218 www.cityofflint.com

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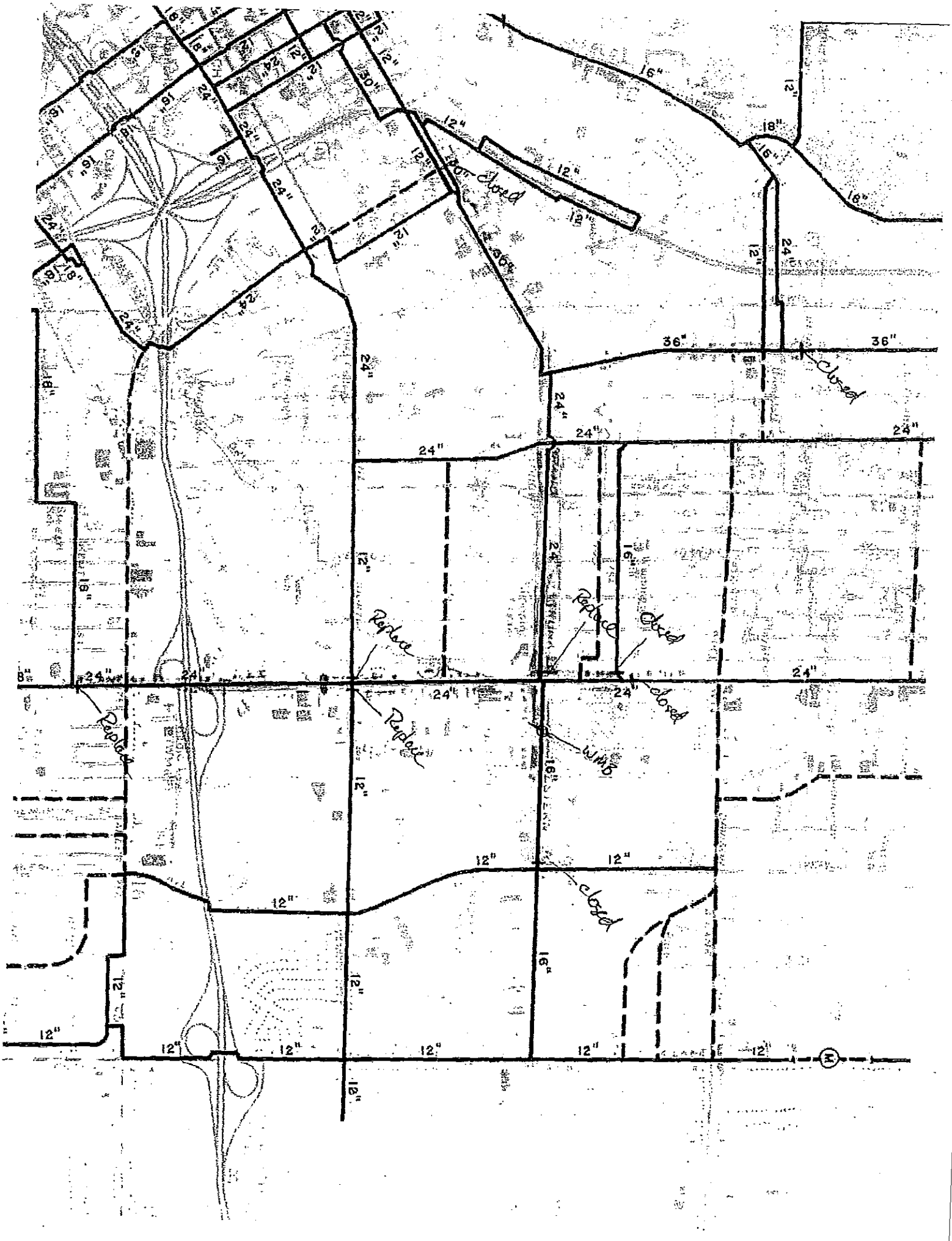
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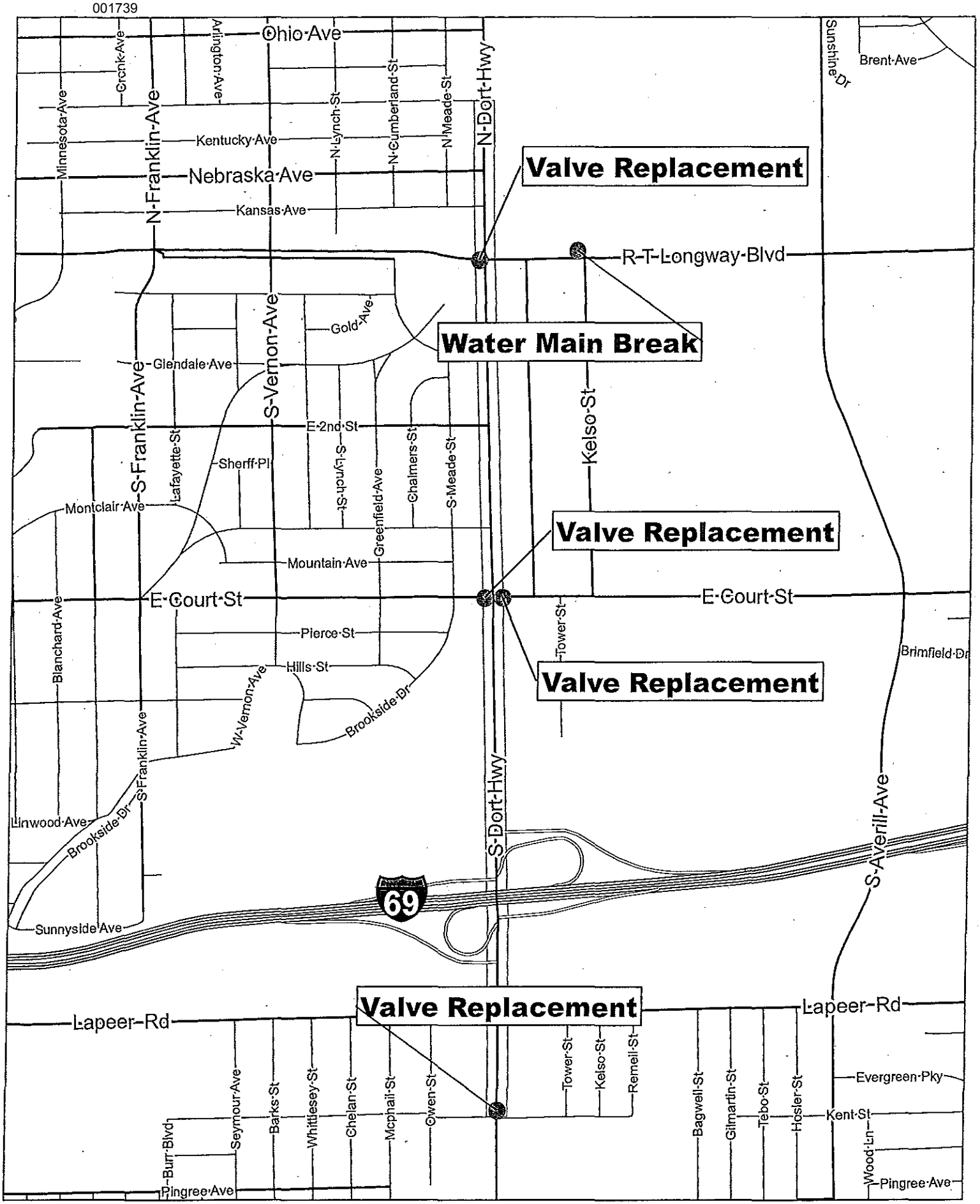
Valve Replacement
Water Main Break
Valve Replacement
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Kentucky Ave
Nebraska Ave
Kansas Ave
R T Longway Blvd
Gold Ave
Glendale Ave
E 2nd St
Sherff Pl
Montclair Ave
Mountain Ave
E Court St
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Pierce St
Hills St
Brookside Dr
Linwood Ave
Sunnyside Ave
Lapeer Rd
Lapeer Rd
Pingree Ave
Evergreen Pky
Kent St
Brent Ave
Brimfield Dr
Wood Ln
Minnesota Ave
Cronk Ave
Arlington Ave
N Franklin Ave
N Lynch St
N Cumberland St
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Brookside Dr
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Tower St
Seymour Ave
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Feet
GIS City of Flint
Date: 10/15/2014

Thelen, Mary Beth (DEQ)

From:	Thelen, Mary Beth (DEQ)
Sent:	Wednesday, October 01, 2014 11:19 AM
To:	Scott, Allison (GOV); Muchmore, Dennis (GOV); Brader, Valerie (GOV)
Cc:	Wurfel, Brad (DEQ); Wyant, Dan (DEQ); Datema, Maggie (DEQ); Sygo, Jim (DEQ); Wisniewski, Wendy (GOV); West, Samantha (GOV)
Subject:	CITY OF FLINT DRINKING WATER, GOVERNOR'S OFFICE BRIEFING PAPER
Attachments:	Governor Briefing - City of Flint 10-1-14.docx; Governor Briefing - City of Flint 10-1-14.pdf; Flint Monthly Pumpage Comparison.pdf; ODWMA-399-022.pdf
Importance:	High

Dear Governor, Dennis, and Val:

Per your request, the attached briefing paper is on the City of Flint drinking water situation. Director Dan Wyant has asked that I send this to you. A Word version as well as a pdf version is attached. We have also included a copy of the policy ODWMA-399-022 which specifically provides guidance regarding boil water advisory situations, and a chart showing the significant increase in the City of Flint's water demands following the extreme conditions experienced this past winter.

Allison, please forward to the Governor. Thank you.

If you have any questions or need further information, please let us know. Thank you.

Mary Beth

Mary Beth Thelen
Management Assistant to Director Dan Wyant
Department of Environmental Quality
Constitution Hall, 6th Floor South
Phone: 517-284-6712 or 284-6700 (new numbers)
Fax: 517-241-7401
Thelenm2@michigan.gov

Attachments

DEPARTMENT OF ENVIRONMENTAL QUALITY

GOVERNOR'S OFFICE BRIEFING PAPER
CITY OF FLINT DRINKING WATER

What contributed to the Boil Water Advisories in the city of Flint?

A number of factors, not one specific cause, likely contributed to the Boil Water Advisories (BWAs) in the city of Flint during August and September 2014. While use of the Flint River has increased the amount of natural organic matter in the city's water, the Flint Water Treatment Plant (WTP) has performed well above treatment requirements for organic carbon removal. In addition, less than 20 percent of the water system was included in the advisory area. If treatment had been compromised, detections would have been widespread throughout the city, rather than in such a localized area.

The city's water distribution system has suffered from a lack of infrastructure investment and asset management. Most of the city's over 550 miles of water mains are now over 75 years old and constructed of cast iron piping. Cast iron pipe is subject to internal corrosion, called tuberculation, which causes buildup on the pipe interior, leading to water quality issues, reduced flow and pressures, and leakage. Tuberculation also encourages the development of biofilms, layers of bacteria that attach to the interior pipe wall. Biofilm growth is common in areas of piping with little or no disinfectant residual, and together with tuberculation can clog water lines to the point of insufficient water pressure.

The city has also experienced decades of a declining user base and water use associated with vacant homes, commercial businesses, and industrial property. Declining water use leads to excess residence time within the city's distribution pipes and water storage facilities, accelerating tuberculation, biofilm growth, and disinfectant residual degradation. While the city has recently seen an infusion of funding for blight removal, contractors completing this work have been improperly using fire hydrants, causing hydraulic disturbances that dislodged and suspended settled debris, which may have contributed to the bacterial contamination.

The winter of 2014 was also one of the coldest experienced by the water system. The city, which historically has unaccounted water losses of over 30 percent, has seen even greater losses since February 2014 due to an increase in cold weather-related water main breaks and leaks. The city lacks a formal maintenance program for its over 7,250 valves, which would normally be used to limit impacts during break repairs. Two valves on the transmission line used to supply the area of the BWAs were found to be closed during the city's investigation, causing longer residence time, reduced disinfectant residual, reduced flow, and reduced pressure. One of these valves has remained broken.

The BWAs also occurred during the warmest and, for 2014, relatively wet periods of August and September. Warm weather conditions are not only more conducive to bacterial growth but also degrade the water's disinfectant residual carried out from the WTP more quickly. Longer residence times, biofilms, and tuberculation also contribute to disinfectant residual degradation. Warm wet weather conditions also allow water contaminated with bacteria to pool around piping with leaks and breaks.

Process for Issuance and Cancelation of a Boil Water Advisory

There are a number of conditions that can trigger BWAs. This includes the following:

- Bacteria Monitoring Detections
- Bacteria Standards Violations
- Treatment System Failures
- Waterborne Disease Outbreaks
- Loss of System Pressure
- Water Main Breaks
- Other Interruptions in Service

The Department of Environmental Quality (DEQ) has developed a policy and procedure regarding BWAs to help guide staff, provide consistency, and maintain public health. A PDF of Policy and Procedure No. ODWMA-399-022 is being forwarded with this briefing paper.

BWAs may be self-initiated by the water system, issued collaboratively in consultation with the DEQ, or when necessary mandated by the DEQ. Requesting customers to boil the water when bacterial contamination has occurred provides an added barrier of public health protection.

The BWAs that recently occurred in the city of Flint were associated with bacteria monitoring detections and violations of bacteria standards. These advisories were issued by the city of Flint collaboratively in consultation with the DEQ.

Current regulations regarding monitoring and standards for bacteria in water distribution systems were developed by the U.S. Environmental Protection Agency, have been in effect since 1990, and were incorporated into the Michigan Safe Drinking Water Act, 1976 PA 399, as amended. There are a variety of bacteria, parasites, and viruses that can potentially cause health problems if humans ingest them in drinking water. Testing water for each of these potential pathogens would be difficult and expensive. Instead, water systems test for total coliform and *E.coli*. Total coliform bacteria react to water treatment in a manner similar to many pathogens. Therefore, the presence of total coliform in drinking water indicates there may be a pathway for pathogens or other contaminants to enter the system. The absence of total coliforms in the distribution system minimizes the likelihood that pathogens are present. *E.coli* is itself a pathogen, and its detection would be direct evidence of a health risk.

Once a BWA has been issued, time is needed to investigate potential causes and implement corrective measures. The larger the water system, the more time this may take. Once corrective measures have been taken, samples must be collected and analyzed to confirm that bacteria are no longer present. Using the most common analytical method, samples must be incubated for a period of 24 hours before results can be obtained. In situations where the bacterial contamination has been confirmed, two consecutive rounds of safe samples collected at least 24 hours apart are normally obtained before canceling a BWA. Adding each of these steps together, a normal response period to cancel a BWA under these circumstances would be expected to take at least 3 to 4 days.

Recent History of the City of Flint Water System

Historically, the city of Flint had been a customer of the Detroit Water and Sewerage Department (DWSD) while simultaneously maintaining the Flint WTP to provide emergency backup service using the Flint River. The WTP performed quarterly test operations to maintain readiness and was utilized twice in 2009, supplying water once for 2 days and the other for 3 days.

In April 2013 the city of Flint notified the DWSD that it would be terminating service in the future and contracting for raw water service from the Karegnondi Water Authority (KWA). Work on the KWA pipeline from Lake Huron broke ground in June 2013 and is expected to be completed with connection in late 2016.

In August 2013 Rowe Professional Services Company completed an engineering proposal for improvements to the Flint WTP that would allow continuous operation of the WTP utilizing the Flint River in lieu of continuing service from the DWSD until completion of the KWA pipeline. In March 2014 the city of Flint entered into a Consent Agreement with the DEQ regarding the Flint WTP's lime sludge facility. In April 2014 the DEQ issued a construction permit for improvements to the Flint WTP. On April 25, 2014, the city of Flint began continuous operation of the WTP, using water from the Flint River and discontinued the purchase of water from the DWSD.

A BWA was issued for August 15-20, 2014, for a portion of the city of Flint due to localized detections of total coliform and *E.coli* bacteria. Another BWA was issued for September 5-9, 2014, due to localized detections of total coliform bacteria in the same and adjacent portions of the city of Flint. The advisory covered an area of approximately six square miles. The city of Flint has a total land area of just over 34 square miles.

While many of the BWA contributing factors listed above require long-term solutions, the city has taken operational steps to limit the potential for a BWA to reoccur. The city has increased flushing of water mains to limit residence time, maintain disinfectant residual, and help remove buildup and deposits within the piping. The city is boosting chlorine disinfectant residual at locations in the distribution system as needed. The city continues to investigate water leaks and water main breaks and the status and condition of system valves.

Prepared by: Stephen Busch, P.E.
Lansing and Jackson District Supervisor
Office of Drinking Water and Municipal Assistance
Department of Environmental Quality
October 1, 2014

DEPARTMENT OF ENVIRONMENTAL QUALITY

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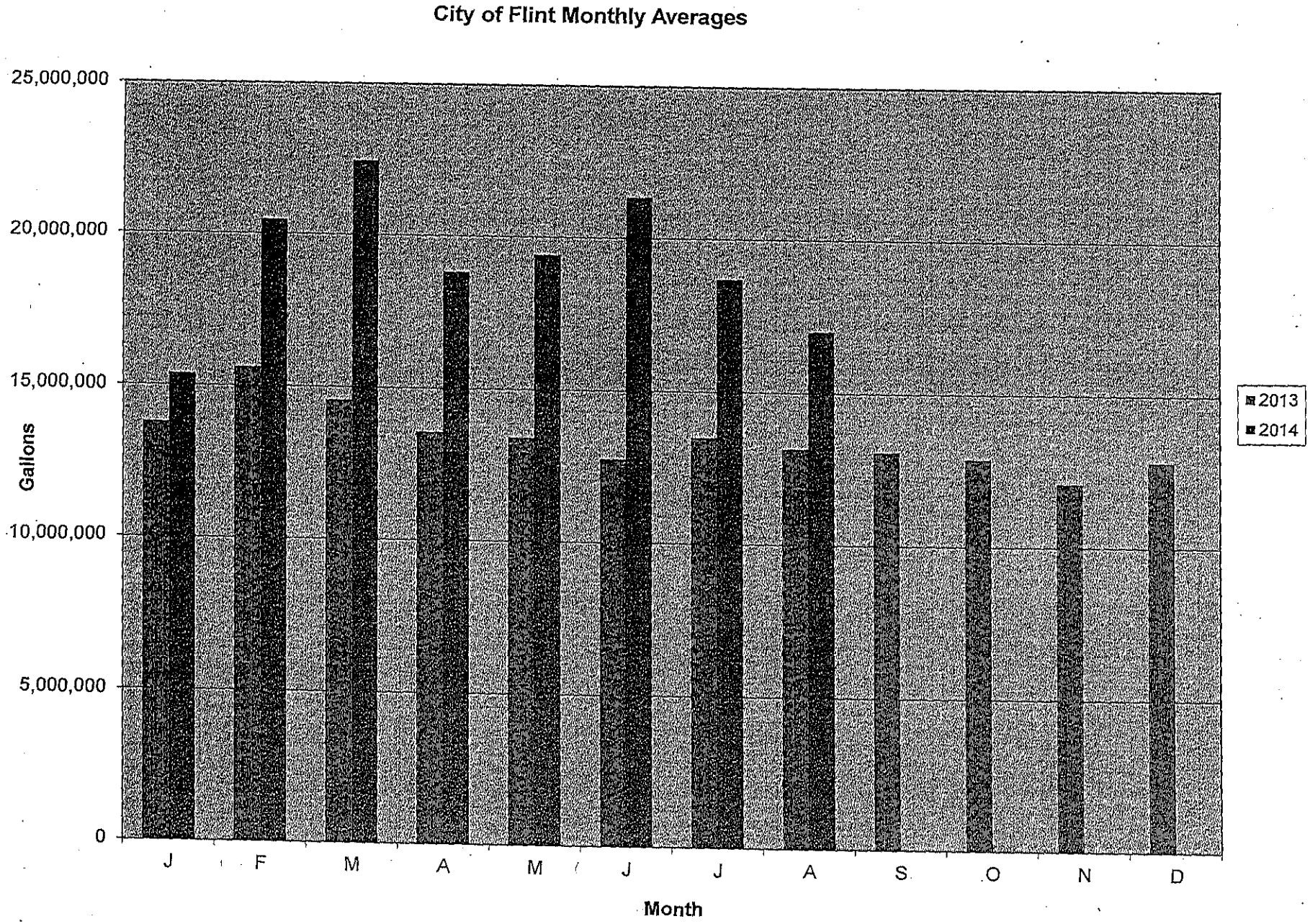
Prepared by: Stephen Busch, P.E.
Lansing and Jackson District Supervisor
Office of Drinking Water and Municipal Assistance
Department of Environmental Quality
October 1, 2014


City of Flint Monthly Averages
25,000,000
20,000,000
15,000,000
10,000,000
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Gallons
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2013
2014

DEQ	OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE POLICY AND PROCEDURE		DEPARTMENT OF ENVIRONMENTAL QUALITY
Original Effective Date: October 12, 2007 **Revised Date:** **Reformatted Date:** January 24, 2013	**Subject:** Guidelines for Issuing Boil Water Advisories to Address Potential Microbial Contamination of Community Water Supplies		**Category:** ☐ Internal/Administrative ☐ External/Noninterpretive ☒ External/Interpretive
	Division/Office and Program Names: ODWMA-Public Water System Supervision Program		
	Number: ODWMA-399-022	Page: 1 of 10	

A Department of Environmental Quality (DEQ) Policy and Procedure cannot establish regulatory requirements for parties outside of the DEQ. This document provides direction to DEQ staff regarding the implementation of rules and laws administered by the DEQ. It is merely explanatory; does not affect the rights of, or procedures and practices available to, the public; and does not have the force and effect of law.

INTRODUCTION, PURPOSE, OR ISSUE:

Community water systems are expected to provide customers with a continuous supply of water that meets both federal and state drinking water standards. However, there may be circumstances when the public must be notified that the water may not be safe. In these circumstances, a boil water advisory may be issued to prevent illness from known or suspected microbiological contamination. This policy is to provide guidance to Office of Drinking Water and Municipal Assistance (ODWMA) drinking water program staff on advising community water system personnel when to issue and rescind a boil water advisory, the appropriate content, and the manner and method of delivery.

AUTHORITY:

Administrative rule R 325.10401a promulgated under the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), being Michigan Compiled Law 325.1001 *et seq.*, requires public notification for violations of maximum contaminant levels and treatment techniques plus other situations as determined by the DEQ. Each public notice is required to state what actions consumers should take during a violation, which may include a statement recommending water customers boil all water used for consumption until further notice.

In addition, R 325.11207 allows the DEQ to require the supplier of water to provide notice to customers or users that include any precautionary measures deemed necessary when an interruption in water service occurs, which could include low, zero, or negative pressure events.

Furthermore, R 325.12303 requires a supplier of water to include in their contingency planning a description of precautions or measures to be taken to protect the health of those customers or users that may be affected by an emergency. R 325.12304 also requires a supplier of water to notify the DEQ when an emergency is discovered and how the supply will notify its customers or users.. While the content of this notification to customers or users may vary depending upon individual circumstances, each notification to customers or users must state what actions or precautions they should take, which may include a statement to boil all water used for consumption until further notice.

STAKEHOLDER INVOLVEMENT:

DEQ staff met with Municipal Utilities Directors to seek input on issues that were subsequently addressed in this policy and procedure.

DEFINITIONS:

"Boil Water Advisory (BWA)" – A written or verbal advisory issued by the community water system or DEQ notifying the users of the water system that the water is or may be contaminated and advising them to boil the water prior to using it for drinking or cooking.

"Community Water Supply (CWS)" – A public water supply (PWS) that provides year-round service to not fewer than 15 living units, or that regularly provides year-round service to not fewer than 25 residents. Examples include municipalities, such as cities, villages, and townships; apartment complexes; manufactured housing communities; condominiums; and nursing homes.

"Complete Loss of Pressure" – Sustained negative pressures or pressure below five psi in any portion of a distribution system. It does not include instantaneous low or negative pressure occurring from pressure surges caused by pump cycling, valve operation, or other water hammer events.

"Maximum Contaminant Level (MCL)" – The maximum permissible level of a contaminant in water that is delivered to any user of a PWS.

"Repeat Sample" – A sample that is collected and analyzed in response to a previous coliform-positive sample.

"Routine Sample" – A water sample that is collected and analyzed to meet the monitoring requirements for total coliform, as outlined in the written sampling plan.

"Tier 1 Public Notice" – A public notice required to be provided as soon as practical but not later than 24 hours after the supplier learns of a violation or situation that has significant potential to have serious adverse effects on human health as a result of short-term exposure. A Tier 1 Public Notice also requires the supplier to initiate consultation with the DEQ as soon as practical but not later than 24 hours after the supplier learns of the violation or situation. Examples of these violations or situations include:

1. A violation of the Total Coliform MCL when fecal or *E.coli* are present in the distribution system;
2. A violation of the treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit;
3. An occurrence of a waterborne disease outbreak;
4. A failure or significant interruption in key water treatment processes;
5. A disruption of the water supply or distribution system; and

6. Other violations or situations as determined by the DEQ on a case-by-case basis. A violation or situation that requires a Tier 1 Public Notice also requires the supplier to consult with the DEQ to determine additional public notice requirements, including the timing, form, manner, frequency and content of the notice designed to reach all persons served, and any repeat notices or directions. At a minimum, one or more of the following forms of delivery must be used:
   a. Appropriate broadcast media;
   b. Posting of the notice in conspicuous locations throughout the area served by the system;
   c. Hand delivery of the notice to persons served by the system; or
   d. Another delivery method approved by the DEQ.

Within 10 days of completing the Tier 1 Public Notice, the supplier shall submit to the DEQ a certification that it fully complied with the public notification requirements, including a representative copy of the type of notice distributed to persons served by the system and to the media.

"Tier 2 Public Notice" – A public notice required to be provided as soon as practical but not later than 30 days after the supplier learns of a violation or situation that has the potential to have serious adverse effects on human health. Examples of these violations or situations include:

1. All violations of MCL, maximum residual disinfectant level, and treatment technique requirements except where the DEQ determines a Tier 1 notice is required.
2. Violations of monitoring and testing procedure requirements, taking into account potential health impacts and persistence of the violation; and
3. Failure to comply with a variance or exemption.

For a Tier 2 Public Notice, the DEQ may, on a case-by-case basis, grant extensions in writing for up to three months from the date the supplier learns of the violation or situation, for reasons such as coordinating with billing cycles or if the violation or situation was quickly resolved and no longer poses any risk to the persons served. A Tier 2 Public Notice shall be repeated every three months as long as the violation or situation exists. A Tier 2 Public Notice and any repeat notices shall be in a form and issued in a manner that is reasonably calculated to reach persons served in the required time period. At a minimum, the notice shall be provided:

1. By mail or direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the supplier, and
2. By other methods reasonably calculated to reach other persons not receiving a bill, such as apartment dwellers, university students, nursing home patients and prison inmates. Other methods may include:
   a. Publication in a local newspaper
   b. Delivery of multiple copies to apartment complexes and manufactured housing communities
   c. Posting in public places or on the Internet
   d. Delivery to community organizations

"Treatment Technique (TT)" – Minimum treatment requirement or a necessary methodology or technology that is employed by a supplier of water for the control of the chemical, physical, biological, or radiological characteristics of a PWS.

POLICY:

A BWA may be issued for a variety of reasons when microbial contamination is known or suspected. Total Coliform Rule (TCR) MCL violations, surface water TT violations, low or loss of pressure events, and waterborne disease outbreaks are circumstances when a BWA may be issued. Each of these situations is discussed in detail below. However, these situations are not the only times a BWA can or should be issued. Each incident must be handled on a case-by-case basis, using professional judgment to evaluate the circumstances in each situation.

Finally, there may be situations when water systems experience contamination that is not microbial, but chemical due to a chemical spill or backflow due to a cross connection. In these cases, a notice to customers could include "Do Not Use" language since boiling the water may not remove the contamination.

Types of Incidents:

1. Violation of a Drinking Water Standard

   a. TCR MCL Violations

      An acute TCR MCL violation occurs when monitoring indicates the presence of coliform organisms in both a routine and a follow-up repeat sample in the same monitoring period, and either analysis (routine or repeat) is also positive for fecal or *E.coli*. Because this MCL violation confirms the presence of a more direct connection to contamination, these violations warrant issuance of a BWA, unless there are unique circumstances.

      A non-acute TCR MCL violation occurs when monitoring indicates the presence of coliform bacteria in 2 or more samples in the same monitoring period for a supplier collecting less than 40 samples per month, or in more than 5 percent of the samples for a supplier collecting 40 or more samples per month, and the criteria for an acute violation did not occur, i.e., fecal coliform or *E.coli* were NOT detected present in either a routine or repeat sample. For example, a system that collects 5 samples per week for a total of 20 per month may have 1 sample report positive for total coliform or fecal/*E.coli* during the first week, but all repeat samples report negative for coliform. If another sample in a subsequent week also reports total or fecal/E.coli positive, but again, all repeat samples are coliform-negative, then a non-acute TCR MCL violation has occurred because 2 or more samples reported positive for coliform, but no fecal coliform or *E.coli* were detected in both a routine and a repeat sample.

When a non-acute violation occurs, staff should evaluate possible sources of contamination. If a source is identified that is considered likely to contribute disease causing organisms or result in water of questionable quality still being distributed, a BWA should be instituted. Examples of contaminant sources that would elevate the public health risk include, but are not limited to:

- flooding of the wells
- failure of the treatment system
- recent construction activity in the distribution system
- vermin (birds, rodents, etc.) activity in storage tanks
- system-wide or extensive pressure loss in the distribution system

Even if the source of contamination is not easily identified, a BWA may be appropriate for a non-acute TCR violation if the violation is widespread or ongoing. A BWA shall be instituted if monitoring indicates *E. coli* or fecal coliform contamination unless unusual circumstances warrant consideration, such as the absence of any coliform in repeat samples, or when staff are assured that the contamination has been eliminated before confirmation results are available.

However, not every TCR MCL violation must result in a BWA. There may be a few exceptions when there is a TCR MCL violation but a BWA is not needed. For example, a violation may be declared in situations where samples collected on different days from widely dispersed locations report coliform present even though repeat samples do not show positive results. In this case, the sampling results may constitute a MCL violation, but a BWA may not be necessary.

If a BWA is deemed necessary by the ODWMA, it should be issued as soon as possible but no later than 24 hours after the system learns of the violation. Because violation of an MCL results in required public notification (PN) per the PN Rule, the water supply may issue the PN and BWA simultaneously in one document (highly recommended) and must meet all the requirements of a Tier 1 PN and include BWA language.

After measures have been taken to eliminate the source(s) of contamination, such as initiating or increasing chlorine feed rates and system flushing, additional sampling must be conducted. Raw water bacteriological sampling is also encouraged to eliminate the raw water as the possible source of contamination. For MCL violations, the BWA can be rescinded after the analyses of two sets of samples collected 24 hours apart report the absence of coliform bacteria. The number of samples in each set should be a minimum of five samples, but can be decreased or increased based on system size or the extent of the affected area. Systems are encouraged to use routine sample sites if available and to use extra care if routine sites are not available.

b. Surface Water Treatment Rule (SWTR) TT Violations

SWTR TT violations include:

- exceedance of turbidity standards at filter confluence point
- failure to meet disinfection contact time requirements (C*T)
- failure to meet disinfection residual standards

Upon determination of an SWTR TT violation, ODWMA staff must determine if the violation poses a threat to public health. For example, if the turbidity levels at the filter confluence point were found to have exceeded 0.3 nephlometric turbidity units (NTUs) in 95 percent of the samples in a two-month period, an SWTR TT violation has occurred. Based upon a review of plant performance and consultation with program managers, staff may determine that no significant health risk was posed and no BWA is necessary. However, the water supply must still issue a Tier 2 PN within 30 days of the violation. On the other hand, a BWA is likely to be necessary for a treatment plant that gets overwhelmed by excessive runoff and reports a turbidity level in excess of 1.0 NTU at the filter confluence point for a four-hour period.

If the TT violation is ongoing or prolonged, or the ODWMA determines a significant public health risk is posed, ODWMA staff may elevate the PN to Tier 1 status, which must be issued within 24 hours and include BWA language. After appropriate measures have been taken to reduce or eliminate any health risk, additional monitoring must be conducted. Appropriate measures may include increasing coagulant dose, increasing chlorine residuals through the treatment plant, backwashing filters more often and flushing key system components. In this case, a BWA can be rescinded after analyses of two sets of samples collected 24 hours apart report the absence of coliform bacteria. The number of samples in each set should be a minimum of five samples, but can be decreased or increased based on type and severity of the TT violation.

Surface water plants utilizing conventional or direct filtration must add a primary coagulant under R 325.11008. Failure to add a primary coagulant is a violation of Act 399, and may also contribute to a TT violation under R 325.10611 (Filtration and Disinfection) which requires 3-log inactivation of giardia and 4-log inactivation of viruses. In these cases, ODWMA staff will have to determine if the violation poses a threat to public health and whether other actions are necessary, such as requiring a BWA. Factors to consider if a BWA is necessary would include chlorine residual concentrations throughout the treatment plant, raw water quality, C*T compliance, plus individual filter effluent and combined filter effluent turbidity levels.

2. Waterborne Disease Outbreaks

Waterborne disease outbreaks can be declared by the Centers for Disease Control and Prevention, the Department of Community Health, a local health department, or other public

health institutions. If an outbreak is declared, the ODWMA will work with the declaring agency to ensure affected community public water supplies take appropriate measures to mitigate public exposure. These measures will include appropriate public notification, including instructions to boil water if appropriate. The ODWMA will allow the water supply to rescind the notification when the agency declaring the outbreak indicates it is safe to do so as the result of additional monitoring.

3. Interruptions in Service

   a. Negative or Complete Loss of Pressure

      A complete loss of pressure or negative pressure in the distribution system must result in a BWA being issued to all water customers in the impacted area. After pressure is restored and the system recovers (tanks are filling and enough sources are operating to ensure pressures do not drop again), the affected area should be thoroughly flushed and coliform samples must be taken throughout the area to determine if the distribution system remains free of coliform contamination. The number of samples will vary depending on the size of the system and the extent of the area impacted. For very small systems that experience a power failure that results in a complete loss of pressure throughout the distribution system, a minimum of three samples should be collected. If applicable, chlorine residual measurements should be taken to ensure that an adequate disinfectant residual is present. If possible, chlorine dosages and residuals should be increased by 1 to 2 parts per million during this period as a corrective and preventive measure. If the first round of sampling does not detect coliform bacteria, the advisory may be rescinded. However, if the first round of sampling detects coliform bacteria, additional flushing should be conducted in the area where the positive coliform samples were collected and a second round of coliform samples collected from the area. The BWA should remain in effect until safe coliform sample results are obtained.

   b. Low Pressure Events

      Low pressure events might not result in a BWA. Low pressure is considered a drop in pressure below 20 psi but greater than 5 psi. A drop in water pressure in a distribution system could allow contamination to enter the water system through backflow by backpressure or backsiphonage. The decision to issue a BWA should be made on a case-by-case basis and be based upon professional judgment of all available data that may indicate the extent of the problem, such as:

      - Geographical extent of the pressure loss
      - Nature of the service area (residential vs. commercial/industrial)
      - Duration of the low pressure condition
      - Disinfection practices of the water system
      - Relative elevation differences in the service area
      - Status of the local cross connection control program

- Age and condition of the underground piping
- Amount of underground piping located in areas of a high groundwater table
- Ability and willingness of the operators to rapidly apply chlorine to the system or distribute an increased chlorine residual throughout the affected area

After normal pressure is restored, the impacted area should be thoroughly flushed and coliform samples taken throughout the area to determine if the distribution system is free of any bacteriological contamination. The collection of coliform samples after low pressure events is not absolutely required, but may be recommended based on the factors above.

c. Water Main Breaks or Repairs

A BWA may be issued during water main breaks and after the break has been repaired. Whether or not to issue a BWA will depend on the location and severity of the break and, more importantly, a decision based on sound engineering judgment that the integrity of the water system has been maintained. If at all possible, repairs should be performed under reduced or low pressure by closing the closest valves on each side of the break just enough to reduce the flow so the repairs can be made under pressure while the water flowing from the break is diverted away from the excavation to maintain clean sanitary conditions. If the water main can be repaired under pressure, and no nonpotable water, soil, or other potential contaminants entered the main during the break and repair process, then a BWA is not necessary. If the water main that was removed from service is flushed, disinfected, and sampled in accordance with AWWA Standard C651 before being placed back into service, a BWA does not need to be issued.

If a water main break results in a complete loss of pressure before, during, or after the repair is made, a BWA must be issued to all customers in the affected area. The BWA should remain in effect until the area is flushed, chlorine residuals are reestablished (if applicable), and sample results do not detect coliform bacteria.

Content and Delivery of a BWA

If the ODWMA determines a BWA is necessary, the water supply must issue the advisory as soon as practical, but not later than 24 hours after being advised to do so. The supply must make a good faith attempt to notify all customers in the affected area. Appropriate methods of distribution are situation specific, but may include radio or television broadcasts, hand delivery, and/or posting in conspicuous locations throughout the area. Delivery requirements as detailed in the PN Rule should be used to determine appropriate delivery methods.

Although there are content requirements for public notification under the PN Rule, there are no requirements specific to boil water language. To ensure all appropriate information is transmitted to the customers, a BWA should include the same content elements as required for

public notification under the PN Rule. If a BWA is issued as the result of an MCL violation and the water supply issues the BWA in conjunction with the required PN (highly recommended), the content MUST meet all PN Rule content, delivery, and reporting requirements.

The ODWMA boil water language is consistent with the U.S. Environmental Protection Agency policy that requires water be brought to a boil and allowed to boil for one minute before use. The language also suggests the use of bottled water as an alternative to boiling and describes the circumstances under which boiled or bottled water should be used.

Staff should notify the appropriate local health department and the Department of Agriculture and Rural Development, Food and Dairy Division, whenever a BWA is issued or rescinded. These agencies may receive calls from concerned customers or be involved in oversight of facilities impacted by the boil advisory and, therefore, need to be aware of the situation.

Several BWA templates have been created and are available to ODWMA staff on the DEQ Intranet. To ensure consistency and inclusion of all necessary content, these templates should be used as the basis for PNs and/or a BWA. Available templates include, but are not limited to:

- Advisory for a TCR MCL.
- Advisory for a low/no pressure event.
- Notification for cancellation of a BWA.

PROCEDURES:

WHO	DOES WHAT
Public Water Supply	Notify DEQ of results in a timely manner as required by law and follow through with appropriate actions.
District Staff	Respond to all TCR and TT violations plus complete loss of pressure events in a timely manner and determine whether a BWA needs to be issued. • If needed, assist supply in drafting BWA and determining most appropriate method of delivery with approval from the District Supervisor. • If needed, assist the supply in determining actions to remove the possible contamination including steps needed to rescind the BWA.
District Staff	Provide on-site technical assistance for acute TCR MCL violations and other boil water situations as appropriate.
District Supervisors	Assist District Staff in the all matters pertaining to issuing a BWA.

OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE
POLICY AND PROCEDURE

Number: ODWMA-399-022

Subject: Guidelines for Issuing Boil Water Advisories to Address Potential Microbial Contamination of Community Water Supplies

REFERENCES:

Safe Drinking Water Act, 1976 PA 399, as amended, being Michigan Compiled Law 325.1001 *et seq.*, and the administrative rules promulgated thereunder, being R 325.10101 *et seq.* of the Michigan Administrative Code.

OFFICE CHIEF APPROVAL:

Liane J. Shekter Smith, P.E., Chief
Office of Drinking Water and Municipal Assistance

1/18/2013
Date

DEPUTY DIRECTOR APPROVAL:

Jim Sygo, Deputy Director

1/24/2013
Date

Dan FYI

Thelen, Mary Beth (DEQ)

Bill C. FYI TOO

D.

From: Dillon, Andy (Treasury)
Sent: Tuesday, March 26, 2013 2:33 PM
To: Wyant, Dan (DEQ)
Subject: Fwd: Root Cause Committee Report Final Form 3/13

FYI.

Sent from my iPad

Begin forwarded message:

From: "Doak, James" <james.doak@millerbuckfire.com>
Date: March 26, 2013 1:08:15 PM EDT
To: "Dillon, Andy (Treasury)" <DillonA2@michigan.gov>, "Headen, Frederick (Treasury)" <HeadenF@michigan.gov>
Cc: "Buckfire, Ken" <ken.buckfire@millerbuckfire.com>, "Saxton, Thomas (Treasury)" <SaxtonT@michigan.gov>, "Stibitz, Brom (Treasury)" <StibitzB@michigan.gov>, "Orr, Kevyn (GOV)" <OrrK2@michigan.gov>, "Rustem, William (GOV)" <rustemw@michigan.gov>
Subject: RE: Root Cause Committee Report Final Form 3/13

cc: Direct

We would be happy to do so.

It is our (MB) understanding that on Thursday, at and around the status conference, Judge Cox was asking all the parties in interest to clarify their position on the RCC report. The Judge may have also expressed his views on the RCC report, the process and associated required judicial authority.

MB was also informed last night and this morning by Jack Martin and Ed Keelean that the City is not inclined to pursue the RCC recommendation at this time, including any work to create a stipulated order for dismissal laying out the process/transaction/structure in the RCC recommendation.

I am in the office today and happy to discuss further. We will get our summary off to Fred this afternoon.

James Doak
Managing Director
MILLER BUCKFIRE | A STIFEL COMPANY
.....
Direct: +1.212.895.1829 | Fax: +1.212.895.1835
E-mail: james.doak@millerbuckfire.com | www.millerbuckfire.com
.....
601 Lexington Avenue, 22nd Floor | New York, NY 10022

-----Original Message-----
From: Dillon, Andy (Treasury) [mailto:DillonA2@michigan.gov]

Sent: Tuesday, March 26, 2013 12:55 PM
To: Doak, James; Headen, Frederick (Treasury)
Cc: Buckfire, Ken; Saxton, Thomas (Treasury); Stibitz, Brom (Treasury); Orr, Kevyn (GOV); Rustem, William (GOV)
Subject: Re: Root Cause Committee Report Final Form 3/13

Fred and Jim,

I need to brief the Governor on why Judge Cox wants the root cause report on the DWSD case and why he wants to understand the Governor's position on this issue.

Fred, if you could call the Judge's Special Master David Ottenwess and confirm that the judge is in fact looking for the Governor's position on this issue and why I would appreciate it. I don't believe there is a legal need for the G's sign off and if not we should advise the G of this. I do believe the DEQ is a party to the litigation and will ultimately have to sign off on the order which will dismiss the case and I believe include the recommendation of the root cause committee.

Jim, if you could provide Fred with a summary of why you signed off on the report we will include that in our briefing to the G.

Unless, there is some aspect to this I don't understand, I think this should be a one-pager.

Thanks.

Andy

Sent from my iPad

On Mar 13, 2013, at 10:14 AM, "Doak, James" <james.doak@millerbuckfire.com<mailto:james.doak@millerbuckfire.com>> wrote:

Jack and Gary,

As we just discussed, attached please find a revision of the Report, re-dating the document and removing a sentence in "Interim Relief".

I have discussed the change with Matthew Schenk. He is okay with the change.

As we discussed, this version is ready for execution.

The MB team will be working on talking/briefing/Q&A points for you this morning and will start to coordinate with Warfield (who will also coordinate with the DWSD communications team).

Thanks and we look forward to continued progress on this transaction and value-creation opportunity for the City of Detroit.

Jim

James Doak
Managing Director
Miller Buckfire | A Stifel Company
.....
Direct: +1.212.895.1829 | Fax: +1.212.895.1835
E-mail: <mailto:james.doak@millerbuckfire.com>
james.doak@millerbuckfire.com<mailto:james.doak@millerbuckfire.com> |
<http://www.millerbuckfire.com> www.millerbuckfire.com<http://www.millerbuckfire.com>
.....
601 Lexington Avenue, 22nd Floor | New York, NY 10022

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Thelen, Mary Beth (DEQ)

From: Wyant, Dan (DEQ)
Sent: Thursday, March 21, 2013 5:04 PM
To: Stibitz, Brom (Treasury)
Subject: RE: Flint Scenarios

Thank you. Director Wyant is out of town for a few days but he was expecting this so I will make sure I let him know.

Mary Beth

Mary Beth Thelen
Executive Management Assistant to the Director
Department of Environmental Quality
Thelenm2@michigan.gov
517-373-7917 or 517-241-7390

From: Stibitz, Brom (Treasury)
Sent: Thursday, March 21, 2013 5:00 PM
To: Wyant, Dan (DEQ)
Cc: Dillon, Andy (Treasury)
Subject: FW: Flint Scenarios

Andy asked that I pass this information along to you.

Thelen, Mary Beth (DEQ)

From: Wyant, Dan (DEQ)
Sent: Thursday, March 21, 2013 5:10 PM
To: Sygo, Jim (DEQ)
Cc: Shaler, Karen (DEQ); Thelen, Mary Beth (DEQ); Wyant, Dan (DEQ)
Subject: FW: Flint Scenarios
Attachments: Flint Scenarios FY 2013-14.pdf; Recent DWSD Flint Supply Cost Options.pdf; TYJT Recommendaton DWSD vs Flint.pdf; flint water supply assessment final report 2-6-13.pdf

Importance: High

Jim,

Director asked that you reivew and coordinate this with with Liane Shekter Smith and/or Bill Creal and their appropirate staff. Director also asked that I schedule an internal meeting with you and staff on this for next week. After your review, please let me know who you want in the meeting. It needs to happen on Tuesday, Wednesday or Thursday of next week.

Thank you.

Mlary Beth

From: Stibitz, Brom (Treasury)
Sent: Thursday, March 21, 2013 5:00 PM
To: Wyant, Dan (DEQ)
Cc: Dillon, Andy (Treasury)
Subject: FW: Flint Scenarios

Andy asked that I pass this information along to you.

Summary of FY 2013-14 DWSD Cost Allocations to Flint Under Various Scenarios

Flint Only

		Revenue Requirement	Rates and Charges		
			Fixed	Commodity	*Avg Unit Cost*
1	**Status Quo** ***(Flint Portion)***	12,574,900	379,304	13.01	*20.39*
2	**Suggested Cct** ***(Flint Portion)***	11,281,100	351,661	12.06	*19.27*
3	Change	(1,293,800)	(27,643)	(0.95)	*(1.12)*
4	% Change	-10.3%	-7.3%	-7.3%	*-5.5%*
5	**Max Day Only**	9,904,300	294,542	10.87	*16.91*
6	Change	(1,376,800)	(57,119)	(1.19)	*(2.36)*
7	% Change	-13.9%	-19.4%	-10.9%	*-14.0%*
8	**Add CTA Line to BP**	10,093,100	310,271	10.87	*17.23*
9	Change	188,800	15,729	0.00	*0.32*
10	% Change	1.9%	5.1%	0.0%	*1.9%*
11	**CTA to BP / Flint only to FWTP**	12,446,300	506,371	10.87	*21.25*
12	Change	2,353,200	196,100	0.00	*4.02*
13	% Change	18.9%	38.7%	0.0%	*18.9%*
14	**Add CTA Line to FWTP**	10,191,200	318,450	10.87	*17.40*
15	Change	(2,255,100)	(187,921)	0.00	*(3.85)*
16	% Change	-22.1%	-59.0%	0.0%	*-22.1%*
17	**CTA to FWTP / Buy existing 72**	10,009,600	303,315	10.87	*17.08*
18	Change	(181,600)	(15,135)	0.00	*(0.32)*
19	% Change	-1.8%	-5.0%	0.0%	*-1.9%*
20	Cumulative Change	(2,565,300)	(75,989)	(2.14)	*(3.31)*
21	Cumulative % Change	-20.4%	-20.0%	-16.4%	-16.2%

		Assumptions			DWSD Investment	
		Avg Day *mgd*	Max Day *mgd*	Peak Hour *mgd*	CTA *$*	Flint Only *$*
1	**Status Quo**	24.6	45.6	47.7	0	0
2	**Suggested Contract**	23.4	40.6	42.4	0	0
3	**Max Day Only**	**12.0**	**18.0**	**18.0**	0	0
4	**Add CTA Line to BP**	12.0	18.0	18.0	62,290,800	0
5	**CTA to BP / Flint only to FWTP**	12.0	18.0	18.0	62,290,800	32,391,300
6	**Add CTA Line to FWTP**	12.0	18.0	18.0	94,682,100	0
7	**CTA to FWTP / Buy existing 72**	12.0	18.0	18.0	94,682,100	(2,500,000)

STATE OF MICHIGAN CONTRACT NO. 271N3200089

CITY OF FLINT WATER SUPPLY ASSESSMENT

At the request of the Treasurer, Tucker, Young, Jackson, Tull, Inc. (TYJT) makes the following recommendation to the Department of Treasury concerning Flint's water supply alternatives. Based on the financial analysis performed of the various options presented by DWSD to continue treated water service to Flint compared to Flint being supplied by the new KWA untreated water system, TYJT believes that several of the options presented by DWSD are lower in cost currently and over the long run than the one offered by KWA. TYJT also believes that DWSD's most recent offer (subsequent to the submittal of our report) to build a smaller parallel water main from Imlay to Flint, funded by the entire DWSD base of customers, is the best solution offering the least cost alternative and the required redundancy by MDEQ.

Furthermore, since a majority of the KWA system has not been designed and none of the system has been constructed, there is an additional risk that the cost of the KWA system may actually be higher than estimated due to potential construction delays and unforeseen conditions. This risk to Flint could be substantial since the city is responsible for 30 percent of the KWA design and construction costs while still having to purchase water from DWSD during the construction period.

Finally, there are other issues that were identified in our report that may result in risks to Flint if it were to join KWA that should be considered by the Treasury in determining how Flint's potable water should be supplied. These issues are related to redundancy and reliability, other items affecting cost, and Flint's desire to control its own destiny related to its water supply. These are described further below.

- DWSD's supply to Flint is via a 72-inch water main from Imlay City. This main also supplies Imlay City, Mayfield and the Greater Lapeer County Utilities Authority (GLCUA). The volume of water contained within the 72-inch main is approximately 30 million gallons. If Genesee and Flint move to KWA then the three remaining communities' consumption would most likely not be large enough to maintain fresh water in DWSD's pipeline (due to loss of chlorine residual). DWSD may consider shutting down the 72-inch line completely due to the water quality concerns, which would then create an additional burden for Imlay, Mayfield and GLCUA to finance treated water supplies.
- The KWA supply option is counter to the Treasury's Competitive Grant Assistance Program (Formerly EVIP Grant). This program has been put in place to allow for communities to consolidate their services and save money. Two existing customers of DWSD (Flint and Genesee County) along with the potential of others customers (GLCUA, Mayfield, Imlay City) separating from another water system is in contradiction to the program.
- There is a concern over the ability of smaller systems (KWA) over larger systems (DWSD) to pay for future unfunded mandates and regulations. Obviously, identifying regulation requirements over 30 years is hard to determine. However, it is widely accepted that a large system has greater ability to respond to unfunded mandates because the cost can be distributed over a large customer base.
- Although Flint will be responsible for 30 percent of the construction cost, they will only have a minority vote on the KWA board. Furthermore, there are other communities (Lapeer County, the City of Lapeer, and Sanilac County) that sit on the board and vote. However, they are not purchasing water nor contributing to the construction costs. Their position on the KWA Board will not provide them an ability to "control their own destiny," as they have stated to the Treasury.

DWSD Worksheet : 18 MGD Maximum Day Customer with Model Contract Twinning Line and Owning both to the Flint WTP

Capacity

Flint ADD:	0.00	MGD	- MCF/Day
DWSD ADD:	12	MGD	1,604 MCF/Day

Annual Volume

Flint:	-	MCF
DWSD:	585,561	MCF

2013 Cost of Supply

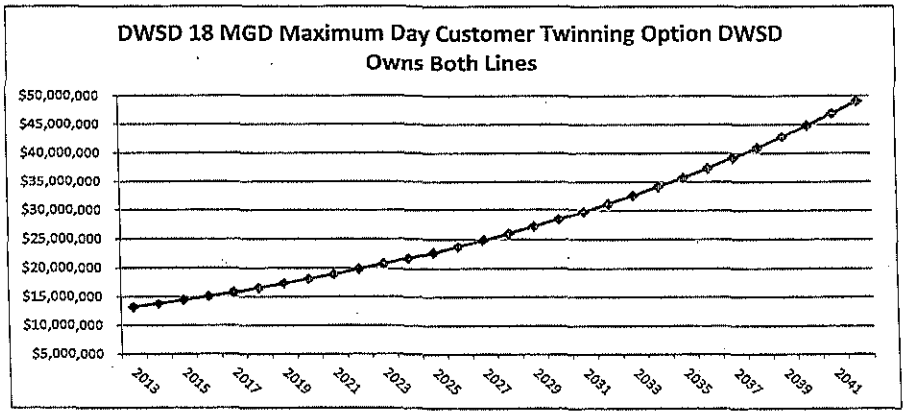
Flint WTP O&M:	-	/MCF	$ -	/Yr
DWSD:	$ 17.08	/MCF	$ 10,001,390	/Yr

Escalation/Inflation Rate

Flint:	4.51% /Yr
DWSD:	4.7% /Yr

Capital Expenditure

Amount:	$ -		
Reserve:	$ -	0%	Reserve Rate: 0.00%
Amount plus Reserve:	$ -		
Revenue Bond Rate:	5%		
Number of Years:	25		
Annual Cost:	$0		



	Year	Flint WTP O&M	Water Purchase	Revenue Bond Payment	Interest on Reserve	TOTAL
1	2013	$ -	10,001,390		-	$ 10,001,390
2	2014	$ -	10,471,456		-	$ 10,471,456
3	2015	$ -	10,963,614		-	$ 10,963,614
4	2016	$ -	11,478,904	-	-	$ 11,478,904
5	2017	$ -	12,018,412	-	-	$ 12,018,412
6	2018	$ -	12,583,278	-	-	$ 12,583,278
7	2019	$ -	13,174,692	-	-	$ 13,174,692
8	2020	$ -	13,793,902	-	-	$ 13,793,902
9	2021	$ -	14,442,216	-	-	$ 14,442,216
10	2022	$ -	15,121,000	-	-	$ 15,121,000
11	2023	$ -	15,831,687	-	-	$ 15,831,687
12	2024	$ -	16,575,776	-	-	$ 16,575,776
13	2025	$ -	17,354,838	-	-	$ 17,354,838
14	2026	$ -	18,170,515	-	-	$ 18,170,515
15	2027	$ -	19,024,529	-	-	$ 19,024,529
16	2028	$ -	19,918,682	-	-	$ 19,918,682
17	2029	$ -	20,854,860	-	-	$ 20,854,860
18	2030	$ -	21,835,039	-	-	$ 21,835,039
19	2031	$ -	22,861,286	-	-	$ 22,861,286
20	2032	$ -	23,935,766	-	-	$ 23,935,766
21	2033	$ -	25,060,747	-	-	$ 25,060,747
22	2034	$ -	26,238,602	-	-	$ 26,238,602
23	2035	$ -	27,471,816	-	-	$ 27,471,816
24	2036	$ -	28,762,992	-	-	$ 28,762,992
25	2037	$ -	30,114,852	-	-	$ 30,114,852
	2038	$ -	31,530,250	-	-	$ 31,530,250
	2039	$ -	33,012,172	-	-	$ 33,012,172
	2040	$ -	34,563,744	-	-	$ 34,563,744
	2041	$ -	36,188,240	-	-	$ 36,188,240
	2042	$ -	37,889,088	-	-	$ 37,889,088
		$ -				

25 Yrs Cummulative
$ 458,060,853

30 Yrs Cummulative
$ 631,244,349

DWSD Worksheet : 18 MGD Maximum Day Customer with Model Contract Twinning Line and Owning Only New Line to the Flint WTP

Capacity

Flint ADD:	0.00	MGD	- MCF/Day
DWSD ADD:	12	MGD	1,604 MCF/Day

Annual Volume

Flint:	-	MCF
DWSD:	585,561	MCF

2013 Cost of Supply

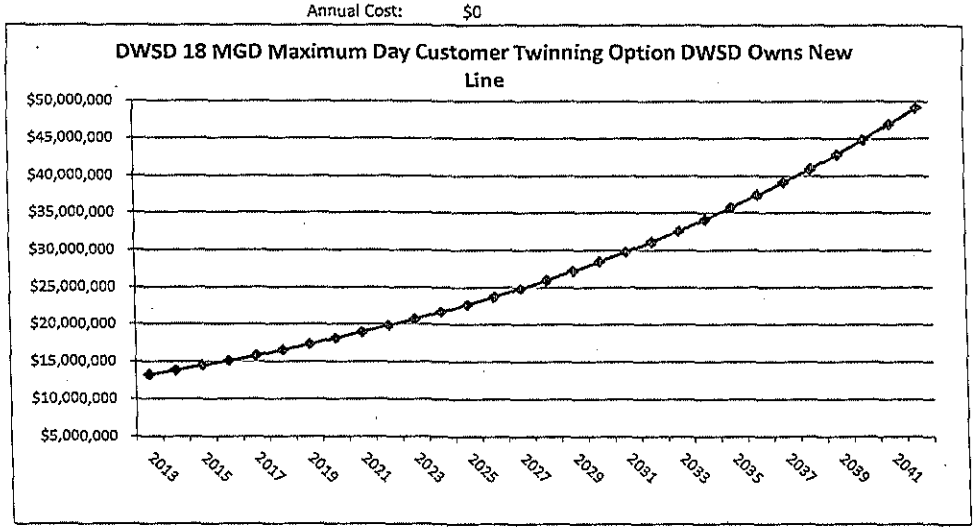
Flint WTP O&M:		-	/MCF	$ - /Yr
DWSD:	$	17.40	/MCF	$ 10,188,770 /Yr

Escalation/Inflation Rate

Flint:	4.51% /Yr
DWSD:	4.7% /Yr

Capital Expenditure

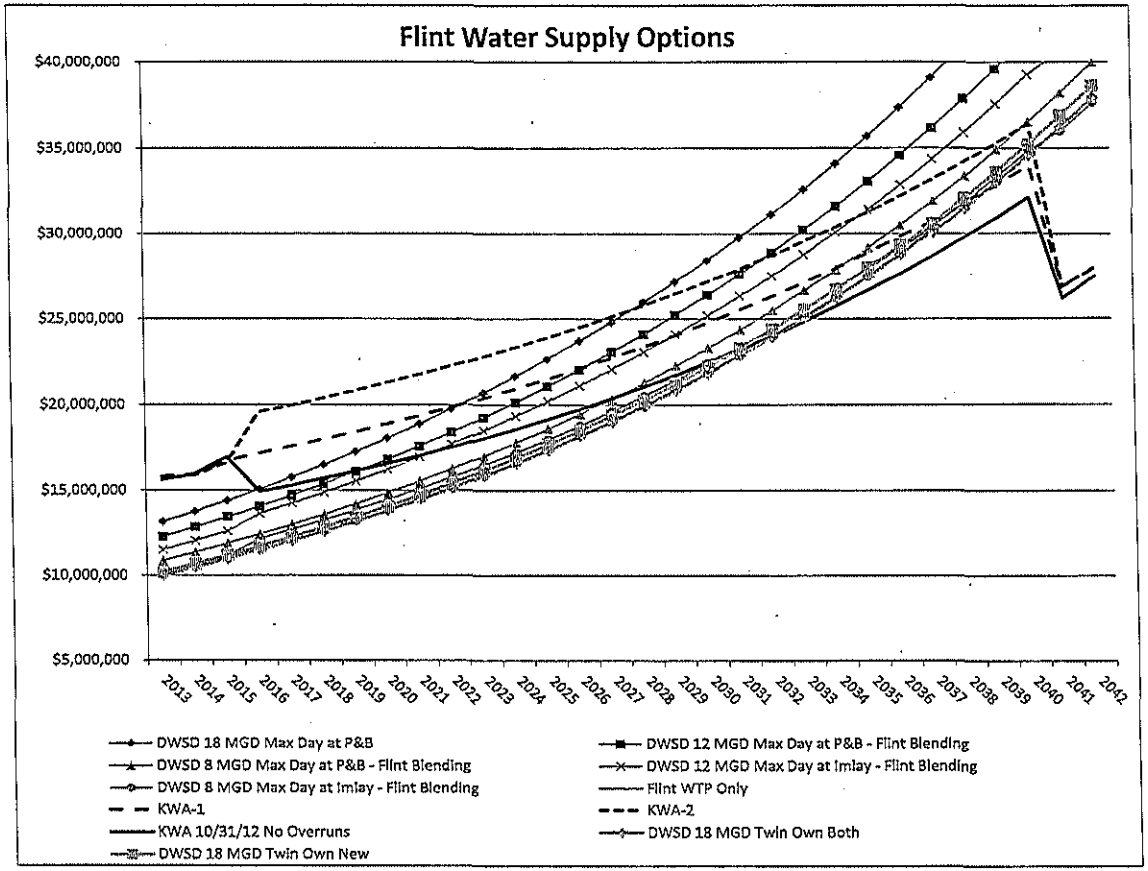
Amount:	$	-		
Reserve:	$	-	0%	Reserve Rate: 0.00%
Amount plus Reserve:	$	-		
Revenue Bond Rate:		5%		
Number of Years:		25		
Annual Cost:		$0		



	Year	Flint WTP O&M	Water Purchase	Revenue Bond Payment	Interest on Reserve	TOTAL
1	2013	$ -	10,188,770		-	$ 10,188,770
2	2014	$ -	10,667,642		-	$ 10,667,642
3	2015	$ -	11,169,021		-	$ 11,169,021
4	2016	$ -	11,693,965	-	-	$ 11,693,965
5	2017	$ -	12,243,582	-	-	$ 12,243,582
6	2018	$ -	12,819,030	-	-	$ 12,819,030
7	2019	$ -	13,421,525	-	-	$ 13,421,525
8	2020	$ -	14,052,336	-	-	$ 14,052,336
9	2021	$ -	14,712,796	-	-	$ 14,712,796
10	2022	$ -	15,404,297	-	-	$ 15,404,297
11	2023	$ -	16,128,299	-	-	$ 16,128,299
12	2024	$ -	16,886,330	-	-	$ 16,886,330
13	2025	$ -	17,679,987	-	-	$ 17,679,987
14	2026	$ -	18,510,946	-	-	$ 18,510,946
15	2027	$ -	19,380,961	-	-	$ 19,380,961
16	2028	$ -	20,291,866	-	-	$ 20,291,866
17	2029	$ -	21,245,584	-	-	$ 21,245,584
18	2030	$ -	22,244,126	-	-	$ 22,244,126
19	2031	$ -	23,289,600	-	-	$ 23,289,600
20	2032	$ -	24,384,211	-	-	$ 24,384,211
21	2033	$ -	25,530,269	-	-	$ 25,530,269
22	2034	$ -	26,730,192	-	-	$ 26,730,192
23	2035	$ -	27,986,511	-	-	$ 27,986,511
24	2036	$ -	29,301,877	-	-	$ 29,301,877
25	2037	$ -	30,679,065	-	-	$ 30,679,065
	2038	$ -	32,120,981	-	-	$ 32,120,981
	2039	$ -	33,630,667	-	-	$ 33,630,667
	2040	$ -	35,211,309	-	-	$ 35,211,309
	2041	$ -	36,866,240	-	-	$ 36,866,240
	2042	$ -	38,598,953	-	-	$ 38,598,953
		$ -				

25 Yrs Cummulative
$ 466,642,790

30 Yrs Cummulative
$ 643,070,941



Option	Costs through 2042	Ranking
Flint WTP Only	$ 590,441,893	1
DWSD 8 MGD Max Day at Imlay	$ 634,795,488	2
KWA 10/31/12 Update	$ 649,775,166	3
DWSD 8 MGD Max Day at P&B	$ 672,671,705	4
KWA-1	$ 707,279,715	5
DWSD 12 MGD Max Day at Imlay	$ 725,576,803	6
DWSD 12 MGD Max Day at P&B	$ 762,110,308	7
KWA-2	$ 766,784,313	8
DWSD 18 MGD Max Day at P&B	$ 821,226,268	9
DWSD 18 MGD Max Twin Own Both	$ 631,244,349	
DWSD 18 MGD Max Own New Line	$ 643,070,941	

STATE OF MICHIGAN CONTRACT NO. 271N3200089

CITY OF FLINT WATER SUPPLY ASSESSMENT

February 2013

For Submittal to:

State of Michigan, Department of Treasury

Submitted by:

TUCKER, YOUNG,
JACKSON, TULL INC.
CONSULTING ENGINEERS-PLANNERS
615 Griswold Suite 600
Detroit, Michigan 48226
(313)963-0612 FAX (313)963-2156

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1. INTRODUCTION

Tucker, Young, Jackson, Tull, Inc. (TYJT), at the request of the State Treasurer performed an analysis of the water supply options being considered by the City of Flint. The City of Flint is presently supplied potable water from the Detroit Water and Sewerage Department (DWSD). This supply is from a single 72-inch water main that terminates at a master meter located at Potter and Baxter. Additionally, downstream of the DWSD master meter, Flint supplies its customer Genesee County. The City of Flint also operates a water treatment plant that uses the Flint River as its source of supply to provide back up and redundancy to the DWSD supply as required by MDEQ.

