

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, January 15, 2015 9:53 AM
To: Busch, Stephen (DEQ)
Subject: Fwd: qualifications

I could respond to Ron's question....depending on field work may not get to run this one up the chain or else I can make brief summary and send to you.

Sent from my iPhone

Begin forwarded message:

From: "Fonger, Ronald" <RFONGER1@mlive.com>
Date: January 15, 2015, 9:30:37 AM EST
To: "prysbym@michigan.gov" <prysbym@michigan.gov>
Subject: qualifications

Hi Mike:

There's some reader conversation about the qualifications of those who operate the Flint Water Plant. I know there are requirements that some on staff have achieved a certain certification. I've heard city officials talk about that.

What are the certifications required and how many employees have to have achieved it?

Thanks,

Ron Fonger
MLive Media Group
Reporter

mobile 810.347.9963
email rfonger1@mlive.com
address 540 S. Saginaw St. #101, Flint MI 48502

Rennaker, Joanne (DEQ)

From: Howard Croft <hcroft@cityofflint.com>
Sent: Wednesday, January 14, 2015 5:05 PM
To: Joshua Freeman
Cc: Flint Mayor; Gerald Ambrose; Elizabeth Murphy; Daugherty Johnson; Jason Lorenz; Green, Warren; Prysby, Mike (DEQ); Busch, Stephen (DEQ); John O'Brien; djansen@gcdcwws.com
Subject: Water Forum

All,

In looking ahead to next weeks forum on water I am planning to host a conference call this Friday morning with the participants to get everyone on the same page and discuss details of how the forum should be structured. We have participation commitments from LAN engineering, Genesee County Drain Commissioners office, and MDEQ but we are leaving the door open for others.

The meeting is scheduled for Wednesday January 21st and we are contemplating what time it should be held. Currently we think 7:00 pm is the best time slot.

Please forward me your best availability for Friday morning, and I will establish the call. We would like to begin informing the public of the time, place, and participants of the forum on Friday afternoon.

Thank you,

--

Howard Croft
Public Works Director
City of Flint
1101 S. Saginaw Street
Flint, MI 48502
PH# 810.766.7346 Ext.2043
hcroft@cityofflint.com

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Wednesday, January 14, 2015 3:07 PM
To: Prysby, Mike (DEQ)
Cc: Rennaker, Joanne (DEQ)
Subject: RE: Flint resident letter
Attachments: Resp Ltr to resident-Busch.doc

Mike,

Please review the revised letter (attached). If ok, Jo Anne can final and I will sign it first thing tomorrow morning. 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: Wednesday, January 14, 2015 11:36 AM
To: Busch, Stephen (DEQ)
Subject: Flint resident letter

Steve,

Attached is the letter to Ms. Warner that summarizes my call...routed to us from DCH ...since Ms. Warner contacted them first. I tried to attach the boiler plate opening and closing paragraphs that Joanne provided me; however, my link to the scanned documents won't connect. If you need to look at the boiler plate paragraphs, I can have Joanne email it to you. I will also forward you (in a separate e-mail) the original assignment from Veronica that shows the e-mail thread beginning with DHC...to verify that all the appropriate staff are being copied.

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



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

January 14, 2015

Ms. Patty Warner
2721 Coventry Court
Flint, Michigan 48503

Dear Ms. Warner:

SUBJECT: City of Flint – Water System, Total Trihalomethane (TTHM) Maximum Contaminant Level (MCL) Violation

Thank you for your e-mail of January 6, 2015, to Ms. Nancy Grijalva in the Director's Office of the Michigan Department of Community Health (DCH). Your e-mail was referred from DCH to the Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA) for response.

The City of Flint's community water supply is regulated under the *Michigan Safe Drinking Water Act, 1976 PA 399, as Amended, and the Administrative Rules, Supplying Water to the Public R325.10101 to R325.12820*, (Act 399) authority for which has been conferred to the DEQ, ODWMA.

District staff from the ODWMA contacted you on January 9, 2015 to address your concerns regarding the City of Flint's community water supply system and specifically a violation of the drinking water standard MCL for TTHM following the quarterly monitoring period which ended in December 2014. Concerns discussed included the quality of the City's drinking water in relation to rates being charged to Flint residents, and the requirements regarding public notification of the TTHM MCL violation to customers of the water system. Factors that contribute to TTHM formation were also discussed.