The Karegnondi Water Authority (KWA) is planning on constructing a raw water supply system that could provide Lake Huron water to the Flint Water Treatment Plant. Flint's existing plant would be upgraded to treat the new raw water source.

The State Treasurer has appointed an emergency financial manager for the City of Flint. As such the Treasurer has requested TYJT to provide an analysis of the water supply options to assist the Treasurer in determining any potential risk and the best course going forward for supplying potable water to the City of Flint.

Report Organization

The following sections of this report are described below:

Section 2 – The basis of the analysis is described in this section. The options include the KWA option and several options offered by DWSD.

Section 3 – A significant amount of information and data was collected including memorandums, reports, drawings, financial reports, and other documents. This section summarizes the information used in the analysis.

Section 4 – This section describes the evaluation of the cost of supply for the Flint options. The costs are comprised of the initial cost of operations plus the annual rate of escalation/inflation.

Section 5 – The evaluation process used to analyze the construction costs associated with the KWA supply system is described in this section. Additionally, the cost of financing the capital requirements is described.

Section 6 – This section presents the financial review of the options considered to supply potable water to Flint. A summary of these options is also provided.

Section 7 – In addition to the financial analysis other considerations were identified that should be considered in understanding the risks and determining the best option to supply Flint. They include items related to cost, redundancy and reliability, and Flint's ability to control their future cost of water supply.

2. FLINT WATER SUPPLY OPTIONS

Two water purveyor options were evaluated; the KWA water supply system and continued supply from DWSD. Both suppliers would provide water from Lake Huron as the source. The KWA system is a raw water supply, which means that the water would have to be treated by Flint before distributing the potable water to its customers. The DWSD supply is potable or "finished" water and would not need additional treatment.

Additionally, an option for the Flint WTP to supply the City of Flint without being supplied from either DWSD or KWA was initially considered. The preliminary investigation evaluated the cost associated with the required improvements to the plant and to the Flint River dam system. Although it appeared that this was a viable option, Flint in a meeting on December 20, 2012 with the Treasury, stated that the City did not want to pursue the option and it is no longer being considered.

Karegnondi Water Authority (KWA) Lake Huron Water Supply

The KWA water supply system schematic is shown in Figure 2-1. The system is comprised of an intake in Lake Huron that supplies water to the Lake Huron Pump Station (LHPS). The LHPS lifts the water and pumps it through an approximately 22 mile long 60-inch pipeline. The pipeline terminates at a 5 MG reservoir and is then pumped from the Intermediate Pump Station (IPS) through approximately 26 miles of 60-inch and 18 miles of 30-inch pipeline to the existing Flint WTP. Downstream of the IPS, approximately half way to the Flint WTP, the 60-inch line would also supply a new Genesee County WTP.

The raw water transmission system has a 60 MGD capacity and is sized to deliver a maximum of 18 MGD to the Flint WTP with an average day supply of 12 MGD. Improvements at the Flint WTP would also be required to treat the lake water as the plant is currently designed to treat the Flint River water.

The term of the KWA contract for Flint is 40 years.

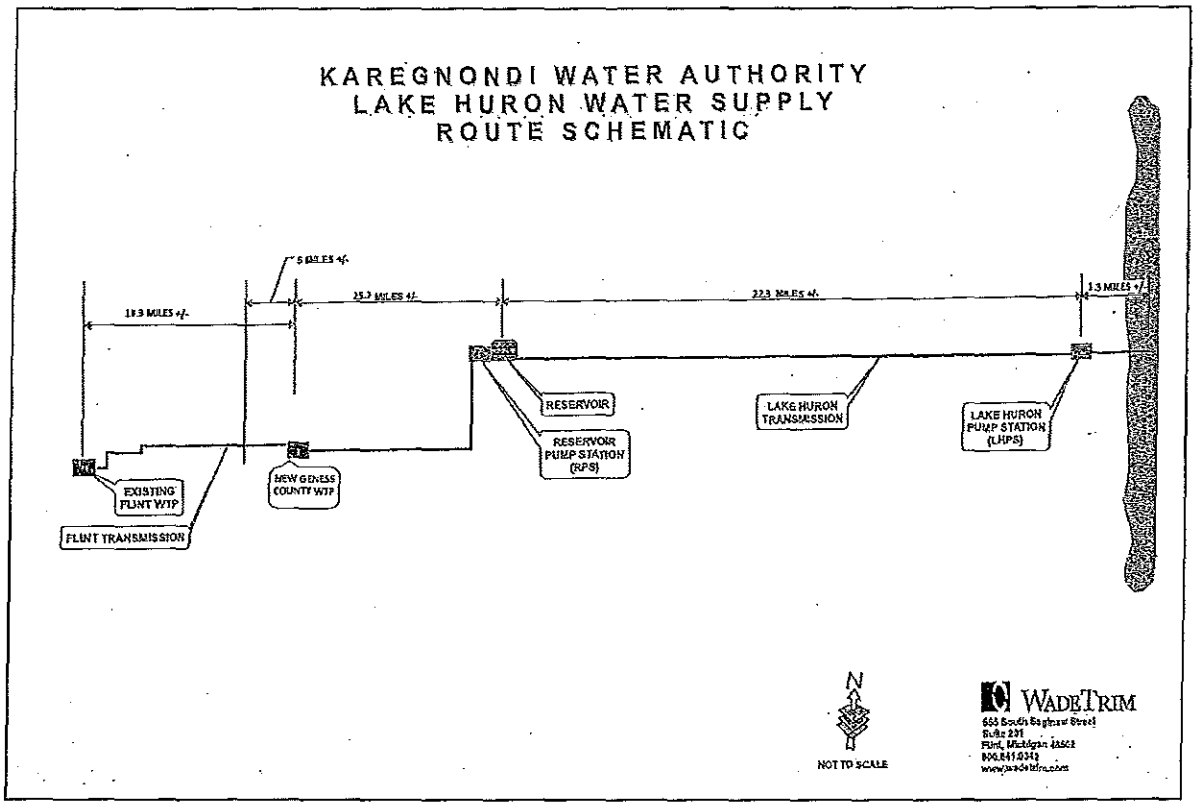

Figure 2-1: KWA Raw Water System

DWSD Water System

The DWSD system schematic is shown in Figure 2-2. Flint is currently supplied by DWSD at Master Meter FL-1, located at Potter and Baxter. Flint typically gets its water from the Lake Huron WTP, located in Fort Gratiot, Michigan; near the Lake Huron shoreline. Water is treated and pumped at the Lake Huron WTP and supplied through a 120-inch pipeline to an intermediate pump station called the Imlay Pump Station. The Imlay Pump Station has 20 MG of reservoir capacity. Depending on the time of year and the DWSD system demand, water is either bypassed directly to Flint or it is re-pumped at Imlay. It should be noted that the DWSD supply to Flint is part of a very large water system and during emergencies or outages water can be supplied from the south up to Flint in lieu of the Lake Huron facility.

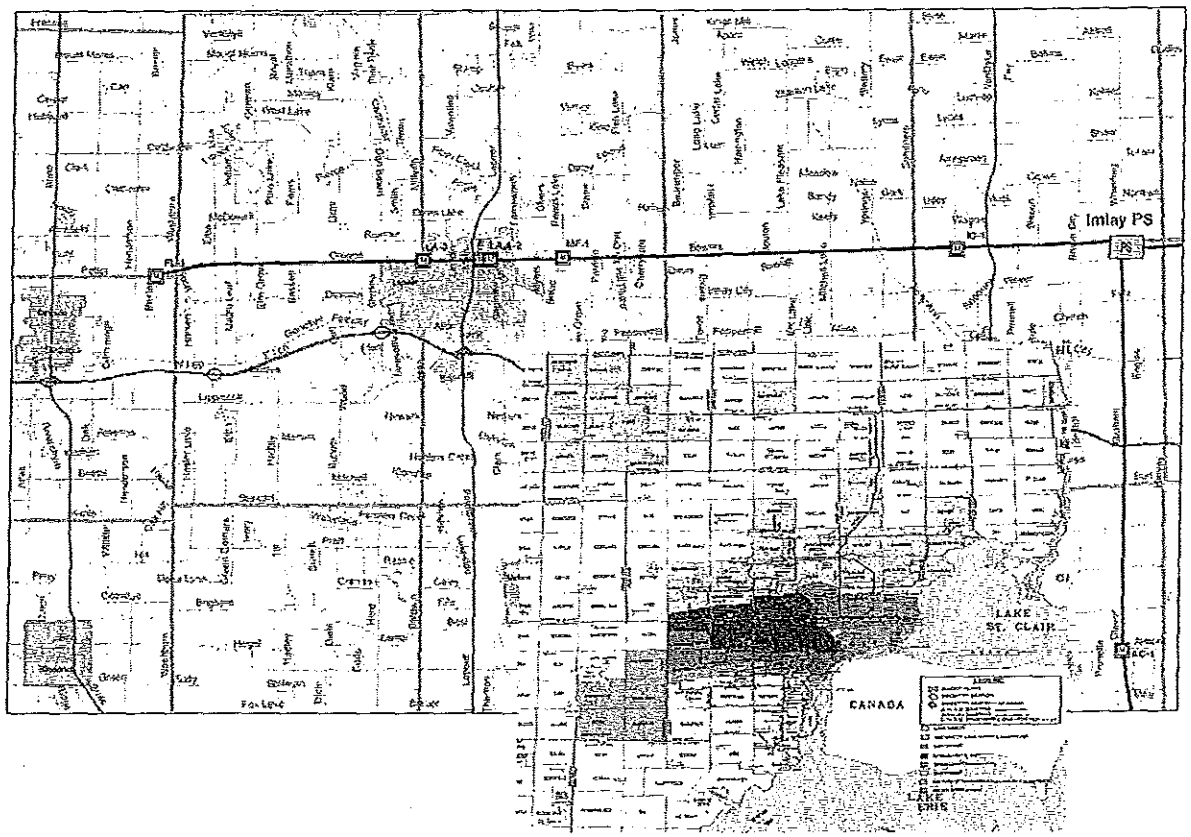

Figure 2-2: DWSD Water System

The pipeline from Imlay to FL-1 is a 72-inch pipeline. It has been estimated that the 72-inch line serving Flint has a capacity in excess of 90 MGD.

DWSD has presented several contractual options to Flint and all of them are based on Flint signing a new 30 year contract. The options shown in Table 2-1 are based on two different supply points; one at the current master meter location FL-1 at Potter and Baxter (P&B) and the other at the location of the Imlay Pump Station. The reason for the varying options is to provide a lower water rate at the Imlay Station, since the DWSD rate formula is based on distance and elevation factors related to the supply location.

The rates are also dependent on the maximum amount of water DWSD supplies. As example, if DWSD supplies a maximum day demand of 18 MGD that would equal the entire amount of water required by Flint.

For the options less than the maximum of 18 MGD means that the Flint WTP would supplement the difference by supplying water treated from the Flint River. These options are known as "blending" and would allow for Flint to blend two sources of water to supply its customers; the Flint River using the Flint WTP and Lake Huron from DWSD system.

Description	Average Day Demand
18 MGD Maximum Day Customer – FL-1	12 MGD
12 MGD Maximum Day Customer – FL-1	8 MGD
8 MGD Maximum Day Customer – FL-1	8 MGD
12 MGD Maximum Day Customer - Imlay	12 MGD
8 MGD Maximum Day Customer - Imlay	12 MGD

Table 2-1: DWSD Supply Options

3. DATA COLLECTION

During the course of the investigation several documents were used to perform the analysis. The names of the documents are listed below for reference.

KWA and Flint

- Preliminary Engineering Report, Lake Huron Water Supply Karegnondi Water Authority, September 2009;
- Analysis of the Flint River as a Permanent Water Supply for the City of Flint, July 2011;
- Cost Comparison, KWA vs. DWSD, Letter to Mr. Kurtz, October 31, 2012;
- Lake Huron Supply Study, KWA, Appendix 20, October 2012 Preliminary Report Update, Final Report (DRAFT), October 4, 2012;
- Articles of Incorporation of Karegnondi Water Authority, endorsed in 2010;
- Karegnondi Water Authority Bylaws, October 26, 2010;
- KWA Raw Water Supply Contract;
- Flint WTP Statement of Revenues and Expenditures 09' – 12';
- GCDC Division of Water and Waste Services Financial Statements 03' – 11'; and
- Assorted emails with further clarification of questions and documentation.

DWSD

- Historical Rates and Charges to Flint 04' – 13';
- Historical Rates and Charges to Flint with Hypothetical Model Contract 10' – 13';
- 2013 Rates and Charges for the following options:
  - 18 MGD Maximum Day Customer at FL-1;
  - 12 MGD Maximum Day Customer at FL-1 (Flint blending*);
  - 8 MGD Maximum Day Customer at FL-1 (Flint blending*);
  - 12 MGD Maximum Day Customer at Imlay (Flint blending*);
  - 8 MGD Maximum Day Customer at Imlay (Flint blending*); and
- Assorted emails with further clarification of questions and documentation.

* Flint blending based on DWSD supplying two-thirds and Flint one-third of 12 MGD average day demand.

Two meetings were also held; one with DWSD and one with Flint and Genesee County representing KWA. The meetings were held on November 19, 2012 and November 20, 2012, respectively. Minutes from these meetings are included in Appendix A.

4. COST OF SERVICE

Information provided by DWSD, Flint, and representatives of the KWA were used in the cost of service evaluation. To evaluate the annual escalation/inflation rate over the planning period, the rate adjustment for DWSD was estimated based on the recent rate adjustment history. For the KWA system both the estimated cost of operations when the system begins supplying water and the annual rate adjustment or inflation was evaluated. The existing cost of operations and escalation for the Flint WTP was based on actual costs provided and then adjusted depending on the scenario considered. This section describes the evaluation process and the rates used in the analysis.

DWSD Water Supply

The City of Flint has been a customer of DWSD since 1967. The Flint WTP has been maintained as a backup to the DWSD system. As indicated previously, several options were provided by DWSD depending on the type of service Flint was to select. The unit cost of water for each of these options is shown in Table 4-1. These rates are based on DWSD's FY13, which are current until July 2013.

Description	Average Day Demand (MGD)	Unit Rate ($/MCF)
18 MGD Maximum Day Customer – FL-1	12	16.37
12 MGD Maximum Day Customer – FL-1	8	16.31
8 MGD Maximum Day Customer – FL-1	8	12.68
12 MGD Maximum Day Customer - Imlay	12	14.38
8 MGD Maximum Day Customer - Imlay	12	11.11

Table 4-1: Cost of DWSD Supply Options

To determine annual escalation rate, DWSD's last 10 years of history was used along with other large urban water systems in Michigan. The water systems used for benchmarking comparison were: Lansing, Grand Rapids, and Saginaw.

Table 4-2 identifies the annual and average rate of increase to Flint based on supplying water either to the current FL-1 at Potter and Baxter or Imlay. Note the last three years of the rates (FY 2011 through FY 2013) assumes that Flint's cost would be based on the new 30 year contract; FY 2011 being the first year that the new contract was available.

Fiscal Year	Average Unit Cost ($/Mcf)	Annual Change (%)
2004	11.06	
2005	10.24	-7.4
2006	10.56	3.1
2007	11.09	5.0
2008	11.35	2.3
2009	13.07	15.2
2010	11.73	-10.3
2011	13.89	18.4
2012	15.08	8.6
2013	16.24	7.7
Average		7.4%

From FL-1

Fiscal Year	Average Unit Cost ($/Mcf)	Annual Change (%)
2004	11.06	
2005	10.24	-7.4
2006	10.56	3.1
2007	11.09	5.0
2008	11.35	2.3
2009	13.07	15.2
2010	11.16	-14.6
2011	12.23	9.6
2012	13.28	8.6
2013	14.32	7.8
Average		2.9%

From Imlay

Table 4-2: Recent DWSD Water Rates

Audited financial reports were used to determine the rate of inflation associated with other three large municipal systems. The results are shown in Table 4-3.

Water Systems	Years Evaluated	Average Rate (%)
Lansing	05'-12'	4.6
Grand Rapids	04'-11'	1.6
Saginaw	04'-11'	7.0

Table 4-3: O&M Inflation Rates of Other Large Water Systems

Based on the information analyzed from DWSD and the other communities, it was determined that a fair annual rate of inflation for operations and maintenance cost for the analysis should be 4.4%. The 4.4% has historical significance from Flint's current water supplier and falls within the range of the other communities.

KWA Water Supply

The initial projected O&M cost for the KWA supply would be comprised of KWA's O&M costs as well as Flint's O&M costs. Because there was limited information provided, the initial estimated rate of $1.50/MCF was used. This rate is based on information from the cost comparison analysis attached to the letter to Mr. Kurtz, dated October 31, 2012.

The KWA cost evaluation used an annual O&M inflation rate of 5%. To validate this rate a similar analysis to DWSD's operations and maintenance annual rate of inflation was used. First, in discussions with Flint and the Genesee County Drain Commission (GCDC), they believed that the annual rate of inflation for the new KWA system would be similar to the GCDC Water & Waste Services (WWS). Additionally, two large transmission systems were used to benchmark the inflation rates: the Southeastern Oakland County Water Authority (SOCWA) and the Ypsilanti Utility Community Authority (YUCA). Although both of these systems transmit finished water opposed to raw water, they were considered similar enough for comparison as they are comprised of only large water mains, pumping facilities and storage.

Once again audited financial statements were used to calculate the inflation rates. A summary of the findings are shown in Table 4-4. Based on the fact that the information analyzed showed a large difference between the two systems, it was determined that the KWA assumption of 5% was a good rate of inflation to use in the financial analysis. This rate is almost equally between the GCDC rate and the other two transmission systems.

Systems	Years Evaluated	Average Rate (%)
GCDC WWS	03' – 11'	10.5
SOCWA	04'-12'	--
YUCA	04'-12'	0.7

Table 4-4: O&M Inflation Rates of Other Comparable Systems to KWA

Flint WTP

The Flint WTP currently serves as a backup supply to the DWSD service to Flint. To maintain backup operations, the City of Flint operates the plant approximately 20 days each year. Flint indicated that the average production rate when they operate is 11 MGD.

For the blending options and the KWA supply considered, Flint would be required to operate its plant all year around. Therefore, their operating and maintenance costs were evaluated and adjusted to determine an annual cost associated with year-round operations.

The Flint WTP provided three years of operating costs for the assessment. Additionally, reports listed in Section 3 were also used as reference to determine both operating costs for the plant processing Flint River water (blending options) and Lake Huron raw water (KWA option).

Major cost centers were analyzed to estimate annual operation and maintenance. They included: labor, utilities, chemicals and residual management. In general, as recommended by the Flint plant staff, labor and overhead were increased from the current costs by two-thirds. Additionally, variable costs for power, chemicals and residual cost were increased to estimate full time treatment at the Flint WTP. Data from the KWA Preliminary Report and annual operating data for the Flint WTP (provided separately) were analyzed to make these forecasts.

The annual operating and maintenance costs developed for Flint WTP used are shown in Table 4-5.

Source of Supply	Average Daily Production (MGD)	Estimated Annual O&M Cost
Flint River (Blending with DWSD)	4	$5,895,097
Lake Huron (Supplied by KWA)	12	$7,913,118

Table 4-5: FY 13 O&M Costs for Year-round Operations

It was determined that a fair annual rate of inflation for operations and maintenance cost for the Flint WTP plant should be 4.51%. The 4.51% is an average of Lansing, Grand Rapids and Saginaw facilities.

5. CAPITAL REQUIREMENTS

Large capital investments would be required by Flint and GCDC to construct the KWA supply system. Furthermore, some of the options presented by DWSD (supply point from Imlay) would require the purchase by Flint of DWSD's 72-inch water main. Performing the financial analysis; therefore, required an analysis of the KWA construction cost estimate for the transmission system and Flint WTP improvements.

Revenue bonds were also identified as the source of financing the new supply system and associated improvements. This section describes the assumptions made and the interest used for financing the improvements.

KWA Supply System

The most current cost estimate of the KWA system was presented in the document titled; Lake Huron Supply Study, KWA, Appendix 20, October 2012 Preliminary Report Update, Final Report (DRAFT), October 4, 2012. The cost of construction is estimated at $272,421,558. Flint's portion would be 30% or $81,726,467.

Due to the significance of this expenditure, a detailed review of the cost was performed and is presented in this section. The analysis was performed based on the main elements of the supply system: the lake intake, the two pumping stations, and the transmission pipeline. Additionally, an analysis was performed related to construction contingencies and other costs such as engineering, legal, and administration.

Lake Intake

KWA representatives indicated in a meeting in November that the design documents for the intake were at 90% and that it was planned for advertisement in January 2013. A summary of the estimate is shown in Table 5-1.

Description	Estimate
Intake and Crib	$22,076,850
ELAC at 25%	5,519,213
Property	2,300,000
Total	**$29,896,063**

Table 5-1: KWA Intake Cost Estimate

Based on the evaluation, it appeared that the cost estimate was reasonable. Given that the design was nearly complete, the engineering, legal, administration, and construction contingencies (ELAC) at 25% were also found to be appropriate.

Pumping Stations

KWA representatives indicated that the pump stations were estimated at a level of design less than 15%. Therefore, in addition to an evaluation of their cost estimate, other water pumping station costs were used for comparison. Additionally, contractors were also contacted for costs. Table 5-2 summarizes the KWA cost estimate compared to our cost estimate performed for the Treasury.

Description	KWA	Estimate	TYI	Estimate
Pumping Stations		$24,618,080		$54,573,314
Land for Intermediate Pump Station and Reservoir		--		75,000
Subtotal		$24,618,080		$54,648,314
ELAC for Construction	25%	6,154,520	30%	16,394,494
Total		**$30,772,600**		**$71,042,808**

Table 5-2: Pumping Stations Cost Estimate

Two things to note regarding the difference in the cost estimates; firstly, there is a large difference in the cost estimates of the pumping stations. The estimate developed for the Treasury used several other pumping stations construction costs from Southeastern Michigan and discussions with contractors. These costs were then computed on a $/MG's for comparison.

Secondly, our estimate for the Treasury is based on an ELAC of 30% instead of KWA's 25%. Although 25% was acceptable for the intake, it is believed to be too low for the pumping station estimate given that the engineering effort is less than 15%.

Transmission Main

Although the specific route for the transmission main was not provided, an estimate was calculated based on the general information provided. Once again, the KWA estimate was based on a level of design less than 15%. The estimate performed for the Treasury used the line items provided by KWA for the pipeline and also consulted with contractors to evaluate the cost of construction. The comparison is shown in Table 5-3.

Although the cost of construction of the pipeline is similar, a value of 30% was used for ELAC due to the level of design. Additionally, KWA did not believe there would be any additional costs for easements; however, this did not seem practical. Therefore an estimate for acquiring the easements was added to the Treasury estimate and is based on the 277 easements identified by KWA. The cost shown includes surveying, legal, engineering, administration, etc.

Description	KWA	Estimate	TYJT	Estimate
Transmission Mains		$166,202,316		$167,419,530
ELAC for Construction	25%	41,550,579	30%	50,225,859
Subtotal		$207,752,895		$217,645,389
Easements		--		1,166,170
Total		**$207,752,895**		**$218,811,559**

Table 5-3: Transmission Pipeline Cost Estimate

Other KWA Costs

In prior estimates of the construction cost, KWA used an ELAC of 37%. In this case it could be considered that the engineering effort associated with the design would have been included. However, it is believed that KWA's reduced ELAC of 25%, does not include the design effort. Additionally, it would be prudent to assume that the owner would want a construction manager during construction of this large project. A summary of these costs are shown in Table 5-4.

Description	Estimate
Design Engineering for Pumping Stations and the Transmission Pipeline	$16,939,581
Construction Management at 5%of Project Cost Estimate of $217,645,389	14,434,609
Administration	349,440
Legal, Easements, Contract Documents	831,000
Total	**$32,554,630**

Table 5-4: Other Costs

Summary Comparison

A summary of the two cost estimates are shown in Table 5-5. Based on the comparison, the estimate performed by TYJT shows a higher cost to Flint by approximately $25,000,000.

Note that there are two other costs shown in the summary that were not previously addressed; power and backup power. Regarding the cost of providing power to the pumping facilities, the cost of $4,000,000 appears reasonable.

The KWA has repeatedly indicated that backup power is not needed. Backup power is a standard practice in the water industry. Furthermore, a loss of power at either pumping facility will prevent the supply of water to both Flint and Genesee County. For these reasons, the cost of providing backup power was included in our estimate for the Treasury.

Description	KWA Estimate	TVT Estimate
Intake/Crib	$ 27,596,063	$ 27,596,063
Pump Stations	30,772,600	71,042,808
Transmission Mains	207,752,895	217,645,389
Power	4,000,000	4,000,000
Redundant Power for PS		1,273,200
Land for Lake Huron Pumping Station	2,300,000	2,300,000
Design Engineering/PS and Transmission		16,939,581
Construction Management		14,434,410
Administration		349,440
Legal/Easement/Contract Documents		831,000
Easements		1,166,170
Total	**$ 272,421,558**	**$ 357,578,060**
Flint Share at 30%	**$81,726,467**	**$107,273,418**

Table 5-5: Total Cost Comparison

Flint WTP Improvements

The KWA analysis identified capital costs required to convert the existing WTP from river water treatment to treating lake water. The cost estimate was identified as $7,100,000 in the 2009 report. This number was used in the our analysis, since additional information was not provided. For the purpose of the financial analysis; however, the $7,100,000 was increased by 3% each year for three years to account for inflation.

DWSD Imlay Station Supply Options

The options identified by DWSD to supply service to Flint at the Imlay Pump Station would require Flint to purchase the 72-inch water main from Imlay to Master Meter, FL-1. The pipeline is approximately 25 miles long. The estimated cost provided by DWSD for estimating purposes is $4,700,000.

Financing

The cost of financing the revenue bonds for the capital work was investigated. Based on conversations with local financial advisors knowledgeable in bond financing, an interest rate of 5% for the 25 year

period was considered acceptable. This is based on a Standard and Poor's bond rating of A without insurance.

Additional costs associated with the bond include the reserve and bond issuance fee. The bond holders will require a reserve of approximately 10% of the loan to be held for the 25 year payment period. The cost associated with the bond issuance has been estimated at 2.25% of the principal borrowed for the KWA project and 3% for the smaller loan associated with the Flint WTP improvements or the purchase of the 72-inch main.

Furthermore, since no revenue will be generated to pay on the bonds for the first three years that the system is being constructed, the cost associated with capitalizing the interest was also included.

Finally, interest on the reserve will be provided back to KWA and Flint. Although the interest is currently less than 1%, it was determined that a 3% rate would be more prudent long-term.

6. FINDINGS

Using the information described in the previous sections, a cost evaluation was conducted for the KWA supply and the DWSD options. Individual worksheets for each option are provided in Appendix B. For the purpose of comparison a 30 year period was used. This period includes the 3 year construction period, the 25 loan period and an additional two years to get a sense of the cost of operation after the loans have been paid.

There were three separate cost sheets prepared for the KWA option. The first cost sheet (KWA) is based on the cost estimate provided by KWA. The costs provided assumed no overruns or delay in construction. With KWA's own assumptions of an overrun in construction of 15% and a one year delay in operations, the KWA estimated cost becomes $686,375,920 through Year 2042.

Since this cost estimate did not appear to include the financing of revenue bonds, another cost sheet (KWA-1) was developed that included KWA's cost estimate without overruns with the additional finance costs associated with the revenue bonds. A final cost sheet (KWA-2) includes the cost associated with the revenue bonds based on the estimate provided by TYJT for the Treasury.

A summary of the cost sheets provided in Appendix B are shown in Table 6-1. Figure 6-1 shows the cumulative annual costs associated with each option.

Option	Costs through 2042 ($)	Ranking by Cost
DWSD 8 MGD Maximum Day at Imlay Station	634,795,488	1
KWA *(10/31/12 No Overruns, As Provided)**	649,775,166	2
DWSD 8 MGD Maximum Day at FL-1	672,671,705	3
KWA-1 *(10/31/12 No Overruns with Cost of Financing)*	707,279,715	4
DWSD 12 MGD Maximum Day at Imlay Station	725,576,803	5
DWSD 12 MGD Maximum Day at FL-1	762,110,308	6
KWA-2 *(Treasury Estimate)*	766,784,313	7
DWSD 18 MGD Maximum Day at FL-1	821,226,268	8

* $686,375,920 with 15% overrun in construction and a one year delay in operations

Table 6-1: Total Cost of Options through 2042

Based on the analysis, it is prudent to assume the KWA water supply option costs would be somewhere between the KWA-1 and KWA-2 options. Therefore, the analysis indicates that the two DWSD options of supplying 8 MGD on a maximum day and up to 8 MGD on average are the least cost options for Flint. These options allow Flint to maximize the use of existing assets; the City of Flint's (the Flint WTP) and DWSD's (the existing 72-inch main).

Additionally, in recent conversations with the Treasury another option was discussed that could potentially be the most cost-effective solution. Currently the Flint WTP serves as a backup if service is

lost through either the DWSD or KWA pipeline. If the a twin pipe paralleling the DWSD 72-inch water main were constructed with interconnects with the 72-inch line, then the new water main could serve as the backup to Flint and the Flint WTP could be abandoned or potentially sold to Genesee County for their use.

The construction of the parallel pipeline would be considered in the DWSD capital expenditure as a Common to All (CTA) cost. This means that the capital cost of the pipeline would be shared by all DWSD customers and not just by Flint. Preliminary analysis of this option appears to be the most cost-effective of all the options discussed. However, a more thorough cost analysis is warranted and this approach would require an agreement between Flint and DWSD.

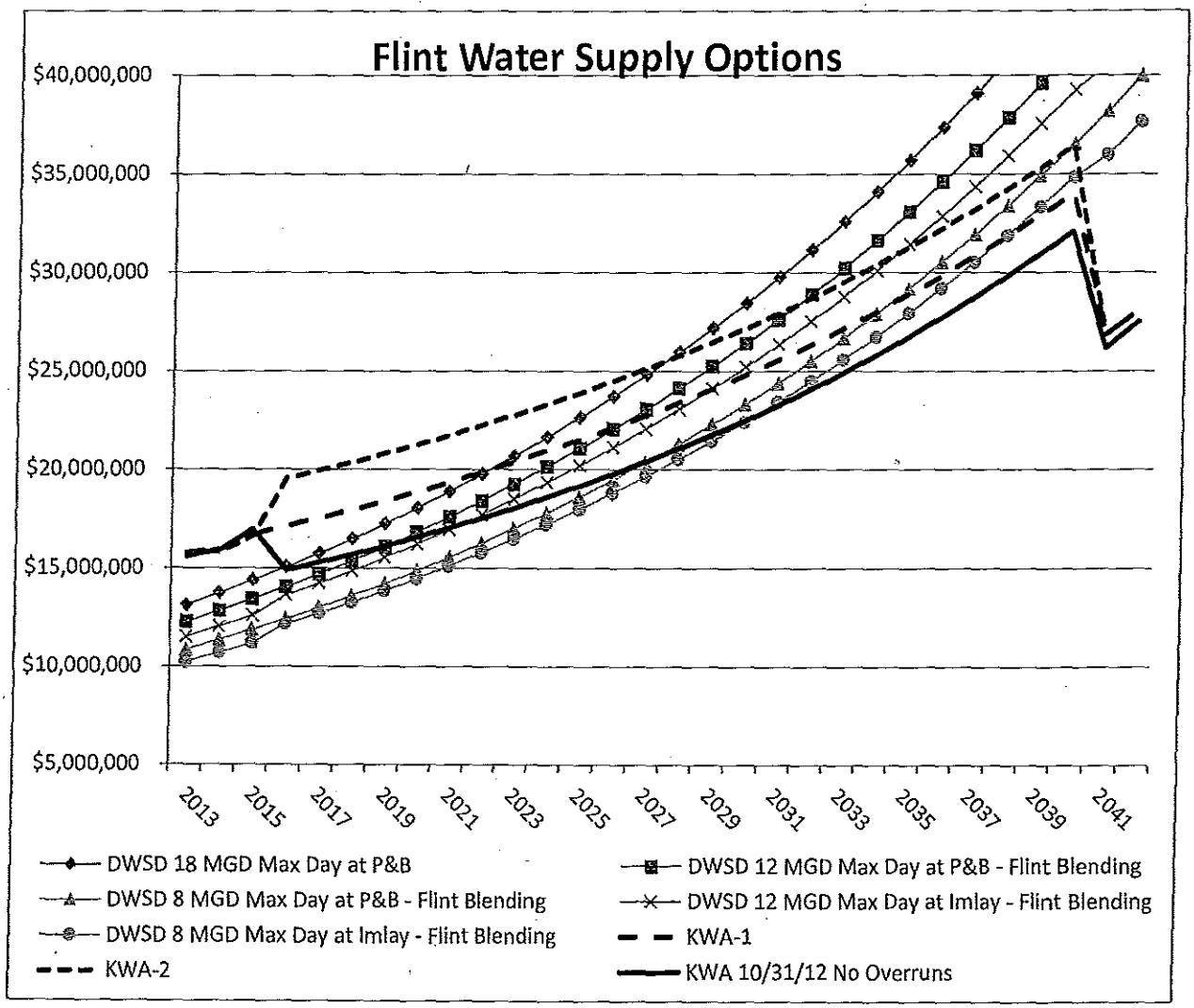

Figure 6-1: Flint Water Supply Options through 2042

7. OTHER CONSIDERATIONS

As part of the investigation other issues were identified that may result in risks to Flint that should be considered by the Treasury in determining how Flint's potable water should be supplied. These issues are related to redundancy and reliability, other items affecting cost, and Flint's desire to control its own destiny related to its water supply. These are described further below.

Redundancy/Reliability

In one of the first meetings related to this task assessment, which was held on November 1, 2012, the Genesee County Drain Commissioner, Mr. Jeff Wright, stated that one of the main reasons for pursuing the KWA supply option related to the lack of reliability of the DWSD system. He pointed to the Northeast blackout of 2003; a widespread power outage that occurred throughout parts of the Northeastern and Midwestern United States and Ontario, Canada, on Thursday, August 14, 2003. He stated that Flint and Genesee County were out of water for several days.

It is worth noting that this was a power outage of historic proportions that affected millions of Americans. However, DWSD did begin supplying water again relatively quickly in comparison to other major cities impacted by the same power outage.

Furthermore, the KWA supply system offers less redundancy to Flint than the current DWSD system. Under both options, Flint is supplied by a single pipeline; however, DWSD has backup power at all of its major facilities supplying Flint. The KWA system will not have a redundant power at its pumping facilities. This would be a major risk.

Currently, backup to the DWSD system for Flint is Flint's WTP using the Flint River as the source of supply. KWA has stated that the Flint River source would also be used as backup to Flint if the KWA supply through its pipeline was lost. However, since the Flint WTP would be upgraded to treat Lake Huron water under the KWA option, using the Flint River as a backup source would require the Flint WTP to maintain two process treatment streams.

In addition to Flint and Genesee County, the DWSD's 72-inch main supplies Imlay City, Mayfield and the Greater Lapeer County Utilities Authority (GLCUA). The volume of water contained within the 72-inch main is approximately 30 MG. Only supplying these three remaining communities would cause the water age to increase dramatically; somewhere in excess of three weeks old, before reaching the customers' master meters. Since the half-life of chlorine in the DWSD system is approximately 5 days, the chlorine would most probably be near zero requiring re-chlorination of the finished water upstream of the master meters.

Re-chlorinating is a costly and risky process due to the instability of chlorine gas. It is unknown whether DWSD would pursue this improvement or possibly abandoned the 72-inch pipeline.

If Flint is supplied by the KWA system, then DWSD supplying their other customers along the 72-inch water main may be reconsidered. Since the KWA system is a raw water supply, the communities would

either have to build a treatment facility to treat the water from KWA or find another water source for their communities.

Additional Cost and Risk Considerations

The design of the KWA supply and the construction of the system have not been completed; therefore, final costs and time to complete are unknown. Cost overruns and delays in completion will both negatively impact Flint's final cost. As example, if the project is not completed within the three year period, payment on the bonds will be due, but the revenue source needed from the sale of water could not be provided.

Furthermore, there is always a risk with large water system construction; especially those including an intake in the Great Lakes, pumping stations and rehabilitation of older water treatment plants. These risks include the potential of explosive gases in tunneling below Lake Huron, changing site conditions associated with the large number of miles of pipe installation and rehabilitating an older WTP, and the startup and debugging of the entire pumping system.

Flint has indicated that they have a high water loss. Not addressing this issue prior to sizing the Flint supply pipeline from KWA could cause the water main to be oversized along with its incremental cost in construction.

Also, the KWA supply option appears to run counter to the Treasury's Competitive Grant Assistance Program (Formerly EVIP Grant). This program has been put in place to allow for communities to consolidate their services and save money. Two existing customers of DWSD (Flint and Genesee County) along with the potential of others customers (GLCUA, Mayfield, Imlay City) separating to from another water system is in contradiction to the program.

Finally, there is a concern over the ability of smaller systems (KWA) over larger systems (DWSD) to pay for future unfunded mandates and regulations. Obviously, identifying regulation requirements over 30 years is hard to determine. However, it is widely accepted that a large system has greater ability to respond to unfunded mandates because the cost can be distributed over a large customer base.

Flint's Autonomy

Flint has indicated that a major point of consideration is that they have no control over the rate increases issued to Flint by DWSD. All other counties supplied by DWSD have representatives on the Board of Water Commissioners (BOWC). The BOWC is one of the governing bodies that approve the water rates. Since Flint and Genesee County do not have a representative on the BOWC, Flint believes they are held "hostage" to DWSD's rates and cost of service.

This issue was stated in Flint's handout at the November 1, 2012 meeting. The handout is titled, "Flint Water Supply Future." However, it is worth noting in the same handout, Flint also identifies similar concerns with the governing board of the KWA system. Notably, that although Flint and Genesee County will be the only customers and Flint will be responsible for 30 percent of the construction cost,

they will have a minority vote on the KWA board. Furthermore, there are other communities (Lapeer County, the City of Lapeer, and Sanilac County) that sit on the board and vote. However, they are not purchasing water nor contributing to the construction costs.

STATE OF MICHIGAN CONTRACT NO. 271N3200089

CITY OF FLINT WATER SUPPLY ASSESSMENT

State of Michigan, Department of Treasury

Appendix A: Meeting Minutes

TUCKER, YOUNG,
JACKSON, TULL INC.
CONSULTING ENGINEERS-PLANNERS
565 E. Larned Suite 300
Detroit, Michigan 48226
(313)963-0612 FAX (313)963-2156

MEETING MINUTES

IN ATTENDANCE:	Sue McCormick, DWSD Director Darryl Latimer, DWSD Deputy Director George Karmo, TYJT Awni Qaqish, TYJT Dave Guastella, TYJT
DATE:	November 24, 2012
PURPOSE OF MEETING:	Meeting with DWSD for the Indefinite-scope, Indefinite-delivery Contract Number 00383, 2012 Professional General Architectural/Engineering Services – City of Flint Water Supply Assessment
PREPARED BY:	Dave Guastella

A meeting was held at the DWSD Main Office Building on November 19, 2012 to discuss the water supply options being presented by DWSD to the City of Flint. The main items discussed generally followed the attached DWSD Discussion/Questions that were provided to the Department prior to the meeting. A summary of the key points discussed are provided below.

DISCUSSION ITEMS

1. Question/Discussion Item: Verify that the four options presented at the November 1, 2012 meeting are still available for consideration:

    a. Supplied from Potter & Baxter using the new model contract (assume a Maximum Day Customer),

    b. Supplied from Imlay Station,

    c. Finished un-pumped supply from Lake Huron WTP, and

    d. Raw un-pumped supply from Lake Huron WTP.

    DWSD prefers to focus on the first two supply point listed; from the current location at Potter & Baxter and at the Imlay Pump Station as these apply specifically to Flint.

    DWSD provided the attached summary regarding the current costs to Flint based on the various options that DWSD is offering. The savings associated with each option is provided as well. As example, if Flint were to purchase water from the supply point located at Imlay Station, the current cost to Flint would be $5,661,000 and it would be a savings of nearly 50%

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compared to Flint's current rate.

2. Question/Discussion Item: What additional capital improvements will be required for each option?

   If Imlay Pump Station is selected as the supply point then Flint would need to purchase the 72-inch water main and an agreement to supply Lapeer would need to be worked out. DWSD believes that this could be worked out through a "wheeling" charge over the 72-inch main or possibly moving the supply point downstream of the Lapeer connection.. DWSD estimates the value of the water main at $4.7M. Flint could bond for this amount or DWSD could include the cost into Flint's rate.

3. Question/Discussion Item: Are there other options being presented that should be considered (e.g., blending)?

   Only the two options indicated above are currently being considered and both would include blending; DWSD providing 2/3 of the supply and the Flint WTP providing the other 1/3.

4. Question/Discussion Item: To evaluate each option over the 25 year planning period, provide:

   a. Annual water rate for Flint for 2002 through 2012, and the

   b. Projected annual rate adjustment for each option. What are the proposed measures to keep the rate adjustments down in the future?

   DWSD provided the attached historical rates from 2002 through 2012 for the existing water contract with Flint. The attachment also includes what the rates would have been if Flint had signed the new model contract or had taken service from Imlay. These rates were provided back to 2010.

   DWSD believes that 5% would be a good estimation to assume for their annual escalation in rates over the 25 year planning period.

5. Question/Discussion Item: Flint stated a 10% increase in the capacity charge. What number did DWSD provide Flint?

   It was unclear to DWSD where the 10% increase in capacity charge stated by Flint came from. DWSD's information provided shows an average of 6.3%. DWSD offered a meeting with TYJT to discuss how the fixed and commodity charges are allocated.

6. Question/Discussion Item: Flint financial comparison is based on the initial Cost of $14,413,858, which includes $2,725,538 for Flint WTP operating cost; i.e, DWSD charge is $11,688,320. How good is this number?

   DWSD indicated that the charge of $11,638,320 is good through 6/30/13.based on their existing contract with DWSD.

7. Question/Discussion Item: KWA's initial charge to Flint is based on 12 MGD. Is DWSD charge

based on 12 MGD?

Yes, 12 MGD from DWSD would be a maximum with Flint supplying 6 MGD for a total of 18 MGD (2/3 vs. 1/3).

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

TUCKER, YOUNG,
JACKSON, TULL INC.
CONSULTING ENGINEERS-PLANNERS
565 E. Larned Suite 300
Detroit, Michigan 48226
(313)963-0612 FAX (313)963-2156

Indefinite-scope, Indefinite-delivery Contract Number 00383
2012 Professional General Architectural/Engineering Services

CITY OF FLINT WATER SUPPLY ASSESSMENT

DWSD Discussion/Questions for the November 19, 2012 Meeting

1. Verify that the four options presented at the November 1, 2012 meeting are still available for consideration:
    c. Supplied from Potter & Baxter using the new model contract (assume a Maximum Day Customer),
    d. Supplied from Imlay Station,
    e. Finished un-pumped supply from Lake Huron WTP, and
    f. Raw un-pumped supply from Lake Huron WTP.
2. What additional capital improvements will be required for each option?
3. Are there other options being presented that should be considered (e.g., blending)?
4. To evaluate each option over the 25 year planning period, provide:
    g. Annual water rate for Flint for 2002 through 2012, and the
    h. Projected annual rate adjustment for each option. What are the proposed measures to keep the rate adjustments down in the future?
5. Flint stated a 10% increase in the capacity charge. What number did DWSD provide Flint?
6. Flint financial comparison is based on the initial Cost of $14,413,858, which includes $2,725,538 for Flint WTP operating cost, i.e DWSD charge is $11,688,320. How good is this number?
7. KWA's initial charge to Flint is based on 12 MGD. Is DWSD charge based on 12 MGD?

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Summary of DWSD Cost Allocations to Flint Under Various Scenarios

Flint Only

	Revenue Requirement	Rates and Charges: Fixed	Rates and Charges: Commodity	Rates and Charges: Avg Unit Cost
1 **Status Quo**	11,461,700	357,271	12.46	19.91
2 **Model Contract**	9,732,100	275,517	11.16	16.90
3 Change	(1,729,600)	(81,754)	(1.30)	(3.00)
4 % Change	*-15.1%*	*-22.9%*	*-10.4%*	*-15.1%*
5 **Max Day Only**	9,424,700	271,010	10.72	16.37
6 Change	(307,400)	(4,507)	(0.44)	(0.53)
7 % Change	*-3.3%*	*-1.7%*	*-4.1%*	*-3.3%*
8 **Allow Blending**	6,302,800	182,369	10.72	16.42
9 Change	(3,121,900)	(88,641)	0.00	0.05
10 % Change	*-49.5%*	*-48.6%*	*0.0%*	*0.3%*
11 **Imlay City Connections**	5,800,700	170,912	9.77	15.11
12 Change	(502,100)	(11,457)	(0.95)	(1.31)
13 % Change	*-8.7%*	*-6.7%*	*-9.7%*	*-8.7%*
14 Cumulative Change	(5,661,000)	(186,359)	(2.69)	(4.80)
15 Cumulative %Change	*-49.4%*	*-52.2%*	*-21.6%*	*-24.1%*

	Assumptions: Avg Day	Max Day	Peak Hour	Distance	Elevation	Sales
	mgd	*mgd*	*mgd*	*miles*	*feet*	*mgd*
1 **Status Quo**	11.8	21.6	22.6	52.0	866	**11.8**
2 **Model Contract**	11.8	**17.9**	**18.8**	52.0	866	11.8
3 **Max Day Only**	11.8	17.9	**17.9**	52.0	866	11.8
4 **Allow Blending**	7.9	**11.9**	**11.9**	52.0	866	7.9
5 **Imlay City Connections**	7.9	11.9	11.9	**45.2**	**866**	7.9

Recent DWSD Water Rates to Flint

	Rates and Charges			Annual Change			*Average*
FY	Fixed	Commodity	Avg Unit Cost	Fixed	Commodity	Avg Unit Cost	*Annual Change*
	$/mo	*$/Mcf*	*$/Mcf*	*$/mo*	*$/Mcf*	*$/Mcf*	
As Charged							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		14.32	14.32			9.6%	
2011	182,301	14.29	16.01		-0.2%	11.8%	
2012	443,096	13.36	17.53	143.1%	-6.5%	9.5%	
2013	707,000	12.46	19.12	59.6%	-6.7%	9.1%	**6.3%**
Hypothetical Model Contract							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		*13.96*	*13.96*			6.8%	
2011	*145,918*	*13.74*	*15.28*		-1.6%	9.5%	
2012	*378,968*	*12.58*	*16.57*	159.7%	-8.4%	8.4%	
2013	*597,323*	*11.63*	*17.93*	57.6%	-7.6%	8.2%	**5.5%**

Recent DWSD Water Rates to Flint

FY	Rates and Charges: Fixed $/mo	Rates and Charges: Commodity $/Mcf	Rates and Charges: Avg Unit Cost $/Mcf	Annual Change: Fixed $/mo	Annual Change: Commodity $/Mcf	Annual Change: Avg Unit Cost $/Mcf	Average Annual Change
As Charged							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		14.32	14.32			9.6%	
2011	182,301	14.29	16.01		-0.2%	11.8%	
2012	443,096	13.36	17.53	143.1%	-6.5%	9.5%	
2013	707,000	12.46	19.12	59.6%	-6.7%	9.1%	6.3%
*Hypothetical Model Contract - **Flint Only***							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		*11.73*	*11.73*			-10.3%	
2011	*70,060*	*12.45*	*13.89*		6.1%	18.4%	
2012	*175,882*	*11.47*	*15.08*	151.0%	-7.9%	8.6%	
2013	*272,923*	*10.65*	*16.24*	55.2%	-7.1%	7.7%	4.4%

Recent DWSD Water Rates to Flint

	Rates and Charges			Annual Change			*Average*
FY	Fixed	Commodity	Avg Unit Cost	Fixed	Commodity	Avg Unit Cost	*Annual Change*
	$/mo	*$/Mcf*	*$/Mcf*	*$/mo*	*$/Mcf*	*$/Mcf*	
As Charged							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		14.32	14.32			9.6%	
2011	182,301	14.29	16.01		-0.2%	11.8%	
2012	443,096	13.36	17.53	143.1%	-6.5%	9.5%	
2013	707,000	12.46	19.12	59.6%	-6.7%	9.1%	**6.3%**
Hypothetical Model Contract - Flint Only @ Imlay							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		*11.16*	*11.16*			-14.6%	
2011	*65,919*	*10.88*	*12.23*		-2.5%	9.6%	
2012	*165,275*	*9.89*	*13.28*	150.7%	-9.1%	8.6%	
2013	*255,580*	*9.09*	*14.32*	54.6%	-8.1%	7.8%	**2.9%**

TUCKER, YOUNG,
JACKSON, TULL INC.
CONSULTING ENGINEERS-PLANNERS
565 E. Larned Suite 300
Detroit, Michigan 48226
(313)963-0612 FAX (313)963-2156

MEETING MINUTES

IN ATTENDANCE:	Ed Kurtz; Flint Emergency Financial Manager, City of Flint Dayne Walling; Mayor, City of Flint Mike Brown, City of Flint John O'Brien, Genesee County Howard Croft, City of Flint Dwayne "Duffy" Johnson, City of Flint Brent Wright, City of Flint Awni Qaqish, TYJT Dave Guastella, TYJT
DATE:	November 24, 2012
PURPOSE OF MEETING:	Meeting with the City of Flint for the Indefinite-scope, Indefinite-delivery Contract Number 00383, 2012 Professional General Architectural/Engineering Services – City of Flint Water Supply Assessment
PREPARED BY:	Dave Guastella

A meeting was held at the City of Flint Municipal Center on November 20, 2012 to discuss the water supply option being presented by the Karegnondi Water Authority (KWA) to the City of Flint. The main items discussed generally followed the attached KWA Discussion/Questions that were provided to City prior to the meeting. A summary of the key points discussed are provided below.

The questions submitted are repeated in the Discussion Items for easy reference. A summary of the action items generated from the meeting follow the Discussion Items.

DISCUSSION ITEMS

1. Question/Discussion Item: Is the maximum day demand of 18 MGD for Flint the maximum day demand (MDD) throughout the 25 year planning period? If not, what is the 25 year projected MDD?

   KWA would supply up to 18 MGD. 18 MGD has been assumed as the maximum day demand and 12 MGD is assumed as the average day demand throughout the 25 year planning period.

2. Question/Discussion Item: Copy of the intake contract documents and engineer's estimate.

   The intake contract documents are approximately 90% complete and are not available for distribution. However, the updated Appendix 20, dated October 4, 2012 includes the most recent cost estimate of the intake based on the current design in process.

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

3. Question/Discussion Item: Documentation of the Flint WTP improvements required and cost estimate.

   The costs are approximately $7M as presented in the September 2009 Preliminary Engineering Report. However, this estimate has been updated. Some processes have been eliminated. John O'Brien will provide the updated costs and the description of the planned improvements to the plant.

4. Question/Discussion Item: Confirm Flint's allocated percentage of the KWA capital improvements (30%?).

   Yes, the allocation is based on 18 MGD/60 MGD total capacity.

5. Question/Discussion Item: Copy of the proposed KWA operating agreement for Flint.

   John O'Brien will provide the operating agreement as well as the Capacity Contract and Articles of Incorporation.

6. Question/Discussion Item: What is the annual operating agreement adjustment projected for the 25 year planning period?

   This information is provided in Appendix 14, Table 14.2 of the September 2009 Preliminary Engineering Report. Operating cost based on Table 1. Used 12 MGD as average day demand (ADD). Assumed 5% as the annual increase in operating costs. John O'Brien indicated that these operating costs were based on Genesee County's operating costs. John O'Brien will provide the last 10 years of audited financial statements for the water fund.

   To assess operating and maintenance costs for the Flint WTP, Duffy will provide multiple years of financial statements for the water fund. Duffy did not believe they had 10 years, but they will provide what they have.

   Regarding operation and maintenance costs, Flint believes that these costs will increase by 2/3 of what they are now.

7. Question/Discussion Item: Need the route of the pipelines and the locations of the facilities proposed. Purpose is to identify constraints that impact costs (i.e., utilities, environmental (e.g. wetlands), easements, etc.).

   KWA will not release the route due to concerns regarding speculation of land and easements. John O'Brien did indicate that the Lake Huron pump station would be at Fisher and M-25. The intermediate pump station site is near a location of the Lapeer/Sanilac/St. Clair border; where all three meet.

8. Question/Discussion Item: KWA's initial charge to Flint is based on a 12 MGD average day demand. What is the basis of this number? Are there population projections and water use figures available that were used to determine the Flint demand for the 25 year planning period?

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This was answered in Question No. 1 above.

9. Question/Discussion Item: Is there a transition plan and cost during construction of the KWA system identified?

   Flint is looking for an agreement with DWSD for back-up supply from the 72-inch main at the Genesee border.

10. Question/Discussion Item: The October 4, 2012 Preliminary Engineering Report Update states: "no backup power is planned for the pumps" (LHPS) and "No backup power is planned for pumping" (IPS). In case of power loss, how would Flint supply its customers?

    Flint indicated that they have adequate storage to supply the system for 6 to 7 days. Flint has 55 MG of storage and Genesee County has 65 MG for 2.5 days.

11. Question/Discussion Item: The latest plan shows only a 5 million gallon ground reservoir is planned for balancing between LHPS and IPS. How is redundancy maintained?

    In cases of emergency, Flint indicated that the back-up for the KWA system will be the same as it is now with DWSD; they will use the Flint River as the source water. Flint currently operates their plant four times a year.

    When questioned as to whether the WTP will be able to treat both lake water from the KWA system and river water Flint indicated that once the improvements identified in the September 2009 Preliminary Engineering Report are completed they will be able to accomplish both treatment processes. Flint will provide a schematic of the treatment trains at the WTP and a copy of the Flint transmission system.

    Genesee County indicated that additional redundancy would also be provided from the new Genesee County WTP.

    Regarding hydraulic transients; Genesee County indicated that a model analysis has not been included, but capital costs for mitigating transients have been included.

12. Question/Discussion Item: Related to the construction cost:

    a. Does it include an additional traffic lane since the construction will occupy half the right of way? *Not required, all roads are county roads; however, there are a few State road crossings.*

    b. Does it include costs/fees for permit requirements such as inspection cost by the jurisdictional authorities? As a point of reference, the permit fee costs for the Flint Transmission System came out to be $5.8 million. *Not required; all of the counties have waived any fees.*

    c. Does the cost of the steel pipe segments include corrosion protection measures such as

anode stations and related O&M? *Yes; however, the KWA has not settled on using steel pipe. PCCP pipe may be used. Steel shown in estimate because it is highest in cost and therefore the pricing is conservative.*

d. SCADA monitoring stations require power. Is the cost of bring power to the SCADA stations included? Again, as a point of reference for the Flint Transmission System we estimated $800,000 for power to SCADA and valve operators. *Yes, Genesee County did emphasize that the SCADA system will be simple and straightforward because a lot of controls are not required.*

e. Other items discussed at the meeting included:

- The 2009 plant improvement cost is still good; however, there will be some reduction, such as a sulfuric chloride feed system that was eliminated. Plant capacity now is 36MGD, but will be 18 MGD.
- The KWA Lake Huron Pumping Station (LHPS) is now only high lift pump station.
- Genesee County will provide the distance of the intake pipe from the crib to the LHPS.
- The intake project is almost ready to bid; waiting for the COE permit.
- Genesee County is estimating the construction for the pipe lines and pump stations will begin July 2013.
- The route has been flown for survey.
- Genesee County is estimating construction will be complete and the project will be placed in service by Jan 2016.
- Genesee County to provide a list of assumptions that the $272 million cost estimate is based on since the route is now known.

13. The Flint River is identified as a backup: At what capacity? MDD or emergency supply?

    The Flint River would serve as a back up supply.

14. Where did the 40 years come from (Flint hostage to Detroit)? DWSD's new contracts are 30 years with openers to revise terms of supply (volume and pressure) after the first two years, then three years, and then in five year increments thereafter.

    The 40 years was stated in error. The reference was to DWSD's requirement to sign a 30 year contract.

    After 40 years Flint will own 30% of the project and can sell their share of ownership if they want. Conversely, with DWSD, they continue to pay for the capital projects but have no ownership. Flint believes they will know what they will be charged for the next 25 years versus DWSD that can't commit to a fixed escalation.

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

Action Items for Follow-up		
Items:	***Assigned To:***	***Date to Complete***
1. Updated Costs for the Flint WTP Improvements and a description of the improvements.	John O'Brien	11/21/12
2. KWA Operating Agreement, Capacity Contract and Articles of Incorporation.	John O'Brien	11/20/12
3. Provide the last 10 years of audited financial statements for the Genesee water fund.	John O'Brien	11/20/12
4. Provide multiple years of financial statements for the City of Flint water fund.	Duffy Johnson	11/26/12
5. Provide schematic of the Flint WTP and a map of the Flint transmission system.	Brent Wright	11/26/12
6. Provide the length of the intake pipe from the crib to the pump station.	John O'Brien	11/20/12
7. Provide a list of assumptions that the $272 million cost estimate is based on since the route is now known.	John O'Brien	11/26/12

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JACKSON, TULL INC.
CONSULTING ENGINEERS-PLANNERS
565 E. Larned Suite 300
Detroit, Michigan 48226
(313)963-0612 FAX (313)963-2156

Indefinite-scope, Indefinite-delivery Contract Number 00383
2012 Professional General Architectural/Engineering Services

CITY OF FLINT WATER SUPPLY ASSESSMENT

KWA Discussion/Questions for the November 20, 2012 Meeting

1. Is the maximum day demand of 18 MGD for Flint the maximum day demand (MDD) throughout the 25 year planning period? If not, what is the 25 year projected MDD?
2. Copy of the intake contract documents and engineer's estimate.
3. Documentation of the Flint WTP improvements required and cost estimate.
4. Confirm Flint's allocated percentage of the KWA capital improvements (30%?).
5. Copy of the proposed KWA operating agreement for Flint.
6. What is the annual operating agreement adjustment projected for the 25 year planning period?
7. Need the route of the pipelines and the locations of the facilities proposed. Purpose is to identify constraints that impact costs (i.e., utilities, environmental (e.g. wetlands), easements, etc.).
8. KWA's initial charge to Flint is based on a 12 MGD maximum day demand. What is the basis of this number? Are there population projections and water use figures available that were used to determine the Flint demand for the 25 year planning period?
9. Is there a transition plan and cost during construction of the KWA system identified?
10. The October 4, 2012 Preliminary Engineering Report Update states: "no backup power is planned for the pumps" (LHPS) and "No backup power is planned for pumping" (IPS). In case of power loss, how would Flint supply its customers?
11. The latest plan shows only a 5 million gallon ground reservoir is planned for balancing between LHPS and IPS. How is redundancy maintained?
12. Related to the construction cost:
    a. Does it include an additional traffic lane since the construction will occupy half the right of way?
    b. Does it include costs/fees for permit requirements such as inspection cost by the jurisdictional authorities? As a point of reference, the permit fee costs for the Flint Transmission System came out to be $5.8 million.