Development of the TTHM standard is designed to limit exposure to TTHM's based on concerns that TTHM, if consumed in excess of the standard over many years, may lead to increased health risks. Therefore, the TTHM MCL standard is based on a Locational Running Annual Average (LRAA). The LRAA is a separate average of the samples for each required location, based on sample results from the previous four quarters, and evaluates long term exposure under worst case conditions rather than single sample results. While TTHM monitoring results from earlier quarters were elevated, the LRAA for the City's eight required sample locations did not exceed the standard until the quarterly monitoring period which ended in December 2014.

District staff confirmed that the City has met the Tier 2 public notification requirements under Act 399 regarding the TTHM MCL violation by directly mailing the public notification to all of its customers within 30 days following the violation. While the City

Ms. Patty Warner

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January 14 , 2015

could have provided water customers with additional information regarding TTHM results prior to the MCL standard violation, such action is not required under Act 399 and may have led to further confusion for customers.

District Staff explained that the City began taking steps to address elevated levels of TTHM prior to the violation by undergoing an operational evaluation of the City's water system. The operational evaluation consists of an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in source water quality, and treatment changes or problems that may contribute to TTHM formation and what steps could be considered to minimize future exceedances. The City has already implemented several changes based on the results of this evaluation and continues to implement others.

District staff also explained that the City's long term solution to reduce TTHM levels is connection to the Karegnondi Water Authority (KWA) to obtain higher quality source water from Lake Huron.

Finally, district staff explained that water rates are neither established nor regulated under Act 399. That the composition of each water system is unique based on aspects such as water source, water quality, treatment, extent of distribution system, and the type and number of customers being served. As such water rates must be established at the local level for each community water system. The DEQ encourages water customers to contact their water supplier and inquire how water rates have been established and what these funds are used to support.

If you need further information or assistance, please contact Mr. Michael Prysby, District Engineer, ODWMA, DEQ at (517) 290-8817,

Sincerely,

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

cc: Mr. Richard Benzie, P.E., DEQ
Ms. Liane Shekter Smith, P.E., DEQ
Ms. Veronica Willard, DEQ
Ms. Nancy Grijalva, DCH

Ms. Patty Warner

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January 14 , 2015

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, January 14, 2015 11:57 AM
To: Busch, Stephen (DEQ)
Subject: RE: Flint resident letter
Attachments: content.pdf; content 2.pdf

Thanks Steve,

I was able to connect to the scanner ...so here are the attached boiler plate paragraphs from Joanne.

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

From: Busch, Stephen (DEQ)
Sent: Wednesday, January 14, 2015 11:47 AM
To: Prysby, Mike (DEQ)
Cc: Rennaker, Joanne (DEQ)
Subject: RE: Flint resident letter

I won't be able to sign this letter until tomorrow morning. I will look at it this afternoon to make some changes.

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: Wednesday, January 14, 2015 11:36 AM
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Steve,

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

SECOND PAGE (Continued)

Senator or Representative should be used for legislators; however, use of "The Honorable" is acceptable. When sending to more than one legislator, use the same order as the inside address.

Senator (Entire Name)
Representative (Entire Name)
The Honorable (Entire Name)

NOTE: Do not use The Honorable Senator/Representative (Entire Name).

CLOSING PARAGRAPH

Letters prepared for the signature of the director/Executive Division staff or bureau/division/office chief/assistant division chief shall identify a staff contact whenever it reasonably can be assumed that the person may need additional information. Specify a bureau/division/office if it is for the director/Executive Division staff signature.

If you need further information or assistance, please contact Mr. Gerald Saalfeld, Chief, Upper Peninsula Unit, Surface Water Assessment Section, Water Bureau, at 517-335-4201.

If the letter is addressed to United States legislators, the Governor's office, state legislators, department directors, congressmen, United States Environmental Protection Agency, company presidents, or agency heads, expand the statement so that it gives the impression the director, bureau/division/office chief, etc., may want to be further involved.

If you need further information or assistance, please contact Ms. Elizabeth Browne, Chief, Land and Water Management Division, at 517-241-9061, or you may contact me.

NOTE: Always use hyphens rather than parentheses for telephone numbers and make sure the entire telephone number is on the same line (CTRL/SHIFT, then HYPHEN). Also, please note the appropriate commas that are needed in the above examples.

The following are similar closing paragraphs that may be used:

DIRECTOR/EXECUTIVE DIVISION SIGNATURE:

Use these examples for letters that are highly technical in nature:

Should you require further information of a technical nature, please contact Mr. Jim Janiczek, Chief, Groundwater Permits Unit, Permits Section, Water Bureau, at 517-373-7262; or you may contact Mr. William Creal, Chief, Water Bureau, at 517-335-4176; or you may contact me.

OPENING PARAGRAPH (Continued)

BUREAU/DIVISION/OFFICE CHIEF/ASSISTANT DIVISION CHIEF'S SIGNATURE:

Thank you for your January 2, 2009, letter to Governor Jennifer M. Granholm regarding odors from the Algonac Wastewater Treatment Plant near your home. Governor Granholm has referred your letter to the Department of Environmental Quality (DEQ) for response.

Thank you for your letter of January 2, 2009, to United States Representative John D. Dingell expressing concern with sewage backups in basements in Gibraltar. Representative Dingell has forwarded your letter to the Department of Environmental Quality (DEQ) for response.

Thank you for your February 3, 2009, letter to Director Steven E. Chester concerning Pall Gelman Sciences, Inc. Director Chester has referred your letter to the Waste and Hazardous Materials Division (WHMD) for response.

Thank you for your letter of February 13, 2009, to Mr. Jim Sygo, Deputy Director, regarding funding for removal of underground storage tanks. Mr. Sygo has forwarded your letter to the Waste and Hazardous Materials Division (WHMD) for response.

Thank you for your January 10, 2009, letter to Ms. Carol Linteau, Legislative Director. Ms. Linteau has asked the Remediation and Redevelopment Division (RRD) to respond to your concerns regarding a remediation site in your district.

Thank you for your e-mail of February 1, 2009, to Director Steven E. Chester concerning mining in the Upper Peninsula. Director Chester has referred your e-mail to the Office of Geological Survey (OGS) for response.

LETTER BODY

Make sure all questions, concerns, and issues stated in the incoming correspondence are addressed. If detailed information is provided, use the name of the staff person who gathered the information. Letters that require a lengthy, detailed response shall be prepared as a staff report or another similar format as applicable, with a cover letter for the director's or Executive Division staff signature (see page 47). *Italic type is now the preferred means of giving special emphasis to words and phrases instead of bolding or underlining.*

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Wednesday, January 14, 2015 11:47 AM
To: Prysby, Mike (DEQ)
Cc: Rennaker, Joanne (DEQ)
Subject: RE: Flint resident letter

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

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

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, January 14, 2015 11:37 AM
To: Busch, Stephen (DEQ)
Subject: FW: DIR00004 Warner / Water toxins in Flint MI
Attachments: ODWMA 15 DIR00004I Warner.pdf

Steve,

Here is the original assignment fyi...

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

From: Willard, Veronica (DEQ)
Sent: Friday, January 09, 2015 2:16 PM
To: Prysby, Mike (DEQ)
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Subject: FW: DIR00004 Warner / Water toxins in Flint MI

Mike – this is the official assignment.

From: DEQ-LogLetter
Sent: Friday, January 09, 2015 11:36 AM
To: Willard, Veronica (DEQ)
Cc: Thelen, Mary Beth (DEQ); Shaler, Karen (DEQ)
Subject: DIR00004 Warner / Water toxins in Flint MI

Assigned to ODWMA

Letter Buckslip

09-Jan-15

ID:	DIR00004	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
Date of letter:	1/6/2015	
Date received:	1/7/2015	
Date due:	1/14/2015	
Reply date:		
Last name:	Warner	
First name:	Patricia L.	
Organization:		
Subject:	Water toxins in Flint MI	
Reply to:		
Author:		
Owner:	OLSZEWSKIR	

Action	Action Date	Due Date	Entity	Signature	Owner	CCs
Assigned 1	1/9/2015	1/14/2015	ODWM A	RD	OLSZEWSKIR	Thelen Shaler

Comments: Original to ODWMA

DIR00004

Thelen, Mary Beth (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Friday, January 09, 2015 10:46 AM
To: Shekter Smith, Liane (DEQ)
Cc: Willard, Veronica (DEQ); Shaler, Karen (DEQ)
Subject: FW: Constituent Inquiry

Hi Liane, please scroll down to the bottom of this email. Could you please have the appropriate staff respond to this constituent as appropriate?