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

c. Does the cost of the steel pipe segments include corrosion protection measures such as anode stations and related O&M?
d. SCADA monitoring stations require power. Is the cost of bring power to the SCADA stations included? Again, as a point of reference the for the Flint Transmission System we estimated $800,000 for power to SCADA and valve operators.

13. The Flint River is identified as a backup: At what capacity? MDD or emergency supply?
14. Where did the 40 years come from (Flint hostage to Detroit)? DWSD's new contracts are 30 years with openers to revise terms of supply (volume and pressure) after the first two years, then three years, and then in five year increments thereafter.

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

STATE OF MICHIGAN CONTRACT NO. 271N3200089

CITY OF FLINT WATER SUPPLY ASSESSMENT

State of Michigan, Department of Treasury

Appendix B: Cost Worksheets

Thelen, Mary Beth (DEQ)

From: Wyant, Dan (DEQ)
Sent: Sunday, October 28, 2012 2:12 PM
To: Creagh, Keith (DNR); Clover Adams, Jamie (MDA); Sygo, Jim (DEQ)
Cc: Creal, William (DEQ); Shekter Smith, Liane (DEQ); Anderson, Madhu (DEQ); Datema, Maggie (DEQ)
Subject: FW: Briefing on Karegnondi Project/City of Flint

Andy Dillon is getting pulled into this issue. Andy asked the Governor at the Group Executive meeting if the administration has a position on this project. The Governor said he needs to know more. I think we have all been approached on this project. Keith/Jamie, have you taken a position on this? Bill, am I correct in saying this will have effect on DWSD?

Dan Wyant, Director
Department of Environmental Quality
517-373-7917

From: Dillon, Andy (Treasury)
Sent: Wednesday, October 24, 2012 4:18 PM
To: Wyant, Dan (DEQ)
Subject: Fwd: Briefing on Karegnondi Project/City of Flint

Sent from my iPad

Begin forwarded message:

> **From:** "Fraser, Roger (Treasury)" <FraserR1@michigan.gov>
> **To:** "Dillon, Andy (Treasury)" <DillonA2@michigan.gov>, "Stibitz, Brom (Treasury)" <StibitzB@michigan.gov>, "Koryzno, Edward (Treasury)" <KoryznoE@michigan.gov>, "Mike Brown (mbrown@reinvestflint.org)" <mbrown@reinvestflint.org>
> **Cc:** "Hichez, Amy (Treasury)" <HichezA@michigan.gov>, "Cousineau, Sara (Treasury)" <CousineauS@michigan.gov>, "'mmurray@cityofflint.com'" <mmurray@cityofflint.com>
> **Subject: Briefing on Karegnondi Project/City of Flint**
>
> Discussion: Brief Treasury on pros and cons of Karegnondi project. There are concerns about cost and engineering constraints. Report for Flint in late 90's....suggested this project was not financially feasible.
>
> Attendees:
>
> State of Michigan
> Andy Dillon - Treasurer
> Brom Stibitz – Policy Advisor
> Roger Fraser – Deputy Treasurer
> Ed Koryzno – Office of Fiscal Responsibility
>
> City of Flint – (confirmed attendance with Maxine Murray)
> Mike Brown – City Administrator

Jerry Ambrose, Finance Director
Howard Croft, Director of Infrastructure & Development

Genesee County – (confirmed attendance with Maxine Murray)
Jeff Wright, Genesee County Drain Commissioner
John OBrian, Chief Deputy Drain Commissioner
Dave Jansen, Assistant Director, Genesee County Drain Commission
Rick Freeman, Rowe Professional Service

Tucker, Young, Jackson & Tull – (confirmed attendance with David Guastella)
George Karmo, President
David Guastella
Awni Qaqish

Olszewski, Rosemarie (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Sunday, September 13, 2015 11:07 AM
To: Olszewski, Rosemarie (DEQ)
Subject: Wednesday Morning - Confidential Communications to Print for Possible FOIA.
Attachments: DWSD-CorrosionControlStudy.pdf; Flint lead history.pdf; DWSD-Flint-1993-Lead-Letter.pdf

More for Wednesday Morning.

From: Thelen, Mary Beth (DEQ)
Sent: Sunday, September 13, 2015 11:04 AM
To: Thelen, Mary Beth (DEQ)
Subject: FW: Need upate on lead / copper tests for Flint

Print for possible FOIA. Confidential Communications.

From: Wyant, Dan (DEQ)
Sent: Sunday, July 26, 2015 12:35 PM
To: Hollins, Harvey (GOV)
Subject: FW: Need upate on lead / copper tests for Flint

Harvey,

FYI, I will call you on Monday to discuss.

Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

From: Wurfel, Brad (DEQ)
Sent: Friday, July 24, 2015 4:18 PM
To: Saxton, Thomas (Treasury); Muchmore, Dennis (GOV); Wyant, Dan (DEQ)
Subject: FW: Need upate on lead / copper tests for Flint

Guys, here's an update and some clarification on the lead situation in Flint. Please limit this information to internal for now.

By the tenants of the federal statute, the city is in compliance for lead and copper. That aside, they have not optimized their water treatment (for the most part, this means adding phosphates to minimize the degree that the water Ph mobilizes lead and copper in people's home plumbing).

Compliance with the standard started with testing. A June-December run of tests (all in homes with lead in their premise plumbing) concluded in December. Another January – June round of sampling concluded last month. Everything checks out in terms of compliance, but now the next step is optimizing the water supply.

So, In about two weeks, DEQ will be sending a formal communication about the optimizing issue. The federal program has long timelines for action. A community water supplier gets 18 months to study the options, and two years thereafter to implement water system optimization measures.

My point: Conceivably, by the time we're halfway through the first timeline, the city will begin using a new water source with KWA ... and conceivably, the whole process starts all over again.

In terms of near-future issues, the bottom line is that residents of Flint do not need to worry about lead in their water supply, and DEQ's recent sampling does not indicate an eminent health threat from lead or copper. That said, anyone with lead pipes in their premise plumbing (this translates to tens of thousands of homes in our older urban centers, btw) should at least be aware that they have them, and to some limited degree that's going to impart minute parts per billion of lead in water no matter what. Its why nobody uses lead water pipes anymore.

The long version of this note is below. Let's connect next week. I'd like some thoughts about what more the state could be doing – most immediately, to convey the results of our testing and tell the story to the residents of Flint in an effort to quell some fears.
Thanks!
b

From: Busch, Stephen (DEQ)
Sent: Friday, July 24, 2015 3:46 PM
To: Wurfel, Brad (DEQ)
Cc: Shekter Smith, Liane (DEQ); Wyant, Dan (DEQ); Pallone, Maggie (DEQ); Prysby, Mike (DEQ); Benzie, Richard (DEQ)
Subject: RE: Need upate on lead / copper tests for Flint

Brad,

As we discussed, the City has completed the last round of monitoring (Jan 1 – June 30, 2015). The last samples came in about a week ago. We have made the compliance determination that the 90th percentile level is 11 parts per billion, which is below the Action Level Standard of 15 parts per billion (there is no Lead maximum contaminant level standard). The federal rule requires measuring lead levels in water from household plumbing materials to determine the corrosivity of the City's water in order to limit exposure.

I have provided a summary of Flint's lead compliance monitoring from the last 20+ years since this regulation started in 1991. The City of Flint itself has never had a 90th percentile level exceed the 15 part per billion action level. Sampling requirements look at the worst case plumbing materials. Samples must be collected in accordance with the regulatory requirements and criteria in order to be used for compliance determinations.

Because the City of Flint serves a population of over 50,000 they are required to have Fully Optimized Corrosion Control. While it is possible to meet the fully optimized requirement without additional treatment, based on their two rounds of sampling since switching to the Flint River, we have determined they did not meet the eligibility for this per the regulation. They now have to complete a study (within 18 months) and are then allowed a period of additional time (2 additional years) to install the selected treatment for Fully Optimized Corrosion Control in accordance with the regulatory requirements. This is what DWSD was required to do back in 1993 – 1997 (see attached letter and study). We are planning to suggest the City directly submit a treatment process to shorten the timeline to achieve full optimization. This letter is currently being drafted but won't be ready to mail out for another week.

Liane and I had a conference call with EPA region V in Chicago on Tuesday to go over all of this and they are in support of these next steps with the City.

The matter will be potentially further complicated when the City switches over to water from the Karegnondi Water Authority next year to re-evaluate the continuing requirement to fully optimize corrosion control.

The DEQ recognizes that there is has been no level of lead exposure determined to be safe, but again the regulation was developed to optimize water corrosivity to limit exposure and the City is following the regulatory requirements.

Lead is not coming from the Flint River or the City's Water Treatment Plant or the public distribution system. It is from lead service lines into homes and from plumbing materials and fixtures within the private property of the household.

As watermains are replaced within the City lead services associated with that section of watermain would be replaced in order to reconnect to City water. This would also place burden on the homeowner to pay for having the service line re-plumbed. However, since 2000 only 16 miles of the City's 500 miles of watermain have been replaced as they did not have the financial means to do so.

Let us know if there are questions or you need any additional information.

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

From: Wurfel, Brad (DEQ)
Sent: Friday, July 24, 2015 12:09 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Shekter Smith, Liane (DEQ); Wyant, Dan (DEQ); Pallone, Maggie (DEQ)
Subject: Need upate on lead / copper tests for Flint

Guys, the Flint Ministers met with the Governor's office again last week. They also brought along some folks from the community – a college prof and a GM engineer – who imparted that 80 water tests in Flint have shown high lead levels.

Could use an upate on the January / june testing results, as well as recap of the December testing numbers, and any overview you can offer to edify this conversation.
Call me or email today if possible. Thanks!
b

Brad Wurfel
Communications Director
Michigan Department of Environmental Quality
517-284-6713
517-230-8006 cell

N. M E/INF #2310

CITY OF DETROIT
WATER AND SEWERAGE DEPARTMENT
WATER BOARD BUILDING

735 RANDOLPH STREET
DETROIT, MICHIGAN 48226-2830
PHONE 313 • 224 • 4800/224•4801
FAX 313 • 224 • 6067

June 10, 1994

To: DWSD Wholesale Customers

RE: EXECUTIVE SUMMARY OF DETROIT'S CORROSION CONTROL STUDY

Enclosed is a copy of the Executive Summary prepared by our consultant, Tucker, Young, Jackson & Hull, detailing work to date on the Corrosion Control Study performed for Detroit and Detroit's wholesale customers.

The EPA required large utilities to test water samples in highest risk homes for led and copper content in 1992 to determine if the action levels of 15 micrograms per liter and 1.3 milligrams per liter respectively were exceeded. Detroit complied with this requirement and determined that the action level for lead was exceeded in many communities. Therefore, DWSD conducted and continues to conduct a public education program designed to inform consumers how to reduce their exposure to lead.

The EPA further required large water suppliers to determine if their lead could be less corrosive and, if so, the utility was mandated by the Lead and Copper Rule to determine ways the water could be made less corrosive and report their recommendations to the primary agency. For DWSD, the primary agency is the Michigan Department of Public Health (MDPH).

After several years of study, DWSD is forwarding the complete study findings to the MDPH for their consideration. It was concluded that DWSD could reduce the corrosivity of the water in the most cost effective and efficient manner by the addition of ortho-phosphate, specifically in the form of phosphoric acid. The Executive Summary of these findings is being forwarded to you for your information. The MDPH has until the end of December 1994 to consider DWSD's recommendation. In the interim, DWSD plans on conducting a demonstration test of the corrosion control treatment in our distribution system to further assist the MDPH and to further safeguard public health.

Very truly yours,

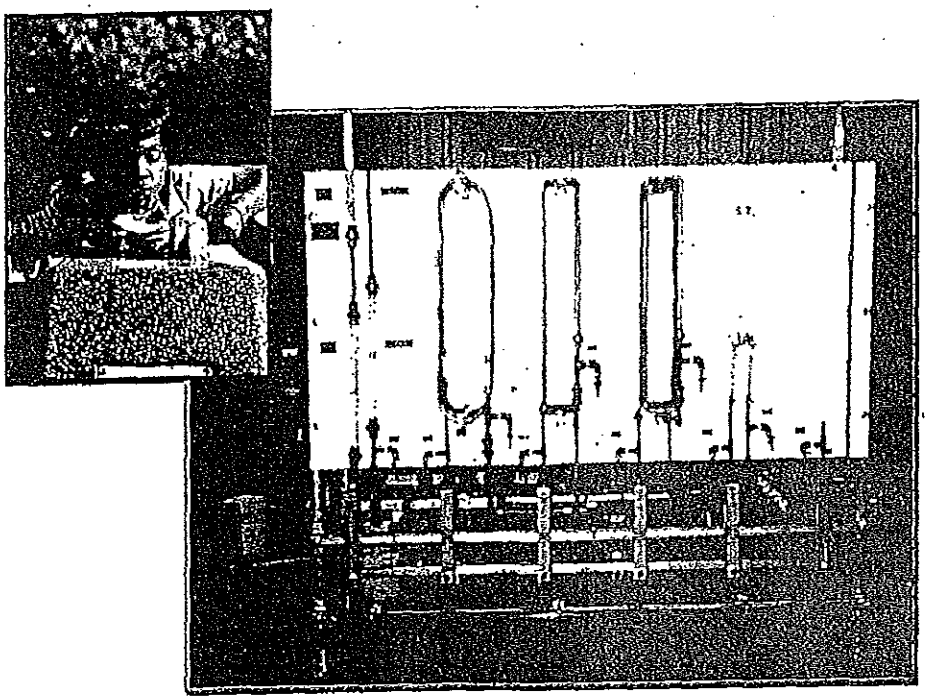
Irving M. Schuraytz, P.E.
Assistant Director, Water Supply Operations

Kathleen Leavey
Deputy Director

KL/IMS/JH/cs

Executive Summary

Lead and Copper Corrosion Control Optimization Study



prepared by

Tucker, Young, Jackson, Tull, Inc., in association with
CH2M HILL, INC., and Economic and Engineering Services, Inc.

May 1994

Detroit Water and Sewerage Department

Introduction

As a result of the Safe Drinking Water Act (SDWA) Amendments of 1986, the U.S. Environmental Protection Agency (EPA) published final drinking water regulations for lead and copper in the June 7, 1991, *Federal Register*. Those regulations, known as the Lead and Copper Rule (LCR), require:

- Tap water monitoring, which is a new approach for water utilities
- Treatment optimization for lead and copper corrosion control
- Public education and lead service line removal if utilities exceed preset lead or copper levels

Large utilities, serving populations greater than 50,000, are required to conduct corrosion control studies to demonstrate that they are either already providing optimal treatment or to determine optimal treatment for their system.

DWSD made necessary public notices and embarked on studies to develop optimal treatment solutions.

In response to the regulations, the Detroit Water and Sewerage Department (DWSD) conducted two rounds of monitoring at home water taps for lead and copper and throughout the distribution systems for other water quality parameters. Monitoring was a cooperative effort between the DWSD, wholesale water customers, and the Michigan Department of Public Health (MDPH). Copper levels were well below EPA limits. Lead levels, however, exceeded EPA action levels (ALs) and DWSD made necessary public notices and embarked on studies to develop optimal treatment solutions.

Lead exposure sources for humans include air, food, dust, paint, and drinking water. Elevated lead levels in blood have been associated with adverse health effects in humans. Federal health authorities have many programs to reduce lead exposure including low-lead gasoline and reduced lead content in paint. Although drinking water may not be the major source of lead, reducing lead levels in drinking water will have a positive health benefit. An additional benefit of corrosion control is prolonged life for water distribution pipes and home plumbing. This results in lower costs for water utilities and their customers.

In March 1992, the DWSD contracted with Tucker, Young, Jackson, Tull, Inc. (TYJT), in association with CH2M HILL, INC., and Economic and Engineering Services, Inc. (EES), to perform a lead and copper corrosion control study. The purpose of the study was to determine the optimal approach for reducing lead and copper concentrations in DWSD drinking water without adversely affecting other water quality characteristics. Major tasks in this study were to:

- Evaluate existing water quality data, existing distribution system pipe materials and the results of lead and copper sampling
- Identify and analyze feasible and practical treatment methods to reduce lead and copper corrosion (desktop analysis)
- Design and construct a pipe-loop testing apparatus to evaluate treatment alternatives identified in the desktop analysis

- Operate the pipe loops for 1 year to evaluate selected corrosion control treatments on different pipe materials
- Evaluate the effectiveness and feasibility of the tested treatment alternatives in reducing lead and copper concentrations
- Recommend an optimum lead corrosion control treatment
- Develop an implementation plan for full-scale corrosion control facilities

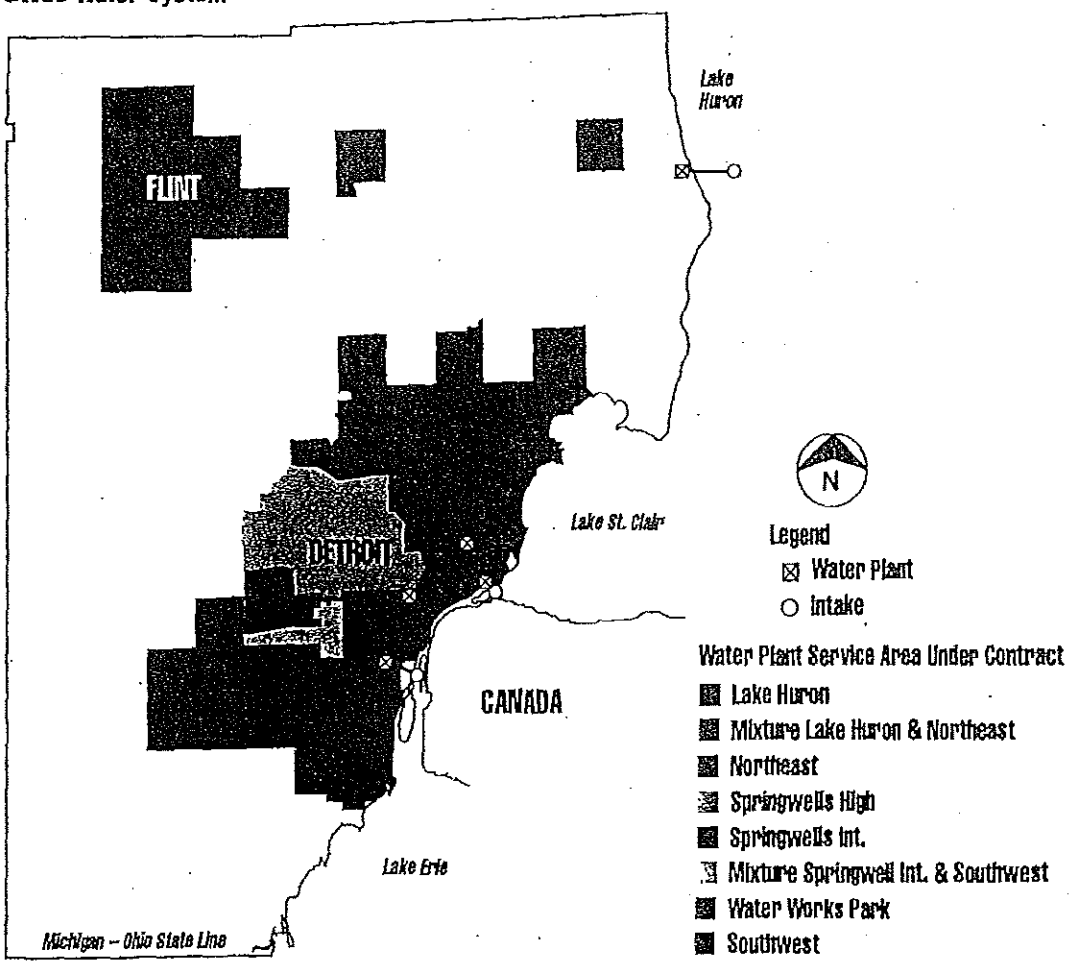
This report presents the results of the DWSD Lead and Copper Corrosion Control Optimization Study.

Existing Conditions

The DWSD obtains water from three intakes. Two of these, the Belle Isle and the Fighting Island Intakes, take water from the Detroit River. The third intake is on Lake Huron. Water is treated at five water treatment plants (WTPs) including the Water Works Park, Southwest, Springwells, Northeast, and Lake Huron WTPs. The water system is shown in Figure ES-1. Treated water from the 5 WTPs is distributed to the City of Detroit and 119 wholesale water customer systems. The DWSD water system serves about 4 million people.

Water leaving the WTPs is of good quality and considered moderately

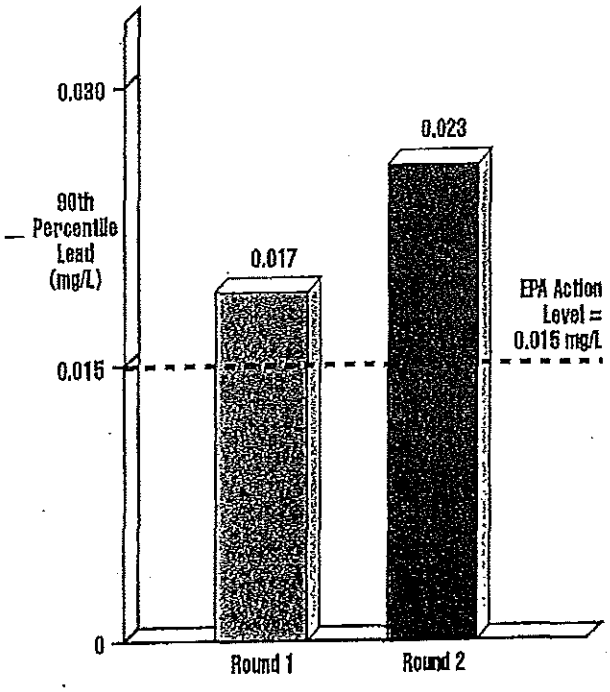
Figure ES-1
DWSD Water System



corrosive. For example, pH from the five WTPs averages 7.4, alkalinity averages 76 mg/L ($CaCO_3$), and hardness averages 100 mg/L ($CaCO_3$). Nevertheless, some increase in lead and copper is resulting from the corrosive action of the water, primarily on service pipe and household plumbing. The main sources of lead are 50:50 lead/tin solder, brass containing lead used in faucets, and lead service lines and plumbing.

The regulation lead AL is 0.015 mg/L at the 90th percentile in home water taps. During the LCR Compliance Monitoring conducted in 1992, DWSD's 90th percentile lead concentration was 0.017 mg/L in the first round and 0.023 mg/L in the second round of sampling (Figure ES-2). Looking at the data in a slightly different manner, 35 to 37 percent of the 119 purveyor water systems exceeded the AL for lead.

Figure ES-2
LCR Compliance Monitoring Results for Lead



For copper, the 90th percentile concentrations were 0.34 and 0.19 mg/L for two rounds of sampling–well below the copper AL of 1.3 mg/L (Figure ES-3). Lead uptake, therefore, is the major concern within the DWSD water system.

Determining the optimal lead control treatment is essential; it is the objective of conducting this corrosion control study. Further, there are an estimated 200,000 lead service lines (LSLs) in DWSD's direct service area and possibly more in areas served by wholesale customers. After corrosion treatment is optimized, the possibility exists that lead ALs may still be over 0.015 mg/L at the 90th percentile. Should this occur, the DWSD would need to embark on a removal program for LSLs, which could cost between $300 and $800 million.

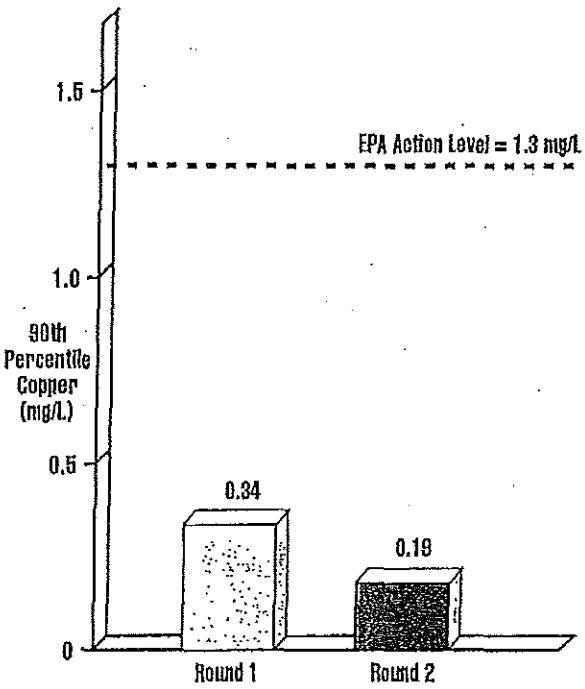
Desktop Analysis

To reduce the number of chemicals for long-term testing, a screening analysis was performed using desktop techniques recommended by U.S. EPA. Lead corrosion control treatment methods examined for their applicability to DWSD are as follows:

- Polyphosphates
- Orthophosphates
- Zinc orthophosphate
- Polyphosphate/orthophosphate blends
- Silicates
- pH adjustment
- Alkalinity adjustment
- Calcium adjustment

The main criteria for selecting a lead corrosion control method is performance for lead uptake reduction. Lead corrosion control methods were also evaluated

Figure ES-3
LCR Compliance Monitoring Results for Copper



based on effects on other drinking water regulations, industrial water users, wastewater treatment, water quality, water treatment operations, consecutive water systems, and multiple sources of supply and treatment.

Based on this evaluation, the following chemical treatments were eliminated from consideration for pipe-loop testing.

- **Polyphosphates.** These products are primarily used to sequester iron, calcium, and manganese and may actually do more to promote lead corrosion than to prevent it.
- **Polyphosphate/Orthophosphate Blends.** These products have not been proven to be more effective than orthophosphates alone for lead reduction, and their proprietary chemical composition makes selection of the optimum product difficult.
- **Silicates.** Sodium silicate inhibitors require a high dosage for lead control and, based on a survey of major industries, would have significant adverse effects on industrial water users.
- **Alkalinity Adjustment.** This technique would have marginal performance for lead reduction based on DWSD water quality and would be impractical for a system the size of DWSD.
- **Calcium Adjustment to Deposit a Calcium Carbonate Layer.** This technique is not a proven method for lead reduction, and would be difficult to produce a uniform layer throughout a distribution system the size of DWSD. Calcium carbonate deposition, however, can occur when pH is raised for lead reduction. This situation is addressed under the pH adjustment alternative.

Lead corrosion control treatment methods applicable for DWSD water are as follows:

- **Orthophosphates.** These products have been shown to be an effective means of lead reduction for water similar to that of the DWSD.
- **Zinc Orthophosphate.** These products are also a proven method of lead reduction, although there is concern about zinc in industrial water and wastewater.
- **pH adjustment.** This technique is also a proven method of reducing lead solubility, although higher pHs affect some industrial users and can increase calcium carbonate deposition.

A survey of 16 Great Lakes area water utilities using water of similar quality to that of DWSD demonstrated the effectiveness of orthophosphate, zinc orthophosphate, and pH adjustment in reducing lead concentrations at the consumers' taps. Those treatment methods, therefore, were retained for further testing in the pipe-loop apparatus.

Pipe-Loop Testing

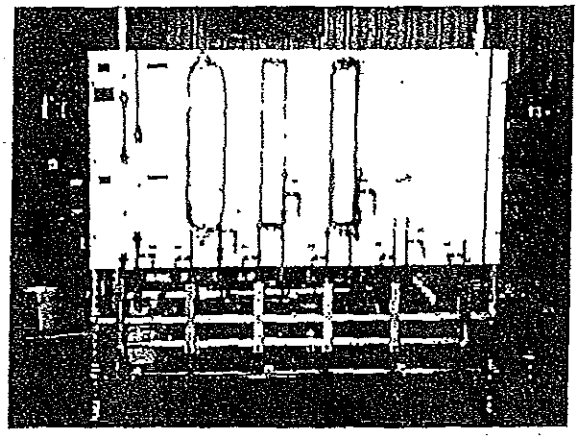
Based on the desktop analysis, it was concluded that the following treatments would be tested in the pipe loops:

- Adjusting pH to 8.1 using sodium hydroxide
- Adjusting pH to 8.7 using sodium hydroxide
- Adding zinc orthophosphate at doses of 0.4 mg/L for zinc and phosphorous (as P)
- Adding orthophosphate using phosphoric acid at a dose of 0.4 mg/L as P

Pipe-loop testing produces information on the corrosion control treatment most likely to effectively reduce lead levels.

It is important to understand that pipe-loop testing is conducted to provide information on the relative effectiveness of corrosion control treatments. The results cannot be used to predict actual lead levels that may occur at customers' taps in the water system. Pipe-loop testing, however, produces information on the corrosion control treatment most likely to effectively reduce lead levels and is an approved optimization technique.

Figure ES-4
Typical Testing Apparatus



A pilot-scale testing apparatus was designed and constructed to test each of the treatment techniques on different pipe materials. Five pipe-loop racks were constructed: one for each of the four methods and another for control (no treatment provided). Each pipe-loop rack included one new lead pipe loop, two identical copper pipe loops with lead soldered joints, one brass tester, and one section of old lead pipe. Three weight loss testers were also included for measuring corrosion rates of steel, galvanized steel, and copper. A typical testing apparatus is shown in Figure ES-4.

The pipe-loop facility was installed in the lower level of the Water Works Park High Service Pump Station and operated from January to November, 1993. After an initial period of passivation, water samples were collected on a weekly basis and analyzed for lead, copper, and zinc. The 1-liter water samples were taken after the water had been in contact with the pipe loop materials for 8 hours. This was done to represent the first-draw sampling required by the LCR. Additional sampling included daily monitoring for pH, chemical doses, and temperature. Disinfection

by-products (DBPs) and pipe insert weight loss were done quarterly. Flavor profile analyses to assess any changes in tastes or odors were run monthly.

Results of pilot testing indicated:

- The inhibitor treatments, zinc orthophosphate, and phosphoric acid are statistically better than the untreated control for both old and new lead piping (Figure ES-5).
- For lead solder and copper piping, the median lead levels were lowest in the water with inhibitors (zinc orthophosphate and phosphoric acid), but only the phosphoric acid results were statistically better than the other loops (Figure ES-6).
- For brass, the results indicated that the treatments were no better than the control; however, lead levels were near the detection limit in the brass testers (Figure ES-6).
- Zinc orthophosphate and phosphoric acid were also found to be the most effective treatments in reducing copper (Figure ES-7).

Figure ES-5
Relative Lead Levels from Lead Pipe

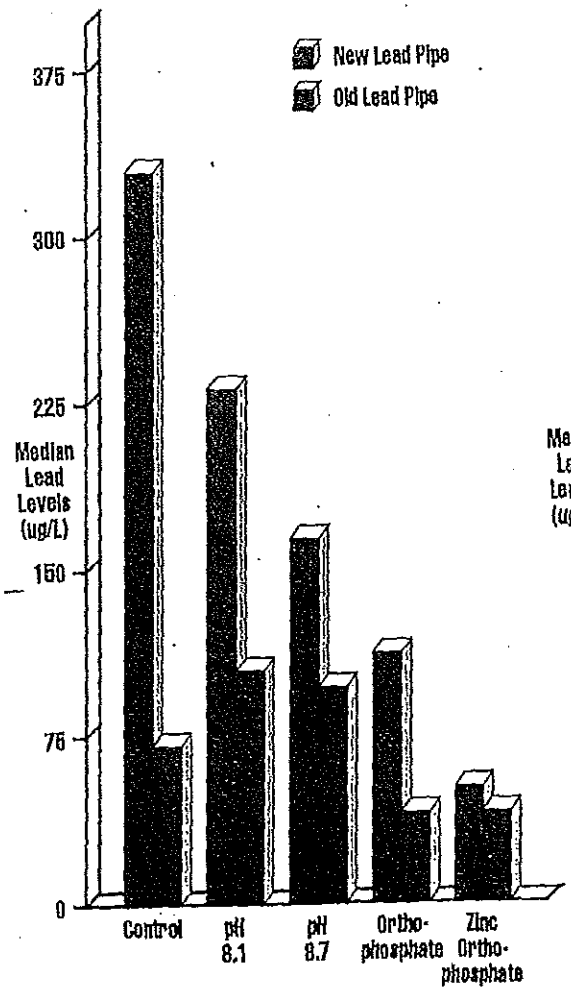


Figure ES-6
Relative Lead Levels from Soldered Copper and Brass

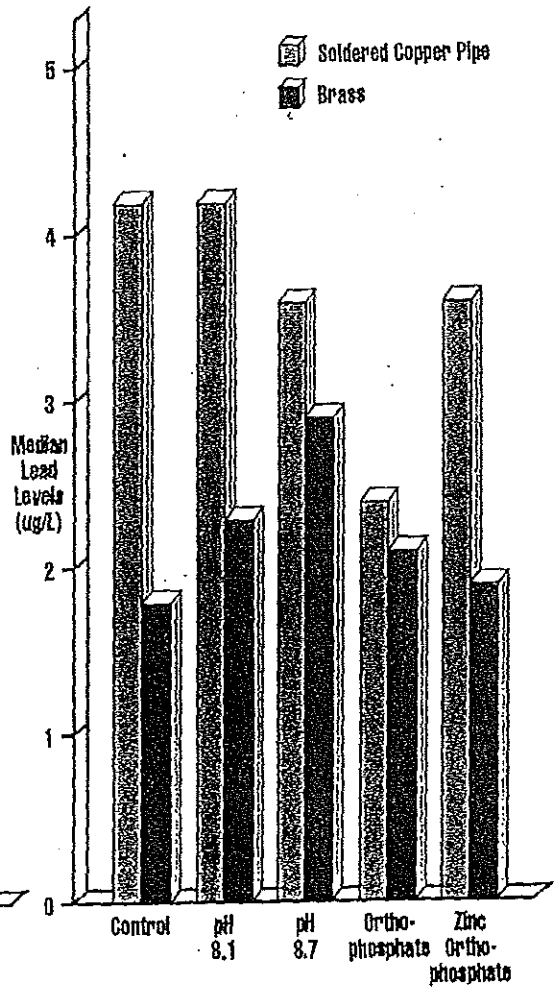
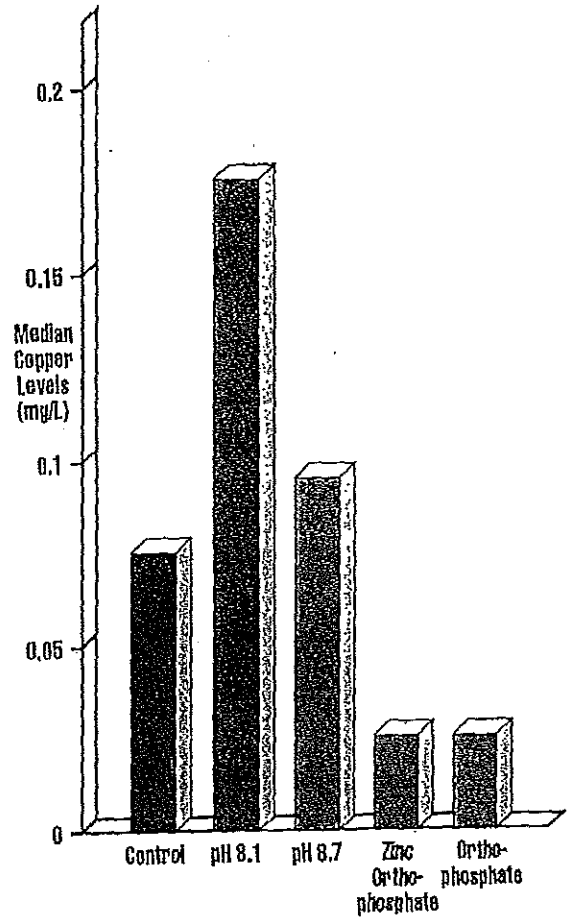


Figure ES-7
Relative Copper Levels from Copper Pipe



- DPBs were increased for the pH adjustment treatments as expected. The DBPs formed as a result of this increase, however, did not exceed EPA-proposed limits. The orthophosphate and zinc orthophosphate did not increase DBPs.
- None of the corrosion control treatments had an adverse effect on the taste and odor of the water produced.

Evaluating Corrosion Control Treatment

The four corrosion control treatments tested in the pipe loops were evaluated based on the following criteria:

- Performance for lead uptake reduction
- Feasibility of implementation within regulatory and functional constraints
- Reliability in terms of operational consistency and continuous corrosion control protection
- Cost

Pipe-loop data analyses indicated orthophosphate and zinc orthophosphate are most likely to yield the best results for lead reduction. pH adjustment was not as effective for lead control. Orthophosphate and zinc orthophosphate were effective at reducing copper levels.

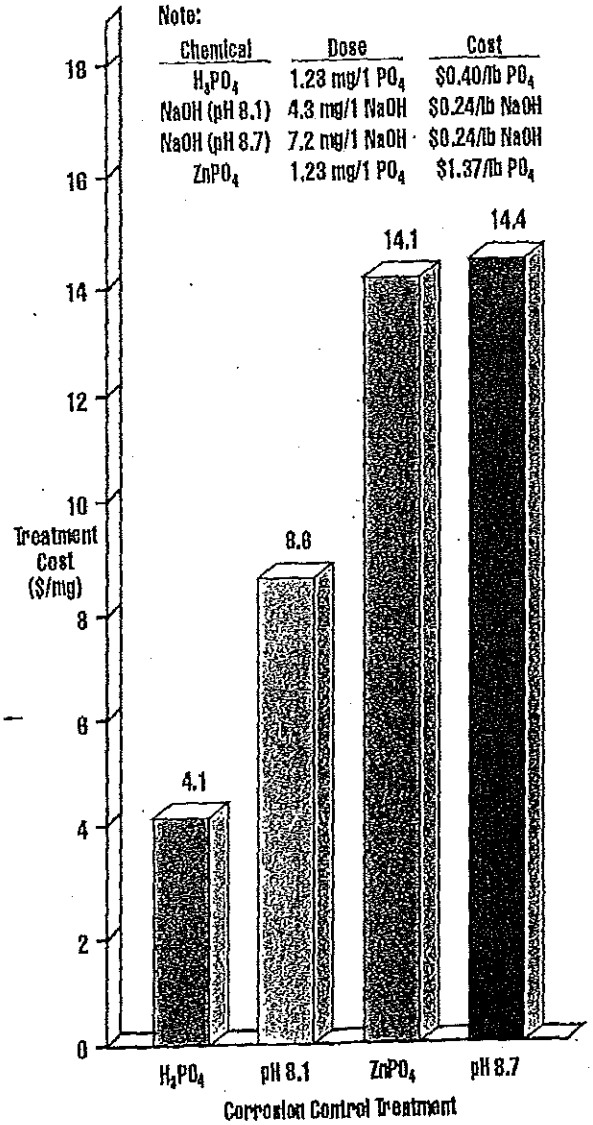
A feasibility analysis indicated that industrial water users would be affected adversely by zinc or a higher water pH. Wastewater operations would be adversely affected by zinc and orthophosphates loadings. There were no major effects of corrosion control treatment on drinking water regulations. pH adjustment could, however, decrease disinfection effectiveness and increase DBP formation.

The reliability of zinc orthophosphate and sodium hydroxide chemicals is less than would be expected for orthophosphates. Zinc orthophosphate is a proprietary chemical with price and supply constraints. Sodium hydroxide availability and price depend on market conditions. Orthophosphate (phosphoric acid) is available as a generic chemical and is commonly used in the food and bever-

age industry; therefore, price and availability are more stable. From a WTP-operations standpoint, pH adjustment is less reliable because pH can change with raw water quality and treatment conditions.

The chemical cost of each treatment alternative is shown in Figure ES-8. Phosphoric acid addition is less than half the cost of pH adjustment to 8.1, the next lowest chemical cost. This represents an average cost savings of about $2,400 per day. Phosphoric acid could save the DWSD about $10 million in present worth in the next 20 years compared to the next lowest cost alternative.

Figure ES-8
Treatment Alternatives Costs



Selecting Corrosion Control Treatment

The relative ranking of alternatives for the four criteria (performance, feasibility, reliability, cost) is summarized in Figure ES-9. Values of 1 through 4 were assigned for each treatment alternative in each criteria category (1 was best; 4 worst). Because performance for lead reduction was the main criteria, it was given a weight of 2. Each of the other criteria was given a weight of 1.

Orthophosphates were ranked highest overall. Zinc orthophosphate was second, mainly because of its adverse effects on industry, wastewater plant operations, and higher costs. pH adjustment was ranked lowest because it is less effective for lead reduction, less reliable, and demonstrates more adverse effects on industry and drinking water regulatory compliance.

Orthophosphates were selected as the optimal treatment alternative for full-scale lead corrosion control.

Based on corrosion control theory, comparison with analogous water systems, and the extensive pilot plant studies, orthophosphates were selected as the optimal treatment alternative for full-scale lead corrosion control.

Figure ES-9
Alternatives Ranking by Criteria

Treatment	Evaluation Criteria: Performance wt.= 2	Feasibility wt.= 1	Reliability wt.= 1	Cost wt.= 1	Weighted
Phosphoric Acid	2	1	1	1	7
Zinc Orthophosphate	1	4	2	3	11
pH 8.1	4	2	3	2	15
pH 8.7	3	3	4	4	17

Legend: 1 = Best; 4 = Worst

Phosphoric acid is the recommended form of adding orthophosphate. It is a generic chemical and can be bid competitively. It does not add sodium to the water and costs less than any other form of orthophosphate. In addition, the finished water pH is already in the optimal range for lead solubility reduction by phosphates, so pH adjustment is not required.

The recommended dose of phosphoric acid is 1.2 mg/L as P for initial passivation and a sustained dose of 0.4 mg/L as P for maintaining control of lead uptake. Values may be adjusted based on full-scale results.

Full-Scale Implementation

The LCR requires optimal corrosion control treatment installation by January 1, 1997. To meet this deadline, the implementation schedule in Figure ES-10 is proposed. The first element of implementation is to conduct full-scale demonstration testing in the distribution system served by one of the WTPs before installing chemical feed facilities in the other four plants. Operation of lead corrosion control facilities at all plants is planned for May 1996. This will provide additional time to optimize the system before lead monitoring is required in 1997.

The chemical equipment required for each WTP is summarized in Table ES-1. A schematic of a typical liquid chemical system is shown in Figure ES-11.

The cost of lead corrosion control chemicals is estimated to be about $0.87 per year per household.

The estimated capital cost for corrosion control facilities at the five WTPs is $3,740,000. The estimated cost of chemicals is $868,000 per year. The cost of lead corrosion control chemicals is estimated to be about $0.87 per year per household.

A monitoring program will be established before and after corrosion control treatment is implemented to determine performance for lead reduction and effects on other water quality parameters. If lead is reduced to below the EPA AL of 0.015 mg/L for two consecutive 6-month monitoring periods, other methods of lead reduction, such as removing lead service lines, will not be required.

If the lead AL is still exceeded after optimization and stabilization, a program for lead service line removal should be developed in addition to an ongoing public education program.

Operation of lead corrosion control facilities at all plants is planned for May 1996.

Figure ES-10
Implementation Schedule

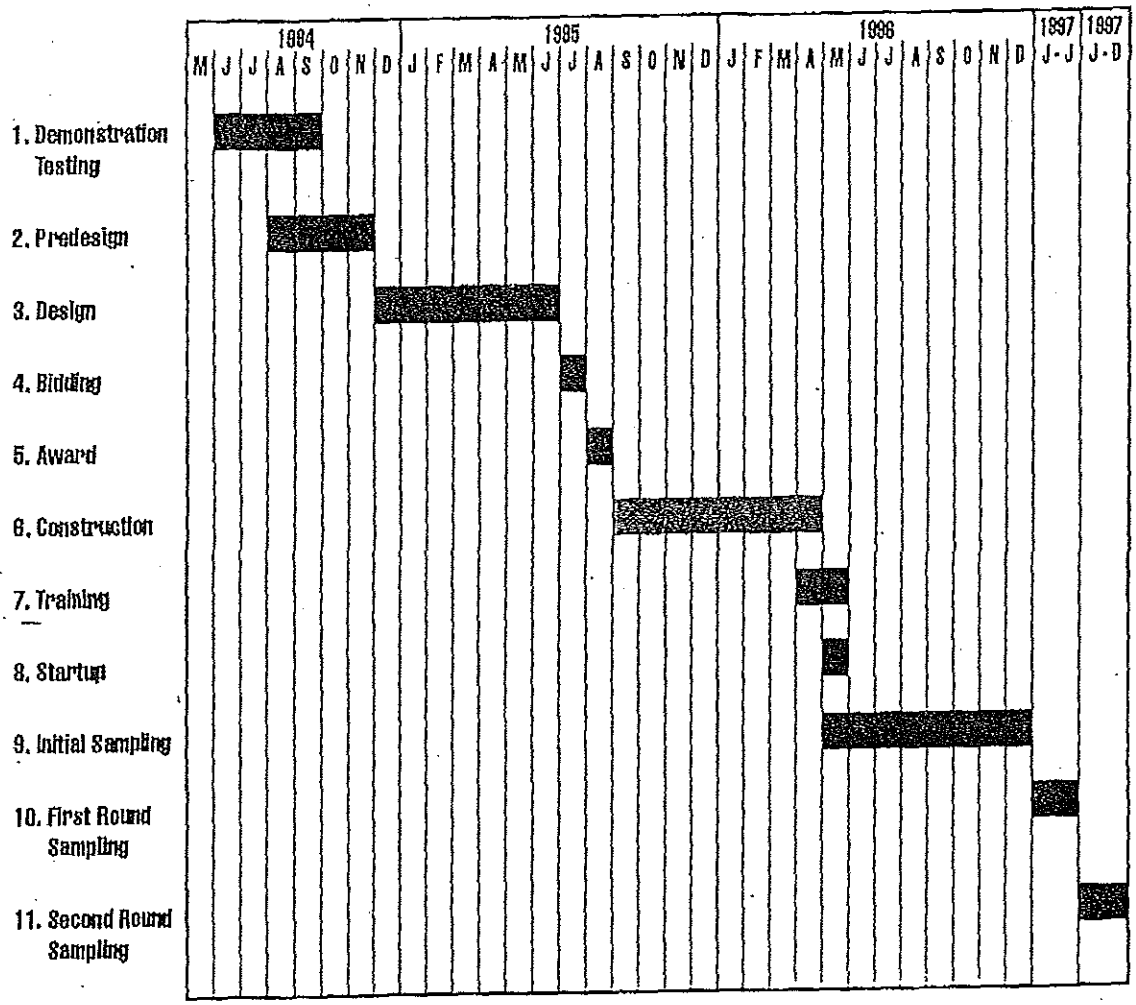
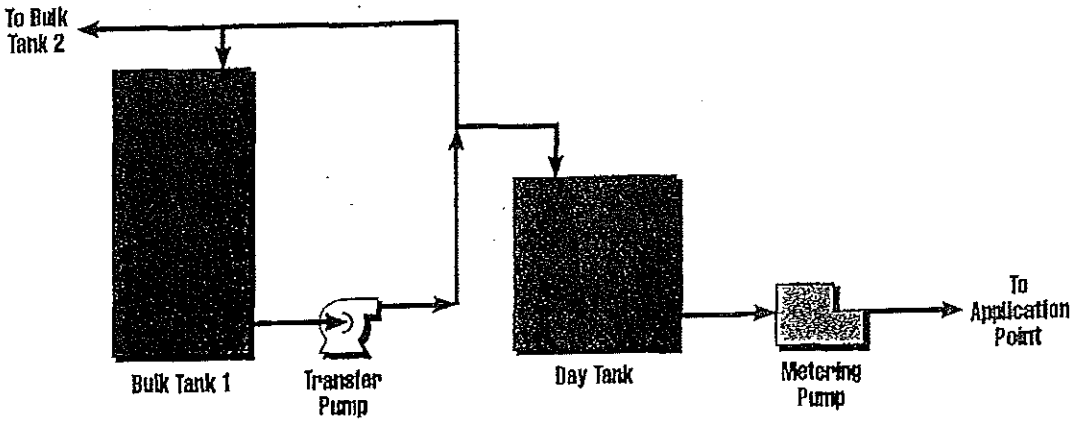


Table ES-1
Chemical Equipment Summary

	Southwest Water Plant	Water Works Park Water Plant	Northeast Water Plant	Springwells Water Plant	Lake Huron Water Plant
Number of bulk tanks	2	2	2	2	2
Bulk tank capacity, each (gal)	4,000	4,000	4,000	6,000	4,000
Number of day tanks	1	1	1	1	1
Day tank capacity (gal)	200	200	200	400	200
Number of feeders	3	3	3	3	3
Feeder capacity, each (gpd)	1 @ 200 2 @ 650	1 @ 300 2 @ 650	1 @ 250 2 @ 800	1 @ 600 2 @ 1,500	1 @ 350 2 @ 650
Number of transfer pumps	2	2	2	2	2
Transfer pump capacity each (gpm)	15	15	15	30	15

Figure ES-11
Liquid Chemical System Schematic



City of Flint Lead and Copper Rule Monitoring History						
Monitoring Period	90th Percentile (parts per billion)	Number of Samples above 15 ppb	Samples Required	Samples Collected	Required Frequency	
Jan. - June 2015	11 ppb	6	60	68		*Unofficial
July - Dec. 2014	6 ppb	2	100	100	6 months	
New Source and Treatment - Flint River and Flint WTP						
June - Sept. 2011	0 ppb	0	23	23	3 years	
June - Sept. 2008	0 ppb	0	33	33	3 years	
June - Sept. 2005	1.4 ppb	0	33	33	3 years	
June - Sept. 2002	4 ppb	1	33	33	3 years	
June - Sept. 2001	4.4 ppb	0	33	33	1 year	
June - Sept. 2000	7 ppb	2	33	33	1 year	
Jan. - June 1999	5 ppb	0	33	33	1 year	
July - Dec. 1998	7.4 ppb	1	33	33	6 months	
July - Dec. 1997	5 ppb	1	33	33	6 months	
Jan. - June 1997	4.5 ppb	1	33	33	6 months	
DWSD Study and OCC Treatment						
July -Dec. 1992	14.4 ppb	3	33	33	6 months	
Jan. - June 1992	15 ppb	4	33	33	6 months	

STATE OF MICHIGAN

JOHN ENGLER, GOVERNOR

DEPARTMENT OF PUBLIC HEALTH

3423 N. LOGAN/MARTIN L. KING JR., BLVD.
P.O. BOX 30195, LANSING, MICHIGAN 48909

Vernice Davis Anthony, Director

March 15, 1993

City of Flint
1101 South Saginaw Street
Flint, Michigan 48502

WSSN: 2310

Attention: Mr. Charles Smith, Utilities Superintendent

Subject: Lead/Copper Monitoring

Gentlemen:

We have reviewed the results of the second round of the lead and copper monitoring completed for your water supply for the period of July 1, 1992, through December 31, 1992. The samples were collected and analyzed to comply with the U.S. Environmental Protection Agency's Lead and Copper Regulation. The action levels specified in the regulation require that the 90th percentile results from the distribution system samples for lead and copper not exceed 15 and 1300 ug/l, respectively.

Since the 90th percentile lead level for your water system is 14.4 ug/l, the lead action level of 15 ug/l has not been exceeded. Also, the 90th percentile copper level was significantly below the copper action level of 1300 ug/l. This means that your water system has met both action levels for the first two monitoring periods.

Although many of the Detroit Water and Sewerage Department (DWSD) customers have met the action levels, DWSD is required to conduct a study to determine whether their water treatment processes can be improved to further reduce corrosion. The study is to be completed by July 1, 1994, and any recommended treatment modifications must be in place by January 1, 1997.

Further monitoring of your water system for lead and copper will not be required until the DWSD study is complete and any additional corrosion control treatment has begun. We will inform you when monitoring is again required. This may be as late as January 1997.

If you have any questions, please call me at (517) 335-8309.

Sincerely,

Timothy A. Benton, P.E.
District Engineer
Division of Water Supply
Bureau of Environmental and
Occupational Health

TAB:im
cc: John Weisenberger, Water Plant Supervisor
cc: Genesee County Health Department

Thelen, Mary Beth (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Friday, March 13, 2015 6:11 PM
To: Hollins, Harvey (GOV)
Cc: Wyant, Dan (DEQ)
Subject: Info download per our conversation
Attachments: Launch_and_Retrieval_Methods.pdf; OTsp07_TB.pdf; PotableWaterSeweragePipeLines.pdf; PPP_General_Brochure.pdf; USG Advanced Pipe Cleaning (Ice Pigging).pdf; 0707_036.pdf; 150207_155445_COLLAGE-1.jpg

Importance: High

Harvey,
We've got two issues I wanted to update you on. After trying to do this all in a single email, I realized it gets messy. So this is the first of two.

The water quality question remains under consideration. I've had a couple meetings this week with our drinking water team. I will circle back and push them for a specific recommendation on a good retail filter. Thus far, they've presented a range of options and been uncomfortable going past that because a) we don't specialize in home filtration. We're in charge of commercial / municipal size systems. And b) most filtration systems remove contaminants and toxics and organics. There's no way to know for sure if a faucet model will effectively work on odor or color issues until someone installs it and tries it out. For that, we'd need a home that has reported discolored / smelly water. And for that, I'd imagine we'd need to connect with the city and see if they've got logs of residents who have made these complaints.

The other potential help that could come from the state -- and after conversations with our folks I maintain it might be the best help we can give them -- has to do with maintenance. Of the $2 million announced in January from Treasury, $900,000 was earmarked for developing a maintenance triage plan. As that comes together, the next step will be actual maintenance. This means replacing valves and rotten sections of pipe, but it also means "pigging" lines with an inline device that runs through water transmission lines and forces out any built-up… material. In coordination with bleeding stagnant water via hydrants, this would probably be the fastest, most effective way to address the discolored / odorific water.

Our department specialists working with Flint imparted in an internal meeting this morning that the city has been a little reticent to pig their lines because the system is in such a condition that they worry a valve opened won't close (and vice versa), and a line that is barely still functional might get blown by the pigging. Our position is that would be preferable – maintenance, after all, is about addressing those very situations. But if funding can be identified, through SOM or some foundation benefactor, and we can convince the city to tackle the work, this would be a great way to spend it. The PDF files enclosed offer some more information about what this is, how it works, etc.

I'm still working to get a report of all the local municipal violations over the past two years. The two staff in the drinking water division who run those database searches are out of state this week, in Florida and Alaska respectively. Division assures me they'll get that report run as a priority upon return of those folks next week. In the meantime, here are some images (the Jpeg titled COLLAGE). It shows various conditions, mostly at mobile home parks around the state, where the water system

has failed. May or may not be of use, but if nothing else it exemplifies that this stuff happens, much as we try to make sure it does not.

This is email one of two. The other issue I will present in the next email. If it is at all possible, I'd suggest we need to assemble Treasury, MDCH, DEQ and Ambrose + RS team sometime Monday to get everyone briefed on what each agency is doing in Flint right now and what we may need to do next. Don't know if that meeting gets called by you or Dennis, but I think you and I agree that we need a united, coordinated team approach to develop quickly.

Thanks,
b

Brad Wurfel
Communications Director
Michigan Department of Environmental Quality
517-284-6713
517-230-8006 cell

Thelen, Mary Beth (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Friday, March 06, 2015 9:00 AM
To: Thelen, Mary Beth (DEQ)
Subject: FW: Tap Filters

Sorry, should have copied you.
b

From: Wurfel, Brad (DEQ)
Sent: Thursday, March 05, 2015 4:26 PM
To: Hollins, Harvey (GOV); 'Wyant, Dan (WyantD@michigan.gov)'; Agen, Jarrod (GOV)
Cc: Baird, Richard (GOV); 'Wurfel, Sara (GOV) (Wurfels@michigan.gov)'
Subject: FW: Tap Filters

Harvey,
Since group call Tuesday I have been working out how the filter idea might take shape.

To reiterate some key points so we're all clear:

1. DEQ does not inspect individuals' homes in a situation like this. It's the city's system, their operators handle all complaints and maintenance. In fact, our folks alerted me that the city's got union rules in place forbidding any contractor from touching the system.

2. DEQ's role is limited to ensuring the plant is operating to state standards and the water it produces meets potability standards. The aesthetic issues drawing concern from residents – color, odor, taste – stem from a variety of things. Age of the system and prolonged lack of upkeep is the leading factor. But in some areas, another contributing factor is changes in water flow – source used to come from the south, now comes from the north, so some pipes are flowing in reverse, stirring up whatever was settled for a long time. In some sections, large pipes that historically served large communities are now serving a much smaller customer base, contributing to water stagnating in the system. In some areas, household connections are old and worn, so two neighbors may be having dramatically different experiences. My point is, the challenge takes many forms and there's no single solution that will bring sweeping change. The two consultants hired by the city have, as I understand it, both reinforced this idea in their assessments, so that's good.

3. The fix for this will be years in the making, truly. Even if full funding were available, 'big dig' projects can't all happen at once. The city needs to get an assessment of its infrastructure so it can prioritize its needs, and I understand they're working on that. In the near term, maintenance this spring / summer – things like cleaning the pipes in key sections and flushing the system via the hydrants – could offer some short term results. I know nobody wants to just wait for spring, but that is something important to keep in mind.

4. In the meantime, the group discussed possibly making home water filters available somehow. The National Safety Foundation is a Michigan company, headquartered and founded in Ann Arbor, that develops standards for all kinds of infrastructure. They're a globally recognized source for standard setting. A look at their site reveals there are myriad filtration options on the market and within each type (faucet mounted, whole house line filters, etc) there are filters that focus on different aspects of purification.

If this idea begins to get legs, I'd suggest testing some different models on the local water at the customer level to see if they work. I'd also suggest the idea be focused on tap-mounted models to promote clean, appealing drinking water. And I'd suggest this program could be funded in whole or in part by the state, but would need to be administered by the city (reinforcing the fact that they own, operate and service the system). I've got some information on filter models below.

Two more considerations: One, while the state has provided residents in some communities with bottled water in the past, it always has to do with their water being somehow contaminated – as in, some kind of chemical plume that impaired local drinking water sources. This would be the first time the state took steps to deal with what is an aesthetic issue on a system where the water is meeting state drinking water standards.

Water filter info:
ANSI NSF Standard 42 Covers bacteriostasis, taste and odor (associated only with chlorine removal), and other aesthetic conditions
http://standards.nsf.org/apps/group_public/download.php/19895/NSF_42-11%20-%20watermarked.pdf

ANSI NSF Standard 53 Covers health effects removal
http://standards.nsf.org/apps/group_public/download.php/19896/NSF_53-11a%20-%20watermarked.pdf

It is important to note that the filters are not required to meet all aspects of the standard, only the portions they want to make claims for. So product information for each filter must be reviewed to determine its applicability.

Most of these point of use filters are basic activated carbon filters that simply remove taste and odor specifically associated with chlorine, not other things like iron, manganese, hydrogen sulfide, etc. that can also impact taste and odor as well as color.

It is important to recognize that taste and odor is generally an individual preference and such standards have for the most part not been developed because groups of individuals may still consider taste and odor issues to exist even after levels for such a standard have been met.

Other considerations are that the test water for such filters attempting to meet the standard uses hardness levels of 170 mg/L or less. Flint's water at times may be above this level, which could then impact filter performance and longevity.

Most of these filters are designed to be replaced after 100 gallons or less of use, a period of about 3 months for most households. In addition the tests allow for initial pressure drops of up to 15 psi. This may limit use in households that already rely on minimum pressure within their household plumbing.

Regarding the health effects standards, as the Flint water system already meets such requirements, with the exception of the current TTHM locational running annual average, there is little point to the use of these filters for such a purpose.

To the point you'd asked about the other day, while Flint and Detroit are leading examples of unmaintained infrastructure, Flint is not alone by any means.

This recent infrastructure report card
http://www.infrastructurereportcard.org/michigan/michigan-overview/
Lists Michigan with a $13.8 Billion need over the next 20 years.

http://www.infrastructurereportcard.org/a/#p/state-facts/michigan

Here's a link to the 2009 Report Card for Michigan Infrastructure
http://www.michiganreportcard.com/

From the report:

"A significant portion of the state's primary distribution system is nearing 100 years old. CWS are facing a significant challenge to maintain the vast network of aging, underground infrastructure. Within the city of Detroit alone, approximately 80% of its distribution piping was installed prior to 1940, which is not unusual for CWS in Michigan."

"The age of the majority of the state's distribution system is the primary contributor to normal decay and failure. In many cases, pipe life has far exceeded useful service life. Much of the older water systems consist of undersized mains constructed of materials such as unlined cast iron pipe. Minor fluctuations in system flows or pressure may cause red water complaints and even result in pipe failure. All CWS should have routine flushing and valve maintenance programs; however many are hesitant due to the time and cost."

"Under the Stage 2 Disinfection Byproducts Rule, all CWS that disinfect are required to provide increased trihalomethane (THHM) and haloacetic acid (HAA5) monitoring due to the potential byproducts of chlorine reactions within the pipe system. Corrosion, scale, solid suspension on the interior sidewall of pipe, in addition to the age and condition of the system will require diligent rehabilitation investment to maintain system integrity."

"While better materials and advanced technology is available to replace the aging distribution system, resources remain scarce when compared with the magnitude of the rehabilitation task at hand. Too often, distribution system replacement costs are underfunded and the first item to be slashed when budget problems arise. Overall, distribution system maintenance is reactionary in much of the older systems. Since the majority of the antiquated system will require removal and replacement beyond the CWS funding resources for systematic upgrade, a reactionary rehabilitation program is inevitable and must be funded accordingly."

Call or email me if you need anything further.
b

Brad Wurfel
Communications Director
Michigan Department of Environmental Quality
517-284-6713
517-230-8006 cell

Olszewski, Rosemarie (DEQ)

From: Howes, Sarah (DEQ)
Sent: Monday, June 01, 2015 10:33 AM
To: Clyde Edwards (cedwards@house.mi.gov)
Cc: DEQ-Legislative-Contact
Subject: FW: Communications between City of Flint and DEQ
Attachments: Flint-2015-02-13-AnnualMonSched.pdf; Flint-2015-03-05-TTHM-VN-15-1.pdf; Flint-2015-03-30-PbCu90.pdf; Flint-2015-04-03-LT2ESWTR.pdf; Flint-2015-04-03-Permit151018.pdf; Flint-2015-05-06-CCR-reminder.pdf; Flint-2015-05-11-CCCP.pdf; S2 Grant Project No 9204.01 City of Flint.pdf; RE: Premise plumning; Water Quality Optimization Strategy; call; Flint MORs; Flint River Source Water Assessment; FW: PEAS call; FW: Schematics for LT2 sampling plans; FW: Water Supply Sources; Premise plumning; RE: City of Flint - March Bromate Results; RE: City of Flint March 2015 MOR; RE: City Water Tech Team; RE: HC Letter & FAQ's; RE: May_Technical Advisory Meeting; RE: PEAS call; RE: RE: Flint Water Age map; RE: TTHM Draft Letter; RE: Water Supply Sources; Residential customers; Watermain breaks; distribution WQPs; January '15 MOR; Lead Copper Cert form; RE: City of Flint Water Plant Monitoring Results; RE: distribution WQPs; RE: distribution WQPs; RE: January '15 MOR

Clyde,

Per our conversation a few minutes ago, here are the documents that Rep. Neeley requested on all correspondence between the DEQ and City of Flint discussing Flint water.

Please let me know if you need anything else.
Sarah

Sarah M. Howes | Legislative Liaison
Department of Environmental Quality
517.284.6707 O | C 517.282.9204

2310

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

February 13, 2015

Mr. Brent Wright
City Of Flint - D P W
Flint Water Plant
4500 North Dort Highway
Flint, MI 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Drinking Water Monitoring Schedule – 2015
Annual Reports

Enclosed is your Drinking Water Monitoring Schedule for calendar year 2015 outlining the minimum requirements for your public water supply. Collect samples early in the monitoring period of the year indicated on the schedule. If you use a private laboratory you are required to report the results to us within the first ten days of the month following the month that you received the results. To receive credit for monitoring, the **"WSSN"** (water supply serial number), the **"Site Code,"** and **"County"** must appear on the sample result. Bottles will NOT be mailed automatically. If you use the DEQ Laboratory, you can order bottles by calling 517-335-8184. Be certain of the EPA sampling and analysis method requirements for hold times.

The Michigan Safe Drinking Water Act requires certain reports to be submitted to this office each year. Please remember that cross connection reports and annual pumpage reports are due by March 31, and the **Consumer Confidence Report** is due by July 1.

Also enclosed is the document "2015 Monitoring and Reporting Requirements." This provides additional details about monitoring and reporting requirements. If you have any questions, please contact us by telephone or email using the information below.

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

Adam Rosenthal, EQA
Lansing District Office
Office of Drinking Water and
Municipal Assistance
517-284-6644

MFP:AR:JR

Enclosure
cc/encl: Mr. Mike Glasgow, City Of Flint

2015 Monitoring Schedule

FLINT, CITY OF

WSSN: 02310

Collect samples early in the monitoring period. This schedule reflects your expected routine monitoring and is subject to change. To receive credit for monitoring, include the WSSN, Site Code, and County on your request for analysis form. Collect Bacteriological and Automated Partial Chemistry samples close to the shipping time and send overnight delivery. Send all sample results to your Department of Environmental Quality (DEQ) district office unless you use the DEQ laboratory. Test codes, sample units, and costs are listed to help you complete the DEQ laboratory form. Prices are subject to change without notice. The DEQ laboratory is closed on state holidays.

Location: Plant Tap

Collect these samples at the entry point to the distribution system (after treatment, if applicable.)

Sample Type	# Samples/ Frequency	Collect Before	Site Code	Fee	Unit Number	Test Code
Automated Partial Chemistry	This DEQ lab scan includes nitrate, nitrite, fluoride, and sodium whose monitoring frequency requirements differ from one another. Before requesting analyses from a laboratory other than the DEQ laboratory, check with your DEQ district staff for the specific monitoring requirements.					
	1/3 months	Quarterly	TP001	$18.00	32	R
Volatile Organic Compounds	1/3 months	Quarterly	TP001	$100.00	36VO	CXVO
Complete Metals	1/36 months	09/30/2017	TP001	$102.00	36ME	CMET2
Arsenic	1/3 months	Quarterly	TP001	$18.00	36ME	CAS
Cyanide	1/3 months	Quarterly	TP001	$25.00	36CNa	CCN
SOC – Pesticides	1/3 months	Quarterly	TP001	$125.00	36PT	CXPT
SOC – Herbicides	1/3 months	Quarterly	TP001	$120.00	36HB	CXHB
SOC – Carbamates	1/3 months	Quarterly	TP001	$120.00	36LP	CXLP
Bromate	1/1 months	Monthly	TP001	Not performed at the DEQ Laboratory. A list of certified labs is at www.michigan.gov/DEQ. Select Water, Drinking Water, Community Water Supply, then Certified Labs under Programs and Activities.		
Gross Alpha (Radiological)	1/3 months	Quarterly	TP001			
Radium 226 & Radium 228	1/3 months	Quarterly	TP001			
Water Quality Parameters	25/3 months	Quarterly	TP001	Various	Various	Various
Total Organic Carbon (TOC)	Pair/Monthly	Monthly	TP001	$35.00	36TO	CTOC
	Monitor for TOC in the source water before any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as "paired samples." Collect the treated water sample not later than the point of combined filter effluent turbidity monitoring and representative of treated water.					
Expanded SOCs						
Dalapon & Haloacetic Acids	1/12 months	Between 04/01 and 09/30/2015	TP001	$130.00	36HA	CXHA
Diquate	1/12 months	Between 04/01 and 09/30/2015	TP001	$150.00	36DQ	CXDQ
Endothall	1/12 months	Between 04/01 and 09/30/2015	TP001	$150.00	36EN	CXEN
EDB & DBCP	1/12 months	Between 04/01 and 09/30/2015	TP001	$70.00	36VO	CXEV

2015 Monitoring Schedule

FLINT, CITY OF

WSSN: 02310

Collect samples early in the monitoring period. This schedule reflects your expected routine monitoring and is subject to change. To receive credit for monitoring, include the WSSN, Site Code, and County on your request for analysis form. Collect Bacteriological and Automated Partial Chemistry samples close to the shipping time and send overnight delivery. Send all sample results to your Department of Environmental Quality (DEQ) district office unless you use the DEQ laboratory. Test codes, sample units, and costs are listed to help you complete the DEQ laboratory form. Prices are subject to change without notice. The DEQ laboratory is closed on state holidays.

Location: Distribution System

Sample Type	Collect Samples According to the ...	# Samples/ Frequency	Collect	Site Code	Fee	Unit Number	Test Code
Bacteriological -- coliforms	TCR Sampling Site Plan	100/Monthly	**Monthly**	DIST	$16.00	30	BPTC
Chlorine Residual	DBP Monitoring Plan	If serving chlorinated water, measure the residual disinfectant level at the same point and at the same time as the bacteriological sample and report the average to the DEQ.					
Total Trihalomethanes	DBP Monitoring Plan	8/3 months	**During February, May, August and November 2015**	See DBP Monitoring Plan	$65.00	36VO	CXTM
Haloacetic Acids		8/3 months	**During February, May, August and November 2015**	See DBP Monitoring Plan	$130.00	36HA	CXHA
Water Quality Parameters	Representative Sites	25/Quarterly	**Quarterly**	DIST	Various	Various	Various
Lead Copper for Corrosion Control	Lead and Copper Sampling Pool	100/6 months	**Between 1/1 and 6/30/2015**	DIST	$26.00	36CC	CCUB

Community Water Supply
2015 Monitoring and Reporting Requirements

Please Monitor Early: Collect samples early in the monitoring period (month, quarter, year) of the year indicated on the schedule. Bacteriological and partial chemistry samples should be collected close to the shipping time and sent overnight delivery to assure sample holding times are not exceeded (30 and 48 hour hold times respectively). We also recommend avoiding mailing bacteriological samples immediately preceding or following a holiday because samples tend to exceed the 30 hour hold time. When this occurs, a repeat sample must be collected as soon as possible upon notification.

If you use a private laboratory please report the results to us within the first ten days of the month following the month that you received the results. A list of certified laboratories is available on request. If samples are not collected as indicated on your monitoring schedule, you will incur a monitoring violation and possibly a fine. For information on the fines policy, visit http://michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, and Administrative Fines (under Laws and Rules).

To receive credit for monitoring, you must include the **"WSSN"** (water supply serial number), the **"Site Code,"** and the **"County"** when you submit samples for analysis. Site codes are listed on your monitoring schedule.

Special Instructions If You Use The DEQ Laboratory: Bottles will NOT be mailed automatically. To order bottles, call the DEQ Laboratory at 517-335-8184 or download the form EQP 2301 *Requisition for Water Sample Units* from www.michigan.gov/deq. Click on Key Topics, Laboratory Services, Drinking Water, Obtaining The Necessary Sampling Units, and 'test list'. Please note that the DEQ laboratory is closed on most state holidays. The DEQ laboratory prices are subject to change without notice.

Special Instructions For Automated Partial Chemistry, VOC and TTHM Samples: These sample bottles must be cooled and preserved during shipment to the laboratory. If you use the DEQ laboratory, you will receive the ice pack, acid dropper (if necessary) and small cooler when you request the bottles. Samples must be preserved correctly to be used for compliance purposes. To avoid resampling follow instructions contained with the sample bottle. If you would like more information, contact the DEQ lab, at 517-335-8184, or contact this office.

Cyanide: Previously, supplies that chlorinated the water were waived from monitoring for cyanide. The U.S. EPA now requires all supplies to sample the entry point for cyanide.

UCMR3 Monitoring: You may have monitoring requirements in 2015 under the third Unregulated Contaminant Monitoring Rule (UCMR3). The U.S. EPA will contact you directly if your water supply is required to monitor in 2015. A list of laboratories certified to analyze the samples collected for UCMR3 is available at http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/upload/lablist.pdf. Contact the U.S. EPA with questions.

Reminder if Lead and Copper Monitoring Due This Year: Provide individual lead tap results to people who receive water from sites that you sampled, even if lead was not detected, within 30 days of learning the results. Send us a certification that you met all the delivery requirements along with a sample copy of the customer notice within 3 months after the end of the monitoring period. Water supplies that failed to distribute the Consumer Notice of Lead Results must include the following statement in their CCR, "During the year, we failed to provide lead results to persons served at the sites that were tested as required by the Lead and Copper Rule." To download the *Lead and Copper Report and Consumer Notice of Lead Result Certificate* in Microsoft Word or PDF format, visit www.michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, and Reporting Forms (under Manuals, Forms & Brochures).

Annual Reports: These reports are due to this office each year.

- The **Cross Connection Report**, due by March 31, describes the status of your local cross connection control program. Manufactured housing communities are exempt from this requirement until 2016.

  Each year, water supplies must submit this report, even if a formal program has not been implemented. If cross connections do not exist in your water system, indicate so on the report. Download the Cross Connection Report form from http://michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, Reporting Forms (under Manuals, Forms & Brochures). Instructions are included with the form.

- The **Annual Pumpage/Usage Report**, due by March 31, is required of water supplies that do not submit monthly operation reports.

  This summary of water pumpage and water use must be submitted by each water supply that does not submit a monthly operation report. To manage our natural resources, pumpage data are compiled to determine water use demands in Michigan. Download the Annual Pumpage/Usage Report form from http://michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, Reporting Forms (under Manuals, Forms & Brochures). Please be sure to indicate the appropriate units on the report (e.g. million gallons or gallons).

- The **Consumer Confidence Report**, due by July 1 to your customers, to your local health department and to this office, describes the quality of the water and characterizes the risks, if any, from exposure to contaminants detected..

  Electronic delivery methods may be used to distribute the CCR to bill-paying customers, provided the method is direct. A paper copy must be delivered to bill-paying customers who request it or known to be unable to receive the CCR electronically. For more information on e-delivery, visit www.michigan.gov/deqwater. Click on Drinking Water, Community Water Supply, Consumer Confidence Report Rule (under Laws and Rules).

2310

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

March 5, 2015

Mr. Brent Wright, Operations Supervisor
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, Michigan 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Violation Notice (VN) – Maximum Contaminant Level for Total Trihalomethanes (TTHM)
Operational Evaluation – Total Trihalomethanes
1st Quarter 2015 Monitoring Period

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the city of Flint (City) is in violation of the Safe Drinking Water Act,1976 PA 399, as amended (Act 399); R 325.10610, *Maximum contaminant levels for disinfection byproducts (MCLs)*, of the 1979 Administrative Code.

In accordance with R 325.10610, *MCLs*, of the 1979 Administrative Code, the MCL for disinfection byproduct TTHM is 0.080 milligrams per liter (mg/L) as a Locational Running Annual Average (LRAA) at each monitoring location. As listed in the table below, our records show that the City's highest TTHM locational running annual average (LRAA), based on the last four quarters, ending February 28, 2015, is 0.105 mg/L which exceeds the standard, and that two of the eight sample site locations exceed the standard of 0.080 mg/L.

Further, in accordance with R 325.10719l, *Disinfection byproducts: operational evaluation levels*, of the 1979 Administrative Code, when an operational evaluation level (OEL) at a monitoring location for TTHM exceeds 0.080 mg/L, a supply shall conduct an operational evaluation and submit a written report of the evaluation to the DEQ not later than 90 days after being notified of the analytical result that causes the supply to exceed the operational evaluation level. As listed in the table below, our records show that the TTHM OELs for the City exceed 0.080 mg/L at one of the City's eight sample site locations.

TTHM Results (mg/L)						
	5/21/14	8/21/14	11/20/14	2/17/15	LRAA	OEL
DBP1 McDonalds 3719 Davison	**0.162**	**0.145**	0.059	0.0162	**0.096**	0.059
DBP2 Liquor Palace 3302 S. Dort Highway	**0.112**	**0.127**	0.033	0.0168	0.072	0.049
DBP3 North Flint Auto 6204 N. Saginaw St.	**0.097**	**0.118**	0.041	0.0149	0.068	0.047
DBP4 University Market 2501 Flushing Road	**0.106**	**0.196**	**0.094**	0.0245	**0.105**	**0.085**
DBP5 Taco Bell 3606 Corunna Road	0.079	**0.181**	0.034	0.0151	0.078	0.063
DBP6 Rite-Aid Pharmacy 5018 Clio Road	**0.088**	**0.144**	0.054	0.0192	0.076	0.059
DBP7 Salem Housing 3216 MLK Boulevard	**0.082**	**0.112**	0.050	0.0285	0.068	0.055
DBP8 BP Gas Station 822 S. Dort Highway	0.075	**0.112**	0.036	0.0199	0.061	0.047

Our investigation consisted of a review of ODWMA files for laboratory reports received for compliance monitoring. Our investigation is considered complete. This violation began on March 1, 2015, and will continue until TTHM LRAA is below the MCL at all sample sites.

We are encouraged by the results from the most recent round of compliance samples collected on February 17, 2015, which now show individual TTHM levels at less than half of the 0.080 mg/L standard at all locations throughout the City's system. Operational Evaluation Reports from December 2014, and February 2015, have identified possible causes and corrective measures for the previous elevated TTHM levels which we encourage the City to continue implementing. These modifications have likely contributed in part to the reduction in TTHM levels reported in the most recent quarter, and suggest the City may be able to achieve compliance with the TTHM standard at all sites by continuing these efforts.

Our office is currently reviewing the Operational Evaluation Report dated February 27, 2015, and will provide the City and their consultant with comments, as needed, to help address this MCL violation.

Water systems that exceed the OEL must complete and submit an Operational Evaluation in accordance with Administrative Rule 719l (R 325.10719l) within 90 days of being notified of the violation. **An updated Operational Evaluation report, which incorporates the most recent sample results, must now be completed and received by our office by no later than Friday, May 29, 2015.**

If you have any other factual information you would like us to consider regarding the violation identified in this VN, please provide them in a written response by March 19, 2015.

Administrative rule R 325.10403 of Act 399 requires that suppliers provide public notice (PN) as soon as practical, but no later than thirty (30) days after the supplier learns of this type of violation, by mail or direct delivery **and** by any other means reasonably calculated to reach customers not normally reached by mail. Enclosed is a sample PN which contains the minimum required language. The City is encouraged to include additional information regarding its response efforts to this violation. **Please notify your consumers by April 1, 2015, and send us a signed and dated copy of the notice that you issued within ten (10) days of distributing the public notice.** This violation must also be included in your 2015 Consumer Confidence Report, due by July 1, 2016. The PN must be repeated every quarter until you no longer exceed the TTHM standard. Failure to issue a PN for this violation will result in a fine of at least $1,000 per event, with a maximum of $5,000 per violation.

We anticipate and appreciate your continued cooperation in resolving this matter. If you have any questions regarding this VN, please contact us at the numbers below; at prysbym@michigan.gov; or rosenthala@michigan.gov; or at DEQ, P.O. Box 30242, Lansing, Michigan 48909-7742.

Sincerely,

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

Adam Rosenthal, Environmental Quality Analyst
Lansing District Office
Office of Drinking Water and Municipal Assistance
517-284-6644

Enclosure

cc: Ms. Jennifer Crooks, U.S. Environmental Protection Agency, Region 5
Mr. Jerry Ambrose, Emergency Manager, City of Flint
Mr. Robert Bincsik, City of Flint
Mr. Howard Croft, City of Flint
Mr. Daughtry Johnson, City of Flint
Genesee County Health Department
Ms. Liane Shekter Smith, DEQ
Mr. Richard Benzie, DEQ
Mr. Stephen Busch, DEQ

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

City of Flint Did Not Meet Treatment Requirements

Our water system recently violated a drinking water standard. Although this incident was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Samples were collected for total trihalomethanes (TTHM) analysis from eight locations on a quarterly basis (May 21, August 21, November 20 of 2014, and February 17, 2015). The average of the results at **ANY** of the eight locations must not exceed the maximum contaminant level (MCL) for TTHMs, otherwise our water system exceeds the MCL. The standard for TTHMs is 80 micro grams per liter (µg/L). The location reporting the highest TTHM level was 105 ug/L; thus, our water system exceeds the TTHM MCL.

What should I do?

- There is nothing you need to do unless you have a severely compromised immune system, have an infant, or are elderly. These people may be at increased risk and should seek advice about drinking water from their health care providers.
- You do not need to boil your water or take other corrective actions. If a situation arises where the water is no longer safe to drink, you will be notified within 24 hours.

What does this mean?

This is not an emergency. If it had been an emergency, you would have been notified within 24 hours.

People who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

What is being done?

We are currently working on solutions to correct the problem. We anticipate resolving the problem in 2015. Our most recent individual sample results were all less than half the 80 µg/L standard, however since compliance is calculated using a locational running annual average (LRAA) of the most recent four quarters, we are still out of compliance with the MCL at two of eight locations.

For more information, please contact Mr. Brent Wright at 517-787-6537, or the Flint Water Plant at 4500 North Dort Highway, Flint, Michigan 48505.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by the City of Flint.

CERTIFICATION: WSSN: 02310

I certify that this water supply has fully complied with the public notification requirements in the Michigan Safe Drinking Water Act, 1976 PA 399, as amended, and the administrative rules.

Signature	Title	Date Distributed

Reminder to water supplier: This notice/certification must be sent to the Department of Environmental Quality.

2310

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

March 30, 2015

Mr. Brent Wright
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, Michigan 48505

Dear Mr. Wright:

Subject: City Of Flint WSSN: 02310
Lead and Copper Monitoring of Drinking Water Taps

We received your report for the monitoring period July 1, 2014, through December 31, 2014.

Action Levels	Results this monitoring period		Next monitoring period	
	90th Percentile	# of Samples Above Action Level	# of Samples Required	Take Samples Within These Dates
Lead 15 parts per billion (ppb)	6.0 ppb	2	100	1/1 and 6/30/2015 Submit results to this office by July 10, 2015
Copper 1.3 parts per million (ppm)	0.11 ppm	0		

Ninety percent of the sites you tested are within action levels under the administrative rules promulgated under the Michigan Safe Drinking Water Act, 1976 PA 399, as amended. These results must be reported on your 2014 Consumer Confidence Report (CCR) due to our office, your customers, and the local health department, by July 1, 2015. Also include the following statement in the CCR, regardless of the lead and copper levels:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Flint is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or at http://water.epa.gov/drink/info/lead.

Recent changes to the Lead and Copper Rule require you to provide individual lead tap results to people who receive water from sites that were sampled, even if lead was not detected, within 30 days of learning of results. You must also send us a certification that you met all the delivery requirements along with a sample copy of your customer notice by 3 months after the end of the monitoring period. To download the *Lead and Copper Report and Consumer Notice of Lead Result Certificate* in Microsoft Word or PDF format, visit http://michigan.gov/deq. Click on Water, Drinking Water, Community Water Supply, and Reporting Forms. Water supplies that fail to distribute the Consumer Notice of Lead Results must include the following statement in their CCR, "During the year, we failed to provide lead results to persons served at the sites that were tested as required by the Lead and Copper Rule."

Samples due the next monitoring period mark your second six month round of monitoring. Please make every attempt to select the same sites used in the previous monitoring period, giving Tier 1 sites first priority. If original sites are unavailable, select replacement sites based on the Tier 1, 2, and 3 criteria. We strongly encourage you to sample early in the monitoring period.

Bottles will NOT be mailed automatically. To order bottles, call the Department of Environmental Quality laboratory at 517-335-8184, or download the form EQP 2301 *Requisition for Water Sample Units* from www.michigan.gov/deq. Click on Key Topics, Laboratory Services, Drinking Water, Obtaining the Necessary Sampling Units, and test list.

Sincerely,

Adam Rosenthal, EQA
Office of Drinking Water and Municipal Assistance
Lansing District
517-284-6644
rosenthala@michigan.gov

ar/jlr
Enclosures

cc: Mr. Michael Glasgow, City of Flint

2310

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

April 3, 2015

Mr. Brent Wright
City of Flint Water Plant
4500 North Dort Highway
Flint, Michigan 48505

Dear: Mr. Wright

SUBJECT: Long Term 2 Enhanced Surface Water Treatment Rule (LT2 Rule)
2nd Round of Source Water Monitoring Requirements

The LT2 Rule was promulgated by the United States Environmental Protection Agency on January 5, 2006. The Department of Environmental Quality (DEQ) adopted this rule into the Administrative Rules in December, 2009. All public water systems that are supplied by a surface water source, and systems supplied by a ground water source under the direct influence of surface water (GWUDI), are subject to this rule.

According to the LT2 Rule, systems are required to conduct an initial and a second round of source water monitoring for each plant that treats a surface water or GWUDI source. Please keep in mind that grandfathering data will not be accepted for the second round of monitoring. This monitoring includes at least one source water *Cryptosporidium*, *E. coli*, and turbidity sample per month for a period of 24 months for systems serving populations greater than 10,000 people. Systems will be assigned to a "treatment bin" based on the results of source water monitoring. The treatment bin specifies the level of *Cryptosporidium* removal and/or inactivation that the system must achieve.

Our records indicate that your system is required to comply with the source water monitoring requirements on Schedule 2 as stated below in Table 1. Therefore, your system is required to submit to the DEQ, a source water monitoring plan for each plant by July 1, 2015, and start the 2nd round of monitoring in October, 2015.

Table 1 – LT2 Milestone Dates for 2nd Round of Source Water Sampling

System Population	Schedule	Must submit Source Water Sampling Plan by...	Must begin second round of source water monitoring...
At least 100,000	1	January 1, 2015	April 1, 2015
50,000 – 99,999	2	July 1, 2015	October 1, 2015
10,000 – 49,999	3	July 1, 2016	October 1, 2016
<10,000	4	July 1, 2017	October 1, 2017

Enclosed with this letter is a Source Water Sampling Plan template that you can complete and submit to this office to comply with the July 1, 2015, deadline. The template includes instructions and a worksheet that will assist the DEQ in determining if your plan meets the requirements of the LT2 Rule.

If you have any questions about this subject, feel free to contact me at 517-290-8817; prysbym@michigan.gov; or Department of Environmental Quality, Office of Drinking Water and Municipal Assistance, Lansing District Office, 525 West Allegan Street, 1st Floor South, P.O. Box 30242, Lansing, Michigan 48909-7742.

Sincerely,

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

Enclosures

cc: Mr. Howard Kroft, City of Flint

2310

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

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
Water Service Center
3310 E. Court Street
Flint, MI 48506
WSSN: 2310

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

Contact: Rob Bincsik
Title: Supervisor of Water Distribution & Sewer
Phone: (810)766-7202

Permit Stamp Area (DEQ use only)

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMIT NO. W 151018 APR 3 2015

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

MFP

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

4-Inch Water Main Replacement (contract/phase 1)

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

5. County (location of project):
Genesee

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

cc:

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.

8400 Feet of 24-inch water main from Pasadena Avenue and Iroquois Avenue, South, 20 blocks, along Iroquois Avenue from Pasadena Ave. to Stockdale St.
East, Jog of Approx. 100 feet, along Stockdale Street from Iroquois Ave. to Euclid Ave.
South, 1 block, along Euclid Avenue from Stockdale St. to Welch Blvd.
West, 1 block, along Welch Boulevard from Euclid Ave. to Seminole St.
South Southwest, 3 blocks, along Seminole Street from Welch Blvd. to DuPont St.
South, 10 blocks, along Dupont Street from Seminole St. to Mackin Road.
Water main is stubbed south of Mackin Road for future additions.

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:

Jeffrey B. Markstrom, P.E.
ROWE Professional Services Company
P.O. Box 3748
Flint, MI 48502
(810)341-7500 jmarkstrom@rowepsc.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) City of Flint

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, Daugherty Johnson (print) (name), acting as the Utilities Administrator (print) (title/position) for City of Flint (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* 3/20/15 Date 810 766-7135 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: _____

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 _____

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

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) _____
2. Initial design maximum day flow (mgd) _____
3. Total design average day flow (mgd) _____
4. Total design maximum day flow (mgd) _____
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.

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

DAN WYANT
DIRECTOR

TO: Water Supply Superintendent or Operator-in-Charge

FROM: Adam Rosenthal, Office of Drinking Water and Municipal Assistance, Lansing District Office

DATE: May 6, 2015

SUBJECT: New Lansing District e-mail address for all submittals
2014 Consumer Confidence Report Reminder
Updated Lansing District Responsibilities

New Lansing District e-mail address for all submittals:
The Lansing District Office has created a new e-mail account to be used for all future submittals: **DEQ-DWMA-Lansing@michigan.gov**

Please forward future electronic submittals to the above e-mail address. This includes monthly operating reports, laboratory reports, reporting forms and siting plans. No further submittals will be accepted into an individual's e-mail inbox after May 31, 2015. Please make sure to inform any laboratory or consultant who has agreed to submit documents on your behalf of this change. Mailed hard copies and faxed documents will still be accepted.

2014 Consumer Confidence Report Reminder:
Your annual Consumer Confidence Report (CCR) is due to be delivered by July 1st.

You may use any combination of mail, door-to-door, or electronic methods to deliver to bill paying customers. This means you may mail and/or e-mail a message that the CCR is available on the internet or attached to the e-mail. If using the internet, the CCR must be on the internet when customers receive the message and the internet address displayed in the message must lead directly to the entire CCR. The message should tell customers how to request a paper copy. If you normally publish a non-English language CCR, then the notification of CCR availability should also be in that language.

Refer to last year's report and your most recent sample results when preparing this year's report. For more information on preparing your CCR, visit http://michigan.gov/deq. Click on Water, Drinking Water, Community Water Supply, and Consumer Confidence Report Rule.

In addition to delivering your CCR to your consumers by July 1st, you are required to send a copy to the Department of Environmental Quality and to your local health department. Also send us documentation certifying how you delivered the CCR. Certification of delivery is due to us by October 1st, but we encourage you to send it to us when you deliver the CCR by July 1st. You can download the *CCR Certificate of Distribution Form* from the web page noted above. **If you e-delivered the CCR, send**

us a sample copy of the notification of CCR availability. For example, you may have put the notification on a water bill.

Did anybody monitor UCMR in 2014? Did the United States Environmental Protection Agency (U.S. EPA) direct you to monitor for unregulated contaminants during 2014? Report the average and range of each contaminant detected. Also, provide an explanation of this required monitoring, such as, "Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. Monitoring helps the U.S. EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. We monitored for these contaminants and results of monitoring are available on request."

Please contact us with your questions. We would like to be available to answer all your questions as you draft your CCR, but we have found that our office is inundated with questions as the deadline nears. You might be best served if you contact us before the end of May.

Failure to deliver the CCR by July 1st is a reporting violation and will result in an administrative fine. Contact our office for more information.

Updated Lansing District Responsibilities:
Please make note of the following updates to the Lansing staff and their responsible areas:

Michael Prysby, P.E., is responsible for District 11, which includes Genesee County. Mike can be reached on his cell phone at 517-290-8817.

Bethel Skinker, P.E., is responsible for District 12, which includes the counties of Eaton, Ingham, and Clinton (minus manufactured housing). Bethel can be reached on her cell phone at 517-290-0686.

Mark Joseph, P.E., is responsible for District 13, which includes Livingston County and the City of Ann Arbor in Washtenaw County. Mark can be reached on his cell phone at 517-290-0170.

Kurt Swendsen, Engineer, is responsible for District 14, which includes the counties of Gratiot, Lapeer, Shiawassee, and all manufactured housing community supplies in Clinton County. Kurt can be reached at 517-525-1487.

All Livingston County water supplies are again regulated through the Lansing District Office.

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

DAN WYANT
DIRECTOR

May 11, 2015

Mr. Howard Kroft, Director of Public Works
City of Flint
1101 South Saginaw Street
Flint, Michigan 48502

WSSN: 02310

Dear Mr. Kroft:

SUBJECT: Flint Cross Connection Control Program

This letter confirms my site visit on April 29, 2015, with Mr. Glen Thomas, Utilities/Cross Connection Division Inspector for the city of Flint. Mr. Stephen Busch from our office was also present. The purpose of the visit, in part, was to discuss the city's Cross Connection Control Program (CCCP).

The city of Flint has made significant progress in recent years regarding the implementation of the city's approved CCCP. This effort has included identification of accounts, inspection and re-inspection of accounts at the approved frequencies, and ensuring the testing of backflow prevention assemblies in accordance with approved frequencies. However, the city's most recent report of annual CCCP activities for 2014 indicates a significant decrease in these activities below minimum requirements, and this deficiency must be address.

Our office fully recognizes the recent staffing loss of the city's previous plumbing inspector and the importance of these plumbing inspection services in providing public health protection, but these activities should not be borne at the cost of the city's CCCP and the protections it provides. Given the bacterial detections that occurred in the city's water distribution system in August and September 2014, along with customer complaints regarding aesthetic water quality, the need for protection through cross connection control are very evident.

We also realize that implementing a CCCP of for a community water system of this magnitude requires a significant commitment of time and personnel. We encourage the city to review CCCP staffing needs and authorize the workforce necessary to comply with the city's approved CCCP requirements.

Should you require further information, please contact me at the telephone number below; via e-mail at prysbym@michigan.gov; or Department of Environmental Quality, P.O. Box 30242, Lansing, Michigan 48909.

Sincerely,

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

mfp/jlr

cc: Mr. Glen Thomas, City of Flint
Mr. Stephen Busch, P.E.

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

February 27, 2015

Mr. Gerald Ambrose, Emergency Manager
City of Flint
1101 South Saginaw Street
Flint, Michigan 48502

Dear Mr. Early:

SUBJECT: S2 Grant Program
City of Flint
S2 Grant Project No. 9204-01

We are pleased to inform you that your final disbursement request (No. 7), in the amount of $66,650.62 was paid on February 13, 2014. The project plan was approved on December 13, 2013. The plans and specifications were approved on November 19, 2014. The State Revolving Fund (SRF) loan for Project No. 5439-01 was verified as self-funded via a construction start date of December 3, 2015. The subject S2 Grant project is now administratively complete.

Based on available grant funds, the final S2 Grant amount and local match are $717,531.49 and $79,725.51, respectively. The total final project cost is $797,257. For your files, I am enclosing the S2 Final Project Cost Summary from our database, which reflects and confirms the amounts on your final disbursement request.

Please note that the Michigan Financial Authority (MFA) or the Michigan Department of Environmental Quality (DEQ) may conduct an audit or other review of your project to determine whether Strategic Water Quality Initiatives Fund program requirements have been met. You will be notified in advance of any on-site review. Please retain all project records, whether in written or computerized form, for three years from the date of this letter. If requested, you must provide such records to the MFA, the DEQ, or their agents for inspection.

We are pleased that we could assist you in your effort to protect and preserve the water quality of our state.

If you have any questions, please call the project manager, Mr. Kurt Swendsen at 517-284-5418, or you may contact us by mail at DEQ, P.O. Box 30241, Lansing, Michigan 48909-7741.

Sincerely,

Sonya T. Butler

Sonya T. Butler, Chief
Revolving Loan Section
Office of Drinking Water and Municipal Assistance
517-284-5433

Attachment

cc: Mr. Daughtery Johnson, City of Flint
Mr. Jeff Markstrom, Rowe, Inc., Flint
Ms. Nichole Dorr, MFA
Mr. Chuck Bennett, DEQ-Water Resources Division, Lansing District Office
Ms. Debbie Martinson, DEQ

S2 Final Project Cost Summary

Project Number 9204-01

Grantee City of Flint **Location** City of Flint

Budget Item	Requested Costs	Approved Costs	Allowable %	Approved Final Costs
1 Planning Costs	$797,257.21	$797,257.21	100.0000%	$797,257.21
		Eligible Cost Subtotal		**$797,257.21**
		Less 10% Local Match		**$79,725.72**
		Total Approved Project Cost		**$717,531.49**

Line Items Final Planning Costs

Project Number 9204-01

Item	Desc. or Invoice Number	Requested	Ineligible	Approved	Reason	Cost Type
1	Rowe invoices 67422 - 69146	$65,568.17	$0.00	$65,568.17	DR1, 5 invoices	Incurred
2	invoice 0069223	$249,360.00	$0.00	$249,360.00	DR2	Incurred
3	invoice 70243	$49,906.40	$0.00	$49,906.40	DR3	Incurred
4	invoices 70514, 70686	$83,150.90	$0.00	$83,150.90	DR4	Incurred
5	invoices 70863, 71040, 71215	$153,141.87	$0.00	$153,141.87	DR5	Incurred
6	invoices 71393, 71545, 71719	$122,073.63	$0.00	$122,073.63	DR6	Incurred
7	invoices 72977, 72570, 72787	$74,056.24	$0.00	$74,056.24	DR7	Incurred
	Total:	$797,257.21	$0.00	$797,257.21		

City of Flint

Utilities Division

Dayne Walling
Mayor

Gerald Ambrose
Emergency Manager

February 9, 2015

Mr. Kurt Swendsen
Michigan Department of Environmental Quality
Constitution Hall
525 W. Allegan
Lansing, MI 48933

Re: City of Flint SRF Project Construction Phase
Project Status Report

Dear Mr. Swendsen:

The City of Flint is writing this letter to inform the MDEQ that the construction phase of the SRF project is underway. As you are aware, the City of Flint will be self-funding the construction project and will be performing most of the construction activities with our own utility crews. The following is a summary of the project as we stand today:

- Construction activities began on December 3, 2014
- To date our crews have been concentrating on rehabilitation of the sanitary manholes along Gilkey Creek, Swartz Creek, Carman Creek and Thread Creek which are tributaries of the Flint River. We have signed a contract with Liquiforce to perform the sewer lining items that the City of Flint staff is not able to self-perform.
- The City of Flint has allocated 2 crews consisting of 8 staff. The project is being managed by Rob Smith, our Sewer Systems Supervisor.
- Based on our understanding of the project, we anticipate construction activities to continue through the 2015 construction season with a completion date of November 2015.
- We have kept our consultant, ROWE Professional Services Company, apprised of our progress.

We trust that this letter addresses the concerns of the MDEQ relating to the progress of the SRF construction phase. If you have any questions or require additional information, please contact Daugherty Johnson, Utilities Administrator at djohnson@cityofflint.com.

Sincerely,

Jerry Ambrose
Emergency Manager

Cc: Daugherty Johnson, City of Flint
Jeff Markstrom, ROWE

Swendsen, Kurt (DEQ)

From: Daugherty Johnson <djohnson@cityofflint.com>
Sent: Thursday, February 19, 2015 11:21 AM
To: Swendsen, Kurt (DEQ)
Cc: Robert Smith; Jeff Markstrom
Subject: City of Flint SRF project progress
Attachments: SRF progress letter Feb 2015.pdf

Hell Kurt. I have attached a letter detailing our progress on our self funded SRF project. If you have any questions please call me at (810) 577-8906 or email. We will also send a hard copy of the letter.

Thank you
Daugherty Johnson
Utilities Administrator
City of Flint

Olszewski, Rosemarie (DEQ)

From: Busch, Stephen (DEQ)
Sent: Friday, May 01, 2015 12:17 PM
To: Prysby, Mike (DEQ); gthomas@cityofflint.com
Subject: RE: Premise plumning
Attachments: Final Genesee supplemental questionnaire 2-23-15.docx

Glen,

The attached questionnaire that would be utilized by the Local Health Department and Department of Health and Human Services provides additional detail of what to be on the lookout for (See Questions 12 and 13). As we indicated almost every service connection could potentially have some element associated with what is listed in this questionnaire, but we are just looking for a rough list of those with more non-typical appurtenances such as spas, grocery stores with spray/mist system, garden/nurseries with mist irrigation, etc., and those that Mike provided. Thanks.

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

From: Prysby, Mike (DEQ)
Sent: Friday, May 01, 2015 9:56 AM
To: gthomas@cityofflint.com
Cc: Busch, Stephen (DEQ)
Subject: Premise plumning

Glen,

Based upon our discussion during our April 29th, 2015 site visit, approximately 40-45 commercial/industrial customers were identified as a potential candidate for needing a premise plumbing Water Safety Plan (WSP). Attached is a list of mechanical components within building premise plumbing to assist you in confirming this and/or identifying additional customers that could serve as WSP candidates. Please send us your completed list at your earliest convenience. Thanks.

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

MDSS ID _____

Legionellosis Questionnaire
Genesee County, 2014-2015

Interviewer Identification

Date of Interview: _____ Interviewer's Name: _____
Health Dept.: _____ Phone Number: _____ E-mail: _____

What was the patient's outcome? ☐ *RECOVERED* ☐ *STILL ILL* ☐ *DIED* ☐ *UNK*

Patient Contact Information

Name:_____ Age:_____ Sex: ☐M ☐F
Street address: _____ City: _____
State:_____ Zip: _____ County:_____
Daytime Phone: _____ Evening Phone: _____

Surrogate Contact Information <*List surrogate contact information if patient is too unwell or has died*>

Name:_____
Daytime Phone: _____Evening Phone: _____
Relationship to Patient: _____

Hello, my name is _____and I'm calling from _____(health department). We are investigating a cluster of respiratory illnesses in Genesee County. At this point, the source of these illnesses is still under investigation. We are hoping this interview will provide further information and answers about the illnesses. I'd like to ask you a few questions about your home and your exposures during the 2 weeks before you got sick. You do not have to answer any of the questions, but any assistance you can provide is appreciated. Do you have about 30 minutes to talk? If not now, when would be a good time for me to call back? _____

<If the case is from more than 1 month prior, the following text may be used: >
It might be helpful for you to collect documents such as a calendar, receipts, credit card or bank statements to jog your memory about your activities and where you were in the 2 weeks prior to getting sick. The only information we would ask you to share from these are dates and locations. Would you like me to call you back after you have time to collect these materials? When would be a convenient day and time for me to call you back? _____

I have that your first symptom started on *<insert onset date>* _____. Is this correct?
☐Yes ☐No ☐ Not sure

If no, what was the first date you started feeling sick? ___/___/_____

List dates of exposure period: from ___/___/___ to ___/___/___ <The exposure period includes the 2 weeks before the date of illness onset>

MDSS ID _____

Illness Information

1.) During your illness, did you have any of the following symptoms?

	Check one:		
	YES	NO	UNK
Diagnosis of pneumonia			
Fever If yes, highest temp:_____			
Chills			
Cough			
Nausea			
Vomiting			
Diarrhea			
Aches or muscle pains			
Chest pain			
Shortness of breath			
Sore throat			
Headaches			
Other symptoms (*specify*):			

Exposure Information

2.) How long have you lived at your current residence? _____

<If they have moved since the listed exposure period, indicate that you are asking about the house they lived in prior to becoming sick>

a.) If you moved after the exposure period/illness, what was your previous residence address? _____

3.) Where did you get your tap (drinking and other household use) water from between ___/___/___ and ___/___/___ ? *<Exposure period from above>*

- ☐ 1. City of Flint Water
- ☐ 2. City of Flint Township Water
- ☐ 3. Other municipal water system
- ☐ 4. Private well
- ☐ 5. Unknown
- ☐ 6. Other _____

4.) During the last year, has the water pressure at your residence changed? ☐ Yes ☐ No ☐ Not Sure

a.) If yes, did the water pressure: ☐ Increase ☐ Decrease

b). If yes, when did the water pressure change occur? _____

MDSS ID _____

5.) During the last year, has the water quality (appearance, taste, smell) at your residence changed?
☐Yes ☐No ☐Not Sure
a.) If yes, please describe the change in the water quality:_____
_____
b). If yes, when did the water quality change occur? _____

6.) Prior to your illness, did you make any recent plumbing changes or repairs at your residence?
☐Yes ☐No ☐Not sure
a.) If yes, please describe the changes/repairs and give the dates the work was done.
_____
_____

7.) Prior to your illness, were there any water main breaks or other water line issues that affected the water at your residence, including boil water advisories? ☐Yes ☐No ☐Not sure
a.) If yes, please describe the water main/line issues or boil water advisories and give the dates they occurred.
_____
_____

I'd like to ask you some questions about what you did during the 2 weeks **before** you got sick.
The time period I'm asking about is between ___/___/___ and ___/___/___.*<Exposure period>*
During this 2 week period, did you:

8.) Work or volunteer, either full or part time? ☐Yes ☐No ☐Not sure
a.) If yes, complete the following table:

Job description	Company	Location	Any exposure to misty water?

9.) Spend any time in a hospital, doctor's office, clinic, or dentist office as a patient, visitor, employee, or volunteer? ☐Yes ☐No ☐Not sure
a.) If yes, check all that apply:

Exposure	Date(s)	Reason for Visit	Name & City of Hospital/ Office/ Clinic	Name of Doctor
Inpatient ☐	Admission_____ Discharge_____			
Outpatient ☐				
Visitor ☐				
Employee ☐				
Volunteer ☐				

MDSS ID _____

10.) Visit, reside, or work in a long term care facility, nursing home, assisted living facility, or senior living facility? ☐Yes ☐No ☐Not sure

a.) If yes, complete the following table:

Exposure	Date(s)	Name & City of Facility
Resident ☐		
Visitor ☐		
Employee ☐		

11.) In the 2 weeks before you before you got sick (__/__/__ to __/__/__), did you spend any nights away from home (excluding healthcare settings)? ☐Yes ☐No ☐Not sure

a.) If yes, complete the following table: *<prompts: hotel, campground, cabin, cruise, second home, with family, etc.>*

Accommodation Type/Name	Address Street, City, State	Floor/Room No.	Dates of Stay	
			Arrival	Departure

12.) In the 2 weeks before you before you got sick (__/__/__ to __/__/__), did you visit any of the following community venues?

	Check one:					
Venue	YES	NO	UNK	Date(s)	Name of Venue	Address
Hotel (*without* staying overnight – e.g. dinner, wedding)						
Auditorium						
Barbershop or Hair salon						
Car wash						
Casino						
Church or Place of worship						
Gym or Work out facility						
Grocery store						
Home improvement store						
Spa or Nail salon						
Mall or Department store						
Movie theater						
Other (*specify*)						

MDSS ID _____

13.) In the 2 weeks before you before you got sick (__/__/__ to __/__/__), did you have exposure to any of the following water sources, either ***at home*** or while ***away from home***?

	Check one:				
Exposures ***at home***	YES	NO	UNK	Dates (s)	Description: Name (or Type)/Location
Shower					
Use a detachable shower head or hose					
Hot tub, whirlpool spa, Jacuzzi tub					
Sat NEAR a working hot tub or whirlpool spa but did not get in					
Steam room or wet sauna					
Humidifier (whole house or portable)					If yes, specify type: If yes, what type of water is used in device? □Bottled □Tap □Other:_____
Respiratory therapy machine (e.g. nebulizer, CPAP, BiPAP, etc.)					If yes, specify type: If yes, what type of water is used in device? □Bottled □Tap □Other:_____
Other (*specify*)					

Exposures ***away from home***	YES	NO	UNK	Dates (s)	Description: Name (or Type)/Location
Shower at gym, work, other location					
Use a detachable shower head or hose					
Hot tub, whirlpool spa, Jacuzzi tub					
Sat NEAR a working hot tub or whirlpool spa but did not get in					
Humidifier (whole house or portable)					If yes, specify type: If yes, what type of water is used in device? □Bottled □Tap □Other:_____
Pool/splash pad/waterpark					
Recreational or cooling misters					
Steam room or wet sauna					
Decorative fountain					
Outdoor watering hose or sprinkler					
Beach, lake, pond, river, creek, etc.					
Other (*specify*)					

MDSS ID _____

Medical History

Now I'm going to ask a few questions about your medical history and health behaviors.

14.) Have you ever been told by a healthcare provider that you had any of the following conditions:

	Check one:			
Condition	YES	NO	UNK	Comments
Chronic kidney disease				
Weakened immune system (due to cancer, chemotherapy , radiation therapy, immunosuppressive meds, HIV, organ transplant, etc.)				
Diabetes				
Chronic lung disease (COPD, emphysema)				
Asthma or chronic bronchitis				
Heart disease or congestive heart failure				
Liver disease				
Other conditions (*specify*)				

15.) Health behaviors:

	Check one:			
	YES	NO	Quantity per day (packs or drinks)	Duration (years)
Are you currently a smoker?				
Are you a former smoker?				
Do you drink alcohol?				

16.) Do you know anyone else with similar symptoms? ☐ Yes ☐ No ☐ Not sure

a.) If yes, complete the following table:

Name	Phone	State of Residence	Details of Shared Exposure

Additional Comments _____

_____

_____

_____

_____

Thank you so much for taking the time to answer these questions. Do you have any questions that I can help answer? If you have any questions or remember any further details later, please contact the _____ (health department) at phone: _____.

Olszewski, Rosemarie (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, March 17, 2015 2:02 PM
To: Howard Croft (hcroft@cityofflint.com); Brent Wright (bwright@cityofflint.com); mglasgow@cityofflint.com; Daugherty Johnson (djohnson@cityofflint.com)
Cc: Gerald Ambrose (gambrose@cityofflint.com); nhenderson@cityofflint.com; Prysby, Mike (DEQ)
Subject: Water Quality Optimization Strategy

Howard,

As Mike Prysby and I mentioned during our phone call earlier today, the City should be taking action to optimize water quality in the City's distribution system which will in turn provide the City's water customers with water quality that helps limit the potential for legionella occurrence in premise plumbing. It is recognized that contraction of Legionnaires' Disease is not from ingestion of potable water and not regulated under Safe Drinking Water Act requirements. Further, there is currently no direct evidence of legionella in the City's public water system. However, actions by the City of Flint water system can help minimize the potential for an outbreak in customer plumbing systems.

These actions include the following:

- Water main pigging and flushing to remove biofilm, tuberculation, and sediment throughout the distribution system. Failure to remove such material will limit the effectiveness of any disinfectant. Pigging is the preferred process and equipment can be obtained at minimal cost. As the growth range for legionella starts at 68 degrees F, conducting this work as soon as possible in the spring and early summer with cooler temperatures would help reduce the potential for formation under warmer water conditions.

- Maintain pH levels of 7.2-7.8 in finished water and distribution system when possible to maximize the disinfection and oxidation potential of the hypochlorous acid residual (versus the less potent hypochlorite ion). Any optimized corrosion control plan practices regarding pH levels must be taken into consideration.

- Maintain a minimum free chlorine residual of 0.5 mg/L throughout the distribution system when possible. Continuous residual at this level has been shown to be effective in control of legionella. (This will need to be balanced with requirements to limit TTHM formation and comply with the TTHM standard.)

- Continuous operation and optimization of the ozone treatment equipment to treat raw source water. Ozone is highly effective in the destruction of legionella bacteria.

- Conduct routine monitoring for legionella bacteria at the water treatment plant tap and at locations in the distribution system. Note: sample locations must take water directly off the main and not be from premise plumbing systems. Distribution locations could include storage tank inlets or pumping stations. Monitoring at the WTP plant tap would demonstrate removal of any legionella present in raw source water. A private laboratory that specializes in water sample analysis for legionella would need to be used.

- Optimize water treatment plant operation for pathogen reduction under surface water treatment rule requirements. Optimizing the removal for similar pathogens can help reduce the potential for legionella.

A conference call with City staff would probably be best to facilitate further discussions of these actions in more detail. Mike and I can make ourselves available this week to discuss and answer any questions.

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, February 20, 2015 8:41 AM
To: 'bwright@cityofflint.com'
Subject: call

Brent,

Are we having a conference call today? I am available, give me a time for the call and I will make my-self available.

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, April 03, 2015 11:55 AM
To: Michael Glasgow; 'bwright@cityofflint.com'
Subject: Flint MORs

Mike, Brent

I was looking at Flint's MORs and I just noticed that ozone treatment parameters (ozone dosage and residuals) are not included. Ozone treatment parameters need to be included in the MOR. Please include this in future MORs. Also, if you can resurrect the ozone treatment parameters from previous months of operation (since going to the Flint River).....we would like that information to include in the previous MORs. Thanks.

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, February 06, 2015 1:48 PM
To: emurphy@cityofflint.com
Cc: 'bwright@cityofflint.com'
Subject: Flint River Source Water Assessment
Attachments: Flint River Source Water Assess..doc

Elizabeth,

Attached is a copy of the Flint River Source Water Assessment report for your information. Water treatment plant staff should have a copy of this report, if not, please provide them with a copy.

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

Source Water Assessment Report for the City of Flint Water Supply Flint River Emergency Intake February 2004

City of Flint Water Treatment Plant, Flint, Michigan

Prepared for:

City of Flint Water Supply; WSSN 2310

Prepared by:

U.S. Geological Survey, Water Resources Division, Michigan District
Michigan Department of Environmental Quality, Water Division
City of Flint Water Utilities Department

Michigan Source Water Assessment Report 54

Executive Summary

The purpose of the Source Water Assessment is to analyze the sensitivity and determine susceptibility of a community's source of drinking water to potential sources of contamination.

Sensitivity is determined from the natural setting of the source water (raw water to the water treatment plant), and indicates natural protection afforded the source water. Using procedures established in the Great Lakes Protocol, Michigan Source Water Assessment Program, the ***emergency*** *intake for the Flint Water Treatment Plant has a very high degree of sensitivity to potential contaminants. When the effects of agricultural and urban runoff in the Flint River watershed are considered, the Flint intake is categorized as very highly sensitive.*

Susceptibility identifies factors within the community's source water area that may pose a risk to the water supply. The susceptibility determination provides information with respect to listed facilities and land areas within the source water area that should be given greater priority and oversight in implementing a source water protection program. The source water area for the Flint ***emergency*** *intake includes 96 potential contaminant sources, 16 listed potential contaminant sources within the susceptible area, plus urban and agricultural runoff from the Flint River watershed into the Flint River. The potential contaminant sources, in combination with the very highly sensitive intake, indicate that the Flint* ***emergency*** *intake source water is very highly susceptible to potential contamination.*

The Flint ***emergency*** *intake source water is categorized as very highly susceptible, given land uses and potential contaminant sources within the source water area. However, it is noted that when operating, the City of Flint Water Treatment Plant has effectively treated this source water to meet drinking water standards. The City of Flint has instituted pollution prevention programs, but should be cognizant of additional potential threats to its source of drinking water that are identified in this report. This report explains the background and basis for these determinations.*

Using this Assessment

Clean, safe drinking water is fundamental to the viability of any community. Protecting the drinking water source is a wise and relatively inexpensive investment in your community's future. The overall intent of this assessment is to provide background information for your community to use in developing a local source water protection program. The assessment benefits your community by providing the following:

- ***A basis for focusing limited resources within the community to protect the drinking water source(s).***

  The assessment provides your community with information regarding activities within the **source water area (SWA)** that directly affect your water supply. It is within this SWA that a spill or improper use of **potential contaminants** may cause these contaminants to migrate toward the water **intake**. By examining where the source waters are most susceptible to contaminants, and where potential contaminants are located, the assessment clearly illustrates the potential risks that should be addressed.

- ***A basis for informed decision-making regarding land use within the community.***

  The assessment provides your community with a significant amount of information regarding where your drinking water comes from (the source) and what the risks are to the quality of that source. Knowing where the resource is allows your community planning authorities to

make informed decisions regarding proposed land uses within the SWA that are compatible with both your drinking water resource and the vision of growth embraced by your community.

- ***A basis for dealing with future regulations.***

  The assessment has been designed to functionally meet proposed requirements for surface-water supplies. Information needed to address regulatory needs and requirements has been collected and made available to your community through this report.

This source water assessment also provides the basis for a locally developed, voluntary source water protection program. Communities interested in voluntarily developing source water protection programs should contact the Michigan Department of Environmental Quality (MDEQ) or visit the Department web page at http://www.deq.state.mi.us.

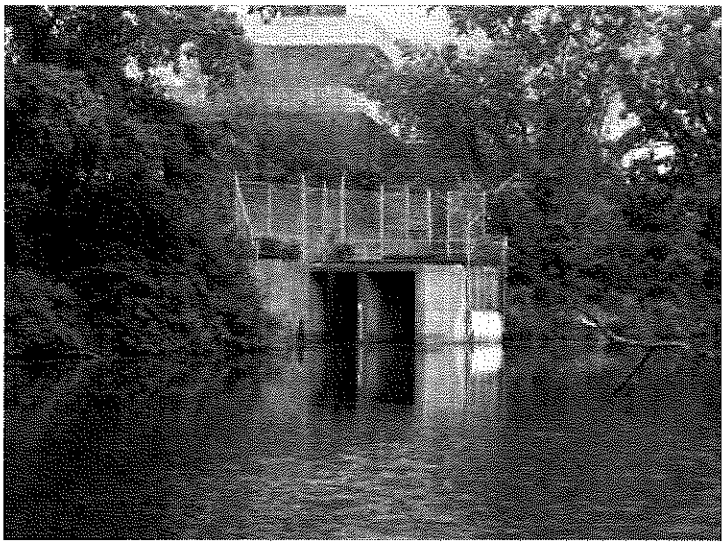
Introduction

In 1996, Congress amended the **Safe Drinking Water Act** and provided resources for state agencies to conduct source water assessments by identifying SWAs, analyzing the **sensitivity** of the source to natural conditions, conducting contaminant source inventories, and determining the **susceptibility** of the source to potential contamination. Delineations, sensitivity analyses, contaminant inventories, and susceptibility determinations comprise a "source water assessment." Assessments will be completed for every public water supply source in Michigan. To support this effort, the MDEQ Water Division established a partnership with the U.S. Geological Survey (USGS) to develop a method for conducting source water assessments for surface water supplies (Sweat and others, 2000; Sweat and others, 2001).

The requirements for public water supplies in Michigan to meet United States Environmental Protection Agency (USEPA) **maximum contaminant levels** (MCLs) provide some degree of assurance of safe drinking water; however, all systems are vulnerable to potential contamination. One of the best ways to ensure safe drinking water is to develop a local program designed to protect the source of drinking water against potential contamination. Not only does this add a margin of safety, but it also raises the awareness of consumers and/or the community of the risks of drinking water contamination. It is expected that source water assessment results will provide a basis for developing a source water protection program.

Background

Flint is located in Genesee County, about 55 miles northwest of Detroit, Michigan (fig. 1). The city of Flint water supply serves a population of 125,000. In 1967, the city connected to the Detroit Water and Sewage Department (DWSD) water supply and the Flint Water Treatment Plant (WTP) was placed on stand-by operation. The city is required by the MDEQ to maintain this treatment facility for reliabilty since the city obtains treated water through a single pipeline from the DWSD Lake Huron WTP which is subject to interruption of service. The present intake at the Flint WTP was constructed in 1948 and consists of a concrete box structure on the edge of the Flint River. The intake structure has a bottom elevation of 700.00 and connects through a 72-inch concrete pipe to the low service pump station. Low service pumps lift the river water through the WTP processes of conventional treatment and lime-soda softening .



Flint WTP Emergency, Flint River Intake Structure (Viewed from downstream)

Treatment at the plant includes the addition ferric chloride as a coagulant, lime and soda ash for softening, chlorine for disinfection, and fluoride addition for dental health.

Water treatment plants are periodically inspected to identify construction, maintenance, operational or source defects that could make them vulnerable to contamination, particularly from contaminants that are microbial in nature, such as fecal coliforms. Water suppliers are provided a sanitary survey report that notes deficiencies in the system, and the State may direct the system to make necessary corrections. The sanitary survey is an important part of a safe drinking water program.

Climate

The Flint water supply is located in the central Lower Peninsula hydrologic province (Rheaume, 1991), in the Flint River watershed (USGS, 1974, 1982). The region experiences temperate summers with moderate winters. The Flint Bishop International Airport Weather Bureau station reports that the average annual precipitation for the climatic years 1887-2001 was 30.28 inches and the average from the past 5 years is 31.42 inches (NOAA, 2001), with about 13 percent of that as snowfall between November and March. Annual average runoff for the Flint SWA, extrapolated from Miller and Twenter (1986, fig. 1) is 9 to 10 inches.

Source Water Area Geology and Hydrology

The study area for evaluating the extent of the Flint emergency intake SWA includes the upper reaches of the Flint River watershed (fig. 1). Flint is located roughly in the middle of the Flint River watershed. The SWA consists of lacustrine clays and silts; end moraines of coarse- and medium-textured till; fine-, medium-, and coarse-textured glacial tills ; and postglacial alluvium. The SWA is underlain by Bayport Limestone, Marshall Sandstone and mixed shales, sandstones, and limetsones of the Saginaw and Michigan Formations (Martin, 1955; Milstein, 1987). Soils underlying the Flint SWA are primarily associations of the Blount, Boyer, Brookston, Capac, Ceresco, Celina, Chelsea, Cohoctah, Conover, Del Ray, Kibbie, Lapeer, Lenawee, McBride, Metea, Miami, Montcalm, Sloan, Spinks series (U.S. Department of Agriculture, 1961; BASINS, 1998; MIRIS, 2000). They include loams, loamy sands, fine sandy loams, silty clay and muck.

Flint River – Source Water for City of Flint WTP

Soil permeability is based on the calculated time of travel, in inches per hour (in/hr), for water to move vertically through a saturated soil zone. Soil thickness and permeability values are available in soil survey reports published by the National Cooperative Soil Survey and U.S. Department of Agriculture (1982, 1992, 1993, also 2 county reprints in press). Permeability ranges from less than 0.06 in/hr, rated as very slow, to more than 20 in/hr, rated as very rapid.

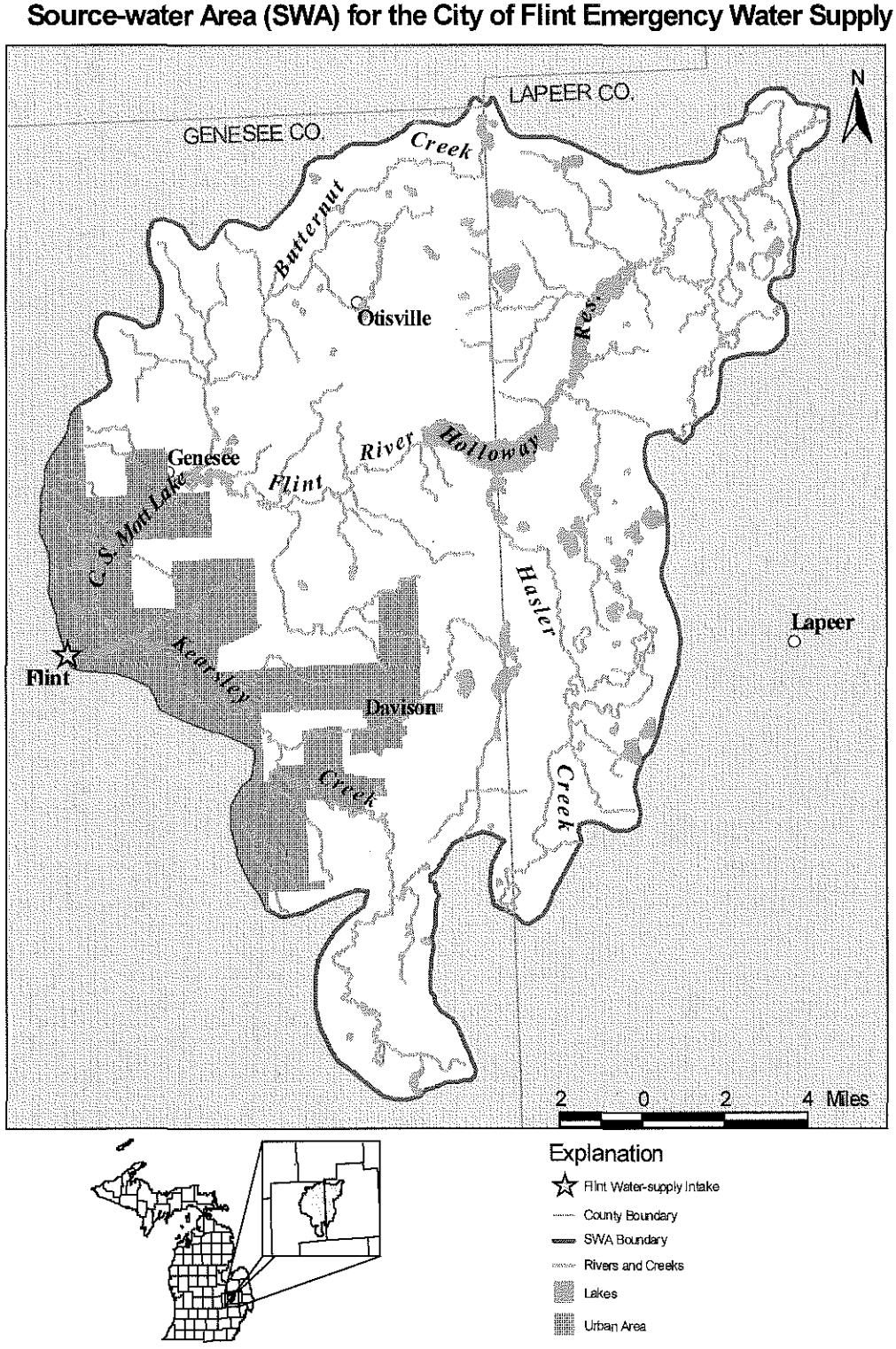
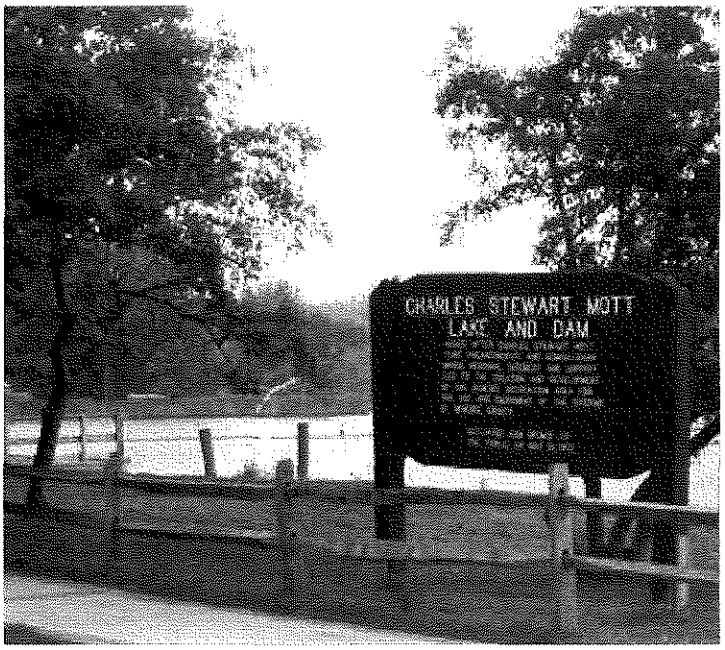


Figure 1. Source-water area (SWA) for the evaluation of the Flint emergency intake, Flint, MI.