Please let me know if I need to make the Director aware of this particular note, or Brad.

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

From: Daniell, Sharon (DCH)
Sent: Wednesday, January 07, 2015 9:15 AM
To: Thelen, Mary Beth (DEQ)
Subject: Constituent Inquiry

Hi Mary Beth,

This was forwarded to me by Nancy Grijalva in the DCH Director's Office. In checking with our Public Health Administration, they indicated this should be reviewed/responded to by DEQ. Could you please forward to the appropriate person in your Department?

Thanks for your help. If you have any questions, please let me know.

Sharon K. Daniell
Secretary
Director's Office
Michigan Department of Community Health
Phone: (517) 335-0633
Fax: (517) 373-4288
Email: daniells@michigan.gov

Confidentiality Notice: This message, including any attachments, is intended solely for the use of the named recipient(s) and may contain confidential and/or privileged information. Any unauthorized review, use, disclosure or distribution of this communication(s) is expressly prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy any and all copies of the original message.

From: stixdesign [<mailto:stixdesign@sbcglobal.net>]
Sent: Tuesday, January 06, 2015 11:09 AM
To: Grijalva, Nancy (DCH)
Subject: water toxins in Flint, MI

Greetings,

I wrote to the CDC regarding Flint's failure to meet safe quality standards. We were sent a notice on Friday warning of potential health risks. A second notice is forthcoming. Citizens are beyond angry and fearful and it's going viral. Articles can be found on Mlive. The CDC said they could investigate, but the request would have to come from the state. They urged me to contact you. I look forward to hearing from you. The reporter covering this story is Ron Fonger at rfonger@mlive.com

Thank you,
Patricia L. Warner
810 - 919 - 7487

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, January 14, 2015 11:36 AM
To: Busch, Stephen (DEQ)
Subject: Flint resident letter
Attachments: Resp Ltr to resident.doc

Steve,

Attached is the letter to Ms. Warner that summarizes my call...routed to us from DCH ...since Ms. Warner contacted them first. I tried to attach the boiler plate opening and closing paragraphs that Joanne provided me; however, my link to the scanned documents won't connect. If you need to look at the boiler plate paragraphs, I can have Joanne email it to you. I will also forward you (in a separate e-mail) the original assignment from Veronica that shows the e-mail thread beginning with DHC...to verify that all the appropriate staff are being copied.

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



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

January 14, 2015

Ms. Patty Warner
2721 Coventry Court
Flint, Michigan 48503

Dear Ms. Warner:

SUBJECT: City of Flint – Water System, Total Trihalomethane (TTHM) Maximum Contaminant Level (MCL) Violation

Thank you for your e-mail of January 6, 2015, to Ms. Nancy Grijalva in the Director's Office of the Michigan Department of Community Health (DCH). Your e-mail was referred from DCH to the Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA) for response.

District staff from the ODWMA contacted you on January 9, 2015 to address your concerns regarding the TTHM MCL violation of Flint's drinking water. The main concerns discussed included unacceptable quality of the drinking water at a high cost to Flint residents and the perceived delay in notifying residents of the TTHM MCL violation. Some of the factors contributing to the formation of TTHMs in the water distribution system were also discussed.

District Staff explained the need to complete capital improvements at the water treatment plant in order to treat water from the Flint River and to be ready for operation when water from Lake Huron via the Karegnondi Water Authority (KWA) becomes available. Also, the cost of committing to KWA and the infrastructure being installed are the main factors likely contributing to increased water rates. Staff stressed; however, that the city is responsible to inform their residents, in more detail, as to how the most recent water rates were established as a result of the expenditures made to proceed with the work described above.

District Staff also explained how the city's water distribution system storage reservoirs were kept full, with minimal cycling, while purchasing water from Detroit. This method of operation provided the city with several days of emergency storage in the event of an interruption of water service from Detroit (source via single pipeline). Although excess storage benefited the city while purchasing water from Detroit without causing additional TTHM formation, stagnant conditions within the reservoirs contributed to additional TTHMs after the city switched to the Flint River. The city has since changed their operating methodology of these reservoirs which has alleviated the stagnation.