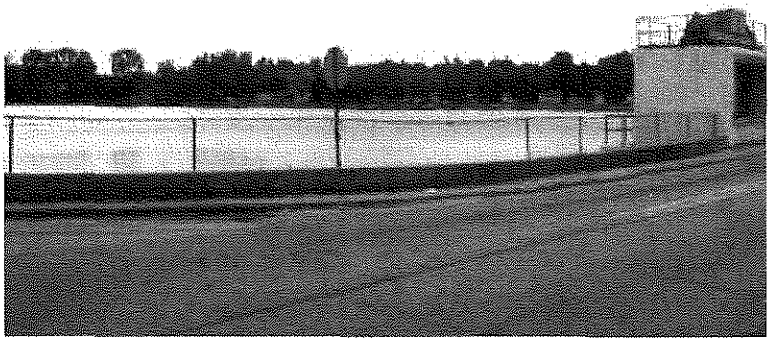


Mott Lake and Dam on Flint River upstream of Flint WTP

Very slowly permeable soils significantly reduce the movement of water through the soil zone and, as a result, allow greater time for natural degradation of contaminants. However, such soils also provide for rapid overland transport of contaminants directly to receiving waters, which in turn may affect the water supply intake. Erosion and transport of soils by surface waters can cause an increase in turbidity. In contrast, very rapidly permeable soils allow for rapid infiltration and passage through the soil zone from the surface. Such soils potentially allow rapid transport of contaminants with minimal contact-time available for contaminant breakdown.

Mean, area-weighted, depth-integrated permeabilities for the Flint SWA range from 0.6 to as much as 7.8 in/hr. The mean permeability is 3.1in/hr (Schneider and Erickson, undated, series of 5 maps; BASINS, 1998; MIRIS, 2000). Soil permeability ranges from moderately slow in the northeastern portion of the SWA to moderate over the eastern portion of the SWA to moderately rapid throughout the central and western portions of the SWA, and rapid around the Flint River (fig. 2; U.S. Department of Agriculture, 1961; BASINS, 1998; MIRIS, 2000). Areas adjacent to the Flint River are underlain by highly sensitive drift lithologies, whereas the remainder of the SWA is underlain by least sensitive drift lithology (Lusch and others, 1992).

The Flint SWA contains an area of about 237 square miles (mi2). There are is one operable gage within the Flint SWA and a Flint River gage which operates approximately 9 miles downstream from the Flint Emergency Intake. Between 1932 and 2002 discharge has been recorded at this station by the USGS (Blumer and others, 2002). Annual mean discharge at the Flint River at Flint gauging station was 339 cubic feet per second (cfs) between 1932 and 2001, and ranged from 153 to 1258 cfs. Velocity measured at this stream gage was used to estimate the distance in which contaminants could travel within 24 hours, or the 24-hour time-of-travel (TOT) for this area on the Flint River. The distance calculated for the 24-hour TOT was approximately 27 miles.



Kearsley Lake and Dam on Kearsley Creek Upstream of Discharge to Flint River and Flint WTP Emergency Intake

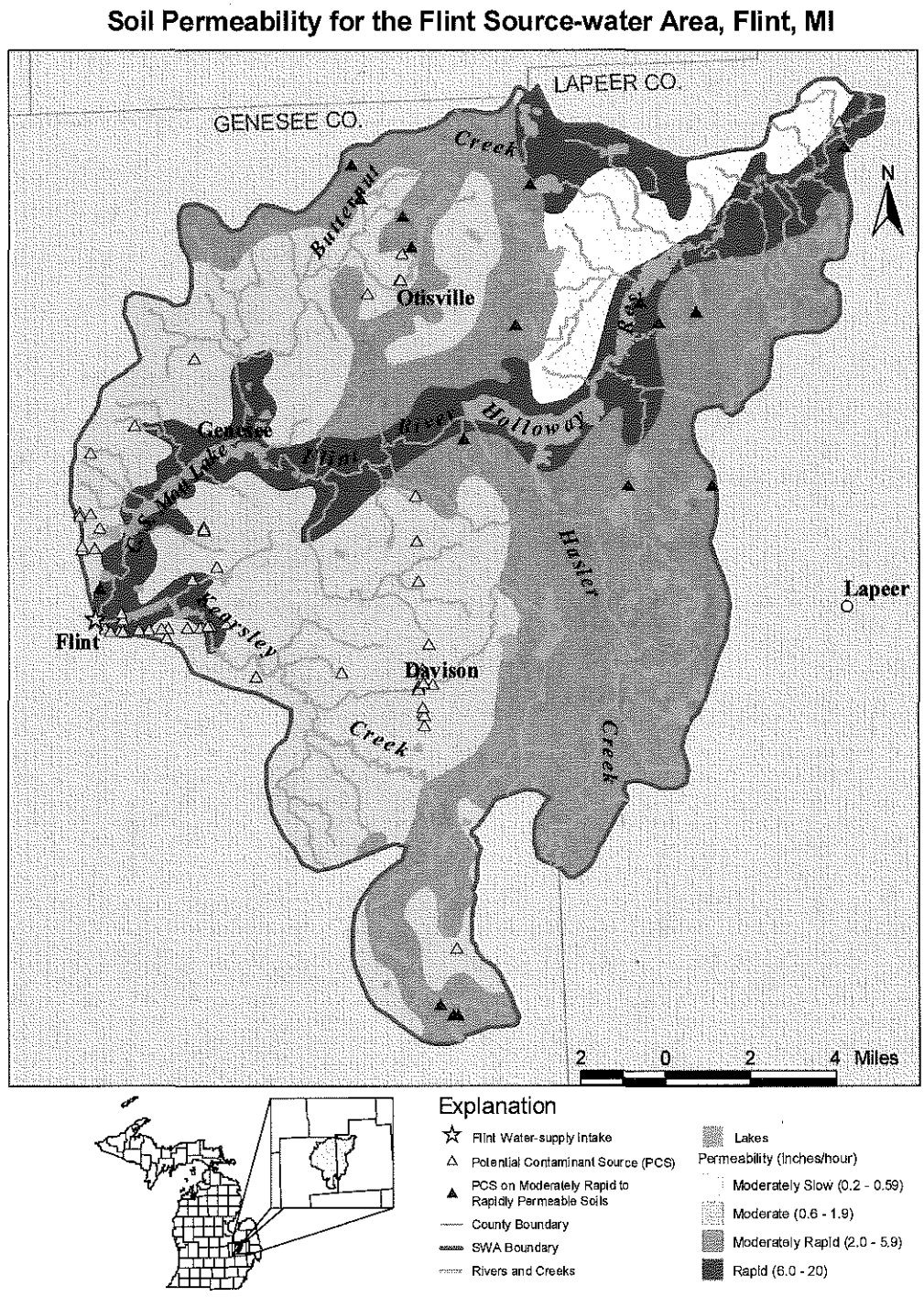


Figure 2. Soil permeability for the Flint emergency water-supply intake SWA. Flint, MI.

History of Raw Water Quality at the Source

Public water supplies are required to routinely monitor raw water quality for selected parameters to optimize treatment, and to monitor treated water quality for a list of contaminants that is determined by MDEQ and the Safe Drinking Water Act. A detection of any contaminant may indicate that a pathway exists for contaminants to reach the intake. It is important to realize that the results from a given sample only provide information regarding the water quality at the time the sample was collected. Water quality can change with time for a number of reasons. The fact that a water sample does not contain contaminants is no guarantee that contamination will not occur in the future. Conversely, the detection of a contaminant in the past does not indicate that it will occur in the future.

The Flint WTP records for the last 3 years of routine operation, 1965-1967 show that water use fluctuated between 34.4 and 46.5 million gallons per day (MGD), with an average daily use of 38.5 MGD. Raw water quality reported for these three years ranged from 5 to 183 nephelometric turbidity units (NTU) for turbidity, 203 to 375 mg/l total hardness as CaCO3, 116 to 235 mg/l alkalinity as CaCO3, 16 to 46 mg/l chlorides and 8.2 to 8.5 units for pH. Precipitation events were noted to increase turbidity and lower hardness. An analysis of flow duration for the Flint River and source water chemistry would probably indicate that there may be an indirect correlation between turbidity, suspended sediments, and coliforms and high flows associated with spring snowmelt and precipitation runoff events.

In recent years, the Flint WTP has undergone operational and process improvements for water treatment. Raw water quality during these testing periods when the WTP was operating but discharging to waste are noted in the table below.

Date of Tests	Turbidity	Total Organic Carbon	pH	Alkalinity	Hardness
	(NTU)	(mg/l)	(pH units)	(mg/l)	(mg/l)
12/5-7/2000	4.2	8.75	7.8	249	324
1/16-18/2001	2.4	8.5	7.7	275	363
3/20-21-2001	5.4	N/A	7.9	196	266
4/16-18/2001	7.6	8.6	8.2	213	284

Source Water Assessment Methodology

Technical guidelines for completing source water assessments are contained in the Michigan Source Water Assessment Program, Assessment Protocol for Great Lakes Sources (Protocol) (MDEQ, 1999, Appendix L) available at http://www.deq.state.mi.us/dwr. In general, an assessment is a process for evaluating a drinking water supply and the potential for its treated water to exceed an MCL due to raw water contamination. A source water assessment considers the SWA, potential sources of contamination within the SWA, conditions of the water supply intake, and susceptibility to contaminants in order to identify potential risks to drinking water quality. Although the Protocol provides the minimum requirements and instructions on how to conduct an assessment, each water supply is unique with respect to how the process is carried out, due to local conditions and information. Sweat and others (2000, 2001) have developed and documented the methodology used in the preparation of this assessment.

Delineating Source Water Areas

Delineation of the SWA is accomplished by using geographic information system (GIS) software to map the watershed(s) that have the potential to affect source water at the intake. Using information from the water supply, a critical assessment zone (CAZ) is defined for the intake (MDEQ, 1999, Appendix L). A buffer is then created along any shoreline intersected by the CAZ, and from the edge of the CAZ to the mouth of any river(s) that might influence the intake. Finally, the buffer is extended along the shoreline of any river(s) that might influence the intake, from the mouth of the river to its headwaters. The area defined by the CAZ, river and shoreline buffers is termed the susceptible area. The susceptible area within the SWA defines locations where a water supply should focus its management strategies and resources to benefit the drinking water resources.

Using the Great Lakes Protocol and the Flint water supply information:

- ·The CAZ for the Flint intake is assigned as 3,000 ft since the intake is located in an inland river (fig. 3).
- The susceptible area along the shoreline is determined to be: A distance of 300 ft inland along the banks of the Flint River and its tributaries (fig. 4).

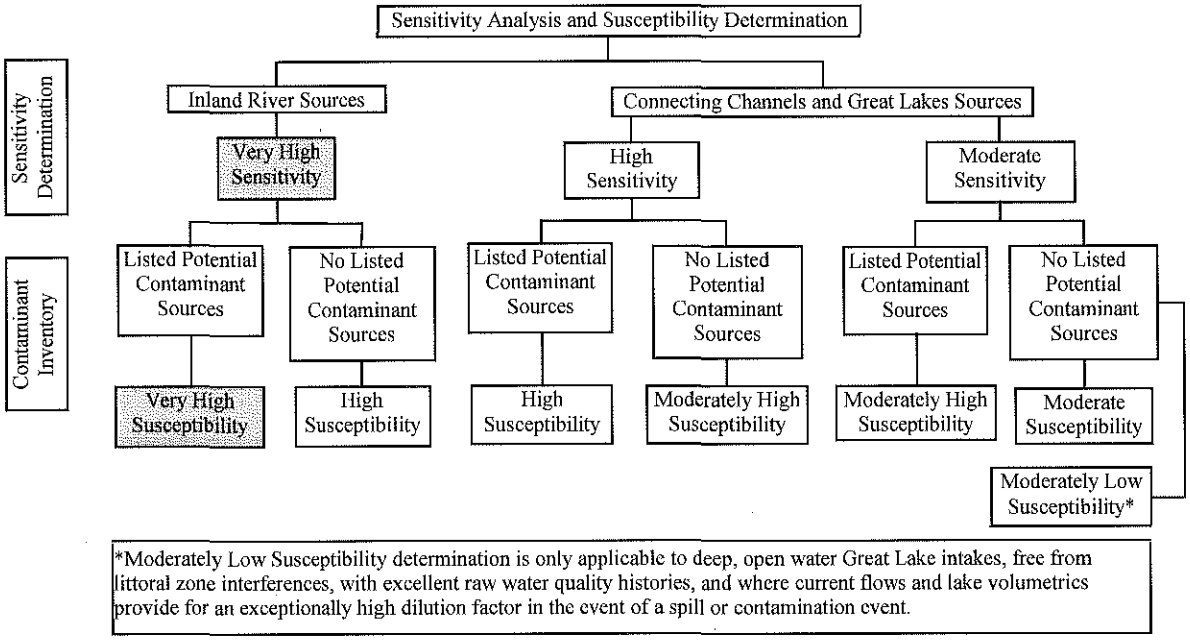


Figure 53. Surface-water sSource sSensitivity aAnalyses and sSusceptibility dDetermination for the Ann ArborFlint emergency water-treatment-plant source-water areas.

Contaminant Source Inventory

Past, current, and potential future sources of contaminants were inventoried to identify several categories of potential sources of contaminants including microorganisms (bacteria, oocysts, and viruses), inorganic compounds (nitrates and metals), organic compounds (solvents, petroleum compounds, pesticides), and disinfection by-product precursors (trihalomethanes, haloacetic acids).

It is important to remember that sites and areas identified by this process are only potential contaminant sources used and managed properly. In addition, assumptions were made about particular types of land uses and risks associated with those land uses. Assumptions are discussed further in the results portion of this report.

The process for completing the inventory included several steps, which are summarized as follows:

1. Reviewed readily available land use maps and historical/current aerial photographs.
2. Plotted relevant information from applicable state and federal regulatory databases including the following lists:
   - ·MDEQ leaking underground storage tank (LUST) sites;
   - ·MDEQ registered underground storage tank (UST) sites;
   - ·MDEQ Environmental Cleanup Site Information System (ECSI) sites;

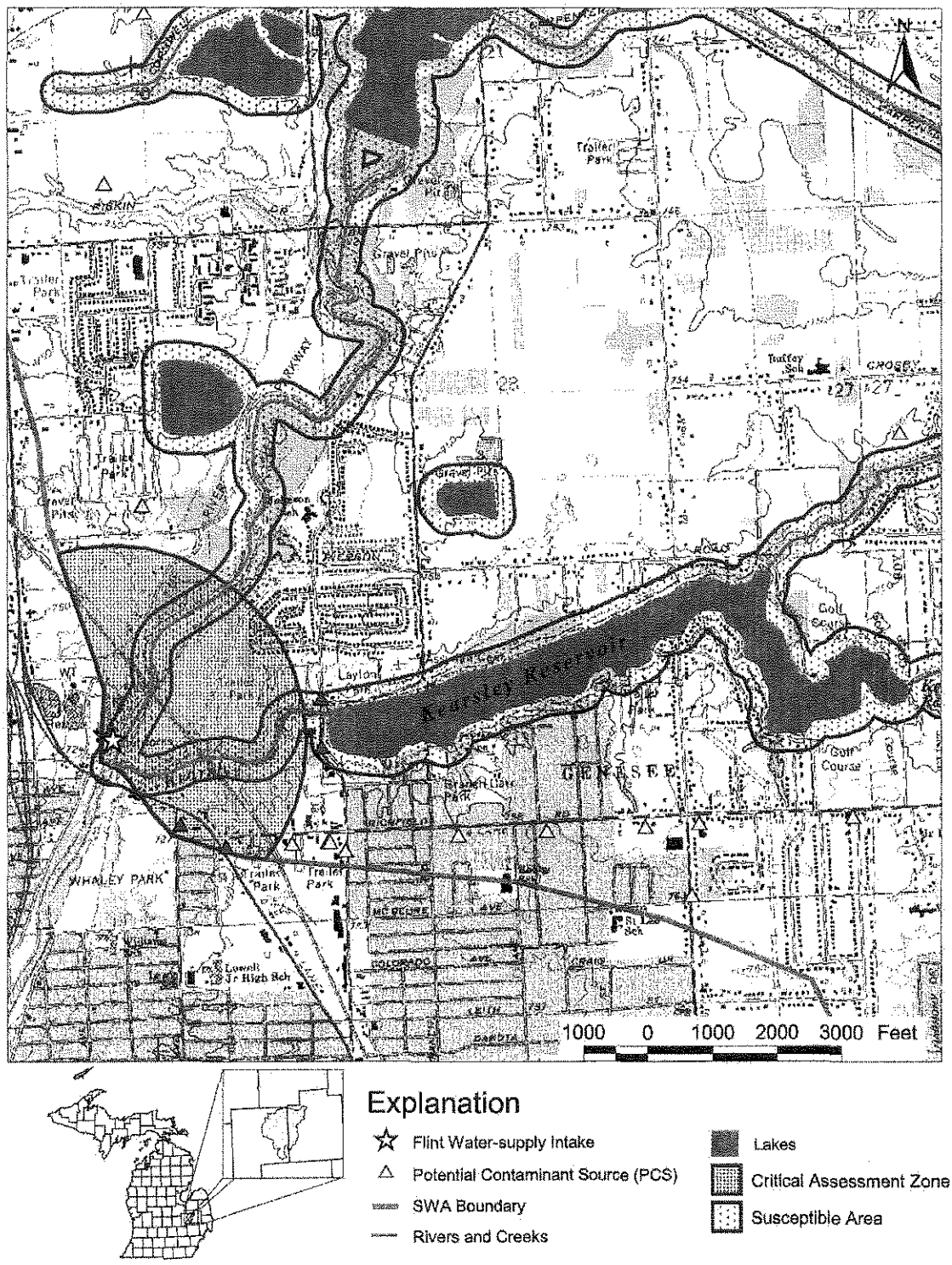


Figure 4. Critical Assessment Zone (CAZ) for the Flint emergency water-supply intake, Flint, MI.

- ·MDEQ Source Information System (for water discharge permit sites including National Pollutant Discharge Elimination System (NPDES) permits, Water Pollution Control Facility (WPCF) permits, storm water discharge permits, and on-site sewage (septic) system permits);
- ·MDEQ Underground Injection Control (UIC) database;
- ·MDEQ Active Solid Waste Disposal Permits list;
- ·Michigan Department of Transportation (MDOT) - Hazardous Materials database;
- ·State Fire Marshall registry of above-ground fuel storage tank sites;
- ·State Fire Marshall Hazardous Material Handlers and Hazardous Material Incidents (HAZMAT) sites;
- ·U.S. EPA BASINS software, version 2.1.
- ·U.S. EPA Envirofacts database;
- ·U.S. EPA Resource Conservation Recovery Act (RCRA) generators or notifiers list;
- ·U.S. EPA RCRA Treatment, Storage, and Disposal Facility (TSDF) Permits list;
- ·U.S. EPA National Priorities List (NPL);
- ·U.S. EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLA) List;
- ·U.S. EPA RCRA Corrective Action Activity List (CORRACTS);
- ·U.S. Department of Transportation (DOT) Hazardous Materials Information Reporting System (HMIRS);
- ·U.S. EPA Toxic Chemical Release Inventory System (TRIS); and
- ·U.S. EPA Oil Pollution Act of 1990 Spill Response Atlas

3. Met with public water supply and community officials on June 11, 2003 to identify potential sources not listed elsewhere in databases or on maps and completed a preliminary inventory form to be used in completing the SWA base map. Subsequent contacts by email and telephone on numerous occasions to request additional data, clarify data, and discuss results.
4. Land use and/or ownership (for example, residential/municipal; commercial/industrial; agricultural/forest; and other land uses) was mapped and evaluated in relation to PCS, soil characteristics, and proximity to the intake(s).
5. Conducted an informal field inventory to locate additional PCS.
6. Completed final inventory form of PCS and plotted locations of PCS on the base map.

The purpose of the inventory is three fold: first, to provide information on the location of PCS, especially those within the susceptible area; second, to provide an effective means of educating the public about PCS; and third, to provide a reliable basis for developing a management plan to reduce potential contaminant risks to the Flint water supply.

The inventory process attempts to identify potential point-source contaminants within the SWA. It does not include an attempt to identify specific potential contamination problems at specific sites, such as facilities that do not safely store potentially hazardous materials. However, assumptions were made about particular types of land use. For example, it is assumed that rural residences associated with farming operations have specific potential contamination sources such as fuel storage, chemical storage and mixing areas, and machinery repair shops. It should also be noted that although the inventory depicts existing agricultural uses (crops grown), these are likely to undergo continual change due to normal crop rotation practices. What is irrigated farmland now may be non-irrigated farmland next year, or vice versa.

The results of the inventory were analyzed in terms of current, past, and future land uses and their relationship to the susceptible area and the supply intake. In general, land uses and PCS that are closest to the supply intake pose the greatest threat to a safe drinking water supply. Inventory results are summarized in table 1, and are shown on figure 5.

Many PCS are readily identifiable because they have a single discharge point, and often a permit is required for these discharges. However, other PCS have diffused, poorly defined discharge locations. These are known as non-point discharges because they occur over large areas and may not be quantifiable by readily accepted methods. These non-point source discharges are difficult to identify and control, and consequently to quantify, yet they are a major source of water pollution (Carpenter and others, 1998). Non-point sources also include atmospheric deposition over water and land, and include urban, rural, and

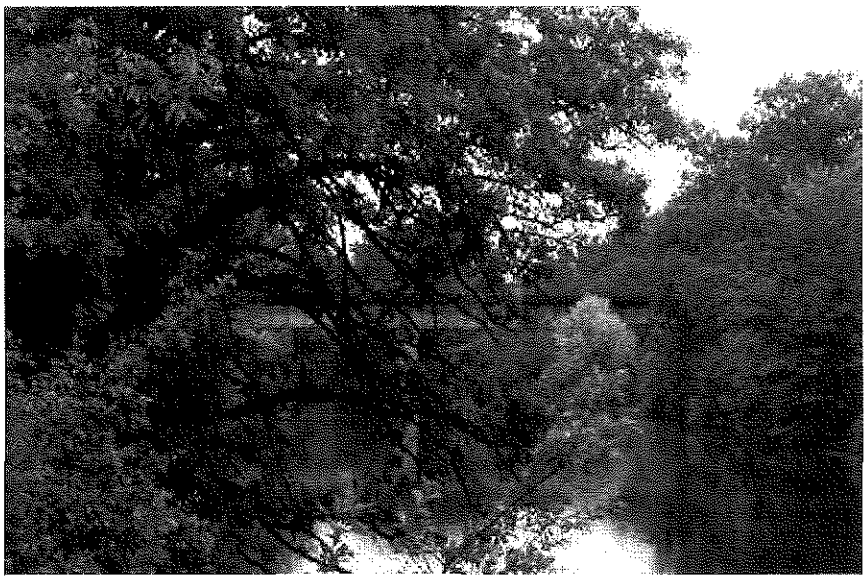
Table 1. Potential contaminant sources in the source water area

Type of Potential Contaminant Source (PCS)	Number of PCS	Number of PCS in Susceptible Area
Hazardous or solid waste site permits	71	11
Industrial facility discharge site permits	9	3
National priority list sites	1	0
Permit compliance system	12	2
Toxic release inventory permits	3	0
TOTALS	96	16

agricultural runoff from areas such as lawns, golf courses, farm fields, pastures, parking lots, and roadways. Runoff from these areas can contain many types of pollutants including sediments, metals, organic and inorganic chemicals, viral and bacterial pathogens, pharmaceuticals, and animal wastes. Transportation also represents a non-point source of contamination. Trucking and railroads transport potential contaminants through the SWA. An accident causing a spill could lead to potential contaminants entering a storm sewer, or in the case of boaters or rail transportation, directly to the Flint River. Petroleum pipeline crossing the upper reaches of the Flint River also pose contaminant threats.

Non-point sources of concern to the Flint water supply are primarily from storm sewers and from industrial, commercial, and residential sources in the SWA and communities upstream of the intake. A railroad bridge immediately upstream in the CAZ of the intake carries occasional train traffic described as hazardous. The West Boulevard storm sewer which discharges in the CAZ provides drainage to the Flint River from an industrialized area.

The Michigan Department of Agriculture is working to identify dairies and concentrated animal feedlots (greater than 1000 animal units) in the Flint River watershed upstream of the intake.



Railroad Trestle over Flint River Immediately Upstream of Flint WTP

The U.S. Environmental Protection Agency (USEPA) has identified one impaired water body in the Flint SWA on its Clean Water Act 303(d) list. The parameter of concern within the Holloway Reservoir is fish consumption advisories for PCBs. An additional impaired water body exists upstream of the SWA but not within the SWA itself. This water body is the collective of unnamed drains in Metamora, and the parameters of concern are untreated sewage discharge and pathogens (MDEQ, 2002).

In general, PCS within the susceptible area pose greater risks than those outside the susceptible area. The presence of PCS within the SWA indicates potential sources of chemicals that could, if improperly managed or released, impact the water quality at the intake. Small quantities of these chemicals, in some

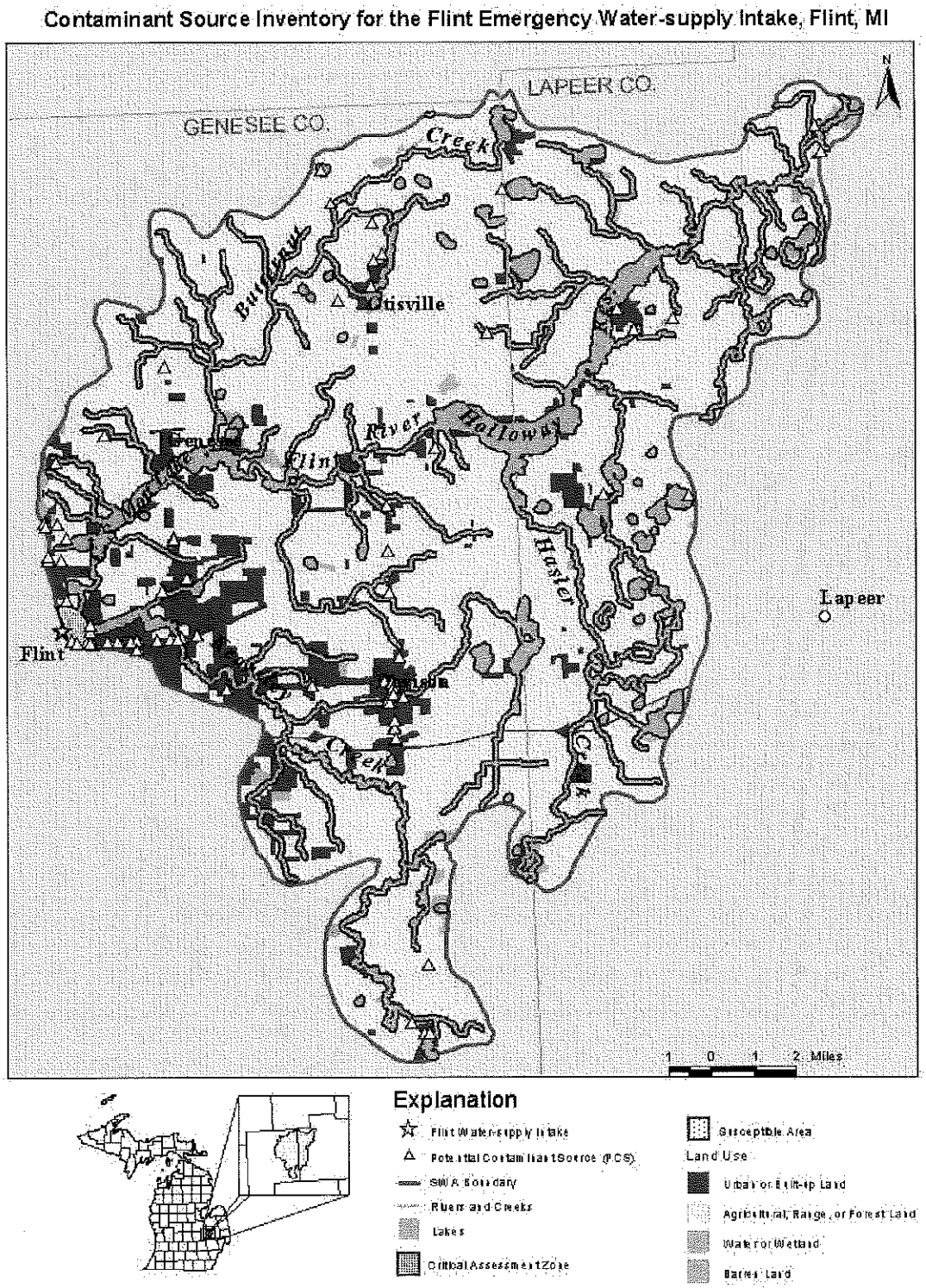


Figure 5. Potential Contaminant Sources in City of Flint Source Water Area, Flint, Michigan

cases less than a liter, can significantly affect the supply. Also of concern is the location and distribution of these sources with respect to highly permeable soils. The susceptible area consists of primarily agricultural and forested land with some urban areas. Overlaying the PCS locations and the moderately rapid to rapidly permeable soil map for the Flint SWA indicates that 21 of the located PCS are located on or very near to areas with moderately rapid to rapidly-permeable soils. All PCS within the SWA should be addressed; the susceptibility determination, however, provides the water supply with the tools to focus resources where the greatest risk occurs. The results of the PCS inventory performed for Flint water supply is shown on figure 5 and is summarized as a function of PCS locations relative to the susceptible area. The inventory results indicate that there are 7 PCS, holding 8 permits for discharge, within the susceptible area (table 2).

Table 2. Contaminant source inventory.

Site Name	Identification Number	Reason for Permit	Reason for Listing as Potential Contaminant Source
DAVISON OIL AND GAS BURTON STA 7	MI0000540310	On-Site Storage	Hazardous and Solid Waste Site
H AND M SVC	MID985612225		
KINNIES PARTY STORE	MID985597657		
ZACK CO	MID002975225		
EVERGREEN CLEANERS	MID981539711		
DORT HWY INC	MID985579945		
SUPER GO MARKETERS INC	MID985583053		
PIONEER CABINETRY INC	MID985605849		
DAVISON CITY OF	MID985625136		
MID MICHIGAN AUTO PARTS INC	MID985654789		
CLARK STORE 1849	MI0001853613		
FORD-NORTHVILLE PLT	MI0024643	Process, Treatment, and Waste Waters	Industrial Facilities Discharge Site
FOREST WASTE PRODUCTS	YCRCLA276		
OTISVILLE WWTP [a]	MI0028720		
ORCHARD COVE WWTP	MI0054755	Waste Water, Dust, and Process Water	Permit Compliance System
OTISVILLE WWTP [a]	MI0028720		

Note: Subscript denotes multiple permits

Sensitivity Analysis

Sensitivity is the natural ability of a SWA to provide protection against the contamination of the water supply intake, and includes physical attributes of lakes, rivers, and soils. The sensitivity analysis requires consideration of several different variables related to the natural environment, for example:

- ·Water quality history of the source.
- ·Distribution of moderately to highly-permeable soils.
- ·Amount of available water from precipitation or runoff.
- ·Potential for runoff to affect the intake.
- ·Nature of the intake, including: depth, distance from shore, age, and materials used.
- ·Surface water flow patterns in vicinity of intake.

To perform this analysis, USGS, MDEQ, and the operator of the Flint WTP collected, researched, and analyzed information from the WTP, monthly operator reports, sanitary surveys, soil maps, published reports, and historical plant operation and raw water quality data. The Michigan SWAP has three categories of sensitivity for surface water sources ranging from moderately sensitive to very highly sensitive. Analysis of this information, using guidelines provided in Brogren (1999) and Sweat and others (2000, in press), indicates that the Flint intake is at the high end of this range or very highly sensitive (fig. 3). This means that the natural environment offers little protection against contamination of the water supply intake.

Susceptibility Determination

Susceptibility is the relative potential for contamination to reach the public water supply intake used for drinking water purposes. Whereas the sensitivity of a water supply is the natural ability of the area to protect the intake against contamination, the susceptibility determination also takes into account other factors that will affect whether a contaminant reaches the intake. Whether or not a particular drinking water source becomes contaminated depends on three factors:

(1) The distribution of PCS;
(2) The source water area; and
(3) The natural protection, or sensitivity, of the source.

In conducting a susceptibility determination, the part of the SWA that yields water to the water supply-system intake is identified by establishment of the susceptible area within the source water area. PCS within the susceptible area are then located. Based on the distribution of PCS within the susceptible area, the type of PCS, and the nature of the chemicals they use or store, PCS are analyzed for the risk they may represent to the water supply intake. Along with the presence and distribution of PCS, the sensitivity analysis is then used to determine the susceptibility of the water supply (fig. 3). This leads to a determination of whether the drinking water source is moderately susceptible, highly susceptible, or very highly susceptible to contamination (Brogren, 1999; Sweat and others, in press). It is important to understand that a system can have low sensitivity relative to some conditions (for example, intake construction and location), and high susceptibility because of other conditions (for example, the type of PCS). In Michigan, surface water sources of drinking water range from moderately-low to very-high susceptibility.

When a public water supply is determined to have a moderate, high, or very high susceptibility because of a particular condition or set of conditions, there is a significant risk of contamination of the drinking water source because of that condition or set of conditions. Although the susceptibility determination does not predict when or if contamination will actually occur, it does recognize conditions that are highly favorable for contamination of the supply. In the event of a contaminant release to soils or surface water within the susceptible area, it is very likely that contamination at the intake would occur without completion of remedial actions.

If a public water supply's drinking water source is determined to be highly susceptible, it is recommended that the system identify the condition(s) that lead to the high susceptibility. Immediate steps should be taken to protect the source, and action should be considered to remedy the condition (for example, repairing or replacing faulty intake construction, working directly with facility operators to implement sound management practices, etc.).

All water supplies, regardless of their susceptibility, should consider identified factors that could lead to higher susceptibility in the future, and should prepare a strategy to protect the water supply source. Raising public awareness through signs and other education programs, encouraging proper intake construction and the use of best management practices in existing facilities are good ways of ensuring that a surface water source maintains its moderate susceptibility rating.

Summary and Recommendations

The actual susceptibility of the drinking water source of a water supply depends on a number of contributing factors, some of which are only slightly related. Sensitivity is determined from the natural setting of the source and identifies the natural protection afforded to the source water. Susceptibility is determined by identifying those factors within the community's SWA that may pose a risk to the source water. The susceptibility determination provides information with respect to facilities within the SWA or

land areas within the SWA that should be given greater priority and oversight in the implementation of a drinking water protection program.

Sensitivity Analysis: Based on criteria adopted in the Great Lakes Protocol of the Michigan Source Water Assessment Program, the emergency intake for the Flint Water Treatment Plant has a very high degree of sensitivity to potential contaminants.

Susceptibility Determination: The SWA for the Flint intake includes 8 listed potential contaminant sources within the susceptible area, numerous storm drains discharging upstream of the intake, a railroad crossing plus urban, agricultural, and industrial runoff from the Flint River watershed. Combining these potential contaminant sources with the very highly sensitive intake yields a very highly susceptible determination for Flint source water (fig. 5).

Effective Treatment:

The results of this assessment and the recommendations based on these results are summarized as follows:

- ***Intake*** - The Flint Water WTP intake was installed in 1948 and draws water from the Flint River from a shoreline structure making the intake very highly sensitive.
- ***Soils*** - Using a mean, area-weighted, depth-integrated permeability estimation, the soil and subsoil permeability in the SWA range from 0.6 in/hr to as much as 7.7 in/hr. The mean permeability is 3.1 in/hr (Schneider and Erickson, undated, series of 5 maps; BASINS, 1998; MIRIS, 2000). About two thirds of the soils in the Flint SWA are moderately rapid or rapidly permeable. Sixteen (16) PCS are located on these soils. These factors combine to make the SWA, and thus the intake, very highly sensitive. The community should take steps to evaluate current and future land use in areas of highly permeable soils, particularly those occurring within the susceptible area. Those PCS that have been identified either on or in close proximity to these soils should be informed of the sensitive nature of the area and encouraged to adopt best management practices designed to minimize the risk of a ground release. Residential areas that have been developed on these soils should be targeted for educational programs identifying steps that residents can take to protect the water supply.
- ***Historical Contaminant Detections*** – Since the Flint WTP has not utilized the Flint River since 1967 as a source of public drinking water, extensive raw water quality data is not available. However, as is typical for river water, the periodic presence of coliform bacteria is indicative of a relationship between runoff and soil conditions, causing the presence of bacteria at detectable levels in river source water. Background turbidity has recently been reported in the range of 2.4 to 7.6 NTU. These factors indicate that the SWA, and thus the intake, is very highly susceptible.
- ***Sanitary Survey*** – Defects reported as requiring repair either have been corrected or are scheduled for repair. The Flint WTP is undergoing extensive upgrades to improve treatment and reliability. It is important that the water supply continue to follow good management practices.
- ***Potential Contaminant Sources*** - A review of the PCS inventory and the rapidly and very rapidly permeable soil distribution indicates that the Flint SWA has 21 PCS located on moderately rapid to rapidly permeable soils. Within the susceptible area, there are 7 PCS with 8 discharge permits. In addition, there are numerous storm drains within the vicinity of the intake. A railroad crossing immediately upstream of the intake also poses a potential contaminant threat. It is recommended that the community focus initially on PCS that are within the susceptible area as they pose the greatest potential threat to the water supply. These facilities should be made aware of free technical assistance that is available through MDEQ's pollution prevention programs. Through chemical inventory, waste reduction, and by increasing awareness of best management practices, the risk these facilities pose to source waters can be reduced. The PCS inventory indicates that the source is very highly susceptible.
- ***Source Water Assessment*** - The Flint source water assessment is based on these site-specific parameters:

1. Definition of a Critical Assessment Zone around both intake for a very highly sensitive source;
2. Definition of a SWA for the Flint River, and shoreline near the intake;
3. Flow duration and discharge in the Flint River upstream of the intake, and the effects of upstream contaminant discharges on the source water quality; and
4. Listed and nonlisted potential contaminant sources.

- ***Source Water Protection*** - The City has initiated source water protection activities with an Industrial Pretreatment Program incorporating management plans, chemical containment, and spill response, spill response training, plus storm sewer and street cleaning programs.

The Flint WTP and/or the community should assemble a team to assist in the development and implementation of a source water protection program that uses this assessment to further protect the Flint source water area.

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GLOSSARY

Critical Assessment Zone (CAZ) - the area from the intake structure to the shoreline and inland, including a triangular water surface and a land area encompassed by an arc from the endpoint of the shoreline distance on either side of the on shore intake pipe location

Geographic Information System (GIS) - a system to capture, store, update, manipulate, analyze, and display all forms of geographically referenced information

Impaired water bodies - As defined by USEPA and listed on the 303 (d) list of the federal Clean Water Act.

Intake - the point at which source (raw) water is drawn into a pipe to be delivered to a water treatment plant

Lignins - an amorphous, cellulose-like, organic substance that acts as a binder for the cellulose fibers in wood and adds strength and stiffness to cell walls

Maximum Contaminant Level (MCL) - the maximum permissible level of a contaminant in water that is delivered to any user of a public water system

Potential Contaminant Sources (PCS) - listed and non-listed agricultural sites, businesses, and industries that have the potential to cause contaminants to be introduced into source water

Sensitivity - a measure of the physical attributes of the source area and how readily they protect the intake from contaminants

Source - the water body from which a water supplier gets its water

Source Water Area (SWA) - the land and water area upstream of an intake that has the potential to directly influence the quality of the water at the intake

Source Water Assessment Program (SWAP)- in Michigan, the process defined by the state Department of Environmental Quality to complete assessments of all the state's public water supplies

Susceptibility - the Susceptibility identifies factors that may pose a risk within the community's SWA

Susceptible Area - the area defined by the critical assessment zone and a buffer on either side of any drainages that contribute water to an intake

Synthetic Organic Contaminants (SOC) - Manmade organic chemical compounds such as pesticides, etc.

Tannins - naturally occurring phenolic compounds that precipitate proteins, alkaloids, and glucosides from solution that has a yellowish appearance

Volatile Organic Contaminants (VOC) - Unnatural, volatile organic chemical compounds such as gasoline components, solvents, degreasers, etc

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 10:11 AM
To: 'bwright@cityofflint.com'
Subject: FW: PEAS call
Attachments: 20150318_174119.jpg; 20150318_173619.jpg; 20150318_174108.jpg; RE: WRD - PEAS - Oil Sheen

Brent,

More info.....

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

From: Bennett, Charles (DEQ)
Sent: Thursday, March 19, 2015 10:10 AM
To: Thomas Hutchings (thutchings@cityofflint.com)
Cc: Kammer, Stephanie (DEQ); Prysby, Mike (DEQ); Case, Robert; Busch, Stephen (DEQ)
Subject: PEAS call

Tom, I just spoke with a gentleman that reported a discharge to the Flint River south of Carpenter Rd at Bray. The complainant stated that the material is whitish and may have a sheen also. He said it looks like crews have done some excavating along the bike path near this discharge. Attached are photos that I received a moment ago from the caller.

Also, you may want to contact Brent Wright about this matter as well, since our Drinking Water engineer has contacted him about this also (see attachment). Please let me know what you find.

thanks,
chuck

Charles Bennett, PE
DEQ Water Resources Division
Lansing District Office
BennettC4@michigan.gov
ph 517-284-6659; fax 517-241-3571

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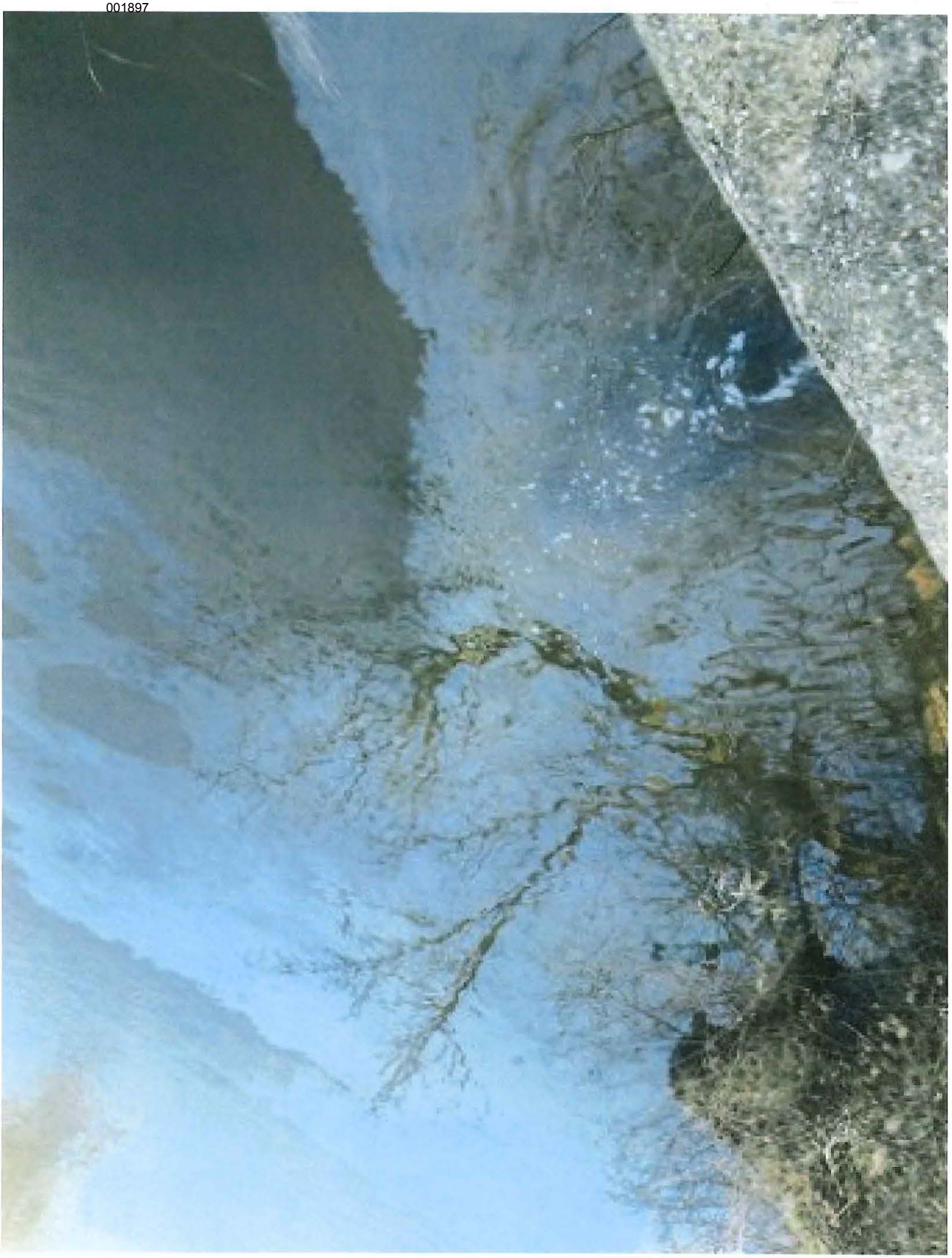
001897



001898

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 10:03 AM
To: Rennaker, Joanne (DEQ); Blayer, Steve (DEQ); Arduin, Jim (DEQ)
Cc: Busch, Stephen (DEQ); Bennett, Charles (DEQ)
Subject: RE: WRD - PEAS - Oil Sheen

I notified the city – Brent Wright (WTP OIC) of the situation given that this just upstream of their WTP intake. Brent and his staff will go out to investigate. Based on past history, he is speculating that it is a break in their lime sludge line. This line is located close to the Flint River in this area and has experienced breaks in the past. I also provided Brent with the caller's name and suggested to contact him and let him know that the city is following up on this incident.

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

From: Rennaker, Joanne (DEQ)
Sent: Thursday, March 19, 2015 9:05 AM
To: Prysby, Mike (DEQ); Blayer, Steve (DEQ); Arduin, Jim (DEQ)
Subject: FW: WRD - PEAS - Oil Sheen

Jo Anne Rennaker
Secretary
Department of Environmental Quality - Lansing District Office
Office of Drinking Water & Municipal Assistance
Office of Waste Management & Radiological Protection
517-284-6643

From: Jesko, Roxanne (DEQ)
Sent: Thursday, March 19, 2015 9:02 AM
To: Gutting, Karen (DEQ); DEQ-PEAS-Lansing
Cc: Bennett, Charles (DEQ)
Subject: RE: WRD - PEAS - Oil Sheen

WRD has it Chuck Bennett will be the lead.

From: Gutting, Karen (DEQ)
Sent: Thursday, March 19, 2015 8:44 AM
To: DEQ-PEAS-Lansing
Subject: WRD - PEAS - Oil Sheen
Importance: High

PEAS Form 2014			revised July 23,
First Response please "Reply All" to receipt of this PEAS Notification ASAP. Media: Water County: Genesee Ticket # 1498			
Incident Description: There is a sanitary sewer that runs parallel with the Flint river that has had several line breaks. This is causing a sheen on the water. Some of this has solidified along the river bank and is white in color. This is approximately ¼ mile down the bike trail where Bray Rd. ends S of Carpenter. Whatever is coming out of the line, is coming out steady. Caller has photos if needed.			
Complainant (C)		**Party Involved (PI) – Company**	
Name	James Joseph	Person Name	
Street Address		Company Name	
City or Township		Street Address	
State		City or Township	
Phone	810-820-5526	State	
Alt Phone		Phone	
Type		Alternate Phone	
Incident Street Address	S. of Carpenter and Bray Rd (where Bray Rd. stops and now it's a bike path)		
Cross Streets		**Name of Pollutant**	unsure
City or Township	Flint	Release to **Water** (g)	unknown
County		Release to **Ground** (g)	
Water Body Impacted	Flint River	Release to **Air** (lbs)	
Occurred: Date/Time/Ongoing	unsure	**Cleanup Contractor**	
Release Secured: Y or N		**Cleanup Contractor on site: Y or N**	

Comments:

Karen Gutting
Department of Environmental Quality
Office of Environmental Assistance
Environmental Assistance Center
800-662-9278

Olszewski, Rosemarie (DEQ)

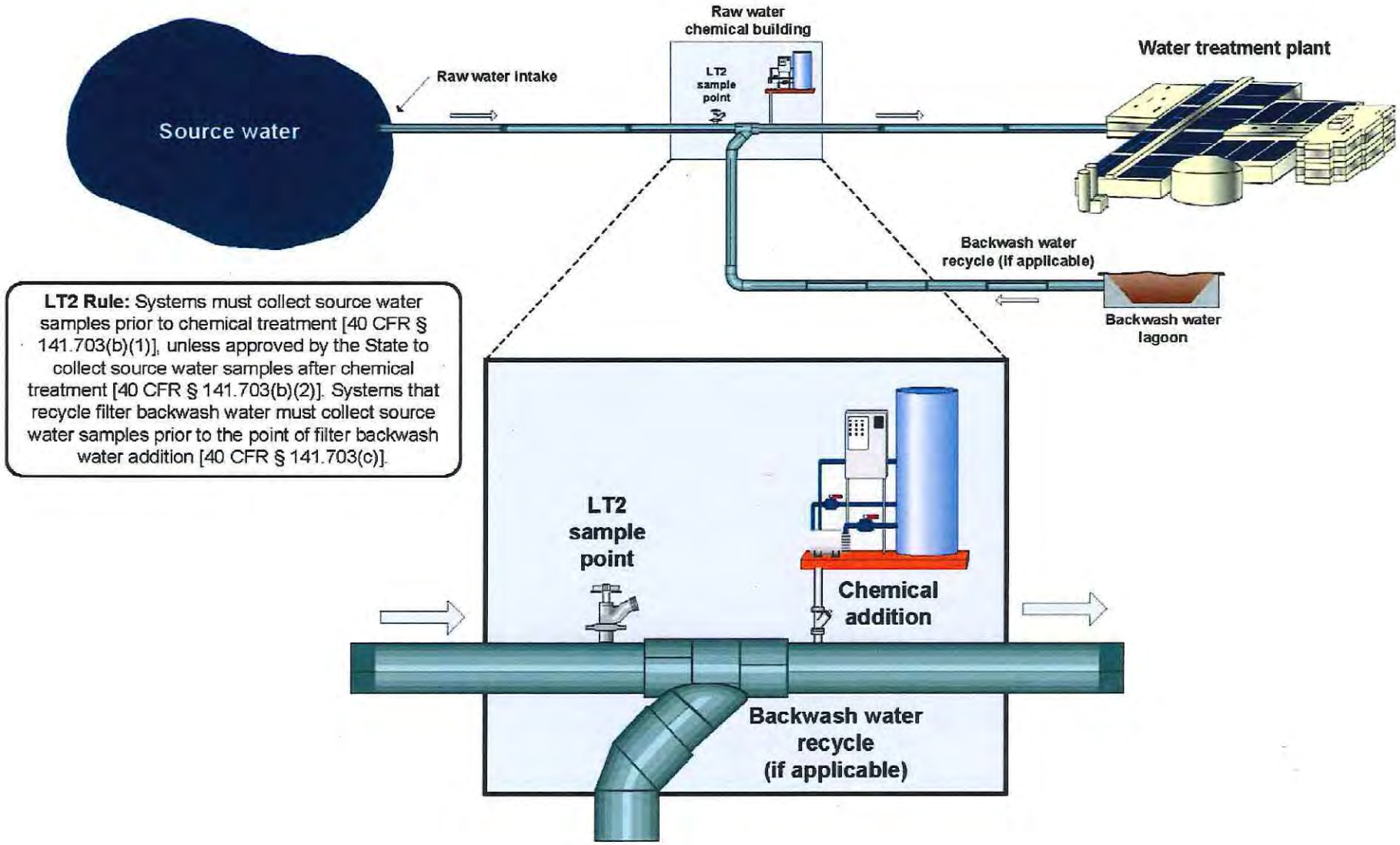
From: Prysby, Mike (DEQ)
Sent: Friday, April 03, 2015 2:47 PM
To: 'bwright@cityofflint.com'; Michael Glasgow
Subject: FW: Schematics for LT2 sampling plans
Attachments: Schematics_combined.pdf; SCHEMATIC_01.pdf; SCHEMATIC_02.pdf; SCHEMATIC_03.pdf; SCHEMATIC_04.pdf; SCHEMATIC_05.pdf; SCHEMATIC_06.pdf; SCHEMATIC_07.pdf; SCHEMATIC_08.pdf; SCHEMATIC_09.pdf; SCHEMATIC_10.pdf

Brent, Mike

Attached are the example schematics that the plants on Schedule 2 may use to indicate where the source water sampling location is in relation to the intake, chemical feed points, recycle streams (if any) and the plant. You can select the schematic that best fits your situation and mark the sampling location and other pertinent information on it. If you can't find a schematic that doesn't fit Flint's exact setup, you can use the generic/blank one (schematic 10). Your Schedule 2 Crypto. monitoring letter is being mailed to you today.

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

Figure 1. Sample Tap before Chemical Treatment and Backwash Water Recycle (if applicable)



LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].

Figure 2. Multiple Sources: Sample Tap after Two Combined Sources

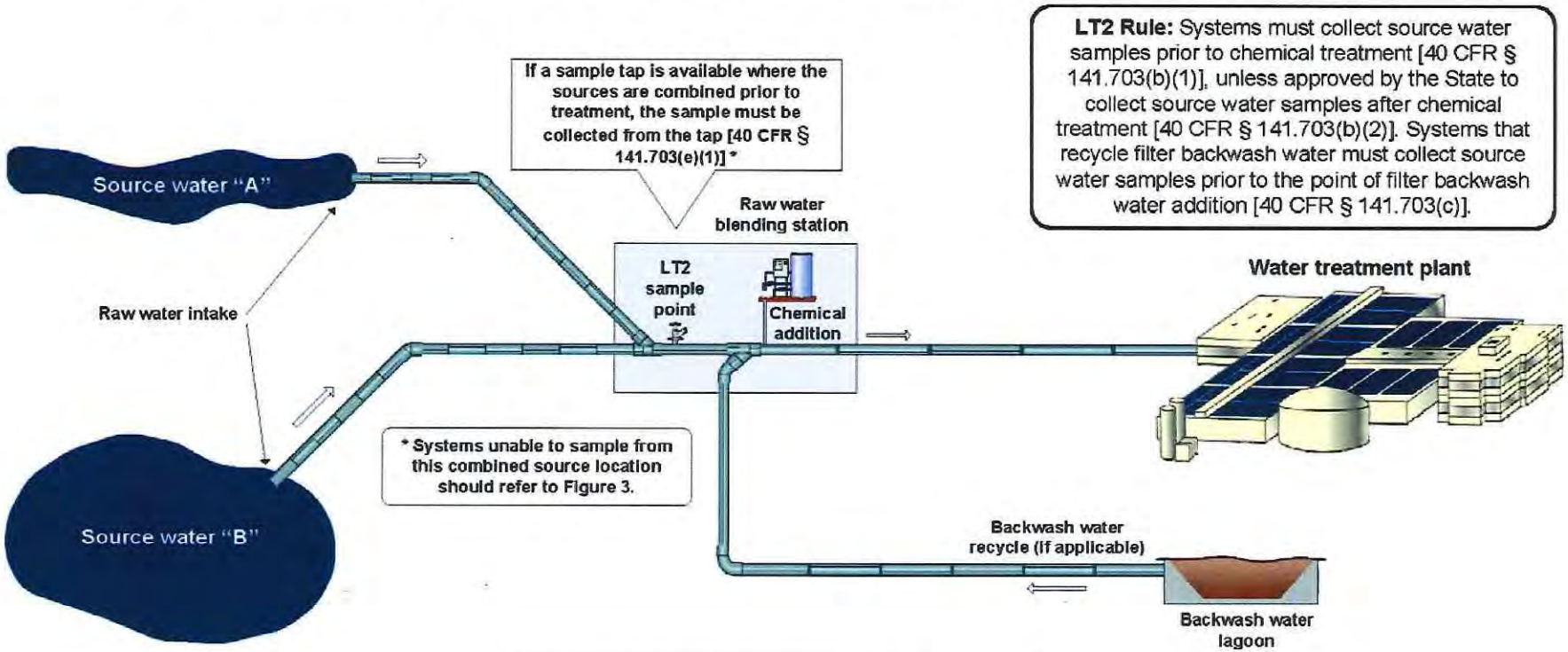
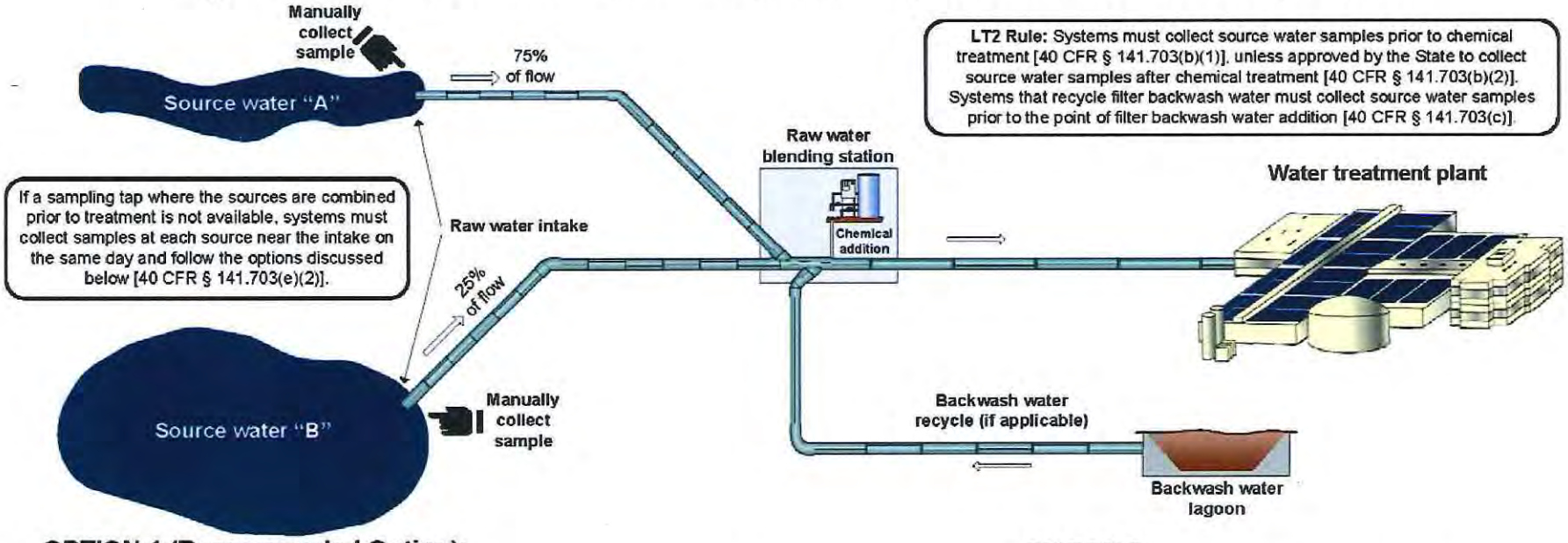
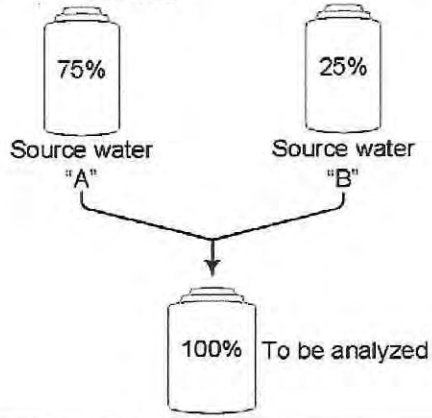


Figure 3. Multiple Sources: Two (or More) Sources to be Composited



OPTION 1 (Recommended Option):

Collect samples manually at each source near the intake on the same day and composite them into one sample to be analyzed. The volume of sample from each source must reflect its proportion of the total plant flow at the time the samples were collected [40 CFR § 141.703(e)(2)(i)].



OPTION 2:

Collect samples manually at each source near the intake on the same day and analyze each independently, then calculate a weighted average of the analysis results. This is done by multiplying the result for each source by the percentage of its contribution to the total plant flow at the time the samples were collected, and then summing these values [40 CFR § 141.703(e)(2)(ii)].

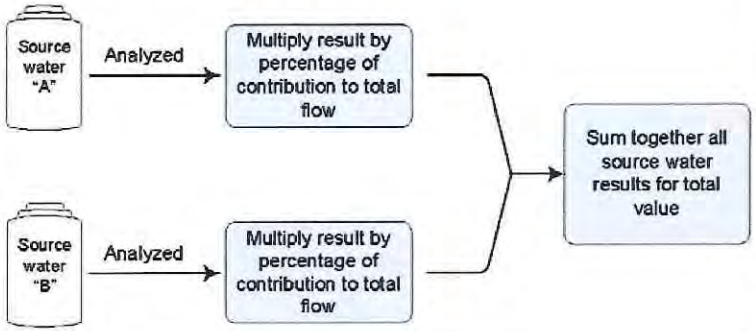


Figure 4. Multiple Plants with the Same Influent

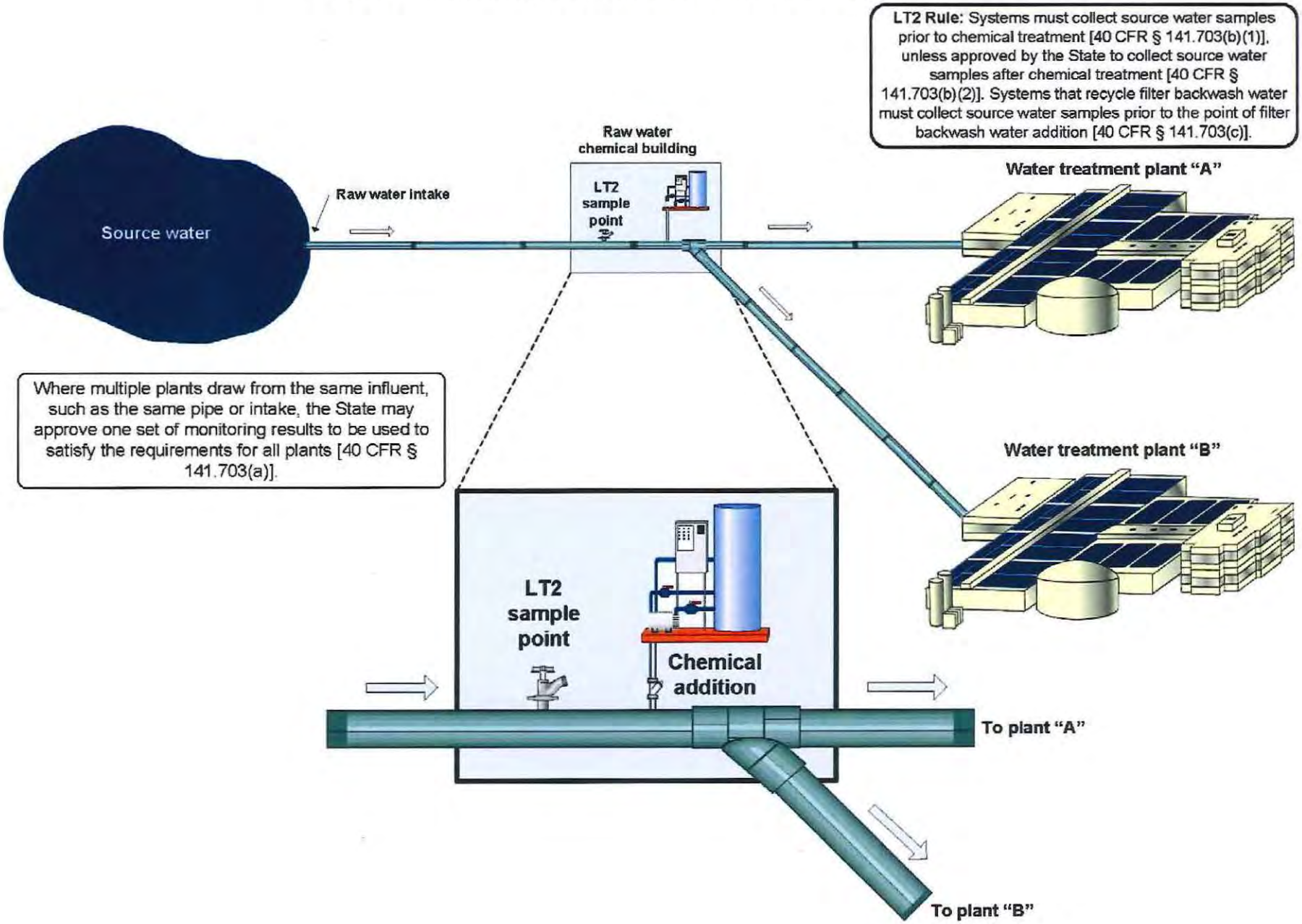
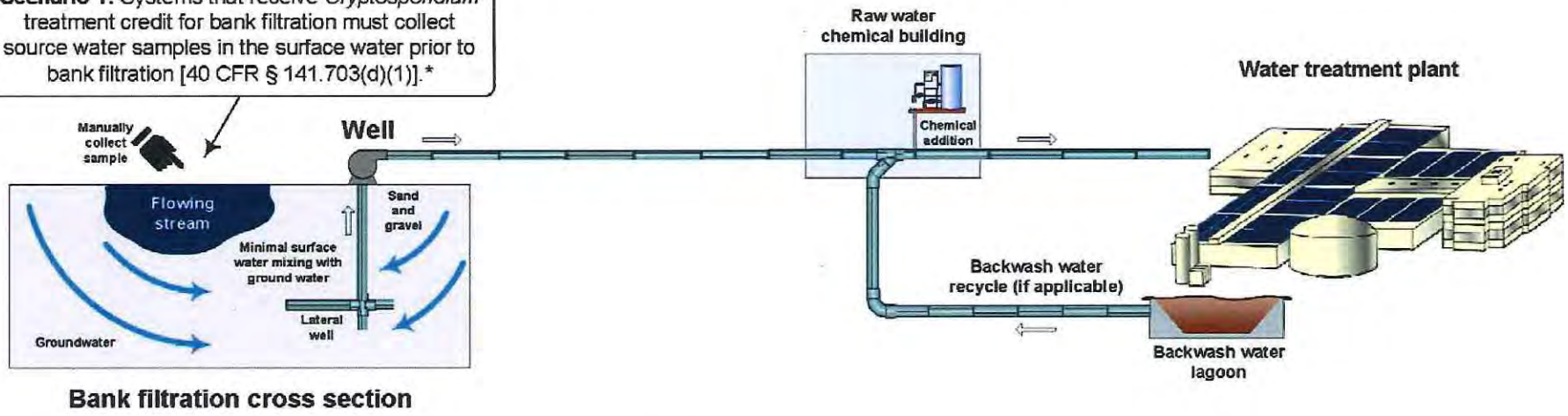


Figure 5. Bank Filtration

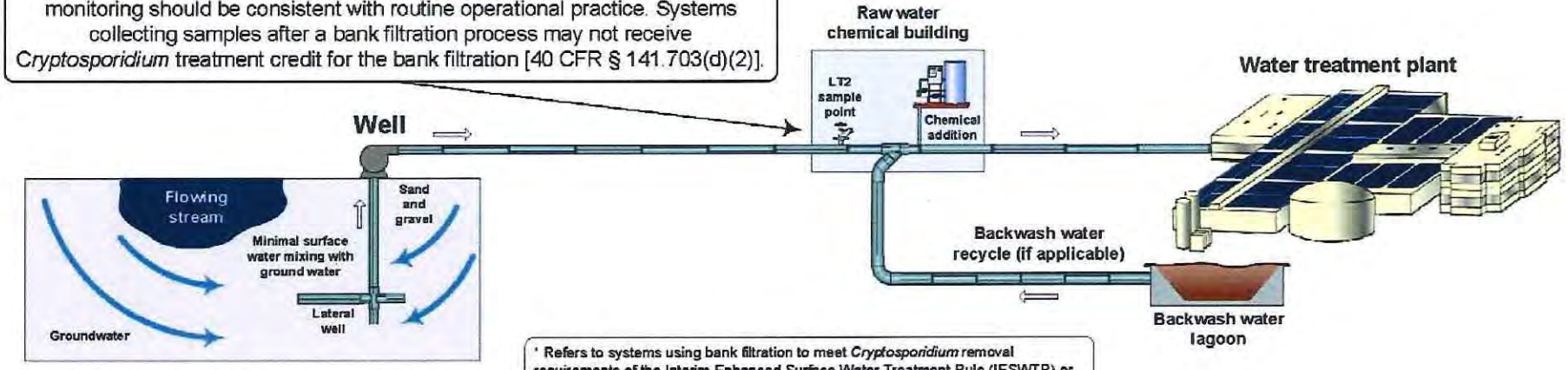
The correct sampling location for systems using bank filtration differs depending on whether the bank filtered water is treated by subsequent filtration:

Scenario 1: Systems that receive *Cryptosporidium* treatment credit for bank filtration must collect source water samples in the surface water prior to bank filtration [40 CFR § 141.703(d)(1)].*



Bank filtration cross section

Scenario 2: Systems using bank filtered water that is treated by subsequent filtration must collect source water samples from the well source (i.e., after bank filtration) but before any other treatment.** Use of bank filtration during monitoring should be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive *Cryptosporidium* treatment credit for the bank filtration [40 CFR § 141.703(d)(2)].



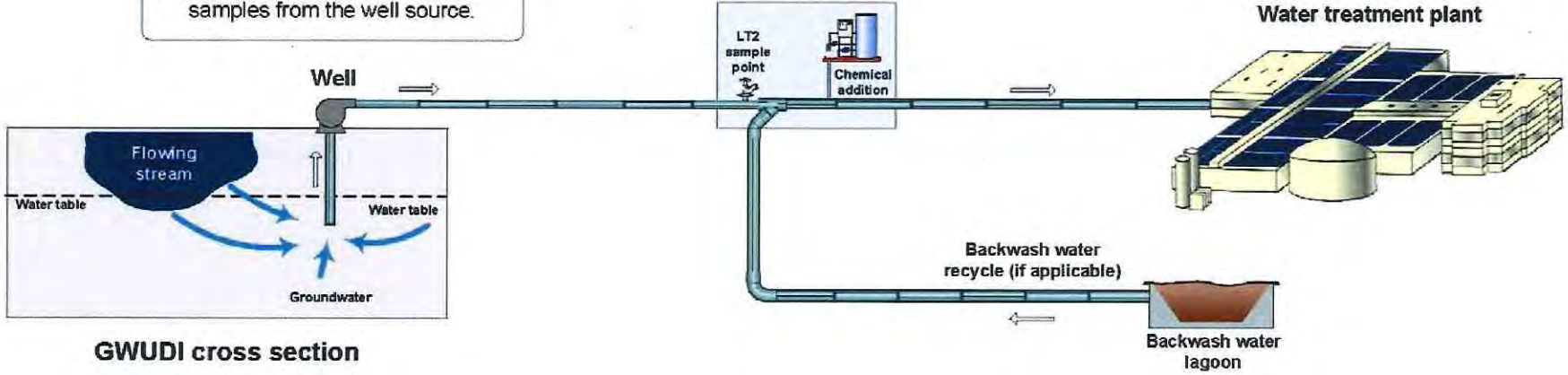
Bank filtration cross section

* Refers to systems using bank filtration to meet *Cryptosporidium* removal requirements of the Interim Enhanced Surface Water Treatment Rule (IESWTR) or Long Term 1 ESWTR under 40 CFR § 141.173(b) or 40 CFR § 141.522(a).
** Refers to systems where bank filtration serves as pretreatment to a filtration plant.

Figure 6. Ground Water Under the Direct Influence of Surface Water (GWUDI)

LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].

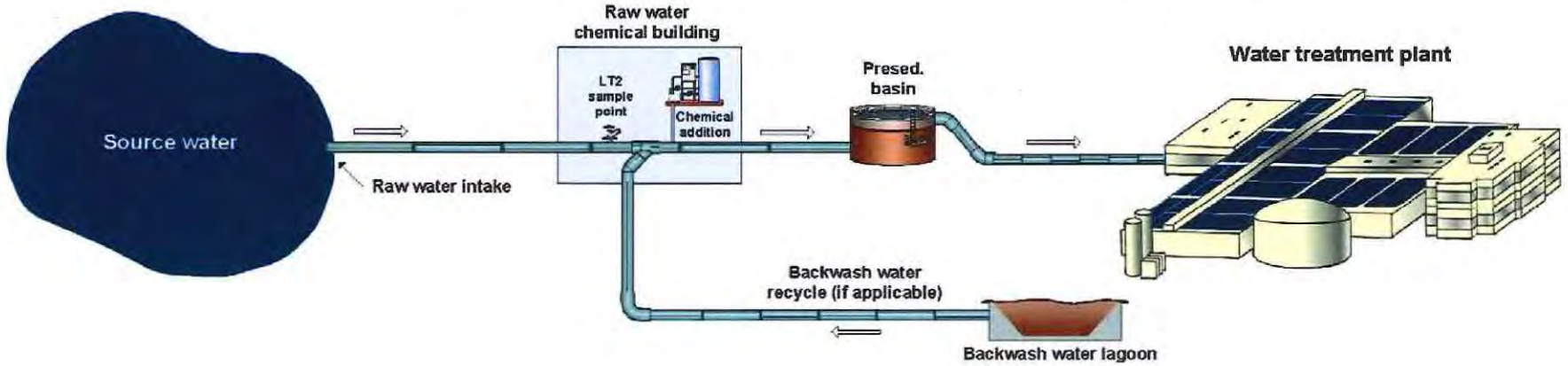
Systems that use ground water under the direct influence of surface water (GWUDI) should collect source water samples from the well source.



GWUDI cross section

Figure 7. Presedimentation Basin

Scenario 1:
Systems using a presedimentation basin with chemical addition should collect source water samples prior to chemical treatment, unless approved by the State to collect source water samples after chemical treatment. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].



Scenario 2:
Systems without chemical addition prior to or in a presedimentation basin, or that have been approved by the State to collect source water samples after chemical treatment, may sample after the presedimentation basin but will not receive any treatment credit for presedimentation.

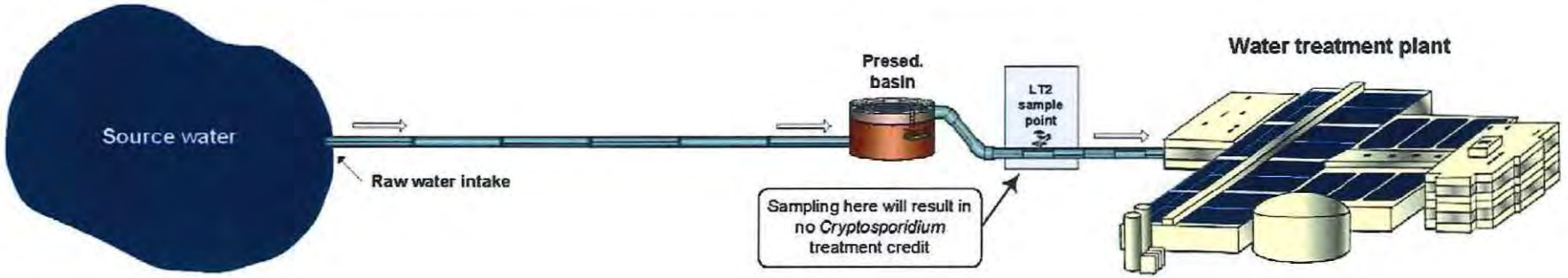


Figure 8. Raw Water Off-Stream Storage

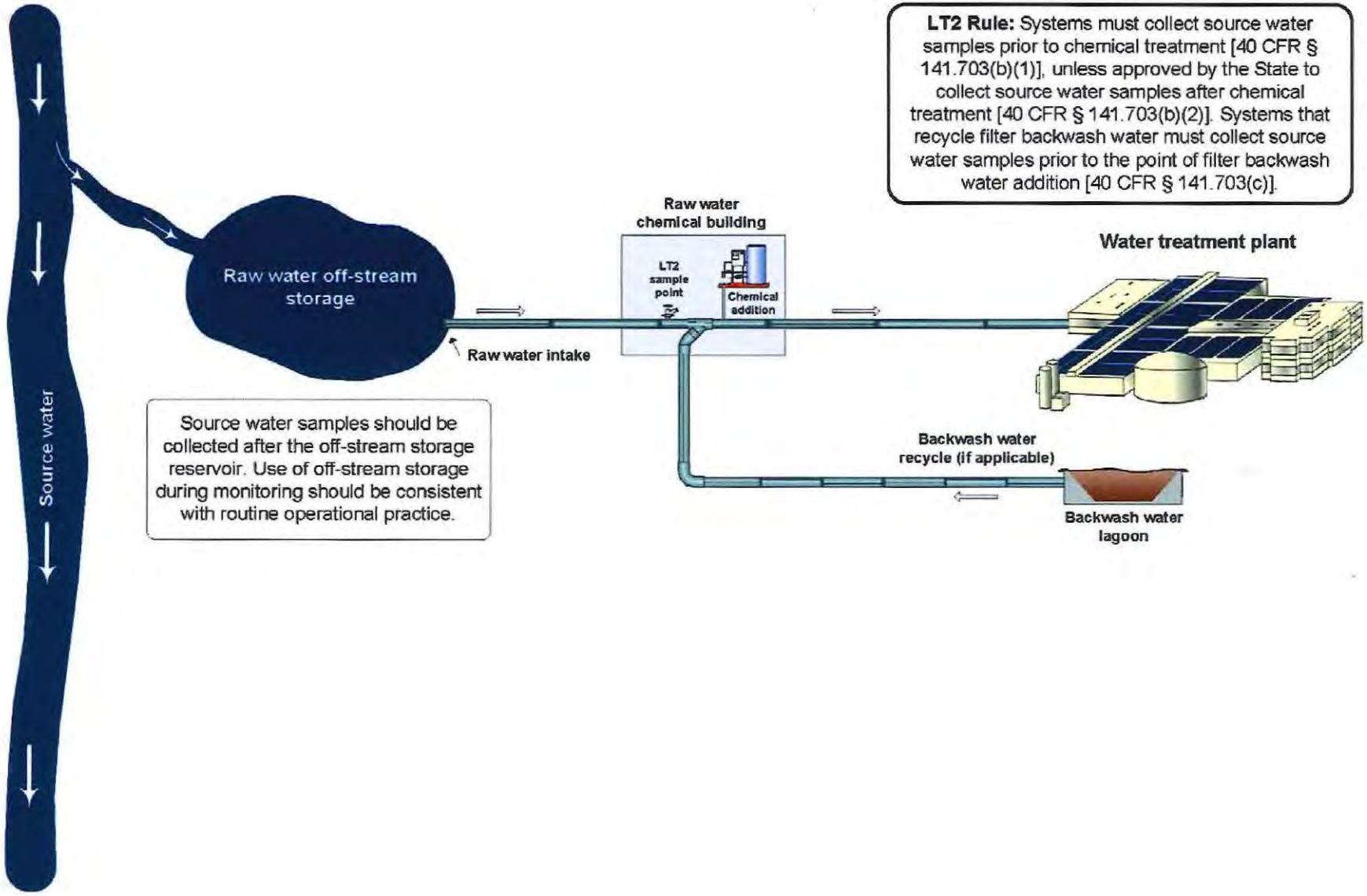


Figure 9. Mixed Source Water: Ground Water and Surface Water Sources

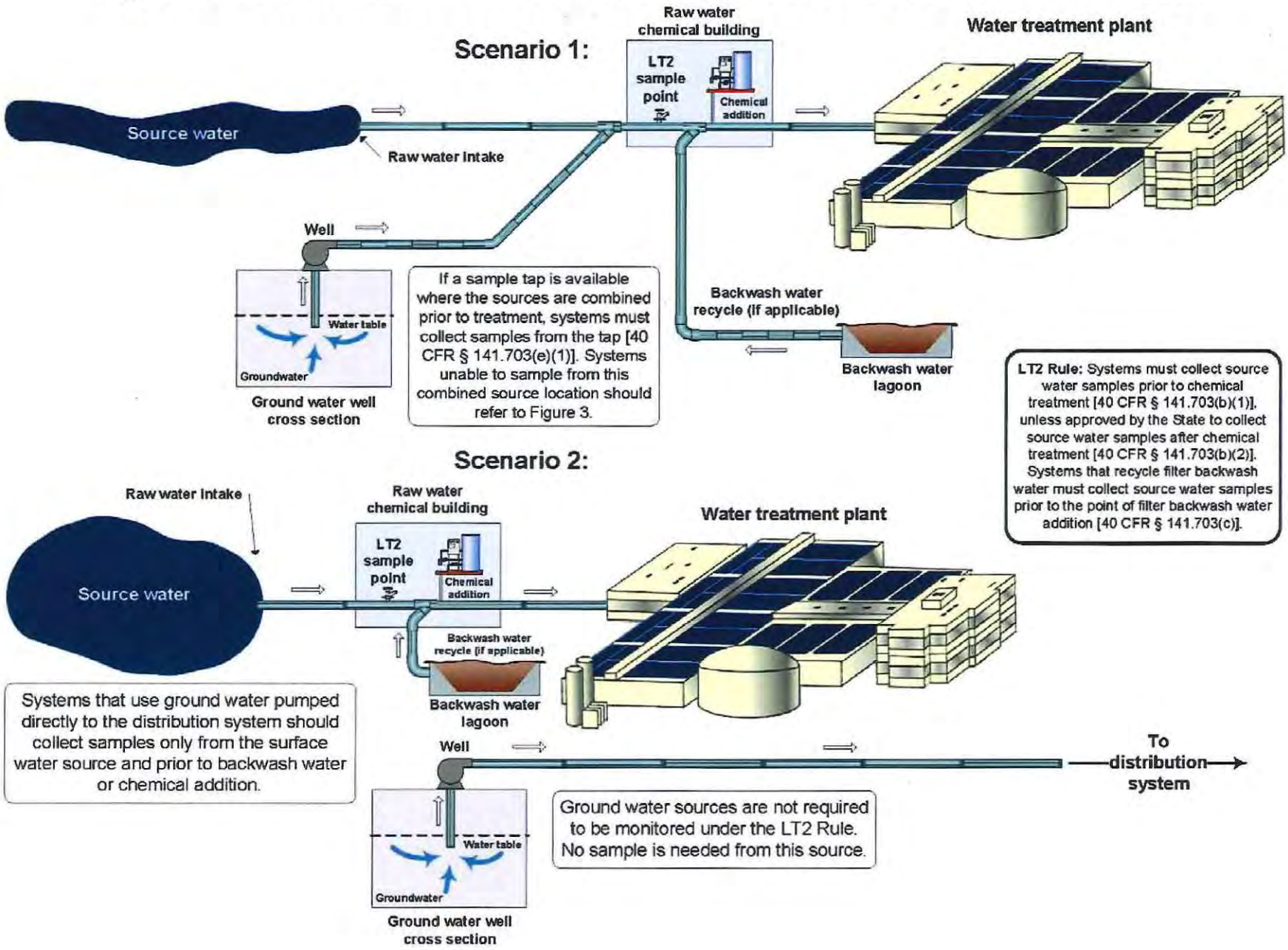


Figure 10. Blank Schematic for Submission to EPA

Public Water System (PWS) name: _____

PWS ID: _____

Water treatment plant name: _____

Water system facility ID: _____

Indicate the following on the diagram that best represents your facility type (if applicable):

1. LT2 sampling location
2. Points of chemical treatment prior to the treatment plant
3. Filter backwash water addition
4. Pretreatment processes (e.g., presedimentation basins, bank filtration)
5. Multiple source waters (show by adding additional sources)

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, February 06, 2015 11:01 AM
To: emurphy@cityofflint.com
Subject: FW: Water Supply Sources

Elizabeth,

Below is a link to our website that lists all of surface water systems in Michigan. You will need to scroll down to the bottom of the list to see the listing of supplies using a river as their source. Also, I am not aware of any source water assessment conducted for the Flint River watershed; however, I would like to confirm that. I will let you know asap once I obtain the confirmation.

http://www.michigan.gov/deq/0,4561,7-135-3313_3675_3691-9775--,00.html

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, May 01, 2015 9:56 AM
To: gthomas@cityofflint.com
Cc: Busch, Stephen (DEQ)
Subject: Premise plumning
Attachments: Premise Plumbing.doc

Glen,

Based upon our discussion during our April 29th, 2015 site visit, approximately 40-45 commercial/industrial customers were identified as a potential candidate for needing a premise plumbing Water Safety Plan (WSP). Attached is a list of mechanical components within building premise plumbing to assist you in confirming this and/or identifying additional customers that could serve as WSP candidates. Please send us your completed list at your earliest convenience. Thanks.

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

Building Plumbing & Appurtenances to Consider

1. **Cooling Towers ***
2. **Evaporative Condensers ***

   ***evap fluid coolers/closed circuit cooling towers typically used for cooling industrial processes, refrigeration plants in cold stores, and cooling of make-up water for large building AC units**

3. **Gravity fed storage tanks**
4. **Boiler systems**
5. **Plate heat exchangers**
6. **Circulating/non-circulating hot water systems**
7. **Buildings with extensive plumbing (large runs of hot water piping and/or dead-end piping).**

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, April 06, 2015 9:00 AM
To: Michael Glasgow
Cc: Rosenthal, Adam (DEQ)
Subject: RE: City of Flint - March Bromate Results

Michael,

The March result is encouraging....we need a copy of the sample result from the sample collected in October of 2014...

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Monday, April 06, 2015 7:24 AM
To: Rosenthal, Adam (DEQ)
Cc: Prysby, Mike (DEQ)
Subject: City of Flint - March Bromate Results

Adam,

Here are the results of our March bromate sampling.

Mike Glasgow
City of Flint Water Plant

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, April 13, 2015 4:30 PM
To: Michael Glasgow
Subject: RE: City of Flint March 2015 MOR

Thanks Michael....

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Monday, April 13, 2015 4:21 PM
To: Prysby, Mike (DEQ)
Subject: City of Flint March 2015 MOR

Mike,

Here is the completed MOR for March.

Mike Glasgow
City of Flint Water Plant

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, February 17, 2015 4:03 PM
To: Howard Croft
Cc: Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Subject: RE: City Water Tech Team

Howard,

After further discussion with ODWMA staff, I am available to participate in the TAC. My main role will be review water system reports and provide comments and/or guidance primarily from a regulatory standpoint. Please keep me informed as to when the first meeting will be held. Finally, I wish to extend my thanks for the invitation to participate in the TAC.

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

From: Howard Croft [mailto:hcroft@cityofflint.com]
Sent: Saturday, February 14, 2015 8:45 AM
To: Prysby, Mike (DEQ)
Subject: City Water Tech Team

Mike,

The City of Flint has contracted with Veolia North America in order to have an additional review of the water system. As part of this review, we are working to develop a Technical Advisory Committee (TAC) that will that will receive reports and interact with the technical staff from Veolia. The City has identified 8 - 12 entities or individuals that we are extending an invitation to participate on this committee.

I would like to extend this invitation to you or your designee to be a representative on the TAC team which we hope to have established by early next week.

I understand that this is short notice but if you would consider the offer and confirm or deny your participation I would greatly appreciate it. We are hoping to announce the names of this team at a Public Works Committee meeting Wednesday February 18th. The details of the first meeting and the ongoing agenda which is anticipated to extend through the implementation of the Karegnondi Water Authority as a water source will also be unveiled next week..

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

Shaler, Karen (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 10:24 AM
To: Howard Croft
Cc: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ)
Subject: RE: HC Letter & FAQ's

Howard,

It appears that my edits were not included in the final letter. The 6th paragraph down should be revised such that residents understand the difference between the Locational Running Annual Average (LRAA) and the results from the individual quarter (Feb 2015) ...to avoid possible confusion when they read the DEQ PN template which states that two of the eight sites are above the TTHM standard (this being based on the LRAA). Also, the words "annual average" needs to be replaced with Locational Running Annual Average (LRAA).

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

From: Howard Croft [mailto:hcroft@cityofflint.com]
Sent: Thursday, March 19, 2015 9:09 AM
To: Brent Wright; Daugherty Johnson; Dayne Walling; donna. cole; gdn2@aol.com; Howard Croft; James Henry; jmikewright; JoAnne Herman; John O'Brien; Kirk Smith; larry.koehler@mcc.edu; Laura Sullivan; Michael Glasgow; Mike Lane; Prysby, Mike (DEQ); Natasha Henderson; Norb Birchmeier; Pete Levine; Robert Nicholas; rosejo@msu.edu; Russell Hudson; Samir Matta; Warren Green; Elizabeth Murphy; Robert Bincsik; Robert Case; Jason Lorenz; Kelly Rossman-McKinney; Sharon Emery; Gerald Ambrose
Subject: HC Letter & FAQ's

Technical Team Members,

Attached please find the final copy of a letter to the health community along with a Frequently Asked Question list.

These documents are ready for distribution among your peers and others. We anticipate mailing out the actual violation notice at the beginning of next week.

I will email everyone on this list when we determine a date for the next Technical Committee Meeting.

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, May 08, 2015 9:47 AM
To: Howard Croft
Subject: RE: May_Technical Advisory Meeting

Howard,

The May 20th Distribution Practices Seminar that I am registered for has been postponed; thus, I will be available to participate in the TAC meeting on Wed. May 20th in Flint. See you on the 20th.

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

From: Howard Croft [mailto:hcroft@cityofflint.com]
Sent: Monday, May 04, 2015 2:06 PM
To: Brent Wright; Daugherty Johnson; donna. cole; Elizabeth Murphy; gdn2@aol.com; Gerald Ambrose; Howard Croft; James Henry; Jason Lorenz; jmikewright; JoAnne Herman; John O'Brien; Kirk Smith; larry.koehler@mcc.edu; Laura Sullivan; Michael Glasgow; Michael Wright; Mike Lane; Prysby, Mike (DEQ); Norb Birchmeier; Pete Levine; Robert Bincsik; rosejo@msu.edu; Russell Hudson; Samir Matta; Warren Green; Michael Sargent
Cc: Natasha Henderson
Subject: May_Technical Advisory Meeting

Technical Advisory team,

We are planning to hold our next advisory meeting on Wednesday May 20th 2:00 pm at City Hall. The focus points of the meeting will be to convey the advancements in the current water quality, the summer implementation plans and timelines, and the latest information on test results.

We continue to offer testing and to look for any residential concerns about the water. I encourage all of the hospital and college representatives to bring forward any recent issues that may have arisen and we will look to discuss those as well as any other situations that we are aware of. I will send out an agenda early next week and we will plan on having a conference line available to call in.

Please send any questions or comments to me if there are items that you would like to see addressed.

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 11:28 AM
To: Bennett, Charles (DEQ); Thomas Hutchings (thutchings@cityofflint.com)
Cc: Kammer, Stephanie (DEQ); Case, Robert; Busch, Stephen (DEQ); 'bwright@cityofflint.com'
Subject: RE: PEAS call

Brent investigated the PEAS call and left me a voicemail with his findings. He confirmed that the residue was a previous lime sludge leak and frozen residue still needs to be cleaned up. The source of the sheen was from a previous storm sewer discharge; however, there was no storm sewer discharge this morning and conditions appeared clear. Brent also followed up with the concerned citizen. Brent will provide further follow-up (via e-mail) concerning this PEAS call.

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

From: Bennett, Charles (DEQ)
Sent: Thursday, March 19, 2015 10:10 AM
To: Thomas Hutchings (thutchings@cityofflint.com)
Cc: Kammer, Stephanie (DEQ); Prysby, Mike (DEQ); Case, Robert; Busch, Stephen (DEQ)
Subject: PEAS call

Tom, I just spoke with a gentleman that reported a discharge to the Flint River south of Carpenter Rd at Bray. The complainant stated that the material is whitish and may have a sheen also. He said it looks like crews have done some excavating along the bike path near this discharge. Attached are photos that I received a moment ago from the caller.

Also, you may want to contact Brent Wright about this matter as well, since our Drinking Water engineer has contacted him about this also (see attachment). Please let me know what you find.

thanks,
chuck

Charles Bennett, PE
DEQ Water Resources Division
Lansing District Office
BennettC4@michigan.gov
ph 517-284-6659; fax 517-241-3571

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, March 19, 2015 11:07 AM
To: Daugherty Johnson
Cc: Busch, Stephen (DEQ)
Subject: RE: RE: Flint Water Age map

Daugherty,

Based upon the most recent information provided to us from the city and your consultant, we are comfortable with either size transmission main (20-inch or 24-inch) for the transmission main project. An Act 399 permit (Permit No. W131020) issued March 18, 2013 (expired yesterday) inlcuded 23,550 LF of 24-inch WM, 1068 LF of 8-inch WM and 6800 LF of 8-inch WM. Given the reduced scope (lineal footage) of the project and expired permit...A new Act 399 permit seems more appropriate. Also, if the remaining work in the future (to complete the rest of the project) is completed under a separate contract, then, a separate Act 399 permits needs to be issued for that contract. A revised Act 399 permit application and set of plans (reduced scope) are needed. Assuming no changes in actual location of the proposed watermain and appurtenances, we should be able to expedite the review and issuance permit in a timely manner.

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

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Thursday, March 19, 2015 9:43 AM
To: Prysby, Mike (DEQ)
Subject: Fwd: RE: Flint Water Age map

Hello Mike. Here are the referenced exhibits in the 24 in. main reduction letter

Daugherty

---------- Forwarded message ----------
From: "Mack, Melissa" <MCMack@lan-inc.com>
Date: Mar 19, 2015 9:34 AM
Subject: RE: Flint Water Age map
To: "Daugherty Johnson" <djohnson@cityofflint.com>
Cc:

Hi Duffy,

Please see attached.

Melissa

Melissa C. (Henderson) Mack, PE

Associate, Project Manager

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

2925 Briarpark Drive, Suite 400 • Houston, TX 77042-3720

T 713.266.6900 **x** 2436 **D** 713.821.0436

www.lan-inc.com • MCMack@lan-inc.com

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Thursday, March 19, 2015 6:57 AM
To: Mack, Melissa
Subject: RE: Flint Water Age map

For clarification, I need the exhibits referenced in the letter you sent me discussing the downsizing of the 24 inch transmission main.

On Mar 19, 2015 7:55 AM, "Daugherty Johnson" <djohnson@cityofflint.com> wrote:

Hello Melissa. Could you send the exhibits referenced in the letter. DEQ wants to see them.

Thanks
Duffy

On Mar 15, 2015 5:26 PM, "Mack, Melissa" <MCMack@lan-inc.com> wrote:

You should be able to print to any size. Try 11x17 portrait. I'm attaching again in case the file got corrupt when it was sent last time.

Melissa C. (Henderson) Mack, PE

Associate, Project Manager

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

2925 Briarpark Drive, Suite 400 • Houston, TX 77042-3720

T 713.266.6900 **x** 2436 **D** 713.821.0436

www.lan-inc.com • MCMack@lan-inc.com

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Friday, March 13, 2015 1:46 PM
To: Mack, Melissa
Subject: RE: Flint Water Age map

I cannot print the map in its entirety. Do I need to scale a specific way?

On Mar 13, 2015 8:54 AM, "Mack, Melissa" <MCMack@lan-inc.com> wrote:

Duffy,

As discussed here is the water age map from January showing the water sample locations.

Thanks,

Melissa

Melissa C. (Henderson) Mack, PE

Associate, Project Manager

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

2925 Briarpark Drive, Suite 400 • Houston, TX 77042-3720

T 713.266.6900 **x** 2436 **D** 713.821.0436

www.lan-inc.com • MCMack@lan-inc.com

From: Mack, Melissa
Sent: Thursday, March 12, 2015 1:12 PM
To: Daugherty Johnson; Green, Warren; Matta, Samir
Subject: Re: Flint Water Age map

Duffy,

We heard back from Innovyze. The model file got corrupted, but they are walking us through a fix. We are documenting the process so we'll know what do do if it happens in the future.

We expect to have fixed this afternoon and have the maps to you thereafter.

Thank you,

Melissa

Sent from my iPhone

On Mar 11, 2015, at 5:04 PM, Mack, Melissa <MCMack@lan-inc.com> wrote:

> Duffy,
>
> We ran into a technical issue with the model creating the water age maps without the 24-inch highlighted. We have to send the model to Innovyze. They weren't able to help us over the phone. We will get you the maps as soon as possible.
>
> Thanks,
>
> Melissa
>
> **Melissa C. (Henderson) Mack**, PE
>
> Associate, Project Manager
>
> <image001.gif>

2925 Briarpark Drive, Suite 400 • Houston, TX 77042-3720

T 713.266.6900 **x** 2436 **D** 713.821.0436

www.lan-inc.com • MCMack@lan-inc.com

From: Daugherty Johnson [mailto:djohnson@cityofflint.com]
Sent: Wednesday, March 11, 2015 9:07 AM
To: Mack, Melissa; Green, Warren; Matta, Samir
Subject: Flint Water Age map

Hello Melissa. Would you please send me a copy of the latest Water Age map for Flint.

Thanks

Duffy

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, March 17, 2015 4:26 PM
To: Howard Croft; Brent Wright; Daugherty Johnson; Dayne Walling; donna. cole; gdn2 @aol.com; James Henry; jmikewright; JoAnne Herman; John O'Brien; Kirk Smith; larry.koehler@mcc.edu; Laura Sullivan; Michael Glasgow; Mike Lane; Natasha Henderson; Norb Birchmeier; Pete Levine; rob.nicholas@veolia.com; Robert Nicholas; rosejo@msu.edu; Russell Hudson; Samir Matta; Warren Green
Cc: Busch, Stephen (DEQ)
Subject: RE: TTHM Draft Letter
Attachments: Draft - Flint Letter to Healthcare Providers.docx

Howard,

I made a few changes to the draft letter...in red (see attached)....mainly to make a more clear distinction between the locational running annual average and the stand-alone quarter (February 2015) results and how it affects the number of sites in compliance. If you have any questions, feel free to call me.

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

From: Howard Croft [mailto:hcroft@cityofflint.com]
Sent: Monday, March 16, 2015 4:28 PM
To: Brent Wright; Daugherty Johnson; Dayne Walling; donna. cole; gdn2@aol.com; Howard Croft; James Henry; jmikewright; JoAnne Herman; John O'Brien; Kirk Smith; larry.koehler@mcc.edu; Laura Sullivan; Michael Glasgow; Mike Lane; Prysby, Mike (DEQ); Natasha Henderson; Norb Birchmeier; Pete Levine; rob.nicholas@veolia.com; Robert Nicholas; rosejo@msu.edu; Russell Hudson; Samir Matta; Warren Green
Subject: TTHM Draft Letter

Team,

We have received our notice from the DEQ and our next step is to have this group preview the letter that we intend to send to the public along with it. I have forwarded everyone a draft of the letter for any comments and I am also sending again all of the literature that was forwarded from Mr. Wright of the EPA and DR. Rose of MSU.

We expect to have an additional FAQ ready and out to this group on Tuesday and we anticipate the violation notice going out in the near future.

The **citizens advisory group** will meet again on this Thursday, we are currently looking to have another **Technical Advisory Committee** with this group in early April.

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

DRAFT Letter to Flint Healthcare Providers

The safety and quality of Flint's water has been in the news for months. We have worked hard to address these issues and have succeeded in bringing Flint's water within the state's safety guidelines on all measures, including TTHM (total trihalomethanes). Excess TTHM triggered the initial letter to our customers earlier this year.

Even though Flint water now meets the standards and is testing significantly below the state's allowable contamination levels, we are required to send out another letter to residents because the *annual* quarterly testing average is not yet below the state's allowable average.

Flint tests for TTHM – a byproduct of the water chlorination process – at eight different sites in the city. When we began using the Flint River as a source in April of 2014, our first round of quarterly testing for TTHM was conducted in May. At that time, only two testing sites were below the allowable maximum; in August, every site was above the allowable maximum.

The City, with the help of LAN engineering, developed an Operation Evaluation Report (OER) which contained an action plan to address the issue. That plan was implemented with steps including upgrading the ozone treatment process at the Water Treatment Plant (WTP), **complete softening,** increasing water main/hydrant flushing to decrease stagnation, small scale testing of treatment to identify areas of improvement, applying overall improvements to the WTP through operational changes and to the distribution system through water circulation modeling

Because the public notice is based on a **locational running** annual average of quarterly results a notice was not required until November, at which time all but one testing **location** was below the allowable levels. **Our most recent testing in February 2015 showed all locations well below state allowable levels; however, the locational running annual average (based on the four most recent quarters – May 2014 – Feb. 2015) results in all but two locations being below the allowable level.** (See the attached graph outlining our progress.)

We have taken many steps to continue to improve the safety and quality of Flint's water, including bringing in international urban water system consultants, Veolia North America, and establishing two advisory committees: a Citizens Advisory Committee, along with a Technical Advisory Committee made up of representatives from the University of Michigan, Michigan State University, Kettering University, Mott Community College, Genesys, McLaren, and Hurley Hospitals along with local health officials including the Genesee Medical Society the Genesee County Public Health Department, the Michigan Department of Environmental Quality and the U.S. Environmental Protection Agency.

We have also established a hotline 810-787-6537 and a place for continuing updates on the city's website cityofflint.com and have encouraged residents who are concerned about their water to report it to us immediately so that we can make arrangements for on-site testing. Although we have been offering this for more than a month, to date only a few residents have requested on-site testing. All residents wishing to have their water tested can call the hotline number or send an email to flintwater@cityofflint.com.

Despite our progress, we are required by law to once again advise residents about what *was* an excess of TTHM in Flint's water system at the eight testing sights last year. The letter – a draft of which is enclosed for your information – includes legally required language recommending that residents who have (severely compromised immune systems, have an infant, or are elderly) should contact their physician. This is standard language from the U.S. EPA which is included in every water quality or water related report the City publishes, regardless of whether there are specific health or quality concerns, and is used by other municipalities nationwide. We failed to alert you in advance of our original letter we were required to send out earlier this year – and we don't want to make that mistake again. We have enclosed a fact sheet and a list of Frequently Asked Questions in an effort to help you respond to any inquiries you may get from patients.

We recognize that Flint's water system may still be challenged with *quality* issues such as discoloration or odor but we assure you the *safety* of the water meets all state standards. You should also know that the City also publishes its monthly tests for a wide variety of water treatment components, including chloride levels, on its website at cityofflint.com/?page_id=5643.

We urge you to contact the City of Flint Water Treatment Plant with any specific questions or concerns you may have on this issue. We will do our absolute best to get you the answers you need.

Sincerely,

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, February 06, 2015 12:57 PM
To: emurphy@cityofflint.com
Subject: RE: Water Supply Sources

Elizabeth,

Yes, a source water assessment was completed for the Flint River and a report is available. I will send it to you asap (later today or on Monday).

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

From: Prysby, Mike (DEQ)
Sent: Friday, February 06, 2015 11:01 AM
To: 'emurphy@cityofflint.com'
Subject: FW: Water Supply Sources

Elizabeth,

Below is a link to our website that lists all of surface water systems in Michigan. You will need to scroll down to the bottom of the list to see the listing of supplies using a river as their source. Also, I am not aware of any source water assessment conducted for the Flint River watershed; however, I would like to confirm that. I will let you know asap once I obtain the confirmation.

http://www.michigan.gov/deq/0,4561,7-135-3313_3675_3691-9775--,00.html

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, February 12, 2015 11:43 AM
To: 'bwright@cityofflint.com'; 'rbincsik@cityofflint.com'
Subject: Residential customers

Brent, Rob....

I need Flint's most recent number of active residential service connections as part of updating MDEQ's estimated population served. Also, add in commercial and industrial accounts; however, keep them separate. Thanks.

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

Olszewski, Rosemarie (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, May 01, 2015 10:01 AM
To: 'rbincsik@cityofflint.com'
Subject: Watermain breaks

Robert,

Based upon the discussion during our April 29th site visit, you have forwarded available information concerning the occurrence (location & date) of watermain breaks in the city of Flint during 2014. Please provide us with a copy of this information at your earliest convenience. Thanks.

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

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Tuesday, May 12, 2015 4:33 PM
To: Mike Glasgow
Subject: distribution WQPs

Good afternoon Mike, we did not receive a 2nd half 2014 water quality parameters in the distribution system for the City of Flint. Please email me a copy when you get this.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, February 09, 2015 1:21 PM
To: Mike Glasgow
Subject: January '15 MOR

Hi Mike, any chance you have your January MOR ready? I need a copy, EPA is asking for some data as they are getting calls. Please send what you have.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Friday, February 27, 2015 9:13 AM
To: Mike Glasgow
Subject: Lead Copper Cert form

Morning Mike, I need your lead/copper cert form – it was due by 1/10/15. I also need your 4th quarter WQPs for 2014. EPA is asking due to your 104 hit on lead. If you can, I need them today.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Tuesday, March 10, 2015 9:53 AM
To: Michael Glasgow
Subject: RE: City of Flint Water Plant Monitoring Results

Got it, thanks Mike.

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Tuesday, March 10, 2015 9:51 AM
To: Rosenthal, Adam (DEQ)
Subject: City of Flint Water Plant Monitoring Results

Adam,

Good morning, here are the results of our February monthly bromate monitoring, and our first quarter radiological testing.

Mike Glasgow
City of Flint Water Plant

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Thursday, May 14, 2015 9:50 AM
To: Michael Glasgow
Subject: RE: distribution WQPs

thank you sir.

Adam

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Thursday, May 14, 2015 8:53 AM
To: Rosenthal, Adam (DEQ)
Subject: Re: distribution WQPs

Adam,

Here is the 1st quarter WQP for 2015.

Mike

On Wed, May 13, 2015 at 3:07 PM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

got it. Now I need the 1st qtr 2015.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Wednesday, May 13, 2015 11:54 AM
To: Rosenthal, Adam (DEQ)
Subject: Re: distribution WQPs

Adam,

Here are the 2014 WQM parameters during full time plant operation.

Mike

On Tue, May 12, 2015 at 4:32 PM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Good afternoon Mike, we did not receive a 2nd half 2014 water quality parameters in the distribution system for the City of Flint. Please email me a copy when you get this.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Wednesday, May 13, 2015 3:08 PM
To: Michael Glasgow
Subject: RE: distribution WQPs

got it. Now I need the 1st qtr 2015.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Wednesday, May 13, 2015 11:54 AM
To: Rosenthal, Adam (DEQ)
Subject: Re: distribution WQPs

Adam,

Here are the 2014 WQM parameters during full time plant operation.

Mike

On Tue, May 12, 2015 at 4:32 PM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Good afternoon Mike, we did not receive a 2nd half 2014 water quality parameters in the distribution system for the City of Flint. Please email me a copy when you get this.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

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Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

Olszewski, Rosemarie (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, February 09, 2015 2:36 PM
To: Michael Glasgow
Subject: RE: January '15 MOR

ok, thanks.

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Monday, February 09, 2015 2:00 PM
To: Rosenthal, Adam (DEQ)
Subject: Re: January '15 MOR

Adam,

I'm just about finished with it, just finishing up with some of the operational chemical feed data, I will send a pdf copy to you tomorrow when it will be fully complete. Attached is what I have done so far.

Mike

On Mon, Feb 9, 2015 at 1:20 PM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Hi Mike, any chance you have your January MOR ready? I need a copy, EPA is asking for some data as they are getting calls. Please send what you have.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

Tommasulo, Karen (DEQ)

From: Shaler, Karen (DEQ)
Sent: Friday, October 02, 2015 10:47 AM
To: Wyant, Dan (DEQ); Tommasulo, Karen (DEQ)
Cc: Thelen, Mary Beth (DEQ)
Subject: Press Conference Talking Points
Attachments: Flint Drinking Water Press Conference 10-2-15.docx

Please see attached.

Talking Points
Press Conference on Flint Drinking Water
Kettering University, Flint
October 2, 2015

Dr. Marc Edwards

- Appreciate that he has brought attention to the issue.
- He deserves credit for bringing attention to the issue.
- At issue is lead exposure: This must be addressed.
- Actions outlined today address public safety and confidence in the water.

Was it a mistake?

- We draw water from the surface.
- Treat it to safe drinking water standards.
- At issue is lead exposure.
- Issue must be addressed.
- Actions are being taken.

Did you put kids at risk?

- Lead exposure is a serious issue, and steps need to be taken to eliminate exposure.
- We stay committed to working in partnership with the United States Environmental Protection Agency and locals.
- Susan Hedman, Regional Administrator, Region 5
- Tom Burke, EPA's Office of Research and Development

This is a serious issue.

- There should not have been any disrespect or discredit.
- For any of that, I apologize.
- I have to take responsibility for letting that happen – I am addressing it.

Miguel Del Toral Memo

1. Technical assistance
2. Additional corrosion controls
3. Additional sampling
4. Review of our protocols and our actions incorporate his recommendations

- What was discussed was: "No longer providing corrosion controls"
- Absence of corrosion controls
- There are multiple corrosion control technologies

- I am asking that we use consistent protocols and am looking to EPA for guidance.
- I have been in discussions with Susan Hedman.
- I don't know the answer to that, but I will get you an answer.
- I have staff who knows.

Why did it take so long?

1. We, the DEQ, have been there from the beginning addressing the issue of Flint water – compliance.
2. Recent 2nd round test results justify and require these actions.
3. These steps are intended to address the short- and long-term and ensure public safety and confidence.

This is a serious issue.

- We are addressing the issue.
- Go to work!
- Fix the problem!

Tommasulo, Karen (DEQ)

From: Busch, Stephen (DEQ)
Sent: Thursday, October 01, 2015 5:27 PM
To: Tommasulo, Karen (DEQ)
Cc: Benzie, Richard (DEQ)
Subject: Flint WTP Lead Samples
Attachments: 7Laboratory Sample Report.htm; 3Laboratory Sample Report.htm; 6Laboratory Sample Report.htm; 2Laboratory Sample Report.htm; 1Laboratory Sample Report.htm; 4Laboratory Sample Report.htm; 5Laboratory Sample Report.htm

Karen,

The Flint WTP treated water plant tap shows non-detect lead results. The sample dates were:
8/11/2015 Non-detect
5/12/2015 Non-detect
2/16/2015 Non-detect
1/22/2015 Non-detect
10/28/2014 Non-detect
8/6/2014 Non-detect
5/22/2014 Non-detect

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

Michigan Department of Environmental Quality

Replicate Laboratory Report for
Lansing Drinking Water Laboratory

Owner/Location Information:

CITY OF FLINT
4500 N DORT HWY
FLINT MI 48505

Sample Number: LLF44687

Sample/Collection Information:

WSSN:	02310	Site Code:	
County:	Genesee	Water Source:	Public Community Water Supply
Township:		Sample Reason:	Routine Monitoring
Section:		Sample Point:	Treated Public Distribution System
Well #:		Point Description:	PLANT TAP
Collection Date:	10/28/2014 8:04:00 AM	Collector:	Public Water Supply Operator
Arrival Date:	10/29/2014 11:15:14 AM	Collected By:	MIKE GLASGOW

CasNo	Analyte	Result	Detect	Units	Method
16984-48-8	FLUORIDE (AUTOMATED)	0.62	0.1	mg/L	SM 4500 FC
7439-89-6	IRON	ND	0.1	mg/L	SM 3500 FeB
HARD-00-C	HARDNESS AS CaCO3	143	20	mg/L	SM 2340 C
7440-23-5	SODIUM	18	5	mg/L	SM 3500 NaB
7440-38-2	ARSENIC (TOTAL)	ND	0.002	mg/L	EPA 200.8
7440-39-3	BARIUM	0.02	0.01	mg/L	EPA 200.8
7440-41-7	BERYLLIUM	ND	0.0004	mg/L	EPA 200.8
57-12-5	CYANIDE	ND	0.02	mg/L	OIA-1677
7440-43-9	CADMIUM (TOTAL)	ND	0.0003	mg/L	EPA 200.8
7647-14-5	CHLORIDE (AUTOMATED)	60	4	mg/L	SM 4500-Cl E

7440-47-3	CHROMIUM (TOTAL)	ND	0.01	mg/L	EPA 200.8
93-76-5	2,4,5-T	ND	0.002	mg/L	EPA 515.4
93-72-1	2,4,5-TP (SILVEX)	ND	0.0003	mg/L	EPA 515.4
94-75-7	2,4-D	ND	0.002	mg/L	EPA 515.4
50594-66-6	ACIFLUORFEN	ND	0.004	mg/L	EPA 515.4
25057-89-0	BENTAZON	ND	0.002	mg/L	EPA 515.4
1918-00-9	DICAMBA	ND	0.002	mg/L	EPA 515.4
88-85-7	DINOSEB	ND	0.0003	mg/L	EPA 515.4
87-86-5	PENTACHLOROPHENOL	ND	0.00006	mg/L	EPA 515.4
1918-02-1	PICLORAM	ND	0.001	mg/L	EPA 515.4
1861-32-1	TOTAL DCPA, MONO & DI-ACID DEGRADATES	ND	0.001	mg/L	EPA 515.4
116-06-3	ALDICARB	ND	0.0005	mg/L	EPA 531.2
1646-88-4	ALDICARB SULFONE	ND	0.0005	mg/L	EPA 531.2
1646-87-3	ALDICARB SULFOXIDE	ND	0.0005	mg/L	EPA 531.2
63-25-2	CARBARYL	ND	0.001	mg/L	EPA 531.2
1563-66-2	CARBOFURAN	ND	0.0005	mg/L	EPA 531.2
16655-82-6	HYDROXYCARBOFURAN,3-	ND	0.001	mg/L	EPA 531.2
2032-65-7	METHIOCARB	ND	0.001	mg/L	EPA 531.2
16752-77-5	METHOMYL	ND	0.001	mg/L	EPA 531.2
23135-22-0	OXAMYL	ND	0.001	mg/L	EPA 531.2
114-26-1	PROPOXUR (BAYGON)	ND	0.001	mg/L	EPA 531.2
34256-82-1	ACETOCHLOR	ND	0.001	mg/L	EPA 525.2
15972-60-8	ALACHLOR	ND	0.0002	mg/L	EPA 525.2
309-00-2	ALDRIN	ND	0.0004	mg/L	EPA 525.2
1912-24-9	ATRAZINE	ND	0.0002	mg/L	EPA 525.2
5103-71-9	CHLORDANE, ALPHA-	ND	0.0002	mg/L	EPA 525.2
5103-74-	CHLORDANE, GAMMA-	ND	0.0002	mg/L	EPA 525.2

2					
72-54-8	DDD,4,4'-	ND	0.001	mg/L	EPA 525.2
72-55-9	DDE,4,4'-	ND	0.001	mg/L	EPA 525.2
50-29-3	DDT,4,4'-	ND	0.0005	mg/L	EPA 525.2
60-57-1	DIELDRIN	ND	0.0005	mg/L	EPA 525.2
72-20-8	ENDRIN	ND	0.0001	mg/L	EPA 525.2
7421-93-4	ENDRIN ALDEHYDE	ND	0.001	mg/L	EPA 525.2
76-44-8	HEPTACHLOR	ND	0.0002	mg/L	EPA 525.2
1024-57-3	HEPTACHLOR EPOXIDE	ND	0.0001	mg/L	EPA 525.2
118-74-1	HEXACHLOROBENZENE	ND	0.0001	mg/L	EPA 525.2
319-84-6	HEXACHLOROCYCLOHEXANE (ALPHA-BHC)	ND	0.001	mg/L	EPA 525.2
319-85-7	HEXACHLOROCYCLOHEXANE (BETA-BHC)	ND	0.001	mg/L	EPA 525.2
319-86-8	HEXACHLOROCYCLOHEXANE (DELTA-BHC)	ND	0.001	mg/L	EPA 525.2
77-47-4	HEXACHLOROCYCLOPENTADIENE	ND	0.0005	mg/L	EPA 525.2
58-89-9	LINDANE (GAMMA-BHC)	ND	0.0001	mg/L	EPA 525.2
72-43-5	METHOXYCHLOR	ND	0.0001	mg/L	EPA 525.2
51218-45-2	METOLACHLOR	ND	0.001	mg/L	EPA 525.2
21087-64-9	METRIBUZIN	ND	0.001	mg/L	EPA 525.2
2212-67-1	MOLINATE	ND	0.0005	mg/L	EPA 525.2
12674-11-2	PCB (AROCLOR 1016)	ND	0.0001	mg/L	EPA 525.2
11104-28-2	PCB (AROCLOR 1221)	ND	0.0001	mg/L	EPA 525.2
11141-16-5	PCB (AROCLOR 1232)	ND	0.0001	mg/L	EPA 525.2
53469-21-9	PCB (AROCLOR 1242)	ND	0.0001	mg/L	EPA 525.2
12672-29-6	PCB (AROCLOR 1248)	ND	0.0001	mg/L	EPA 525.2
11097-69-1	PCB (AROCLOR 1254)	ND	0.0001	mg/L	EPA 525.2
11096-82-5	PCB (AROCLOR 1260)	ND	0.0001	mg/L	EPA 525.2
59536-65-1	POLYBROMINATED BIPHENYLS	ND	0.0001	mg/L	EPA 525.2
122-34-9	SIMAZINE	ND	0.0002	mg/L	EPA 525.2

8001-35-2	TOXAPHENE	ND	0.001	mg/L	EPA 525.2
71-43-2	BENZENE	ND	0.0005	mg/L	EPA 524.2
108-86-1	BROMOBENZENE	ND	0.0005	mg/L	EPA 524.2
74-97-5	BROMOCHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
75-25-2	BROMOFORM	0.0014	0.0005	mg/L	EPA 524.2
74-83-9	BROMOMETHANE	ND	0.001	mg/L	EPA 524.2
104-51-8	BUTYLBENZENE,NORMAL-	ND	0.0005	mg/L	EPA 524.2
135-98-8	BUTYLBENZENE,SEC-	ND	0.0005	mg/L	EPA 524.2
98-06-6	BUTYLBENZENE,TERT-	ND	0.0005	mg/L	EPA 524.2
56-23-5	CARBON TETRACHLORIDE	ND	0.0005	mg/L	EPA 524.2
108-90-7	CHLOROBENZENE	ND	0.0005	mg/L	EPA 524.2
124-48-1	CHLORODIBROMOMETHANE	0.0080	0.0005	mg/L	EPA 524.2
75-00-3	CHLOROETHANE	ND	0.0005	mg/L	EPA 524.2
67-66-3	CHLOROFORM	0.012	0.0005	mg/L	EPA 524.2
74-87-3	CHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
95-49-8	CHLOROTOLUENE,2-	ND	0.0005	mg/L	EPA 524.2
106-43-4	CHLOROTOLUENE,4-	ND	0.0005	mg/L	EPA 524.2
74-95-3	DIBROMOMETHANE	ND	0.0005	mg/L	EPA 524.2
95-50-1	DICHLOROBENZENE,1,2-	ND	0.0005	mg/L	EPA 524.2
541-73-1	DICHLOROBENZENE,1,3-	ND	0.0005	mg/L	EPA 524.2
106-46-7	DICHLOROBENZENE,1,4-	ND	0.0005	mg/L	EPA 524.2
75-27-4	DICHLOROBROMOMETHANE	0.012	0.0005	mg/L	EPA 524.2
75-71-8	DICHLORODIFLUOROMETHANE	ND	0.001	mg/L	EPA 524.2
75-34-3	DICHLOROETHANE,1,1-	ND	0.0005	mg/L	EPA 524.2
107-06-2	DICHLOROETHANE,1,2-	ND	0.0005	mg/L	EPA 524.2
75-35-4	DICHLOROETHYLENE,1,1-	ND	0.0005	mg/L	EPA 524.2
156-59-2	DICHLOROETHYLENE,1,2-CIS	ND	0.0005	mg/L	EPA 524.2
156-60-5	DICHLOROETHYLENE,1,2-TRANS	ND	0.0005	mg/L	EPA 524.2
78-87-5	DICHLOROPROPANE,1,2-	ND	0.0005	mg/L	EPA 524.2
142-28-9	DICHLOROPROPANE,1,3-	ND	0.0005	mg/L	EPA 524.2
594-20-7	DICHLOROPROPANE,2,2-	ND	0.0005	mg/L	EPA 524.2
563-58-6	DICHLOROPROPENE,1,1-	ND	0.0005	mg/L	EPA 524.2
10061-01-5	DICHLOROPROPENE,1,3-CIS	ND	0.0005	mg/L	EPA 524.2
10061-02-6	DICHLOROPROPENE,1,3-TRANS	ND	0.0005	mg/L	EPA 524.2
100-41-4	ETHYLBENZENE	ND	0.0005	mg/L	EPA 524.2
75-69-4	FLUOROTRICHLOROMETHANE	ND	0.001	mg/L	EPA 524.2
87-68-3	HEXACHLOROBUTADIENE	ND	0.0005	mg/L	EPA 524.2
98-82-8	ISOPROPYL BENZENE	ND	0.0005	mg/L	EPA 524.2
99-87-6	ISOPROPYL TOLUENE, PARA-	ND	0.0005	mg/L	EPA 524.2

78-93-3	METHYL ETHYL KETONE	ND	0.005	mg/L	EPA 524.2
108-10-1	METHYL ISOBUTYL KETONE	ND	0.005	mg/L	EPA 524.2
1634-04-4	METHYL TERT-BUTYL ETHER	ND	0.001	mg/L	EPA 524.2
75-09-2	METHYLENE CHLORIDE	ND	0.0006	mg/L	EPA 524.2
91-20-3	NAPHTHALENE	ND	0.0005	mg/L	EPA 524.2
98-95-3	NITROBENZENE	ND	0.01	mg/L	EPA 524.2
103-65-1	PROPYLBENZENE, NORMAL-	ND	0.0005	mg/L	EPA 524.2
100-42-5	STYRENE	ND	0.0005	mg/L	EPA 524.2
630-20-6	TETRACHLOROETHANE,1,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-34-5	TETRACHLOROETHANE,1,1,2,2-	ND	0.0005	mg/L	EPA 524.2
127-18-4	TETRACHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
109-99-9	TETRAHYDROFURAN	ND	0.005	mg/L	EPA 524.2
108-88-3	TOLUENE	ND	0.0005	mg/L	EPA 524.2
TTHM-00-C	TOTAL TRIHALOMETHANES	0.033	NA	mg/L	EPA 524.2
87-61-6	TRICHLOROBENZENE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
120-82-1	TRICHLOROBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
71-55-6	TRICHLOROETHANE,1,1,1-	ND	0.0005	mg/L	EPA 524.2
79-00-5	TRICHLOROETHANE,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-01-6	TRICHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
96-18-4	TRICHLOROPROPANE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
95-63-6	TRIMETHYLBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
108-67-8	TRIMETHYLBENZENE,1,3,5-	ND	0.0005	mg/L	EPA 524.2
75-01-4	VINYL CHLORIDE	ND	0.0004	mg/L	EPA 524.2
XYLMP-00-C	XYLENE,META-&PARA-	0.0005	0.0005	mg/L	EPA 524.2
95-47-6	XYLENE,ORTHO-	ND	0.0005	mg/L	EPA 524.2
1330-20-7	XYLENES (TOTAL)	0.0005	NA	mg/L	EPA 524.2
7439-97-6	MERCURY	ND	0.0001	mg/L	EPA 200.8
7440-02-0	NICKEL	ND	0.01	mg/L	EPA 200.8
14797-65-0	NITRITE AS N (AUTOMATED)	ND	0.05	mg/L	10-107-04-2-B
14797-55-8	NITRATE AS N (AUTOMATED)	ND	0.4	mg/L	10-107-04-2-B
7439-92-1	LEAD (TOTAL)	ND	0.001	mg/L	EPA 200.8
7440-36-0	ANTIMONY	ND	0.0006	mg/L	EPA 200.8
7782-49-	SELENIUM (TOTAL)	ND	0.001	mg/L	EPA 200.8

2					
14808-79-8	SULFATE (AUTOMATED)	22	10	mg/L	SM 4500 SO4E
7440-28-0	THALLIUM	ND	0.0002	mg/L	EPA 200.8

Laboratory Comments:
A trip blank was not available for analysis with this sample.