Ms. Patty Warner

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January 14 , 2015

District Staff confirmed that the city met the public notification requirements and the associated deadline to notify residents once the TTHM MCL violation became established. Establishment of the TTHM MCL violation is based on the running annual average on a quarterly basis; thus, the city was not in violation of the TTHM MCL until three quarters of monitoring were completed (November 2014). It wasn't until after the MCL was exceeded that the city was required to post the public notice. Although the city met all DEQ's TTHM monitoring and reporting requirements, it may be worthwhile for the city to convey the status of TTHMs to the public ahead of DEQ's reporting deadlines to help improve public relations.

If you need further information or assistance, please contact Mr. Michael Prysby, District Engineer, ODWMA, DEQ at (517) 290-8817,

Sincerely,

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

cc: Mr. Richard Benzie, P.E., DEQ
Ms. Liane Shekter Smith, P.E., DEQ
Ms. Veronica Willard, DEQ
Ms. Nancy Grijalva, DCH

Rennaker, Joanne (DEQ)

From: Howes, Sarah (DEQ)
Sent: Wednesday, January 14, 2015 8:42 AM
To: Busch, Stephen (DEQ)
Cc: Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ)
Subject: RE: City of Flint-2014 Letters sent by DEQ

Yes---Sorry. All formal correspondence that was send on DEQ letterhead.

From: Busch, Stephen (DEQ)
Sent: Wednesday, January 14, 2015 8:41 AM
To: Howes, Sarah (DEQ)
Cc: Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ)
Subject: Re: City of Flint-2014 Letters sent by DEQ

Sarah,

Could you be a little more specific. If you want all correspondence including emails it will be quite a bit and take some time.

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

Sent from my iPhone

On Jan 13, 2015, at 5:10 PM, Howes, Sarah (DEQ) <HowesS1@michigan.gov> wrote:

Mike or Steve,

Could one of you send me copies of all documents that were sent to the City of Flint re drinking water in 2014 as soon as you get a chance?

Thanks,
 Sarah

Sarah M. Howes | Legislative Liaison
 Department of Environmental Quality
 517.284.6707 O | C 517.282.9204

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, January 14, 2015 8:37 AM
To: Busch, Stephen (DEQ)
Subject: FW: DIR00004 Warner / Water toxins in Flint MI

Steve,

I will prepare the letter and forward to you to finalize...there is a standard opening and closing paragraph with the body based on my discussion with the Flint resident.

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

From: Willard, Veronica (DEQ)
Sent: Wednesday, January 14, 2015 8:23 AM
To: Prysby, Mike (DEQ)
Subject: RE: DIR00004 Warner / Water toxins in Flint MI

This is a reply direct letter, so it can come from you or your supervisor.

From: Prysby, Mike (DEQ)
Sent: Wednesday, January 14, 2015 7:57 AM
To: Willard, Veronica (DEQ)
Subject: FW: DIR00004 Warner / Water toxins in Flint MI

Veronica,

Can you send me the proper format (letter) for me to complete this assignment...."Directors Log letter?" Today is my last day in the office till next week. Thanks.

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

From: Benzie, Richard (DEQ)
Sent: Friday, January 09, 2015 5:24 PM
To: Prysby, Mike (DEQ); Willard, Veronica (DEQ)
Cc: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Subject: RE: DIR00004 Warner / Water toxins in Flint MI

Mike,

You need to draft a response that says pretty much what you say below but in a format (letter) that can be used to provide a response to Ms. Warner from someone probably higher up the chain. I assume Joanne can assist you in identifying the appropriate format.

Veronica,

Can you tell from the attachment you sent (DIR00004) whose signature Mike should be preparing this response? All I see is the initials "RD." Will Mike be signing it or will it be someone else?

Also, since we did not receive this request until the afternoon of January 9th, is it possible we may have a week to respond, making the due date January 16th? Mike has his hands full with all of the demands placed on him by the ongoing issues in Flint.

Richard

From: Prysby, Mike (DEQ)
Sent: Friday, January 09, 2015 3:25 PM
To: Willard, Veronica (DEQ)
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Subject: RE: DIR00004 Warner / Water toxins in Flint MI

Veronica,

I contacted Ms. Patricia Warner and gave her the opportunity to ask me questions and/or voice concerns with the TTHM violation in Flint. Her main complaint, most common complaint across the board, is the high cost of water Flint residents are paying yet receiving water of poor quality. Another concern she voiced was the city's delay in notifying the public of increased TTHM levels. She and others feel the city should have notified residents last May when high TTHM levels were first detected.