By authority of PA 368 of 1978 as amended.

Print Date: Thu Oct 1 17:16:11 EDT 2015

Michigan Department of Environmental Quality

Replicate Laboratory Report for
Lansing Drinking Water Laboratory

Owner/Location Information:

CITY OF FLINT
4500 N DORT HWY
FLINT MI 48505

Sample Number: LLF54660

Sample/Collection Information:

WSSN:	02310	Site Code:	
County:	Genesee	Water Source:	Public Community Water Supply
Township:		Sample Reason:	Routine Monitoring
Section:		Sample Point:	Treated Public Distribution System
Well #:		Point Description:	PLANT TAP
Collection Date:	2/16/2015 9:40:00 AM	Collector:	Public Water Supply Operator
Arrival Date:	2/17/2015 10:46:51 AM	Collected By:	MIKE GLASGOW

CasNo	Analyte	Result	Detect	Units	Method
16984-48-8	FLUORIDE (AUTOMATED)	0.57	0.1	mg/L	SM 4500 FC
7439-89-6	IRON	ND	0.1	mg/L	SM 3500 FeB
HARD-00-C	HARDNESS AS CaCO3	180	20	mg/L	SM 2340 C
7440-23-5	SODIUM	25	5	mg/L	SM 3500 NaB
7440-38-2	ARSENIC (TOTAL)	ND	0.002	mg/L	EPA 200.8
7440-39-3	BARIUM	ND	0.01	mg/L	EPA 200.8
7440-41-7	BERYLLIUM	ND	0.0004	mg/L	EPA 200.8
57-12-5	CYANIDE	ND	0.02	mg/L	OIA-1677
7440-43-9	CADMIUM (TOTAL)	ND	0.0003	mg/L	EPA 200.8
7647-14-5	CHLORIDE (AUTOMATED)	99	4	mg/L	SM 4500-Cl E

7440-47-3	CHROMIUM (TOTAL)	ND	0.01	mg/L	EPA 200.8
93-76-5	2,4,5-T	ND	0.002	mg/L	EPA 515.4
93-72-1	2,4,5-TP (SILVEX)	ND	0.0002	mg/L	EPA 515.4
94-75-7	2,4-D	ND	0.001	mg/L	EPA 515.4
50594-66-6	ACIFLUORFEN	ND	0.004	mg/L	EPA 515.4
25057-89-0	BENTAZON	ND	0.002	mg/L	EPA 515.4
1918-00-9	DICAMBA	ND	0.002	mg/L	EPA 515.4
88-85-7	DINOSEB	ND	0.0002	mg/L	EPA 515.4
87-86-5	PENTACHLOROPHENOL	ND	0.00004	mg/L	EPA 515.4
1918-02-1	PICLORAM	ND	0.001	mg/L	EPA 515.4
1861-32-1	TOTAL DCPA, MONO & DI-ACID DEGRADATES	ND	0.001	mg/L	EPA 515.4
116-06-3	ALDICARB	ND	0.0005	mg/L	EPA 531.2
1646-88-4	ALDICARB SULFONE	ND	0.0005	mg/L	EPA 531.2
1646-87-3	ALDICARB SULFOXIDE	ND	0.0005	mg/L	EPA 531.2
63-25-2	CARBARYL	ND	0.001	mg/L	EPA 531.2
1563-66-2	CARBOFURAN	ND	0.0005	mg/L	EPA 531.2
16655-82-6	HYDROXYCARBOFURAN,3-	ND	0.001	mg/L	EPA 531.2
2032-65-7	METHIOCARB	ND	0.001	mg/L	EPA 531.2
16752-77-5	METHOMYL	ND	0.001	mg/L	EPA 531.2
23135-22-0	OXAMYL	ND	0.001	mg/L	EPA 531.2
114-26-1	PROPOXUR (BAYGON)	ND	0.001	mg/L	EPA 531.2
34256-82-1	ACETOCHLOR	ND	0.001	mg/L	EPA 525.2
15972-60-8	ALACHLOR	ND	0.0002	mg/L	EPA 525.2
309-00-2	ALDRIN	ND	0.0004	mg/L	EPA 525.2
1912-24-9	ATRAZINE	ND	0.0002	mg/L	EPA 525.2
5103-71-9	CHLORDANE, ALPHA-	ND	0.0002	mg/L	EPA 525.2
5103-74-	CHLORDANE, GAMMA-	ND	0.0002	mg/L	EPA 525.2

2					
72-54-8	DDD,4,4'-	ND	0.001	mg/L	EPA 525.2
72-55-9	DDE,4,4'-	ND	0.001	mg/L	EPA 525.2
50-29-3	DDT,4,4'-	ND	0.0005	mg/L	EPA 525.2
60-57-1	DIELDRIN	ND	0.0005	mg/L	EPA 525.2
72-20-8	ENDRIN	ND	0.0001	mg/L	EPA 525.2
7421-93-4	ENDRIN ALDEHYDE	ND	0.001	mg/L	EPA 525.2
76-44-8	HEPTACHLOR	ND	0.0002	mg/L	EPA 525.2
1024-57-3	HEPTACHLOR EPOXIDE	ND	0.0001	mg/L	EPA 525.2
118-74-1	HEXACHLOROBENZENE	ND	0.0001	mg/L	EPA 525.2
319-84-6	HEXACHLOROCYCLOHEXANE (ALPHA-BHC)	ND	0.001	mg/L	EPA 525.2
319-85-7	HEXACHLOROCYCLOHEXANE (BETA-BHC)	ND	0.001	mg/L	EPA 525.2
319-86-8	HEXACHLOROCYCLOHEXANE (DELTA-BHC)	ND	0.001	mg/L	EPA 525.2
77-47-4	HEXACHLOROCYCLOPENTADIENE	ND	0.0005	mg/L	EPA 525.2
58-89-9	LINDANE (GAMMA-BHC)	ND	0.0001	mg/L	EPA 525.2
72-43-5	METHOXYCHLOR	ND	0.0001	mg/L	EPA 525.2
51218-45-2	METOLACHLOR	ND	0.001	mg/L	EPA 525.2
21087-64-9	METRIBUZIN	ND	0.001	mg/L	EPA 525.2
2212-67-1	MOLINATE	ND	0.0005	mg/L	EPA 525.2
12674-11-2	PCB (AROCLOR 1016)	ND	0.0001	mg/L	EPA 525.2
11104-28-2	PCB (AROCLOR 1221)	ND	0.0001	mg/L	EPA 525.2
11141-16-5	PCB (AROCLOR 1232)	ND	0.0001	mg/L	EPA 525.2
53469-21-9	PCB (AROCLOR 1242)	ND	0.0001	mg/L	EPA 525.2
12672-29-6	PCB (AROCLOR 1248)	ND	0.0001	mg/L	EPA 525.2
11097-69-1	PCB (AROCLOR 1254)	ND	0.0001	mg/L	EPA 525.2
11096-82-5	PCB (AROCLOR 1260)	ND	0.0001	mg/L	EPA 525.2
59536-65-1	POLYBROMINATED BIPHENYLS	ND	0.0001	mg/L	EPA 525.2
122-34-9	SIMAZINE	ND	0.0002	mg/L	EPA 525.2

8001-35-2	TOXAPHENE	ND	0.001	mg/L	EPA 525.2
71-43-2	BENZENE	ND	0.0005	mg/L	EPA 524.2
108-86-1	BROMOBENZENE	ND	0.0005	mg/L	EPA 524.2
74-97-5	BROMOCHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
75-25-2	BROMOFORM	0.0007	0.0005	mg/L	EPA 524.2
74-83-9	BROMOMETHANE	ND	0.001	mg/L	EPA 524.2
104-51-8	BUTYLBENZENE,NORMAL-	ND	0.0005	mg/L	EPA 524.2
135-98-8	BUTYLBENZENE,SEC-	ND	0.0005	mg/L	EPA 524.2
98-06-6	BUTYLBENZENE,TERT-	ND	0.0005	mg/L	EPA 524.2
56-23-5	CARBON TETRACHLORIDE	ND	0.0005	mg/L	EPA 524.2
108-90-7	CHLOROBENZENE	ND	0.0005	mg/L	EPA 524.2
124-48-1	CHLORODIBROMOMETHANE	0.0025	0.0005	mg/L	EPA 524.2
75-00-3	CHLOROETHANE	ND	0.0005	mg/L	EPA 524.2
67-66-3	CHLOROFORM	0.0018	0.0005	mg/L	EPA 524.2
74-87-3	CHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
95-49-8	CHLOROTOLUENE,2-	ND	0.0005	mg/L	EPA 524.2
106-43-4	CHLOROTOLUENE,4-	ND	0.0005	mg/L	EPA 524.2
74-95-3	DIBROMOMETHANE	ND	0.0005	mg/L	EPA 524.2
95-50-1	DICHLOROBENZENE,1,2-	ND	0.0005	mg/L	EPA 524.2
541-73-1	DICHLOROBENZENE,1,3-	ND	0.0005	mg/L	EPA 524.2
106-46-7	DICHLOROBENZENE,1,4-	ND	0.0005	mg/L	EPA 524.2
75-27-4	DICHLOROBROMOMETHANE	0.0030	0.0005	mg/L	EPA 524.2
75-71-8	DICHLORODIFLUOROMETHANE	ND	0.001	mg/L	EPA 524.2
75-34-3	DICHLOROETHANE,1,1-	ND	0.0005	mg/L	EPA 524.2
107-06-2	DICHLOROETHANE,1,2-	ND	0.0005	mg/L	EPA 524.2
75-35-4	DICHLOROETHYLENE,1,1-	ND	0.0005	mg/L	EPA 524.2
156-59-2	DICHLOROETHYLENE,1,2-CIS	ND	0.0005	mg/L	EPA 524.2
156-60-5	DICHLOROETHYLENE,1,2-TRANS	ND	0.0005	mg/L	EPA 524.2
78-87-5	DICHLOROPROPANE,1,2-	ND	0.0005	mg/L	EPA 524.2
142-28-9	DICHLOROPROPANE,1,3-	ND	0.0005	mg/L	EPA 524.2
594-20-7	DICHLOROPROPANE,2,2-	ND	0.0005	mg/L	EPA 524.2
563-58-6	DICHLOROPROPENE,1,1-	ND	0.0005	mg/L	EPA 524.2
10061-01-5	DICHLOROPROPENE,1,3-CIS	ND	0.0005	mg/L	EPA 524.2
10061-02-6	DICHLOROPROPENE,1,3-TRANS	ND	0.0005	mg/L	EPA 524.2
100-41-4	ETHYLBENZENE	ND	0.0005	mg/L	EPA 524.2
75-69-4	FLUOROTRICHLOROMETHANE	ND	0.001	mg/L	EPA 524.2
87-68-3	HEXACHLOROBUTADIENE	ND	0.0005	mg/L	EPA 524.2
98-82-8	ISOPROPYL BENZENE	ND	0.0005	mg/L	EPA 524.2
99-87-6	ISOPROPYL TOLUENE, PARA-	ND	0.0005	mg/L	EPA 524.2

78-93-3	METHYL ETHYL KETONE	ND	0.005	mg/L	EPA 524.2
108-10-1	METHYL ISOBUTYL KETONE	ND	0.005	mg/L	EPA 524.2
1634-04-4	METHYL TERT-BUTYL ETHER	ND	0.001	mg/L	EPA 524.2
75-09-2	METHYLENE CHLORIDE	ND	0.0006	mg/L	EPA 524.2
91-20-3	NAPHTHALENE	ND	0.0005	mg/L	EPA 524.2
103-65-1	PROPYLBENZENE, NORMAL-	ND	0.0005	mg/L	EPA 524.2
100-42-5	STYRENE	ND	0.0005	mg/L	EPA 524.2
630-20-6	TETRACHLOROETHANE,1,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-34-5	TETRACHLOROETHANE,1,1,2,2-	ND	0.0005	mg/L	EPA 524.2
127-18-4	TETRACHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
109-99-9	TETRAHYDROFURAN	ND	0.005	mg/L	EPA 524.2
108-88-3	TOLUENE	ND	0.0005	mg/L	EPA 524.2
TTHM-00-C	TOTAL TRIHALOMETHANES	0.008	NA	mg/L	EPA 524.2
87-61-6	TRICHLOROBENZENE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
120-82-1	TRICHLOROBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
71-55-6	TRICHLOROETHANE,1,1,1-	ND	0.0005	mg/L	EPA 524.2
79-00-5	TRICHLOROETHANE,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-01-6	TRICHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
96-18-4	TRICHLOROPROPANE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
95-63-6	TRIMETHYLBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
108-67-8	TRIMETHYLBENZENE,1,3,5-	ND	0.0005	mg/L	EPA 524.2
75-01-4	VINYL CHLORIDE	ND	0.0005	mg/L	EPA 524.2
XYLMP-00-C	XYLENE,META-&PARA-	ND	0.0005	mg/L	EPA 524.2
95-47-6	XYLENE,ORTHO-	ND	0.0005	mg/L	EPA 524.2
1330-20-7	XYLENES (TOTAL)	ND	NA	mg/L	EPA 524.2
7439-97-6	MERCURY	ND	0.0001	mg/L	EPA 200.8
7440-02-0	NICKEL	ND	0.01	mg/L	EPA 200.8
14797-65-0	NITRITE AS N (AUTOMATED)	ND	0.05	mg/L	10-107-04-2-B
14797-55-8	NITRATE AS N (AUTOMATED)	1.3	0.4	mg/L	10-107-04-2-B
7439-92-1	LEAD (TOTAL)	ND	0.001	mg/L	EPA 200.8
7440-36-0	ANTIMONY	ND	0.0006	mg/L	EPA 200.8
7782-49-2	SELENIUM (TOTAL)	0.001	0.001	mg/L	EPA 200.8

14808-79-8	SULFATE (AUTOMATED)	40	10	mg/L	SM 4500 SO4E
7440-28-0	THALLIUM	ND	0.0002	mg/L	EPA 200.8

Laboratory Comments:
Endrin Aldehyde quality control results were outside allowed limits due to matrix interferences.
Unidentified hydrocarbon peak(s) were detected.

By authority of PA 368 of 1978 as amended.

Print Date: Thu Oct 1 17:13:39 EDT 2015

Michigan Department of Environmental Quality

Replicate Laboratory Report for
Lansing Drinking Water Laboratory

Owner/Location Information:

CITY OF FLINT -WATER PLANT
4500 N DORT HWY
FLINT MI 48505

Sample Number: LLF19430

Sample/Collection Information:

WSSN:	02310	Site Code:	LAB TAP
County:	Genesee	Water Source:	Public Community Water Supply
Township:		Sample Reason:	Routine Monitoring
Section:		Sample Point:	Treated Public Distribution System
Well #:		Point Description:	PLANT LAB
Collection Date:	5/22/2014 8:30:00 AM	Collector:	Public Water Supply Operator
Arrival Date:	5/22/2014 1:19:53 PM	Collected By:	MICHAEL GLASGOW

CasNo	Analyte	Result	Detect	Units	Method
16984-48-8	FLUORIDE (AUTOMATED)	0.16	0.1	mg/L	SM 4500 FC
7439-89-6	IRON	ND	0.1	mg/L	SM 3500 FeB
HARD-00-C	HARDNESS AS CaCO3	209	20	mg/L	SM 2340 C
7440-23-5	SODIUM	15	5	mg/L	SM 3500 NaB
7440-38-2	ARSENIC (TOTAL)	ND	0.002	mg/L	EPA 200.8
7440-39-3	BARIUM	0.03	0.01	mg/L	EPA 200.8
7440-41-7	BERYLLIUM	ND	0.0004	mg/L	EPA 200.8
57-12-5	CYANIDE	ND	0.02	mg/L	OIA-1677
7440-43-9	CADMIUM (TOTAL)	ND	0.0003	mg/L	EPA 200.8
7647-14-	CHLORIDE (AUTOMATED)	79	4	mg/L	SM 4500-Cl

5					E
7440-47-3	CHROMIUM (TOTAL)	ND	0.01	mg/L	EPA 200.8
93-76-5	2,4,5-T	ND	0.002	mg/L	EPA 515.4
93-72-1	2,4,5-TP (SILVEX)	ND	0.0003	mg/L	EPA 515.4
94-75-7	2,4-D	ND	0.002	mg/L	EPA 515.4
50594-66-6	ACIFLUORFEN	ND	0.004	mg/L	EPA 515.4
25057-89-0	BENTAZON	ND	0.002	mg/L	EPA 515.4
1918-00-9	DICAMBA	ND	0.002	mg/L	EPA 515.4
88-85-7	DINOSEB	ND	0.0003	mg/L	EPA 515.4
87-86-5	PENTACHLOROPHENOL	ND	0.00006	mg/L	EPA 515.4
1918-02-1	PICLORAM	ND	0.001	mg/L	EPA 515.4
1861-32-1	TOTAL DCPA, MONO & DI-ACID DEGRADATES	ND	0.001	mg/L	EPA 515.4
116-06-3	ALDICARB	ND	0.0005	mg/L	EPA 531.2
1646-88-4	ALDICARB SULFONE	ND	0.0005	mg/L	EPA 531.2
1646-87-3	ALDICARB SULFOXIDE	ND	0.0005	mg/L	EPA 531.2
63-25-2	CARBARYL	ND	0.001	mg/L	EPA 531.2
1563-66-2	CARBOFURAN	ND	0.0005	mg/L	EPA 531.2
16655-82-6	HYDROXYCARBOFURAN,3-	ND	0.001	mg/L	EPA 531.2
2032-65-7	METHIOCARB	ND	0.001	mg/L	EPA 531.2
16752-77-5	METHOMYL	ND	0.001	mg/L	EPA 531.2
23135-22-0	OXAMYL	ND	0.001	mg/L	EPA 531.2
114-26-1	PROPOXUR (BAYGON)	ND	0.001	mg/L	EPA 531.2
34256-82-1	ACETOCHLOR	ND	0.001	mg/L	EPA 525.2
15972-60-8	ALACHLOR	ND	0.0002	mg/L	EPA 525.2
309-00-2	ALDRIN	ND	0.0004	mg/L	EPA 525.2
1912-24-9	ATRAZINE	ND	0.0002	mg/L	EPA 525.2
5103-71-9	CHLORDANE, ALPHA-	ND	0.0002	mg/L	EPA 525.2

5103-74-2	CHLORDANE, GAMMA-	ND	0.0002	mg/L	EPA 525.2
72-54-8	DDD,4,4'-	ND	0.001	mg/L	EPA 525.2
72-55-9	DDE,4,4'-	ND	0.001	mg/L	EPA 525.2
50-29-3	DDT,4,4'-	ND	0.0005	mg/L	EPA 525.2
60-57-1	DIELDRIN	ND	0.0005	mg/L	EPA 525.2
72-20-8	ENDRIN	ND	0.0001	mg/L	EPA 525.2
7421-93-4	ENDRIN ALDEHYDE	ND	0.001	mg/L	EPA 525.2
76-44-8	HEPTACHLOR	ND	0.0002	mg/L	EPA 525.2
1024-57-3	HEPTACHLOR EPOXIDE	ND	0.0001	mg/L	EPA 525.2
118-74-1	HEXACHLOROBENZENE	ND	0.0001	mg/L	EPA 525.2
319-84-6	HEXACHLOROCYCLOHEXANE (ALPHA-BHC)	ND	0.001	mg/L	EPA 525.2
319-85-7	HEXACHLOROCYCLOHEXANE (BETA-BHC)	ND	0.001	mg/L	EPA 525.2
319-86-8	HEXACHLOROCYCLOHEXANE (DELTA-BHC)	ND	0.001	mg/L	EPA 525.2
77-47-4	HEXACHLOROCYCLOPENTADIENE	ND	0.0005	mg/L	EPA 525.2
58-89-9	LINDANE (GAMMA-BHC)	ND	0.0001	mg/L	EPA 525.2
72-43-5	METHOXYCHLOR	ND	0.0001	mg/L	EPA 525.2
51218-45-2	METOLACHLOR	ND	0.001	mg/L	EPA 525.2
21087-64-9	METRIBUZIN	ND	0.001	mg/L	EPA 525.2
2212-67-1	MOLINATE	ND	0.0005	mg/L	EPA 525.2
12674-11-2	PCB (AROCLOR 1016)	ND	0.0001	mg/L	EPA 525.2
11104-28-2	PCB (AROCLOR 1221)	ND	0.0001	mg/L	EPA 525.2
11141-16-5	PCB (AROCLOR 1232)	ND	0.0001	mg/L	EPA 525.2
53469-21-9	PCB (AROCLOR 1242)	ND	0.0001	mg/L	EPA 525.2
12672-29-6	PCB (AROCLOR 1248)	ND	0.0001	mg/L	EPA 525.2
11097-69-1	PCB (AROCLOR 1254)	ND	0.0001	mg/L	EPA 525.2
11096-82-5	PCB (AROCLOR 1260)	ND	0.0001	mg/L	EPA 525.2
59536-65-1	POLYBROMINATED BIPHENYLS	ND	0.0001	mg/L	EPA 525.2

122-34-9	SIMAZINE	ND	0.0002	mg/L	EPA 525.2
8001-35-2	TOXAPHENE	ND	0.001	mg/L	EPA 525.2
71-43-2	BENZENE	ND	0.0005	mg/L	EPA 524.2
108-86-1	BROMOBENZENE	ND	0.0005	mg/L	EPA 524.2
74-97-5	BROMOCHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
75-25-2	BROMOFORM	0.0010	0.0005	mg/L	EPA 524.2
74-83-9	BROMOMETHANE	ND	0.001	mg/L	EPA 524.2
104-51-8	BUTYLBENZENE,NORMAL-	ND	0.0005	mg/L	EPA 524.2
135-98-8	BUTYLBENZENE,SEC-	ND	0.0005	mg/L	EPA 524.2
98-06-6	BUTYLBENZENE,TERT-	ND	0.0005	mg/L	EPA 524.2
56-23-5	CARBON TETRACHLORIDE	ND	0.0005	mg/L	EPA 524.2
108-90-7	CHLOROBENZENE	ND	0.0005	mg/L	EPA 524.2
124-48-1	CHLORODIBROMOMETHANE	0.013	0.0005	mg/L	EPA 524.2
75-00-3	CHLOROETHANE	ND	0.0005	mg/L	EPA 524.2
67-66-3	CHLOROFORM	0.022	0.0005	mg/L	EPA 524.2
74-87-3	CHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
95-49-8	CHLOROTOLUENE,2-	ND	0.0005	mg/L	EPA 524.2
106-43-4	CHLOROTOLUENE,4-	ND	0.0005	mg/L	EPA 524.2
74-95-3	DIBROMOMETHANE	ND	0.0005	mg/L	EPA 524.2
95-50-1	DICHLOROBENZENE,1,2-	ND	0.0005	mg/L	EPA 524.2
541-73-1	DICHLOROBENZENE,1,3-	ND	0.0005	mg/L	EPA 524.2
106-46-7	DICHLOROBENZENE,1,4-	ND	0.0005	mg/L	EPA 524.2
75-27-4	DICHLOROBROMOMETHANE	0.020	0.0005	mg/L	EPA 524.2
75-71-8	DICHLORODIFLUOROMETHANE	ND	0.001	mg/L	EPA 524.2
75-34-3	DICHLOROETHANE,1,1-	ND	0.0005	mg/L	EPA 524.2
107-06-2	DICHLOROETHANE,1,2-	ND	0.0005	mg/L	EPA 524.2
75-35-4	DICHLOROETHYLENE,1,1-	ND	0.0005	mg/L	EPA 524.2
156-59-2	DICHLOROETHYLENE,1,2-CIS	ND	0.0005	mg/L	EPA 524.2
156-60-5	DICHLOROETHYLENE,1,2-TRANS	ND	0.0005	mg/L	EPA 524.2
78-87-5	DICHLOROPROPANE,1,2-	ND	0.0005	mg/L	EPA 524.2
142-28-9	DICHLOROPROPANE,1,3-	ND	0.0005	mg/L	EPA 524.2
594-20-7	DICHLOROPROPANE,2,2-	ND	0.0005	mg/L	EPA 524.2
563-58-6	DICHLOROPROPENE,1,1-	ND	0.0005	mg/L	EPA 524.2
10061-01-5	DICHLOROPROPENE,1,3-CIS	ND	0.0005	mg/L	EPA 524.2
10061-02-6	DICHLOROPROPENE,1,3-TRANS	ND	0.0005	mg/L	EPA 524.2
100-41-4	ETHYLBENZENE	ND	0.0005	mg/L	EPA 524.2
75-69-4	FLUOROTRICHLOROMETHANE	ND	0.001	mg/L	EPA 524.2
87-68-3	HEXACHLOROBUTADIENE	ND	0.0005	mg/L	EPA 524.2

98-82-8	ISOPROPYL BENZENE	ND	0.0005	mg/L	EPA 524.2
99-87-6	ISOPROPYL TOLUENE, PARA-	ND	0.0005	mg/L	EPA 524.2
78-93-3	METHYL ETHYL KETONE	ND	0.005	mg/L	EPA 524.2
108-10-1	METHYL ISOBUTYL KETONE	ND	0.005	mg/L	EPA 524.2
1634-04-4	METHYL TERT-BUTYL ETHER	ND	0.001	mg/L	EPA 524.2
75-09-2	METHYLENE CHLORIDE	ND	0.0006	mg/L	EPA 524.2
91-20-3	NAPHTHALENE	ND	0.0005	mg/L	EPA 524.2
98-95-3	NITROBENZENE	ND	0.01	mg/L	EPA 524.2
103-65-1	PROPYLBENZENE, NORMAL-	ND	0.0005	mg/L	EPA 524.2
100-42-5	STYRENE	ND	0.0005	mg/L	EPA 524.2
630-20-6	TETRACHLOROETHANE,1,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-34-5	TETRACHLOROETHANE,1,1,2,2-	ND	0.0005	mg/L	EPA 524.2
127-18-4	TETRACHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
109-99-9	TETRAHYDROFURAN	ND	0.005	mg/L	EPA 524.2
108-88-3	TOLUENE	ND	0.0005	mg/L	EPA 524.2
TTHM-00-C	TOTAL TRIHALOMETHANES	0.056	NA	mg/L	EPA 524.2
87-61-6	TRICHLOROBENZENE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
120-82-1	TRICHLOROBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
71-55-6	TRICHLOROETHANE,1,1,1-	ND	0.0005	mg/L	EPA 524.2
79-00-5	TRICHLOROETHANE,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-01-6	TRICHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
96-18-4	TRICHLOROPROPANE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
95-63-6	TRIMETHYLBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
108-67-8	TRIMETHYLBENZENE,1,3,5-	ND	0.0005	mg/L	EPA 524.2
75-01-4	VINYL CHLORIDE	ND	0.0004	mg/L	EPA 524.2
XYLMP-00-C	XYLENE,META-&PARA-	ND	0.0005	mg/L	EPA 524.2
95-47-6	XYLENE,ORTHO-	ND	0.0005	mg/L	EPA 524.2
1330-20-7	XYLENES (TOTAL)	ND	NA	mg/L	EPA 524.2
7439-97-6	MERCURY	ND	0.0001	mg/L	EPA 200.8
7440-02-0	NICKEL	ND	0.01	mg/L	EPA 200.8
14797-65-0	NITRITE AS N (AUTOMATED)	ND	0.05	mg/L	10-107-04-2-B
14797-55-8	NITRATE AS N (AUTOMATED)	0.4	0.4	mg/L	10-107-04-2-B
7439-92-1	LEAD (TOTAL)	ND	0.001	mg/L	EPA 200.8

7440-36-0	ANTIMONY	ND	0.0006	mg/L	EPA 200.8
7782-49-2	SELENIUM (TOTAL)	ND	0.001	mg/L	EPA 200.8
14808-79-8	SULFATE (AUTOMATED)	25	10	mg/L	SM 4500 SO4E
7440-28-0	THALLIUM	ND	0.0002	mg/L	EPA 200.8

Laboratory Comments:

By authority of PA 368 of 1978 as amended.

Print Date: Thu Oct 1 17:15:56 EDT 2015

Michigan Department of Environmental Quality

Replicate Laboratory Report for
Lansing Drinking Water Laboratory

Owner/Location Information:

CITY OF FLINT
4500 N DORT HWY
FLINT MI 48505

Sample Number: LLF63412

Sample/Collection Information:

WSSN:	02310	Site Code:	
County:	Genesee	Water Source:	Public Community Water Supply
Township:		Sample Reason:	Routine Monitoring
Section:		Sample Point:	Treated Public Distribution System
Well #:		Point Description:	PLANT TAP
Collection Date:	5/12/2015 11:33:00 AM	Collector:	Public Water Supply Operator
Arrival Date:	5/13/2015 11:26:43 AM	Collected By:	MIKE GLASGOW

CasNo	Analyte	Result	Detect	Units	Method
16984-48-8	FLUORIDE (AUTOMATED)	0.87	0.1	mg/L	SM 4500 FC
7439-89-6	IRON	ND	0.1	mg/L	SM 3500 FeB
HARD-00-C	HARDNESS AS CaCO3	163	20	mg/L	SM 2340 C
7440-23-5	SODIUM	18	5	mg/L	SM 3500 NaB
7440-38-2	ARSENIC (TOTAL)	ND	0.002	mg/L	EPA 200.8
7440-39-3	BARIUM	0.03	0.01	mg/L	EPA 200.8
7440-41-7	BERYLLIUM	ND	0.0004	mg/L	EPA 200.8
57-12-5	CYANIDE	ND	0.02	mg/L	OIA-1677
7440-43-9	CADMIUM (TOTAL)	ND	0.0003	mg/L	EPA 200.8
7647-14-5	CHLORIDE (AUTOMATED)	90	4	mg/L	SM 4500-Cl E

7440-47-3	CHROMIUM (TOTAL)	ND	0.01	mg/L	EPA 200.8
93-76-5	2,4,5-T	ND	0.002	mg/L	EPA 515.4
93-72-1	2,4,5-TP (SILVEX)	ND	0.0002	mg/L	EPA 515.4
94-75-7	2,4-D	ND	0.001	mg/L	EPA 515.4
50594-66-6	ACIFLUORFEN	ND	0.004	mg/L	EPA 515.4
25057-89-0	BENTAZON	ND	0.002	mg/L	EPA 515.4
1918-00-9	DICAMBA	ND	0.002	mg/L	EPA 515.4
88-85-7	DINOSEB	ND	0.0002	mg/L	EPA 515.4
87-86-5	PENTACHLOROPHENOL	ND	0.00004	mg/L	EPA 515.4
1918-02-1	PICLORAM	ND	0.001	mg/L	EPA 515.4
1861-32-1	TOTAL DCPA, MONO & DI-ACID DEGRADATES	ND	0.001	mg/L	EPA 515.4
116-06-3	ALDICARB	ND	0.0005	mg/L	EPA 531.2
1646-88-4	ALDICARB SULFONE	ND	0.0005	mg/L	EPA 531.2
1646-87-3	ALDICARB SULFOXIDE	ND	0.0005	mg/L	EPA 531.2
63-25-2	CARBARYL	ND	0.001	mg/L	EPA 531.2
1563-66-2	CARBOFURAN	ND	0.0005	mg/L	EPA 531.2
16655-82-6	HYDROXYCARBOFURAN,3-	ND	0.001	mg/L	EPA 531.2
2032-65-7	METHIOCARB	ND	0.001	mg/L	EPA 531.2
16752-77-5	METHOMYL	ND	0.001	mg/L	EPA 531.2
23135-22-0	OXAMYL	ND	0.001	mg/L	EPA 531.2
114-26-1	PROPOXUR (BAYGON)	ND	0.001	mg/L	EPA 531.2
34256-82-1	ACETOCHLOR	ND	0.001	mg/L	EPA 525.2
15972-60-8	ALACHLOR	ND	0.0002	mg/L	EPA 525.2
309-00-2	ALDRIN	ND	0.0004	mg/L	EPA 525.2
1912-24-9	ATRAZINE	ND	0.0002	mg/L	EPA 525.2
5103-71-9	CHLORDANE, ALPHA-	ND	0.0002	mg/L	EPA 525.2
5103-74-	CHLORDANE, GAMMA-	ND	0.0002	mg/L	EPA 525.2

2

72-54-8	DDD,4,4'-	ND	0.001	mg/L	EPA 525.2
72-55-9	DDE,4,4'-	ND	0.001	mg/L	EPA 525.2
50-29-3	DDT,4,4'-	ND	0.0005	mg/L	EPA 525.2
60-57-1	DIELDRIN	ND	0.0005	mg/L	EPA 525.2
72-20-8	ENDRIN	ND	0.0001	mg/L	EPA 525.2
7421-93-4	ENDRIN ALDEHYDE	ND	0.001	mg/L	EPA 525.2
76-44-8	HEPTACHLOR	ND	0.0002	mg/L	EPA 525.2
1024-57-3	HEPTACHLOR EPOXIDE	ND	0.0001	mg/L	EPA 525.2
118-74-1	HEXACHLOROBENZENE	ND	0.0001	mg/L	EPA 525.2
319-84-6	HEXACHLOROCYCLOHEXANE (ALPHA-BHC)	ND	0.001	mg/L	EPA 525.2
319-85-7	HEXACHLOROCYCLOHEXANE (BETA-BHC)	ND	0.001	mg/L	EPA 525.2
319-86-8	HEXACHLOROCYCLOHEXANE (DELTA-BHC)	ND	0.001	mg/L	EPA 525.2
77-47-4	HEXACHLOROCYCLOPENTADIENE	ND	0.0005	mg/L	EPA 525.2
58-89-9	LINDANE (GAMMA-BHC)	ND	0.0001	mg/L	EPA 525.2
72-43-5	METHOXYCHLOR	ND	0.0001	mg/L	EPA 525.2
51218-45-2	METOLACHLOR	ND	0.001	mg/L	EPA 525.2
21087-64-9	METRIBUZIN	ND	0.001	mg/L	EPA 525.2
2212-67-1	MOLINATE	ND	0.0005	mg/L	EPA 525.2
12674-11-2	PCB (AROCLOR 1016)	ND	0.0001	mg/L	EPA 525.2
11104-28-2	PCB (AROCLOR 1221)	ND	0.0001	mg/L	EPA 525.2
11141-16-5	PCB (AROCLOR 1232)	ND	0.0001	mg/L	EPA 525.2
53469-21-9	PCB (AROCLOR 1242)	ND	0.0001	mg/L	EPA 525.2
12672-29-6	PCB (AROCLOR 1248)	ND	0.0001	mg/L	EPA 525.2
11097-69-1	PCB (AROCLOR 1254)	ND	0.0001	mg/L	EPA 525.2
11096-82-5	PCB (AROCLOR 1260)	ND	0.0001	mg/L	EPA 525.2
59536-65-1	POLYBROMINATED BIPHENYLS	ND	0.0001	mg/L	EPA 525.2
122-34-9	SIMAZINE	ND	0.0002	mg/L	EPA 525.2

8001-35-2	TOXAPHENE	ND	0.001	mg/L	EPA 525.2
71-43-2	BENZENE	ND	0.0005	mg/L	EPA 524.2
108-86-1	BROMOBENZENE	ND	0.0005	mg/L	EPA 524.2
74-97-5	BROMOCHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
75-25-2	BROMOFORM	0.0013	0.0005	mg/L	EPA 524.2
74-83-9	BROMOMETHANE	ND	0.001	mg/L	EPA 524.2
104-51-8	BUTYLBENZENE,NORMAL-	ND	0.0005	mg/L	EPA 524.2
135-98-8	BUTYLBENZENE,SEC-	ND	0.0005	mg/L	EPA 524.2
98-06-6	BUTYLBENZENE,TERT-	ND	0.0005	mg/L	EPA 524.2
56-23-5	CARBON TETRACHLORIDE	ND	0.0005	mg/L	EPA 524.2
108-90-7	CHLOROBENZENE	ND	0.0005	mg/L	EPA 524.2
124-48-1	CHLORODIBROMOMETHANE	0.0077	0.0005	mg/L	EPA 524.2
75-00-3	CHLOROETHANE	ND	0.0005	mg/L	EPA 524.2
67-66-3	CHLOROFORM	0.0072	0.0005	mg/L	EPA 524.2
74-87-3	CHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
95-49-8	CHLOROTOLUENE,2-	ND	0.0005	mg/L	EPA 524.2
106-43-4	CHLOROTOLUENE,4-	ND	0.0005	mg/L	EPA 524.2
74-95-3	DIBROMOMETHANE	ND	0.0005	mg/L	EPA 524.2
95-50-1	DICHLOROBENZENE,1,2-	ND	0.0005	mg/L	EPA 524.2
541-73-1	DICHLOROBENZENE,1,3-	ND	0.0005	mg/L	EPA 524.2
106-46-7	DICHLOROBENZENE,1,4-	ND	0.0005	mg/L	EPA 524.2
75-27-4	DICHLOROBROMOMETHANE	0.0099	0.0005	mg/L	EPA 524.2
75-71-8	DICHLORODIFLUOROMETHANE	ND	0.001	mg/L	EPA 524.2
75-34-3	DICHLOROETHANE,1,1-	ND	0.0005	mg/L	EPA 524.2
107-06-2	DICHLOROETHANE,1,2-	ND	0.0005	mg/L	EPA 524.2
75-35-4	DICHLOROETHYLENE,1,1-	ND	0.0005	mg/L	EPA 524.2
156-59-2	DICHLOROETHYLENE,1,2-CIS	ND	0.0005	mg/L	EPA 524.2
156-60-5	DICHLOROETHYLENE,1,2-TRANS	ND	0.0005	mg/L	EPA 524.2
78-87-5	DICHLOROPROPANE,1,2-	ND	0.0005	mg/L	EPA 524.2
142-28-9	DICHLOROPROPANE,1,3-	ND	0.0005	mg/L	EPA 524.2
594-20-7	DICHLOROPROPANE,2,2-	ND	0.0005	mg/L	EPA 524.2
563-58-6	DICHLOROPROPENE,1,1-	ND	0.0005	mg/L	EPA 524.2
10061-01-5	DICHLOROPROPENE,1,3-CIS	ND	0.0005	mg/L	EPA 524.2
10061-02-6	DICHLOROPROPENE,1,3-TRANS	ND	0.0005	mg/L	EPA 524.2
100-41-4	ETHYLBENZENE	ND	0.0005	mg/L	EPA 524.2
75-69-4	FLUOROTRICHLOROMETHANE	ND	0.001	mg/L	EPA 524.2
87-68-3	HEXACHLOROBUTADIENE	ND	0.0005	mg/L	EPA 524.2
98-82-8	ISOPROPYL BENZENE	ND	0.0005	mg/L	EPA 524.2
99-87-6	ISOPROPYL TOLUENE, PARA-	ND	0.0005	mg/L	EPA 524.2

78-93-3	METHYL ETHYL KETONE	ND	0.005	mg/L	EPA 524.2
108-10-1	METHYL ISOBUTYL KETONE	ND	0.005	mg/L	EPA 524.2
1634-04-4	METHYL TERT-BUTYL ETHER	ND	0.001	mg/L	EPA 524.2
75-09-2	METHYLENE CHLORIDE	ND	0.0006	mg/L	EPA 524.2
91-20-3	NAPHTHALENE	ND	0.0005	mg/L	EPA 524.2
103-65-1	PROPYLBENZENE, NORMAL-	ND	0.0005	mg/L	EPA 524.2
100-42-5	STYRENE	ND	0.0005	mg/L	EPA 524.2
630-20-6	TETRACHLOROETHANE,1,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-34-5	TETRACHLOROETHANE,1,1,2,2-	ND	0.0005	mg/L	EPA 524.2
127-18-4	TETRACHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
109-99-9	TETRAHYDROFURAN	ND	0.005	mg/L	EPA 524.2
108-88-3	TOLUENE	ND	0.0005	mg/L	EPA 524.2
TTHM-00-C	TOTAL TRIHALOMETHANES	0.026	NA	mg/L	EPA 524.2
87-61-6	TRICHLOROBENZENE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
120-82-1	TRICHLOROBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
71-55-6	TRICHLOROETHANE,1,1,1-	ND	0.0005	mg/L	EPA 524.2
79-00-5	TRICHLOROETHANE,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-01-6	TRICHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
96-18-4	TRICHLOROPROPANE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
95-63-6	TRIMETHYLBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
108-67-8	TRIMETHYLBENZENE,1,3,5-	ND	0.0005	mg/L	EPA 524.2
75-01-4	VINYL CHLORIDE	ND	0.0005	mg/L	EPA 524.2
XYLMP-00-C	XYLENE,META-&PARA-	ND	0.0005	mg/L	EPA 524.2
95-47-6	XYLENE,ORTHO-	ND	0.0005	mg/L	EPA 524.2
1330-20-7	XYLENES (TOTAL)	ND	NA	mg/L	EPA 524.2
7439-97-6	MERCURY	ND	0.0001	mg/L	EPA 200.8
7440-02-0	NICKEL	ND	0.01	mg/L	EPA 200.8
14797-65-0	NITRITE AS N (AUTOMATED)	ND	0.05	mg/L	10-107-04-2-B
14797-55-8	NITRATE AS N (AUTOMATED)	ND	0.4	mg/L	10-107-04-2-B
7439-92-1	LEAD (TOTAL)	ND	0.001	mg/L	EPA 200.8
7440-36-0	ANTIMONY	ND	0.0006	mg/L	EPA 200.8
7782-49-2	SELENIUM (TOTAL)	ND	0.001	mg/L	EPA 200.8

14808-79-8	SULFATE (AUTOMATED)	31	10	mg/L	SM 4500 SO4E
7440-28-0	THALLIUM	ND	0.0002	mg/L	EPA 200.8

Laboratory Comments:

By authority of PA 368 of 1978 as amended.

Print Date: Thu Oct 1 17:13:08 EDT 2015

Michigan Department of Environmental Quality

Replicate Laboratory Report for
Lansing Drinking Water Laboratory

Owner/Location Information:

CITY OF FLINT
4500 N DORT HWY
FLINT MI 48505

Sample Number: LLF77582

Sample/Collection Information:

WSSN:	02310	Site Code:	
County:	Genesee	Water Source:	Public Community Water Supply
Township:		Sample Reason:	Routine Monitoring
Section:		Sample Point:	Treated Public Distribution System
Well #:		Point Description:	PLANT TAP
Collection Date:	8/11/2015 10:00:00 AM	Collector:	Public Water Supply Operator
Arrival Date:	8/12/2015 1:21:17 PM	Collected By:	C BEATENHEAD

CasNo	Analyte	Result	Detect	Units	Method
16984-48-8	FLUORIDE (AUTOMATED)	0.83	0.1	mg/L	SM 4500 FC
7439-89-6	IRON	ND	0.1	mg/L	SM 3500 FeB
HARD-00-C	HARDNESS AS CaCO3	110	20	mg/L	SM 2340 C
7440-23-5	SODIUM	18	5	mg/L	SM 3500 NaB
7440-38-2	ARSENIC (TOTAL)	ND	0.002	mg/L	EPA 200.8
7440-39-3	BARIUM	0.02	0.01	mg/L	EPA 200.8
7440-41-7	BERYLLIUM	ND	0.0004	mg/L	EPA 200.8
57-12-5	CYANIDE	ND	0.02	mg/L	OIA-1677
7440-43-9	CADMIUM (TOTAL)	ND	0.0003	mg/L	EPA 200.8
7647-14-5	CHLORIDE (AUTOMATED)	79	4	mg/L	SM 4500-Cl E

7440-47-3	CHROMIUM (TOTAL)	ND	0.01	mg/L	EPA 200.8
93-76-5	2,4,5-T	ND	0.002	mg/L	EPA 515.4
93-72-1	2,4,5-TP (SILVEX)	ND	0.0002	mg/L	EPA 515.4
94-75-7	2,4-D	ND	0.001	mg/L	EPA 515.4
50594-66-6	ACIFLUORFEN	ND	0.004	mg/L	EPA 515.4
25057-89-0	BENTAZON	ND	0.002	mg/L	EPA 515.4
1918-00-9	DICAMBA	ND	0.002	mg/L	EPA 515.4
88-85-7	DINOSEB	ND	0.0002	mg/L	EPA 515.4
87-86-5	PENTACHLOROPHENOL	ND	0.00004	mg/L	EPA 515.4
1918-02-1	PICLORAM	ND	0.001	mg/L	EPA 515.4
1861-32-1	TOTAL DCPA, MONO & DI-ACID DEGRADATES	ND	0.001	mg/L	EPA 515.4
116-06-3	ALDICARB	ND	0.0005	mg/L	EPA 531.2
1646-88-4	ALDICARB SULFONE	ND	0.0005	mg/L	EPA 531.2
1646-87-3	ALDICARB SULFOXIDE	ND	0.0005	mg/L	EPA 531.2
63-25-2	CARBARYL	ND	0.001	mg/L	EPA 531.2
1563-66-2	CARBOFURAN	ND	0.0005	mg/L	EPA 531.2
16655-82-6	HYDROXYCARBOFURAN,3-	ND	0.001	mg/L	EPA 531.2
2032-65-7	METHIOCARB	ND	0.001	mg/L	EPA 531.2
16752-77-5	METHOMYL	ND	0.001	mg/L	EPA 531.2
23135-22-0	OXAMYL	ND	0.001	mg/L	EPA 531.2
114-26-1	PROPOXUR (BAYGON)	ND	0.001	mg/L	EPA 531.2
34256-82-1	ACETOCHLOR	ND	0.001	mg/L	EPA 525.2
15972-60-8	ALACHLOR	ND	0.0002	mg/L	EPA 525.2
309-00-2	ALDRIN	ND	0.0004	mg/L	EPA 525.2
1912-24-9	ATRAZINE	ND	0.0002	mg/L	EPA 525.2
5103-71-9	CHLORDANE, ALPHA-	ND	0.0002	mg/L	EPA 525.2
5103-74-	CHLORDANE, GAMMA-	ND	0.0002	mg/L	EPA 525.2

2					
72-54-8	DDD,4,4'-	ND	0.001	mg/L	EPA 525.2
72-55-9	DDE,4,4'-	ND	0.001	mg/L	EPA 525.2
50-29-3	DDT,4,4'-	ND	0.0005	mg/L	EPA 525.2
60-57-1	DIELDRIN	ND	0.0005	mg/L	EPA 525.2
72-20-8	ENDRIN	ND	0.0001	mg/L	EPA 525.2
7421-93-4	ENDRIN ALDEHYDE	ND	0.001	mg/L	EPA 525.2
76-44-8	HEPTACHLOR	ND	0.0002	mg/L	EPA 525.2
1024-57-3	HEPTACHLOR EPOXIDE	ND	0.0001	mg/L	EPA 525.2
118-74-1	HEXACHLOROBENZENE	ND	0.0001	mg/L	EPA 525.2
319-84-6	HEXACHLOROCYCLOHEXANE (ALPHA-BHC)	ND	0.001	mg/L	EPA 525.2
319-85-7	HEXACHLOROCYCLOHEXANE (BETA-BHC)	ND	0.001	mg/L	EPA 525.2
319-86-8	HEXACHLOROCYCLOHEXANE (DELTA-BHC)	ND	0.001	mg/L	EPA 525.2
77-47-4	HEXACHLOROCYCLOPENTADIENE	ND	0.0005	mg/L	EPA 525.2
58-89-9	LINDANE (GAMMA-BHC)	ND	0.0001	mg/L	EPA 525.2
72-43-5	METHOXYCHLOR	ND	0.0001	mg/L	EPA 525.2
51218-45-2	METOLACHLOR	ND	0.001	mg/L	EPA 525.2
21087-64-9	METRIBUZIN	ND	0.001	mg/L	EPA 525.2
2212-67-1	MOLINATE	ND	0.0005	mg/L	EPA 525.2
12674-11-2	PCB (AROCLOR 1016)	ND	0.0001	mg/L	EPA 525.2
11104-28-2	PCB (AROCLOR 1221)	ND	0.0001	mg/L	EPA 525.2
11141-16-5	PCB (AROCLOR 1232)	ND	0.0001	mg/L	EPA 525.2
53469-21-9	PCB (AROCLOR 1242)	ND	0.0001	mg/L	EPA 525.2
12672-29-6	PCB (AROCLOR 1248)	ND	0.0001	mg/L	EPA 525.2
11097-69-1	PCB (AROCLOR 1254)	ND	0.0001	mg/L	EPA 525.2
11096-82-5	PCB (AROCLOR 1260)	ND	0.0001	mg/L	EPA 525.2
59536-65-1	POLYBROMINATED BIPHENYLS	ND	0.0001	mg/L	EPA 525.2
122-34-9	SIMAZINE	ND	0.0002	mg/L	EPA 525.2

8001-35-2	TOXAPHENE	ND	0.001	mg/L	EPA 525.2
71-43-2	BENZENE	ND	0.0005	mg/L	EPA 524.2
108-86-1	BROMOBENZENE	ND	0.0005	mg/L	EPA 524.2
74-97-5	BROMOCHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
75-25-2	BROMOFORM	0.0013	0.0005	mg/L	EPA 524.2
74-83-9	BROMOMETHANE	ND	0.001	mg/L	EPA 524.2
104-51-8	BUTYLBENZENE,NORMAL-	ND	0.0005	mg/L	EPA 524.2
135-98-8	BUTYLBENZENE,SEC-	ND	0.0005	mg/L	EPA 524.2
98-06-6	BUTYLBENZENE,TERT-	ND	0.0005	mg/L	EPA 524.2
56-23-5	CARBON TETRACHLORIDE	ND	0.0005	mg/L	EPA 524.2
108-90-7	CHLOROBENZENE	ND	0.0005	mg/L	EPA 524.2
124-48-1	CHLORODIBROMOMETHANE	0.0052	0.0005	mg/L	EPA 524.2
75-00-3	CHLOROETHANE	ND	0.0005	mg/L	EPA 524.2
67-66-3	CHLOROFORM	0.0015	0.0005	mg/L	EPA 524.2
74-87-3	CHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
95-49-8	CHLOROTOLUENE,2-	ND	0.0005	mg/L	EPA 524.2
106-43-4	CHLOROTOLUENE,4-	ND	0.0005	mg/L	EPA 524.2
74-95-3	DIBROMOMETHANE	ND	0.0005	mg/L	EPA 524.2
95-50-1	DICHLOROBENZENE,1,2-	ND	0.0005	mg/L	EPA 524.2
541-73-1	DICHLOROBENZENE,1,3-	ND	0.0005	mg/L	EPA 524.2
106-46-7	DICHLOROBENZENE,1,4-	ND	0.0005	mg/L	EPA 524.2
75-27-4	DICHLOROBROMOMETHANE	0.0036	0.0005	mg/L	EPA 524.2
75-71-8	DICHLORODIFLUOROMETHANE	ND	0.001	mg/L	EPA 524.2
75-34-3	DICHLOROETHANE,1,1-	ND	0.0005	mg/L	EPA 524.2
107-06-2	DICHLOROETHANE,1,2-	ND	0.0005	mg/L	EPA 524.2
75-35-4	DICHLOROETHYLENE,1,1-	ND	0.0005	mg/L	EPA 524.2
156-59-2	DICHLOROETHYLENE,1,2-CIS	ND	0.0005	mg/L	EPA 524.2
156-60-5	DICHLOROETHYLENE,1,2-TRANS	ND	0.0005	mg/L	EPA 524.2
78-87-5	DICHLOROPROPANE,1,2-	ND	0.0005	mg/L	EPA 524.2
142-28-9	DICHLOROPROPANE,1,3-	ND	0.0005	mg/L	EPA 524.2
594-20-7	DICHLOROPROPANE,2,2-	ND	0.0005	mg/L	EPA 524.2
563-58-6	DICHLOROPROPENE,1,1-	ND	0.0005	mg/L	EPA 524.2
10061-01-5	DICHLOROPROPENE,1,3-CIS	ND	0.0005	mg/L	EPA 524.2
10061-02-6	DICHLOROPROPENE,1,3-TRANS	ND	0.0005	mg/L	EPA 524.2
100-41-4	ETHYLBENZENE	ND	0.0005	mg/L	EPA 524.2
75-69-4	FLUOROTRICHLOROMETHANE	ND	0.001	mg/L	EPA 524.2
87-68-3	HEXACHLOROBUTADIENE	ND	0.0005	mg/L	EPA 524.2
98-82-8	ISOPROPYL BENZENE	ND	0.0005	mg/L	EPA 524.2
99-87-6	ISOPROPYL TOLUENE, PARA-	ND	0.0005	mg/L	EPA 524.2

78-93-3	METHYL ETHYL KETONE	ND	0.005	mg/L	EPA 524.2
108-10-1	METHYL ISOBUTYL KETONE	ND	0.005	mg/L	EPA 524.2
1634-04-4	METHYL TERT-BUTYL ETHER	ND	0.001	mg/L	EPA 524.2
75-09-2	METHYLENE CHLORIDE	ND	0.0006	mg/L	EPA 524.2
91-20-3	NAPHTHALENE	ND	0.0005	mg/L	EPA 524.2
103-65-1	PROPYLBENZENE, NORMAL-	ND	0.0005	mg/L	EPA 524.2
100-42-5	STYRENE	ND	0.0005	mg/L	EPA 524.2
630-20-6	TETRACHLOROETHANE,1,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-34-5	TETRACHLOROETHANE,1,1,2,2-	ND	0.0005	mg/L	EPA 524.2
127-18-4	TETRACHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
109-99-9	TETRAHYDROFURAN	ND	0.005	mg/L	EPA 524.2
108-88-3	TOLUENE	ND	0.0005	mg/L	EPA 524.2
TTHM-00-C	TOTAL TRIHALOMETHANES	0.012	NA	mg/L	EPA 524.2
87-61-6	TRICHLOROBENZENE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
120-82-1	TRICHLOROBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
71-55-6	TRICHLOROETHANE,1,1,1-	ND	0.0005	mg/L	EPA 524.2
79-00-5	TRICHLOROETHANE,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-01-6	TRICHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
96-18-4	TRICHLOROPROPANE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
95-63-6	TRIMETHYLBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
108-67-8	TRIMETHYLBENZENE,1,3,5-	ND	0.0005	mg/L	EPA 524.2
75-01-4	VINYL CHLORIDE	ND	0.0005	mg/L	EPA 524.2
XYLMP-00-C	XYLENE,META-&PARA-	ND	0.0005	mg/L	EPA 524.2
95-47-6	XYLENE,ORTHO-	ND	0.0005	mg/L	EPA 524.2
1330-20-7	XYLENES (TOTAL)	ND	NA	mg/L	EPA 524.2
7439-97-6	MERCURY	ND	0.0001	mg/L	EPA 200.8
7440-02-0	NICKEL	ND	0.01	mg/L	EPA 200.8
14797-65-0	NITRITE AS N (AUTOMATED)	ND	0.05	mg/L	10-107-04-2-B
14797-55-8	NITRATE AS N (AUTOMATED)	ND	0.4	mg/L	10-107-04-2-B
7439-92-1	LEAD (TOTAL)	ND	0.001	mg/L	EPA 200.8
7440-36-0	ANTIMONY	ND	0.0006	mg/L	EPA 200.8
7782-49-2	SELENIUM (TOTAL)	ND	0.001	mg/L	EPA 200.8

14808-79-8	SULFATE (AUTOMATED)	21	10	mg/L	SM 4500 SO4E
7440-28-0	THALLIUM	ND	0.0002	mg/L	EPA 200.8

Laboratory Comments:

Matrix spike recovery was below the acceptance criteria due to the presence of residual chlorine in the sample. This does not affect the validity of the sample result.

By authority of PA 368 of 1978 as amended.

Print Date: Thu Oct 1 17:12:44 EDT 2015

Michigan Department of Environmental Quality

Replicate Laboratory Report for
Lansing Drinking Water Laboratory

Owner/Location Information:

CITY OF FLINT
4500 N DORT HWY
FLINT MI 48505

Sample Number: LLF52712

Sample/Collection Information:

WSSN:	02310	Site Code:	
County:	Genesee	Water Source:	Public Community Water Supply
Township:		Sample Reason:	Other
Section:		Sample Point:	Treated Public Distribution System
Well #:		Point Description:	PLANT TAP
Collection Date:	1/22/2015 10:00:00 AM	Collector:	Public Water Supply Operator
Arrival Date:	1/23/2015 8:37:00 AM	Collected By:	MIKE GLASGOW

CasNo	Analyte	Result	Detect	Units	Method
7440-38-2	ARSENIC (TOTAL)	ND	0.002	mg/L	EPA 200.8
7440-39-3	BARIUM	0.01	0.01	mg/L	EPA 200.8
7440-41-7	BERYLLIUM	ND	0.0004	mg/L	EPA 200.8
7440-43-9	CADMIUM (TOTAL)	ND	0.0003	mg/L	EPA 200.8
7440-47-3	CHROMIUM (TOTAL)	ND	0.01	mg/L	EPA 200.8
7439-97-6	MERCURY	ND	0.0001	mg/L	EPA 200.8
7440-02-0	NICKEL	ND	0.01	mg/L	EPA 200.8
7439-92-1	LEAD (TOTAL)	ND	0.001	mg/L	EPA 200.8
7440-36-0	ANTIMONY	ND	0.0006	mg/L	EPA 200.8
7782-49-2	SELENIUM (TOTAL)	0.001	0.001	mg/L	EPA 200.8

7440-28-0	THALLIUM	ND	0.0002	mg/L	EPA 200.8

Laboratory Comments:

By authority of PA 368 of 1978 as amended.

Print Date: Thu Oct 1 17:14:07 EDT 2015

Michigan Department of Environmental Quality

Replicate Laboratory Report for
Lansing Drinking Water Laboratory

Owner/Location Information:

CITY OF FLINT
CITY OF FLINT WATER PLANT
FLINT MI 48505

Sample Number: LLF31222

Sample/Collection Information:

WSSN:	02310	Site Code:	
County:	Genesee	Water Source:	Other
Township:		Sample Reason:	Other
Section:		Sample Point:	Other
Well #:		Point Description:	PLANT TAP
Collection Date:	8/6/2014 2:30:00 PM	Collector:	Public Water Supply Operator
Arrival Date:	8/6/2014 4:23:13 PM	Collected By:	MIKE GLASGOW

CasNo	Analyte	Result	Detect	Units	Method
16984-48-8	FLUORIDE (AUTOMATED)	0.70	0.1	mg/L	SM 4500 FC
7439-89-6	IRON	ND	0.1	mg/L	SM 3500 FeB
HARD-00-C	HARDNESS AS CaCO3	155	20	mg/L	SM 2340 C
7440-23-5	SODIUM	16	5	mg/L	SM 3500 NaB
7440-38-2	ARSENIC (TOTAL)	ND	0.002	mg/L	EPA 200.8
7440-39-3	BARIUM	0.03	0.01	mg/L	EPA 200.8
7440-41-7	BERYLLIUM	ND	0.0004	mg/L	EPA 200.8
7440-43-9	CADMIUM (TOTAL)	ND	0.0003	mg/L	EPA 200.8
7647-14-5	CHLORIDE (AUTOMATED)	61	4	mg/L	SM 4500-Cl E
7440-47-3	CHROMIUM (TOTAL)	ND	0.01	mg/L	EPA 200.8

93-76-5	2,4,5-T	ND	0.002	mg/L	EPA 515.4
93-72-1	2,4,5-TP (SILVEX)	ND	0.0003	mg/L	EPA 515.4
94-75-7	2,4-D	ND	0.002	mg/L	EPA 515.4
50594-66-6	ACIFLUORFEN	ND	0.004	mg/L	EPA 515.4
25057-89-0	BENTAZON	ND	0.002	mg/L	EPA 515.4
1918-00-9	DICAMBA	ND	0.002	mg/L	EPA 515.4
88-85-7	DINOSEB	ND	0.0003	mg/L	EPA 515.4
87-86-5	PENTACHLOROPHENOL	ND	0.00006	mg/L	EPA 515.4
1918-02-1	PICLORAM	ND	0.001	mg/L	EPA 515.4
1861-32-1	TOTAL DCPA, MONO & DI-ACID DEGRADATES	ND	0.001	mg/L	EPA 515.4
116-06-3	ALDICARB	ND	0.0005	mg/L	EPA 531.2
1646-88-4	ALDICARB SULFONE	ND	0.0005	mg/L	EPA 531.2
1646-87-3	ALDICARB SULFOXIDE	ND	0.0005	mg/L	EPA 531.2
63-25-2	CARBARYL	ND	0.001	mg/L	EPA 531.2
1563-66-2	CARBOFURAN	ND	0.0005	mg/L	EPA 531.2
16655-82-6	HYDROXYCARBOFURAN,3-	ND	0.001	mg/L	EPA 531.2
2032-65-7	METHIOCARB	ND	0.001	mg/L	EPA 531.2
16752-77-5	METHOMYL	ND	0.001	mg/L	EPA 531.2
23135-22-0	OXAMYL	ND	0.001	mg/L	EPA 531.2
114-26-1	PROPOXUR (BAYGON)	ND	0.001	mg/L	EPA 531.2
34256-82-1	ACETOCHLOR	ND	0.001	mg/L	EPA 525.2
15972-60-8	ALACHLOR	ND	0.0002	mg/L	EPA 525.2
309-00-2	ALDRIN	ND	0.0004	mg/L	EPA 525.2
1912-24-9	ATRAZINE	0.0003	0.0002	mg/L	EPA 525.2
5103-71-9	CHLORDANE, ALPHA-	ND	0.0002	mg/L	EPA 525.2
5103-74-2	CHLORDANE, GAMMA-	ND	0.0002	mg/L	EPA 525.2
72-54-8	DDD,4,4'-	ND	0.001	mg/L	EPA 525.2

72-55-9	DDE,4,4'-	ND	0.001	mg/L	EPA 525.2
50-29-3	DDT,4,4'-	ND	0.0005	mg/L	EPA 525.2
60-57-1	DIELDRIN	ND	0.0005	mg/L	EPA 525.2
72-20-8	ENDRIN	ND	0.0001	mg/L	EPA 525.2
7421-93-4	ENDRIN ALDEHYDE	ND	0.001	mg/L	EPA 525.2
76-44-8	HEPTACHLOR	ND	0.0002	mg/L	EPA 525.2
1024-57-3	HEPTACHLOR EPOXIDE	ND	0.0001	mg/L	EPA 525.2
118-74-1	HEXACHLOROBENZENE	ND	0.0001	mg/L	EPA 525.2
319-84-6	HEXACHLOROCYCLOHEXANE (ALPHA-BHC)	ND	0.001	mg/L	EPA 525.2
319-85-7	HEXACHLOROCYCLOHEXANE (BETA-BHC)	ND	0.001	mg/L	EPA 525.2
319-86-8	HEXACHLOROCYCLOHEXANE (DELTA-BHC)	ND	0.001	mg/L	EPA 525.2
77-47-4	HEXACHLOROCYCLOPENTADIENE	ND	0.0005	mg/L	EPA 525.2
58-89-9	LINDANE (GAMMA-BHC)	ND	0.0001	mg/L	EPA 525.2
72-43-5	METHOXYCHLOR	ND	0.0001	mg/L	EPA 525.2
51218-45-2	METOLACHLOR	ND	0.001	mg/L	EPA 525.2
21087-64-9	METRIBUZIN	ND	0.001	mg/L	EPA 525.2
2212-67-1	MOLINATE	ND	0.0005	mg/L	EPA 525.2
12674-11-2	PCB (AROCLOR 1016)	ND	0.0001	mg/L	EPA 525.2
11104-28-2	PCB (AROCLOR 1221)	ND	0.0001	mg/L	EPA 525.2
11141-16-5	PCB (AROCLOR 1232)	ND	0.0001	mg/L	EPA 525.2
53469-21-9	PCB (AROCLOR 1242)	ND	0.0001	mg/L	EPA 525.2
12672-29-6	PCB (AROCLOR 1248)	ND	0.0001	mg/L	EPA 525.2
11097-69-1	PCB (AROCLOR 1254)	ND	0.0001	mg/L	EPA 525.2
11096-82-5	PCB (AROCLOR 1260)	ND	0.0001	mg/L	EPA 525.2
59536-65-1	POLYBROMINATED BIPHENYLS	ND	0.0001	mg/L	EPA 525.2
122-34-9	SIMAZINE	ND	0.0002	mg/L	EPA 525.2
8001-35-2	TOXAPHENE	ND	0.001	mg/L	EPA 525.2

71-43-2	BENZENE	ND	0.0005	mg/L	EPA 524.2
108-86-1	BROMOBENZENE	ND	0.0005	mg/L	EPA 524.2
74-97-5	BROMOCHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
75-25-2	BROMOFORM	0.0018	0.0005	mg/L	EPA 524.2
74-83-9	BROMOMETHANE	ND	0.001	mg/L	EPA 524.2
104-51-8	BUTYLBENZENE,NORMAL-	ND	0.0005	mg/L	EPA 524.2
135-98-8	BUTYLBENZENE,SEC-	ND	0.0005	mg/L	EPA 524.2
98-06-6	BUTYLBENZENE,TERT-	ND	0.0005	mg/L	EPA 524.2
56-23-5	CARBON TETRACHLORIDE	ND	0.0005	mg/L	EPA 524.2
108-90-7	CHLOROBENZENE	ND	0.0005	mg/L	EPA 524.2
124-48-1	CHLORODIBROMOMETHANE	0.015	0.0005	mg/L	EPA 524.2
75-00-3	CHLOROETHANE	ND	0.0005	mg/L	EPA 524.2
67-66-3	CHLOROFORM	0.045	0.0005	mg/L	EPA 524.2
74-87-3	CHLOROMETHANE	ND	0.0005	mg/L	EPA 524.2
95-49-8	CHLOROTOLUENE,2-	ND	0.0005	mg/L	EPA 524.2
106-43-4	CHLOROTOLUENE,4-	ND	0.0005	mg/L	EPA 524.2
74-95-3	DIBROMOMETHANE	ND	0.0005	mg/L	EPA 524.2
95-50-1	DICHLOROBENZENE,1,2-	ND	0.0005	mg/L	EPA 524.2
541-73-1	DICHLOROBENZENE,1,3-	ND	0.0005	mg/L	EPA 524.2
106-46-7	DICHLOROBENZENE,1,4-	ND	0.0005	mg/L	EPA 524.2
75-27-4	DICHLOROBROMOMETHANE	0.024	0.0005	mg/L	EPA 524.2
75-71-8	DICHLORODIFLUOROMETHANE	ND	0.001	mg/L	EPA 524.2
75-34-3	DICHLOROETHANE,1,1-	ND	0.0005	mg/L	EPA 524.2
107-06-2	DICHLOROETHANE,1,2-	ND	0.0005	mg/L	EPA 524.2
75-35-4	DICHLOROETHYLENE,1,1-	ND	0.0005	mg/L	EPA 524.2
156-59-2	DICHLOROETHYLENE,1,2-CIS	ND	0.0005	mg/L	EPA 524.2
156-60-5	DICHLOROETHYLENE,1,2-TRANS	ND	0.0005	mg/L	EPA 524.2
78-87-5	DICHLOROPROPANE,1,2-	ND	0.0005	mg/L	EPA 524.2
142-28-9	DICHLOROPROPANE,1,3-	ND	0.0005	mg/L	EPA 524.2
594-20-7	DICHLOROPROPANE,2,2-	ND	0.0005	mg/L	EPA 524.2
563-58-6	DICHLOROPROPENE,1,1-	ND	0.0005	mg/L	EPA 524.2
10061-01-5	DICHLOROPROPENE,1,3-CIS	ND	0.0005	mg/L	EPA 524.2
10061-02-6	DICHLOROPROPENE,1,3-TRANS	ND	0.0005	mg/L	EPA 524.2
100-41-4	ETHYLBENZENE	ND	0.0005	mg/L	EPA 524.2
75-69-4	FLUOROTRICHLOROMETHANE	ND	0.001	mg/L	EPA 524.2
87-68-3	HEXACHLOROBUTADIENE	ND	0.0005	mg/L	EPA 524.2
98-82-8	ISOPROPYL BENZENE	ND	0.0005	mg/L	EPA 524.2
99-87-6	ISOPROPYL TOLUENE, PARA-	ND	0.0005	mg/L	EPA 524.2

78-93-3	METHYL ETHYL KETONE	ND	0.005	mg/L	EPA 524.2
108-10-1	METHYL ISOBUTYL KETONE	ND	0.005	mg/L	EPA 524.2
1634-04-4	METHYL TERT-BUTYL ETHER	ND	0.001	mg/L	EPA 524.2
75-09-2	METHYLENE CHLORIDE	ND	0.0006	mg/L	EPA 524.2
91-20-3	NAPHTHALENE	ND	0.0005	mg/L	EPA 524.2
98-95-3	NITROBENZENE	ND	0.01	mg/L	EPA 524.2
103-65-1	PROPYLBENZENE, NORMAL-	ND	0.0005	mg/L	EPA 524.2
100-42-5	STYRENE	ND	0.0005	mg/L	EPA 524.2
630-20-6	TETRACHLOROETHANE,1,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-34-5	TETRACHLOROETHANE,1,1,2,2-	ND	0.0005	mg/L	EPA 524.2
127-18-4	TETRACHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
109-99-9	TETRAHYDROFURAN	ND	0.005	mg/L	EPA 524.2
108-88-3	TOLUENE	ND	0.0005	mg/L	EPA 524.2
TTHM-00-C	TOTAL TRIHALOMETHANES	0.086	NA	mg/L	EPA 524.2
87-61-6	TRICHLOROBENZENE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
120-82-1	TRICHLOROBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
71-55-6	TRICHLOROETHANE,1,1,1-	ND	0.0005	mg/L	EPA 524.2
79-00-5	TRICHLOROETHANE,1,1,2-	ND	0.0005	mg/L	EPA 524.2
79-01-6	TRICHLOROETHYLENE	ND	0.0005	mg/L	EPA 524.2
96-18-4	TRICHLOROPROPANE,1,2,3-	ND	0.0005	mg/L	EPA 524.2
95-63-6	TRIMETHYLBENZENE,1,2,4-	ND	0.0005	mg/L	EPA 524.2
108-67-8	TRIMETHYLBENZENE,1,3,5-	ND	0.0005	mg/L	EPA 524.2
75-01-4	VINYL CHLORIDE	ND	0.0004	mg/L	EPA 524.2
XYLMP-00-C	XYLENE,META-&PARA-	ND	0.0005	mg/L	EPA 524.2
95-47-6	XYLENE,ORTHO-	ND	0.0005	mg/L	EPA 524.2
1330-20-7	XYLENES (TOTAL)	ND	NA	mg/L	EPA 524.2
7439-97-6	MERCURY	ND	0.0001	mg/L	EPA 200.8
7440-02-0	NICKEL	ND	0.01	mg/L	EPA 200.8
14797-65-0	NITRITE AS N (AUTOMATED)	ND	0.05	mg/L	10-107-04-2-B
14797-55-8	NITRATE AS N (AUTOMATED)	0.5	0.4	mg/L	10-107-04-2-B
7439-92-1	LEAD (TOTAL)	ND	0.001	mg/L	EPA 200.8
7440-36-0	ANTIMONY	ND	0.0006	mg/L	EPA 200.8
7782-49-					

2	SELENIUM (TOTAL)	0.001	0.001	mg/L	EPA 200.8
14808-79-8	SULFATE (AUTOMATED)	23	10	mg/L	SM 4500 SO4E
7440-28-0	THALLIUM	ND	0.0002	mg/L	EPA 200.8

Laboratory Comments:

By authority of PA 368 of 1978 as amended.

Print Date: Thu Oct 1 17:15:37 EDT 2015

Olszewski, Rosemarie (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Monday, September 21, 2015 11:56 AM
To: Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Wurfel, Brad (DEQ); Pallone, Maggie (DEQ); Wyant, Dan (DEQ)
Cc: Thelen, Mary Beth (DEQ); Feuerstein, Heather (DEQ); Shaler, Karen (DEQ); Devereaux, Tracy Jo (DEQ)
Subject: FW: Flint MI: LCR Enforcement Issues
Attachments: image003.png; ATT00001.htm; Flint LCR for FOIA 6429-15 (5).pdf; ATT00002.htm; FOIA 15-585 Part 2 55pgs (12).pdf; ATT00003.htm

EPA just shared the attached

From: Fortin, Denise [mailto:Fortin.Denise@epa.gov]
Sent: Monday, September 21, 2015 11:44 AM
To: Shekter Smith, Liane (DEQ)
Subject: Fwd: Flint MI: LCR Enforcement Issues

Sent from my iPhone

Begin forwarded message:

> **From:** "Henry, Timothy" <henry.timothy@epa.gov>
> **To:** "Fortin, Denise" <Fortin.Denise@epa.gov>
> **Subject: FW: Flint MI: LCR Enforcement Issues**
>
> Tim Henry
> Deputy Director, Water Division
> U.S. EPA (W-15J)
> 77 W. Jackson Blvd., Chicago, IL 60604-3590
> Phone: 312.886.6107 Fax: 312.692.2578
>
> ---
>
> **From:** Damato, Nicholas
> **Sent:** Monday, September 21, 2015 7:56 AM
> **To:** Henry, Timothy; Hyde, Tinka
> **Subject:** FW: Flint MI: LCR Enforcement Issues
> **Importance:** High
>
> Tim & Tinka,
>
> Miguel forwarded the email below from Marc Edwards. Miguel then called because he wanted Tinka to have a heads up especially on the info in the ACLU video and didn't want her blindsided

with the content – it should be reviewed carefully. Tom, Rita, Heather, Jennifer, MIguel & I will be having a call with ORC & OECA this morning on Marc's email.

Nick

From: Deltoral, Miguel
Sent: Monday, September 21, 2015 6:52 AM
To: Damato, Nicholas
Subject: Fw: Flint MI: LCR Enforcement Issues
Importance: High

Just noticed you weren't copied on this...

Miguel A. Del Toral
Regulations Manager
U.S. EPA R5 GWDWB
77 West Jackson Blvd, (WG-15J)
Chicago, IL 60604
Phone: (312) 886-5253

From: Marc Edwards <edwardsm@vt.edu>
Sent: Sunday, September 20, 2015 09:29 PM
To: Schock, Michael; Lytle, Darren; kempic.jeffrey@epa.gove; Burneson, Eric; demarco.carol@epa.gov; Murphy, Thomas; Shoven, Heather; Deltoral, Miguel
Subject: Flint MI: LCR Enforcement Issues

Mike, Darren, Jeff, Eric, Carol and Miguel and R5 MI/Enforcement personnel (as listed on the R5 webpage).

In this e-mail, I am making you aware of what we know regarding the Flint lead situation.

1) They do not have an approved lead sampling pool. Only 13 of the lowest lead sampled homes from 2014, were resampled in 2015.
The homes sampling high in 2014, were not asked to be resampled.
At best, their program is sending out sampling bottles at random across the city.

2) This message exemplifies the type of site selection, that they are doing to satisfy their high risk LCR monitoring pool site.
That is, none. They are not even hiding it.
http://www.flintneighborhoodsunited.org/drinking-water-testing/.

3) Furthermore, in a video now on the ACLU website, at the end of the interview, Mike Glasgow (Flint LCR program) notes what is perfectly obvious from looking at the MDEQ FOIA materials.
"we threw out bottles everywhere just to collect as many as we can, just to hit our number, and we just turn in every result we get in."
Moreover, they do not have the records to show the homes have lead pipe. ***"we are still looking for the records"***
See video here. Start at 4 minutes and 13 seconds to see the admission. ***https://vimeo.com/139882021***

4) On top of that, according to my count, MDEQ covered up no fewer than 5 violations in the 2015 sample round. These include:

a) Technical violation in that what they now stamp as the "draft" report (attached) is late (the signed date is 7/28/2015).
It was due 7/10/2015. The final "revised" report is dated 8/20/2015 (also attached), which is 40 days late.

b) Although 87 sites from 2014 were not resampled, no written justification for the site changes was provided in the FOIA materials, and this is required by law.
The statement given today by Flint, that residents were not resampled because they did not want to participate, is contradicted by my conversations with residents.

c) In the original 71 samples Flint submitted late, the lead 90%ile action level was exceeded. MDEQ took the initiative to invalidate 2 samples, dropping Flint below the Action Level.
Flint never requested in writing that any of the samples be invalidated (see the comments written in the box of page 1, FOIA 15-585).
Mike Glasgow says that the 2 high samples were deleted based on the conference call. Only the high samples were scrutinized for meeting the sample pool criteria.
No low samples were investigated. I have the e-mails.

4) The "Draft 7/28/2015" and "revised 8/20/2015" LCR reports, on page 1, check boxes that note Tier 1 sites are not used. MDEQ asks no questions about that. In video Mike admits he has no knowledge of what sites actually have lead pipe or not.

5) Flint did not achieve the minimum number of samples as determined before the sampling round. In his e-mail Mike Glasgow (see below, and see FLINT LCR FOR FOIA...pdf) acknowledges this will be a technical violation. The draft LCR clearly indicates that the minimum was not achieved. MDEQ responds "we are discussing options" to handle this technical violation. In the August 20th revised final report, even this technical violation magically disappears (see comments box on page 1....).

Sent: [illegible]
To: 'Michael Glasgow'
Cc: Brent Wright
Subject: RE: lead/copper

we are discussing options regarding this and future rounds of monitoring and will get back with you.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Thursday, July 09, 2015 2:19 PM
To: Rosenthal, Adam (DEQ)
Cc: Brent Wright
Subject: Re: lead/copper

Adam,

I just sent the last of the samples to the lab today. Unfortunately we did not reach 100 samples. I believe the count I have is 76 total. Since we have had a few more hits this round, we are going to continue to solicit samples for our own informational purposes. I am disappointed in the turnout of sampling, we distributed close to 200 sample bottles. With this monitoring violation will we be required to collect another round of 100

N DEPARTMENT OF ENVIRONMENTAL QUALITY
F DRINKING WATER AND MUNICIPAL ASSISTANCE

DRAFT

AND COPPER REPORT AND
ONSUMER NOTICE OF LEAD RESULT
CERTIFICATE FOR COMMUNITY WATER SUPPLY

Issued under authority of 1976 PA 399, MCL 325.1001 *et al.*, and Administrative Rules, as amended.
Failure to submit this information is a violation of Act 399 and may subject the water supply to enforcement penalties.

Administrative Rule R 325.10710d requires water supplies to report lead and copper monitoring information within 10 days after the end of the monitoring period. This form may be used to meet this requirement. Submit the information to the appropriate Department of Environmental Quality (DEQ) district office. For district office addresses, visit www.michigan.gov/deq and click on Locations.

1. Water Supply Name: City of Flint Water Plant
2. County: Genesee 3. WSSN: **2310**
4. Population: 99,763 5. Monitoring Period: From: 1/1/15 To: 6/30/15
6. Minimum # of Samples Required: 100 60 7. # of Samples Taken: 71 ~~60~~ 69
8. Name of Certified Laboratory: DEQ Drinking Water Laboratory

9. SAMPLE CRITERIA:

Yes	No	Explain No responses in Comments block.	
☐	☒	a. Are the same sampling points used as in the previous monitoring period?	
☐	☒	b. Are all samples from Tier 1 sites?	For more information see *Instructions* paragraph 11, subparagraph "Sample Category."
☒	☐	c. Are all samples from Tier 1, 2, or 3 sites giving Tier 1 priority?	
☒	☐	d. If no Tier 1, 2, or 3 sites are available, do all sites have plumbing materials commonly found at other locations in the system?	
☒	☐	e. Is the minimum number of lead service line samples taken (when applicable)?	

Comments:
A total of 175 sample bottles and instructions were distributed to city residents. We are continuing to solicit samples due to the fact that we did not reach the minimum number for this monitoring period.

Lead service - majority (30,000?)

10. NAME:

Name: Michael Glasgow

Title: Utilites Administrator Phone: 810-766-7135 Date: 7/28/2015

11. TAP SAMPLING DATA: (Use additional sheets as needed) DRAFT

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumbing[2]	Lead (ppb)	Copper (ppb)	Lab #
2205 Flusing Rd	2/15/15	1	L	C,P	N.D.	0.13	54663
212 Browning Ave.	2/18/15	1	L	P	104	N.D.	54945
1809 Stevenson St.	2/10/15	1	L	P	10	N.D.	54956
4202 Custer Ave.	3/4/15	1	L	C,P	6	0.27	56223
401 E. Newall St.	3/2/15	1	L	P	5	N.D.	56225
215 Browning Ave. ok	3/21/15	1	L	C,P	N.D.	0.16	56226
2615 Trumbull Ave.	2/27/15	1	L	C,P	3	N.D.	56227
201 Browning Ave. ok	3/5/15	1	L	P	N.D.	N.D.	56228
1224 Decker St.	3/17/15	1	L	C,P	13	0.10	57728
1220 Decker St.	3/17/15	1	L	P	4	N.D.	57730
1379 Washington Ave.	3/19/15	1	L	P	8	N.D.	57731
1383 Washington Ave.	3/19/15	1	L	C,P	6	0.17	57734
1372 Washington Ave.	3/19/15	1	L	C,P	2	0.14	57733
1367 Washington Ave.	3/17/15	1	L	P	1	N.D.	57735
1701 Marquettte Dr.	3/14/15	1	L	C,P	1	0.19	57736
778 Bundy Ave.	3/24/15	1	L	P	N.D.	N.D.	58413
3714 Beecher Rd.	3/24/15	1	L	C	2	0.52	58414
1016 Ingleside Ave.	4/9/15	1	L	C,P	7	0.07	59749
1818 Rock Creek Ln.	4/6/15	1	L	C,P	3	0.11	59750
3010 Cheyenne St.	4/3/15	1	L	C,P	5	0.10	59751

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed) DRAFT

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2606 Mountain Ave.	4/15/15	1	L	P	N.D.	N.D.	60546
2020 Crooked Ln.	4/24/15	1	L	C,P	5	0.10	61845
310 E. Moore St.	4/22/15	1	L	P	5	N.D.	61846
631 Alvord Ave.	5/6/15	1	L	P	42	N.D.	63410
216 Browning Ave.	5/7/15	1	L	C,P	22	0.31	63411
3714 Beecher Rd.	5/14/15	1	L	C,P	8	0.15	64283
625 S. Grand Traverse	5/18/15	5	L	C,P	20	0.14	64284 X
912 Lexington Ave.	5/15/15	1	L	P	6	N.D.	64285
349 Robbie Ln.	5/31/15	1	L	P	2	N.D.	67428
353 Robbie Ln.	5/30/15	1	L	C,P	5	0.11	67427
341 Robbie Ln.	5/31/15	1	L	C,P	3	0.05	67426
328 Robbie Ln.	5/30/15	1	L	C,P	2	0.09	67425
357 Robbie Ln.	5/31/15	1	L	C	3	0.20	67424
344 Robbie Ln.	5/31/15	1	L	C,P	4	0.11	67423
1807 Oren Ave.	6/8/15	1	L	P	21	N.D.	68023
421 Lyon St.	6/14/15	1	L	C,P	7	0.14	68788
1528 Delaware Ave.	6/12/15	1	L	P	3	N.D.	68789
3811 Brentwood Dr.	6/14/15	1	L	P	42	N.D.	68790
1615 S. Franklin Ave.	6/14/15	1	L	P	N.D.	N.D.	68791
853 E. 7th St.	6/12/15	1	L	C,P	7	0.07	68792

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

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DRAFT

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
1150 Woodside Dr.	6/14/15	1	L	P	29	N.D.	68793
547 Copeman Blvd.	6/14/15	1	L	P	18	N.D.	68794
920 Stocker Ave.	6/21/15	1	L	P	1	N.D.	69622
742 Lincoln Ave.	6/19/15	1	L	P	2	N.D.	69623
3517 Bennett Ave.	6/24/15	1	L	C,P	3	0.06	69624
1730 Overhill Dr.	6/22/15	1	L	C,P	1	0.08	69625
2117 Stanford Ave.	6/23/15	1	L	C,P	5	0.08	69626
2432 Beta Ln.	6/21/15	1	L	P	N.D.	N.D.	69627
2023 Miller Rd.	6/21/15	1	L	C,P	3	0.06	69628
721 East St. Apt #2	6/25/15	4	L	C,P	10	0.16	70222
3814 Whitter	6/25/15	1	L	P	2	N.D.	70223
3120 Norwood	6/24/15	1	L	P	5	N.D.	70224
2122 Pierce St.	6/21/15	1	L	P	2	N.D.	70225
3521 Bennett Ave.	6/25/15	1	L	P	3	N.D.	70226
1602 Raspberry Ln.	6/24/15	1	L	P	N.D.	N.D.	70227
1809 Lynbrook	6/26/15	1	L	P	3	N.D.	70228
2112 Sherff	6/24/15	1	L	C,P	9	0.06	70229
1205 Blanchard Ave.	6/24/15	1	L	C,P	11	0.05	70230
860 Schafer St.	6/26/15	1	L	C,P	N.D.	0.06	70231
2110 Flushing Rd.	6/30/15	1	L	C	N.D.	0.10	71158

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

20

11. TAP SAMPLING DATA: (Use additional sheets as needed)

DRAFT

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2300 Flushing Rd.	6/29/15	1	L	C	3	0.28	71159
2130 Flushing Rd.	6/28/15	1	L	C,P	6	0.05	71160
2202 Flushing Rd.	6/29/15	1	L	C,P	2	0.06	71162
2429 Flushing Rd.	6/30/15	1	L	C,P	N.D.	0.06	71163
4013 Brownell Blvd.	6/29/15	1	L	C,P	2	0.08	71165
2414 Flushing Rd.	6/30/15	1	L	P	N.D.	N.D.	71166
1914 Penbrook Ln	6/29/15	1	L	P	2	N.D.	71167
3901 Leedra St.	6/26/15	1	L	P	N.D.	N.D.	71168
3142 McClure	6/26/15	1	L	P	3	N.D.	71169
2114 Flushing Rd.	6/30/15	1	L	C,P	5	0.05	71170
709 Frost St.	6/30/15	1	L	P	2	N.D.	72033

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

Consumer Notice of Lead Result in Drinking Water DRAFT

Water Supply Name:	City of Flint		
County:	Genesee	WSSN:	**2310**
Sample Location:	401 E. Newall St.	Date Sampled:	**3/2/15**

Thank you for participating in the lead and copper monitoring of drinking water. The levels of lead and copper found at your location are in the table below.

Key to Table	Contaminant	AL	MCLG	Your Result
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. ppb: parts per billion or micrograms per liter.	Lead (ppb)	15	0	5
	Copper (ppb)	1300	1300	Not Detected

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and it can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

To reduce exposure to lead in drinking water:

- *Run your water to flush out lead.* Run the water until it becomes cold.
- *Use cold water for cooking and preparing baby formula.* Do not cook with or drink water from the hot water tap; lead dissolves more easily in hot water.
- *Do not boil water to remove lead.* Boiling water will not reduce lead levels.
- *Look for alternative sources or treatment of water.* If your lead result is above 15 ppb, you may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010, or www.nsf.org for information on performance standards for water filters.
- *Identify if your plumbing fixtures contain lead.* New faucets, fittings, and valves, may contain up to 8 percent lead including those advertised or labeled as "lead-free" and may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions.

Although the primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated soil, the U.S. EPA estimates that 10 to 20 percent of human exposure to lead may come from drinking water.

For more information, contact us at: City of Flint Water Plant (810) 787-6537.
For more information on reducing lead exposure around your home and the health effects of lead, visit the U.S. EPA's Web site at www.epa.gov/lead, call the National Lead Information Center at 800-424-LEAD, or contact your health care provider.

Certification: WSSN: 2310
I certify that this public water supply has provided the consumer notice of lead result to persons served at each of the taps that was tested, either by mail or by another method approved by the DEQ, within 30 days of knowing the result. The Notice includes required content.

Michael D. Glasgow — Signature
UTILITIES ADMINISTRATOR — Title
3/17/15 — Date Sent to Consumer

Reminder to water supplier: Complete this certification on only one (1) example copy of a notice sent to a consumer and submit it to the DEQ.

Rosenthal, Adam (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, August 03, 2015 9:57 AM
To: 'Michael Glasgow'
Subject: RE: PbCu Cert form

Morning Mike, I also need copies of all 68 consumer notices. I have 1 from 401 E. Newall St., so 67 more.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Friday, July 31, 2015 10:28 AM
To: Rosenthal, Adam (DEQ)
Subject: Re: PbCu Cert form

Adam,

Here is the lead & copper report. I have also sent a hard copy out via USPS.

On Thu, Jul 30, 2015 at 9:33 AM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Morning Mike, I'm preparing the 90th percentile letter and I need your lead copper certification form with the cert of notification to the customers. What I have are 68 results that are routine from 1/1 – 6/30/15. The link below is for the form if you don't have one.

http://www.michigan.gov/deq/0,4561,7-135-3313_3675_3691-61640--,00.html

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

--
Mike Glasgow
Utilities Administrator
City of Flint
1101 S. Saginaw St.
Flint, MI 48502
(810)766-7135 ext. 2602

Rosenthal, Adam (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Friday, July 10, 2015 11:28 AM
To: 'Michael Glasgow'
Cc: Brent Wright
Subject: RE: lead/copper

we are discussing options regarding this and future rounds of monitoring and will get back with you.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

From: Michael Glasgow [mailto:mglasgow@cityofflint.com]
Sent: Thursday, July 09, 2015 2:19 PM
To: Rosenthal, Adam (DEQ)
Cc: Brent Wright
Subject: Re: lead/copper

Adam,

I just sent the last of the samples to the lab today. Unfortunately we did not reach 100 samples. I believe the count I have is 76 total. Since we have had a few more hits this round, we are going to continue to solicit samples for our own informational purposes. I am disappointed in the turnout of sampling, we distributed close to 200 sample bottles. With this monitoring violation will we be required to collect another round of 100 samples?

Also, I have attached a copy of our June bromate test results.

On Thu, Jul 9, 2015 at 9:55 AM, Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> wrote:

Morning Mike, do you have a count on how many lead/copper samples were turned in? I know they all haven't been run at the lab yet, but if I can verify how many there will be, that would be good. So far I have 70 results and the City is below the AL for lead – current 90th = 13 ppb. All the copper results are below.

thanks,

Adam Rosenthal, EQA

MDEQ – Office of Drinking Water and Municipal Assistance

Lansing District – Constitution Hall 1SW

PO Box 30242

Lansing, MI 48909

517-284-6644

fax: 517-241-3571

For MORs, Lab Results & Reporting Forms:

DEQ-DWMA-Lansing@michigan.gov

--

Mike Glasgow
Utilities Administrator
City of Flint
1101 S. Saginaw St.
Flint, MI 48502
(810)766-7135 ext. 2602

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE

LEAD AND COPPER REPORT AND CONSUMER NOTICE OF LEAD RESULT CERTIFICATE FOR COMMUNITY WATER SUPPLY

Issued under authority of 1976 PA 399, MCL 325.1001 *et al.*, and Administrative Rules, as amended.
Failure to submit this information is a violation of Act 399 and may subject the water supply to enforcement penalties.

Administrative Rule R 325.10710d requires water supplies to report lead and copper monitoring information within 10 days after the end of the monitoring period. This form may be used to meet this requirement. Submit the information to the appropriate Department of Environmental Quality (DEQ) district office. For district office addresses, visit www.michigan.gov/deq and click on Locations.

1. Water Supply Name: City of Flint Water Plant
2. County: Genesee 3. WSSN: **2310**
4. Population: 99,763 5. Monitoring Period: From: 1/1/15 To: 6/30/15
6. Minimum # of Samples Required: 60 7. # of Samples Taken: 69
8. Name of Certified Laboratory: DEQ Drinking Water Laboratory

9. SAMPLE CRITERIA:

Yes	No	Explain No responses in Comments block.	
☐	☒	a. Are the same sampling points used as in the previous monitoring period?	
☐	☒	b. Are all samples from Tier 1 sites?	For more information see *Instructions* paragraph 11, subparagraph "Sample Category."
☒	☐	c. Are all samples from Tier 1, 2, or 3 sites giving Tier 1 priority?	
☒	☐	d. If no Tier 1, 2, or 3 sites are available, do all sites have plumbing materials commonly found at other locations in the system?	
☒	☐	e. Is the minimum number of lead service line samples taken (when applicable)?	

Comments: Revised report after conference call with DEQ staff. Two samples were removed from list for not meeting sample criteria, and due to population the number of samples required was reduced to 60.

10. NAME:

Name: Michael Glasgow

Title: Utilites Administrator Phone: 810-766-7135 Date: 8/20/2015

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2205 Flusing Rd	2/15/15	1	L	C,P	N.D.	0.13	54663
1809 Stevenson St.	2/10/15	1	L	P	10	N.D.	54956
4202 Custer Ave.	3/4/15	1	L	C,P	6	0.27	56223
401 E. Newall St.	3/2/15	1	L	P	5	N.D.	56225
215 Browning Ave.	3/21/15	1	L	C,P	N.D.	0.16	56226
2615 Trumbull Ave.	2/27/15	1	L	C,P	3	N.D.	56227
201 Browning Ave.	3/5/15	1	L	P	N.D.	N.D.	56228
1224 Decker St.	3/17/15	1	L	C,P	13	0.10	57728
1220 Decker St.	3/17/15	1	L	P	4	N.D.	57730
1379 Washington Ave.	3/19/15	1	L	P	8	N.D.	57731
1383 Washington Ave.	3/19/15	1	L	C,P	6	0.17	57734
1372 Washington Ave.	3/19/15	1	L	C,P	2	0.14	57733
1367 Washington Ave.	3/17/15	1	L	P	1	N.D.	57735
1701 Marquettte Dr.	3/14/15	1	L	C,P	1	0.19	57736
778 Bundy Ave.	3/24/15	1	L	P	N.D.	N.D.	58413
3714 Beecher Rd.	3/24/15	1	L	C	2	0.52	58414
1016 Ingleside Ave.	4/9/15	1	L	C,P	7	0.07	59749
1818 Rock Creek Ln.	4/6/15	1	L	C,P	3	0.11	59750
3010 Cheyenne St.	4/3/15	1	L	C,P	5	0.10	59751
2606 Mountain Ave.	4/15/2015	1	L	P	N.D.	N.D.	60546

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2020 Crooked Ln.	4/24/15	1	L	C,P	5	0.10	61845
310 E. Moore St.	4/22/15	1	L	P	5	N.D.	61846
631 Alvord Ave.	5/6/15	1	L	P	42	N.D.	63410
216 Browning Ave.	5/7/15	1	L	C,P	22	0.31	63411
3714 Beecher Rd.	5/14/15	1	L	C,P	8	0.15	64283
912 Lexington Ave.	5/15/15	1	L	P	6	N.D.	64285
349 Robbie Ln.	5/31/15	1	L	P	2	N.D.	67428
353 Robbie Ln.	5/30/15	1	L	C,P	5	0.11	67427
341 Robbie Ln.	5/31/15	1	L	C,P	3	0.05	67426
328 Robbie Ln.	5/30/15	1	L	C,P	2	0.09	67425
357 Robbie Ln.	5/31/15	1	L	C	3	0.20	67424
344 Robbie Ln.	5/31/15	1	L	C,P	4	0.11	67423
1807 Oren Ave.	6/8/15	1	L	P	21	N.D.	68023
421 Lyon St.	6/14/15	1	L	C,P	7	0.14	68788
1528 Delaware Ave.	6/12/15	1	L	P	3	N.D.	68789
3811 Brentwood Dr.	6/14/15	1	L	P	42	N.D.	68790
1615 S. Franklin Ave.	6/14/15	1	L	P	N.D.	N.D.	68791
853 E. 7th St.	6/12/15	1	L	C,P	7	0.07	68792
1150 Woodside Dr.	6/14/15	1	L	P	29	N.D.	68793
547 Copeman Blvd.	6/15/14	1	L	P	18	N.D.	68794

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2114 Flushing Rd.	6/30/15	1	L	P	5	0.05	71170
709 Frost St.	6/30/15	1	L	P	2	N.D.	72033
920 Stocker Ave.	6/21/15	1	L	P	1	N.D.	69622
742 Lincoln Ave.	6/19/15	1	L	P	2	N.D.	69623
3517 Bennett Ave.	6/24/15	1	L	C,P	3	0.06	69624
1730 Overhill Dr.	6/22/15	1	L	C,P	1	0.08	69625
2117 Stanford Ave.	6/23/15	1	L	C,P	5	0.08	69626
2432 Beta Ln.	6/21/15	1	L	P	N.D.	N.D.	69627
2023 Miller Rd.	6/21/15	1	L	C,P	3	0.06	69628
721 East St. Apt #2	6/25/15	4	L	C,P	10	0.16	70222
3814 Whitter	6/25/15	1	L	P	2	N.D.	70223
3120 Norwood	6/24/15	1	L	P	5	N.D.	70224
2122 Pierce St.	6/21/15	1	L	P	2	N.D.	70225
3521 Bennett Ave.	6/25/15	1	L	P	3	N.D.	70226
1602 Raspberry Ln.	6/24/15	1	L	P	N.D.	N.D.	70227
1809 Lynbrook	6/26/15	1	L	P	3	N.D.	70228
2112 Sherff	6/24/15	1	L	C,P	9	0.06	70229
1205 Blanchard Ave.	6/24/15	1	L	C,P	11	0.05	70230
860 Schafer St.	6/26/15	1	L	C,P	N.D.	0.06	70231
2110 Flushing Rd.	6/30/15	1	L	C	N.D.	0.10	71158

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2300 Flushing Rd.	6/29/15	1	L	C	3	0.28	71159
2130 Flushing Rd.	6/28/15	1	L	C,P	6	0.05	71160
2202 Flushing Rd.	6/29/15	1	L	C,P	2	0.06	71162
2429 Flushing Rd.	6/30/15	1	L	C,P	N.D.	0.06	71163
4013 Brownell Blvd.	6/29/15	1	L	C,P	2	0.08	71165
2414 Flushing Rd.	6/30/15	1	L	P	N.D.	N.D.	71166
1914 Penbrook Ln	6/29/15	1	L	P	2	N.D.	71167
3901 Leedra St.	6/26/15	1	L	P	N.D.	N.D.	71168
3142 McClure	6/26/15	1	L	P	3	N.D.	71169

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE

LEAD AND COPPER REPORT AND CONSUMER NOTICE OF LEAD RESULT CERTIFICATE FOR COMMUNITY WATER SUPPLY

Issued under authority of 1976 PA 399, MCL 325.1001 *et al.*, and Administrative Rules, as amended.
Failure to submit this information is a violation of Act 399 and may subject the water supply to enforcement penalties.

Administrative Rule R 325.10710d requires water supplies to report lead and copper monitoring information within 10 days after the end of the monitoring period. This form may be used to meet this requirement. Submit the information to the appropriate Department of Environmental Quality (DEQ) district office. For district office addresses, visit www.michigan.gov/deq and click on Locations.

1. Water Supply Name: City of Flint Water Plant
2. County: Genesee 3. WSSN: **2310**
4. Population: 99,763 5. Monitoring Period: From: 1/1/15 To: 6/30/15
6. Minimum # of Samples Required: 100 7. # of Samples Taken: 71
8. Name of Certified Laboratory: DEQ Drinking Water Laboratory

9. SAMPLE CRITERIA:

Yes	No	Explain No responses in Comments block.	
☐	☒	a. Are the same sampling points used as in the previous monitoring period?	
☐	☒	b. Are all samples from Tier 1 sites?	For more information see *Instructions* paragraph 11, subparagraph "Sample Category."
☒	☐	c. Are all samples from Tier 1, 2, or 3 sites giving Tier 1 priority?	
☒	☐	d. If no Tier 1, 2, or 3 sites are available, do all sites have plumbing materials commonly found at other locations in the system?	
☒	☐	e. Is the minimum number of lead service line samples taken (when applicable)?	

Comments:
A total of 175 sample bottles and instructions were distributed to city residents. We are contiuning to solicit samples due to the fact that we did not reach the minimum number for this monitoring period.

10. NAME:

Name: Michael Glasgow

Title: Utilites Administrator Phone: 810-766-7135 Date: 7/28/2015

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2205 Flusing Rd	2/15/15	1	L	C,P	N.D.	0.13	54663
212 Browning Ave.	2/18/15	1	L	P	104	N.D.	54945
1809 Stevenson St.	2/10/15	1	L	P	10	N.D.	54956
4202 Custer Ave.	3/4/15	1	L	C,P	6	0.27	56223
401 E. Newall St.	3/2/15	1	L	P	5	N.D.	56225
215 Browning Ave.	3/21/15	1	L	C,P	N.D.	0.16	56226
2615 Trumbull Ave.	2/27/15	1	L	C,P	3	N.D.	56227
201 Browning Ave.	3/5/15	1	L	P	N.D.	N.D.	56228
1224 Decker St.	3/17/15	1	L	C,P	13	0.10	57728
1220 Decker St.	3/17/15	1	L	P	4	N.D.	57730
1379 Washington Ave.	3/19/15	1	L	P	8	N.D.	57731
1383 Washington Ave.	3/19/15	1	L	C,P	6	0.17	57734
1372 Washington Ave.	3/19/15	1	L	C,P	2	0.14	57733
1367 Washington Ave.	3/17/15	1	L	P	1	N.D.	57735
1701 Marquettte Dr.	3/14/15	1	L	C,P	1	0.19	57736
778 Bundy Ave.	3/24/15	1	L	P	N.D.	N.D.	58413
3714 Beecher Rd.	3/24/15	1	L	C	2	0.52	58414
1016 Ingleside Ave.	4/9/15	1	L	C,P	7	0.07	59749
1818 Rock Creek Ln.	4/6/15	1	L	C,P	3	0.11	59750
3010 Cheyenne St.	4/3/15	1	L	C,P	5	0.10	59751

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2606 Mountain Ave.	4/15/15	1	L	P	N.D.	N.D.	60546
2020 Crooked Ln.	4/24/15	1	L	C,P	5	0.10	61845
310 E. Moore St.	4/22/15	1	L	P	5	N.D.	61846
631 Alvord Ave.	5/6/15	1	L	P	42	N.D.	63410
216 Browning Ave.	5/7/15	1	L	C,P	22	0.31	63411
3714 Beecher Rd.	5/14/15	1	L	C,P	8	0.15	64283
625 S. Grand Traverse	5/18/15	5	L	C,P	20	0.14	64284
912 Lexington Ave.	5/15/15	1	L	P	6	N.D.	64285
349 Robbie Ln.	5/31/15	1	L	P	2	N.D.	67428
353 Robbie Ln.	5/30/15	1	L	C,P	5	0.11	67427
341 Robbie Ln.	5/31/15	1	L	C,P	3	0.05	67426
328 Robbie Ln.	5/30/15	1	L	C,P	2	0.09	67425
357 Robbie Ln.	5/31/15	1	L	C	3	0.20	67424
344 Robbie Ln.	5/31/15	1	L	C,P	4	0.11	67423
1807 Oren Ave.	6/8/15	1	L	P	21	N.D.	68023
421 Lyon St.	6/14/15	1	L	C,P	7	0.14	68788
1528 Delaware Ave.	6/12/15	1	L	P	3	N.D.	68789
3811 Brentwood Dr.	6/14/15	1	L	P	42	N.D.	68790
1615 S. Franklin Ave.	6/14/15	1	L	P	N.D.	N.D.	68791
853 E. 7th St.	6/12/15	1	L	C,P	7	0.07	68792

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
1150 Woodside Dr.	6/14/15	1	L	P	29	N.D.	68793
547 Copeman Blvd.	6/14/15	1	L	P	18	N.D.	68794
920 Stocker Ave.	6/21/15	1	L	P	1	N.D.	69622
742 Lincoln Ave.	6/19/15	1	L	P	2	N.D.	69623
3517 Bennett Ave.	6/24/15	1	L	C,P	3	0.06	69624
1730 Overhill Dr.	6/22/15	1	L	C,P	1	0.08	69625
2117 Stanford Ave.	6/23/15	1	L	C,P	5	0.08	69626
2432 Beta Ln.	6/21/15	1	L	P	N.D.	N.D.	69627
2023 Miller Rd.	6/21/15	1	L	C,P	3	0.06	69628
721 East St. Apt #2	6/25/15	4	L	C,P	10	0.16	70222
3814 Whitter	6/25/15	1	L	P	2	N.D.	70223
3120 Norwood	6/24/15	1	L	P	5	N.D.	70224
2122 Pierce St.	6/21/15	1	L	P	2	N.D.	70225
3521 Bennett Ave.	6/25/15	1	L	P	3	N.D.	70226
1602 Raspberry Ln.	6/24/15	1	L	P	N.D.	N.D.	70227
1809 Lynbrook	6/26/15	1	L	P	3	N.D.	70228
2112 Sherff	6/24/15	1	L	C,P	9	0.06	70229
1205 Blanchard Ave.	6/24/15	1	L	C,P	11	0.06	70230
860 Schafer St.	6/26/15	1	L	C,P	N.D.	0.06	70231
2110 Flushing Rd.	6/30/15	1	L	C	N.D.	0.10	71158

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water Plant WSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category[1]	Service Lines[2]	Bldg Plumb-ing[2]	Lead (ppb)	Copper (ppb)	Lab #
2300 Flushing Rd.	6/29/15	1	L	C	3	0.28	71159
2130 Flushing Rd.	6/28/15	1	L	C,P	6	0.05	71160
2202 Flushing Rd.	6/29/15	1	L	C,P	2	0.06	71162
2429 Flushing Rd.	6/30/15	1	L	C,P	N.D.	0.06	71163
4013 Brownell Blvd.	6/29/15	1	L	C,P	2	0.08	71165
2414 Flushing Rd.	6/30/15	1	L	P	N.D.	N.D.	71166
1914 Penbrook Ln	6/29/15	1	L	P	2	N.D.	71167
3901 Leedra St.	6/26/15	1	L	P	N.D.	N.D.	71168
3142 McClure	6/26/15	1	L	P	3	N.D.	71169
2114 Flushing Rd.	6/30/15	1	L	C,P	5	0.05	71170
709 Frost St.	6/30/15	1	L	P	2	N.D.	72033

[1] Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

[2] Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90th percentile	Ave	Max	# > AL
Pb				
Cu				

Consumer Notice of Lead Result in Drinking Water

Water Supply Name:	City of Flint		
County:	Genesee	WSSN:	**2310**
Sample Location:	401 E. Newall St.	Date Sampled:	**3/2/15**

Thank you for participating in the lead and copper monitoring of drinking water. The levels of lead and copper found at your location are in the table below.

Key to Table	Contaminant	AL	MCLG	Your Result
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. ppb: parts per billion or micrograms per liter.	Lead (ppb)	15	0	5
	Copper (ppb)	1300	1300	Not Detected

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and it can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

To reduce exposure to lead in drinking water:

- *Run your water to flush out lead.* Run the water until it becomes cold.
- *Use cold water for cooking and preparing baby formula.* Do not cook with or drink water from the hot water tap; lead dissolves more easily in hot water.
- *Do not boil water to remove lead.* Boiling water will not reduce lead levels.
- *Look for alternative sources or treatment of water.* If your lead result is above 15 ppb, you may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010, or www.nsf.org for information on performance standards for water filters.
- *Identify if your plumbing fixtures contain lead.* New faucets, fittings, and valves, may contain up to 8 percent lead including those advertised or labeled as "lead-free" and may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions.

Although the primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated soil, the U.S. EPA estimates that 10 to 20 percent of human exposure to lead may come from drinking water.

For more information, contact us at: City of Flint Water Plant (810) 787-6537.
For more information on reducing lead exposure around your home and the health effects of lead, visit the U.S. EPA's Web site at www.epa.gov/lead, call the National Lead Information Center at 800-424-LEAD, or contact your health care provider.

Certification: WSSN: 2310
I certify that this public water supply has provided the consumer notice of lead result to persons served at each of the taps that was tested, either by mail or by another method approved by the DEQ, within 30 days of knowing the result. The Notice includes required content.

Michael Glasgow — Signature
UTILITIES ADMINISTRATOR — Title
3/17/15 — Date Sent to Consumer

Reminder to water supplier: Complete this certification on only one (1) example copy of a notice sent to a consumer and submit it to the DEQ.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF58413

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	778 E BUNDY AVE,FLINT	Source:	TYPE I	
Collected By:	SANDRA HULL	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/24/2015	06:25
Sample Point:	MAIN BATHROOM	Date Received:	03/31/2015	11:11
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	04/01/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	04/01/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF58414

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	3714 BEECHER RD,FLINT	Source:	TYPE I	
Collected By:	MELISSA MAYS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/24/2015	06:30
Sample Point:	KITCHEN	Date Received:	03/31/2015	11:11
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.52	04/01/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.002	04/01/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF59749

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1016 INGLESIDE AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	JAMES D JARVIS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/09/2015	07:00
Sample Point:	KITCHEN	Date Received:	04/14/2015	11:07
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.07	04/15/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.007	04/15/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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USEPA Region V Drinking Water Cert. No. MI00003
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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF59750

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1818 ROCK CREEK LN,FLINT	Source:	Single Family Dwelling	
Collected By:	HELEN HUNTER	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/06/2015	06:50
Sample Point:	MAIN BATHROOM	Date Received:	04/14/2015	11:07
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.11	04/15/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.003	04/15/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF59751

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	3010 CHEYENNE ST,FLINT	Source:	Single Family Dwelling	
Collected By:	GERTRUDE MARSHALL	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/03/2015	08:50
Sample Point:	KITCHEN	Date Received:	04/14/2015	11:07
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.10	04/15/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	04/15/2015	0.001	0.015	EPA 200.8	7439-92-1

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Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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USEPA Region V Drinking Water Cert. No. MI00003
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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF61845

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT		WSSN/Pool ID:	2310	
Collection Address:	2020 CROOKED LN,FLINT		Source:	Single Family Dwelling	
Collected By:	TRACY & M IKE SARGENT		Site Code:		
Township/Well#/Section:	//		Collector:	Private Citizen	
County:	Genesee		Date Collected:	04/24/2015	07:00
Sample Point:	KITCHEN		Date Received:	05/04/2015	10:21
Water System:	Treated Public Distribution System		Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.10	05/05/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	05/05/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF61846

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	310 E MOORE ST,FLINT	Source:	Single Family Dwelling	
Collected By:	HUSTON BOLDEN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/22/2015	07:00
Sample Point:	KITCHEN	Date Received:	05/04/2015	10:21
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	05/05/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	05/05/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF67423

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	344 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	CASSANDRA BROWN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/31/2015	08:15
Sample Point:	BATHROOM	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.11	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.004	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

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Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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USEPA Region V Drinking Water Cert. No. MI00003
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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF67424

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	357 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	FRANK EVANS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/31/2015	08:00
Sample Point:	KITCHEN	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.20	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.003	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

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810 257-3603

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AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pleper
Systems Mgmt. Unit Mgr: George Krisztian

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USEPA Region V Drinking Water Cert. No. MI00003
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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF67425

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	328 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	WILLIE TURNER	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/30/2015	06:00
Sample Point:	KITCHEN	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.09	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.002	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

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810 257-3603

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AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pleper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF67426

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:		
Collection Address:	341 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	FLORISSA STEBBINS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/31/2015	06:00
Sample Point:	KITCHEN	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.05	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.003	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF67427

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	353 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	ZETAN EVANS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/30/2015	06:45
Sample Point:	BATHROOM	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.11	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

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810 257-3603

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AL : Action Level
RL : Reporting Limit

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ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF67428

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	349 ROBBIE LN,FLINT	Source:	Single Family Dwelling	
Collected By:	DORIS NUNN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/31/2015	08:00
Sample Point:	KITCHEN	Date Received:	06/11/2015	10:51
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/12/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.002	06/12/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
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810 257-3603

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MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF63410

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	631 ALVORD AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	JANICE BERRYMAN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/06/2015	07:00
Sample Point:	MAIN BATHROOM	Date Received:	05/13/2015	11:26
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	05/14/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.042	05/14/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF63411

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	216 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	DEB	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/07/2015	08:00
Sample Point:	KITCHEN	Date Received:	05/13/2015	11:26
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.31	05/14/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.022	05/14/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF59748

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	212 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	LEEANNE WALTERS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	04/02/2015	08:00
Sample Point:	PRE P O S FILTER	Date Received:	04/14/2015	11:07
Water System:	Treated Public Distribution System	Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.11	04/16/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.707	04/16/2015	0.001	0.015	EPA 200.8	7439-92-1

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Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF54663

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	2205 FLUSHING RD,FLINT	Source:	TYPE I
Collected By:	CHRIS BEATENHEAD	Site Code:	
Township/Well#/Section:	//	Collector:	Public Water Supply Operator
County:	Genesee	Date Collected:	02/15/2015 06:00
Sample Point:	KITCHEN	Date Received:	02/17/2015 10:47
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.13	02/18/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	02/18/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF56223

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	4202 CUSTER AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	JACQUELINE PEMBERTON	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/04/2015	08:00
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.27	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.006	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF56224

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	212 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	LEEANNE WALTERS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/03/2015	06:00
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.397	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF56225

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	401 E NEWALL ST,FLINT	Source:	Single Family Dwelling	
Collected By:	MARK CROMWELL SR	Site Code:		
Township/Well#/Section:	//	Collector:	Other	
County:	Genesee	Date Collected:	03/02/2015	09:30
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.005	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
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Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF56226

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	215 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	KEVIN & JENNIFER STARNES	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/02/2015	06:30
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.16	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF56227

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310		
Collection Address:	2615 TRUMBULL AVE,FLINT	Source:	Single Family Dwelling		
Collected By:	JENNIFER PEDERSON	Site Code:			
Township/Well#/Section:	//	Collector:	Private Citizen		
County:	Genesee	Date Collected:	02/27/2015	10:00	
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33	
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring		

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.003	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

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810 257-3603

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AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF56228

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	201 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	FLOYD BELL	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/05/2015	09:30
Sample Point:	KITCHEN	Date Received:	03/06/2015	11:33
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/10/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	03/10/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF54945

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	212 BROWNING AVE,FLINT	Source:	TYPE I	
Collected By:	LEANNE WALTERS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	02/18/2015	07:15
Sample Point:	KITCHEN	Date Received:	02/19/2015	11:13
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	02/20/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.104	02/20/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

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MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pleper
Systems Mgmt. Unit Mgr: George Krisztian

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USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF54946

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1809 STEVENSON ST,FLINT	Source:	TYPE I	
Collected By:	MIKE TAYLOR	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	02/10/2015	06:30
Sample Point:	KITCHEN SINK	Date Received:	02/19/2015	11:13
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	02/20/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.010	02/20/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57728

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	1224 DECKER ST,FLINT	Source:	Single Family Dwelling
Collected By:	LOU ANNE MALIS	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	03/17/2015 06:00
Sample Point:	KITCHEN	Date Received:	03/24/2015 11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.10	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.013	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U .S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57729

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	212 BROWNING AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	MIKE GLASGOW	Site Code:		
Township/Well#/Section:	//	Collector:	Public Water Supply Operator	
County:	Genesee	Date Collected:	03/18/2015	11:10
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.004	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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Flint, MI 48502-1540
810 257-3603

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MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57730

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1220 DECKER ST,FLINT	Source:	Single Family Dwelling	
Collected By:	CARMEN PULIDO	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/17/2015	06:00
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.004	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57731

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1379 WASHINGTON,FLINT	Source:	Single Family Dwelling	
Collected By:	ROXANNE PUTMAN	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/19/2015	08:30
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.008	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57732

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1383 WASHINGTON AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	ANTHONY PALLADENO	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/09/2015	08:00
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.16	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.007	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

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Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57733

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1372 WASHINGTON AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	ANTHONY PALLADENO JR	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/19/2015	08:00
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.14	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.002	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

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AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57734

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310
Collection Address:	1383 WASHINGTON AVE,FLINT	Source:	Single Family Dwelling
Collected By:	ANTHONY PALLADENO III	Site Code:	
Township/Well#/Section:	//	Collector:	Private Citizen
County:	Genesee	Date Collected:	03/19/2015 08:00
Sample Point:	KITCHEN	Date Received:	03/24/2015 11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.17	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.006	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

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RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
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Sample Number
LF57735

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1367 WASHINGTON AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	LEAH PALLADENO	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/17/2015	06:00
Sample Point:	MAIN BATHROOM	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.001	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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810 257-3603

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RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF57736

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1701 MARQUETTE DR,FLINT	Source:	Single Family Dwelling	
Collected By:	CHARMA DOMPREH	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	03/14/2015	09:40
Sample Point:	KITCHEN	Date Received:	03/24/2015	11:05
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.19	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.001	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF68791

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1615 S FRANKLIN AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	VIVAN GRIER	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	06/14/2015	09:45
Sample Point:	KITCHEN	Date Received:	06/19/2015	11:02
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/22/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	Not detected	06/22/2015	0.001	0.015	EPA 200.8	7439-92-1

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Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

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Flint, MI 48502-1540
810 257-3603

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AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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Lansing, MI 48909
TEL: (517) 335-8184
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Sample Number
LF68792

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	853 E 7TH ST,FLINT	Source:	Single Family Dwelling	
Collected By:	LAURA STUDACHER	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	06/12/2015	06:30
Sample Point:	BATHROOM	Date Received:	06/19/2015	11:02
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.07	06/22/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.007	06/22/2015	0.001	0.015	EPA 200.8	7439-92-1

The analyses performed by the MDEQ Drinking Water Laboratory were conducted using methods approved by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act, 40 CFR parts 141-143, and other regulatory agencies as appropriate.

Your local health department has detailed information about the quality of drinking water in your area. If you have concerns about the health risks related to the test results of your sample, please contact the Environmental Health Section through the address and telephone number listed below:

Genesee County Health Dept.
630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY
USEPA Region V Drinking Water Cert. No. MI00003
P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-8184
FAX: (517) 335-8562

Sample Number
LF68793

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1150 WOODSIDE DR,FLINT	Source:	Single Family Dwelling	
Collected By:	DEBORAH CONRAD	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	06/14/2015	07:30
Sample Point:	KITCHEN	Date Received:	06/19/2015	11:02
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/22/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.029	06/22/2015	0.001	0.015	EPA 200.8	7439-92-1

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CFU : Colony Forming Unit

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Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF68794

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	547 COPEMAN BLVD,FLINT	Source:	Single Family Dwelling	
Collected By:	LINDA LEE	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	06/14/2015	09:00
Sample Point:	KITCHEN	Date Received:	06/19/2015	11:02
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/22/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.018	06/22/2015	0.001	0.015	EPA 200.8	7439-92-1

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RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
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MPN : Most Probable Number
CFU : Colony Forming Unit

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Systems Mgmt. Unit Mgr: George Krisztian

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Sample Number
LF68023

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	1807 OREN AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	MARK RUSSEL	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	06/08/2015	07:30
Sample Point:	BATHROOM	Date Received:	06/16/2015	11:11
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	06/17/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.021	06/17/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

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MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
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Systems Mgmt. Unit Mgr: George Krisztian

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FAX: (517) 335-8562

Sample Number
LF64282

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	625 S GRAND TRAVERSE,FLINT	Source:	TYPE III	
Collected By:	MIKE GLASGOW	Site Code:		
Township/Well#/Section:	//	Collector:	Public Water Supply Operator	
County:	Genesee	Date Collected:	05/15/2015	13:00
Sample Point:	BATHROOM	Date Received:	05/20/2015	11:24
Water System:	Treated Public Distribution System	Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.14	05/21/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.017	05/21/2015	0.001	0.015	EPA 200.8	7439-92-1

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630 South Saginaw
Flint, MI 48502-1540
810 257-3603

CAS# : Chemical Abstract Service Registry Number
MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)
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MPN : Most Probable Number
CFU : Colony Forming Unit

Laboratory Contacts
Drinking Water Unit Mgr: Julia Pieper
Systems Mgmt. Unit Mgr: George Krisztian

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FAX: (517) 335-8562

Sample Number
LF64283

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	3714 BEECHER RD,FLINT	Source:	Single Family Dwelling	
Collected By:	MELISSA MAYS	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/14/2015	06:00
Sample Point:	MAIN BATHROOM	Date Received:	05/20/2015	11:24
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.15	05/21/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.008	05/21/2015	0.001	0.015	EPA 200.8	7439-92-1

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Flint, MI 48502-1540
810 257-3603

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Systems Mgmt. Unit Mgr: George Krisztian

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FAX: (517) 335-8562

Sample Number
LF64284

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	625 S GRAND TRAVERSE,FLINT	Source:	TYPE III	
Collected By:	MIKE SARGENT	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/18/2015	08:30
Sample Point:	UTILITY SINK	Date Received:	05/20/2015	11:24
Water System:	Treated Public Distribution System	Purpose:	Other	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	0.14	05/21/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.020	05/21/2015	0.001	0.015	EPA 200.8	7439-92-1

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FAX: (517) 335-8562

Sample Number
LF64285

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT	WSSN/Pool ID:	2310	
Collection Address:	912 LEXINGTON AVE,FLINT	Source:	Single Family Dwelling	
Collected By:	LAURA HATT	Site Code:		
Township/Well#/Section:	//	Collector:	Private Citizen	
County:	Genesee	Date Collected:	05/15/2015	09:00
Sample Point:	MAIN BATHROOM	Date Received:	05/20/2015	11:24
Water System:	Treated Public Distribution System	Purpose:	Routine Monitoring	

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	05/21/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.006	05/21/2015	0.001	0.015	EPA 200.8	7439-92-1

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Laboratory Contacts
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Systems Mgmt. Unit Mgr: George Krisztian

ead/copper Inbox x

Rosenthal, Adam (DEQ) <ROSENTHALA@michigan.gov> Jul 9
to me

Morning Mike, do you have a count on how many lead/copper samples were turned in? I know they all haven't been run at the lab yet, but if I can verify how many there will be, that would be good. So far I have 70 results and the City is below the AL for lead – current 90th = 13 ppb. All the copper results are below.

thanks,

Adam Rosenthal, EQA
MDEQ – Office of Drinking Water and Municipal Assistance
Lansing District – Constitution Hall 1SW
PO Box 30242
Lansing, MI 48909
517-284-6644
fax: 517-241-3571

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

Michael Glasgow <mglasgow@cityofflint.com> Jul 9
to Brent, Adam

Adam,

I just sent the last of the samples to the lab today. Unfortunately we did not reach 100 samples. I believe the count I have is 76 total. Since we have had a few more hits this round, we are going to continue to solicit samples for our own informational purposes. I am disappointed in the turnout of sampling, we distributed close to 200 sample bottles. With this monitoring violation will we be required to collect another round of 100 samples?

Also, I have attached a copy of our June bromate test results.

TEST REPORT

June 2015 Brom...