I explained to Patricia some of the possible reasons for the increase in water rates included.... improvements needed at the WTP (necessary for full-time operation both for KWA and Flint River operation) and the cost of infrastructure to connect to KWA. The financial commitment to KWA may also be factored into increased costs; however, I stressed that the city needs to work harder at educating the public on why the water rates were increased. With regards to PN requirements, I explained how the TTHM exceedance for Flint is determined (running annual average) and the PN requirement. I stressed that...although the city has met all of the monitoring and PN requirements for this violation, it may be worthwhile for them to convey the status of TTHMs ahead of state and federal reporting deadlines as a means towards regaining public trust. I also provided technical information pertaining to TTHMs and discussed the health-effects in more detail. The duration of the call was a half hour and Patricia seemed satisfied with my response to her questions/concerns. I offered her the opportunity to call me again if she has any further questions.

If any further action is needed regarding this inquiry, please let me know.

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

From: Willard, Veronica (DEQ)
Sent: Friday, January 09, 2015 2:16 PM
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Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
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Assigned to ODWMA

Rennaker, Joanne (DEQ)

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Can you tell from the attachment you sent (DIR00004) whose signature Mike should be preparing this response? All I see is the initials "RD." Will Mike be signing it or will it be someone else?

Also, since we did not receive this request until the afternoon of January 9th, is it possible we may have a week to respond, making the due date January 16th? Mike has his hands full with all of the demands placed on him by the ongoing issues in Flint.

Richard

From: Prysby, Mike (DEQ)
Sent: Friday, January 09, 2015 3:25 PM
To: Willard, Veronica (DEQ)
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Subject: RE: DIR00004 Warner / Water toxins in Flint MI

Veronica,

I contacted Ms. Patricia Warner and gave her the opportunity to ask me questions and/or voice concerns with the TTHM violation in Flint. Her main complaint, most common complaint across the board, is the high cost of water Flint residents are paying yet receiving water of poor quality. Another concern she voiced was the city's delay in notifying the public of increased TTHM levels. She and others feel the city should have notified residents last May when high TTHM levels were first detected.

I explained to Patricia some of the possible reasons for the increase in water rates included.... improvements needed at the WTP (necessary for full-time operation both for KWA and Flint River operation) and the cost of infrastructure to connect to KWA. The financial commitment to KWA may also be factored into increased costs; however, I stressed that the city needs to work harder at educating the public on why the water rates were increased. With regards to PN requirements, I explained how the TTHM exceedance for Flint is determined (running annual average) and the PN requirement. I stressed that...although the city has met all of the monitoring and PN requirements for this violation, it may be worthwhile for them to convey the status of TTHMs ahead of state and federal reporting deadlines as a means towards regaining public trust. I also provided technical information pertaining to TTHMs and discussed the health-effects in more detail. The duration of the call was a half hour and Patricia seemed satisfied with my response to her questions/concerns. I offered her the opportunity to call me again if she has any further questions.

If any further action is needed regarding this inquiry, please let me know.

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

From: Willard, Veronica (DEQ)
Sent: Friday, January 09, 2015 2:16 PM
To: Prysby, Mike (DEQ)
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Subject: FW: DIR00004 Warner / Water toxins in Flint MI

Mike -- this is the official assignment.

From: DEQ-LogLetter
Sent: Friday, January 09, 2015 11:36 AM
To: Willard, Veronica (DEQ)
Cc: Thelen, Mary Beth (DEQ); Shaler, Karen (DEQ)
Subject: DIR00004 Warner / Water toxins in Flint MI

Assigned to ODWMA

Rennaker, Joanne (DEQ)

From: Howes, Sarah (DEQ)
Sent: Tuesday, January 13, 2015 5:11 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Cc: Shekter Smith, Liane (DEQ)
Subject: City of Flint-2014 Letters sent by DEQ

Importance: High

Mike or Steve,

Could one of you send me copies of all documents that were sent to the City of Flint re drinking water in 2014 as soon as you get a chance?

Thanks,
Sarah

Sarah M. Howes | Legislative Liaison
Department of Environmental Quality
517.284.6707 O | C 517.282.9204

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, January 13, 2015 12:23 PM
To: Crooks, Jennifer
Cc: Benzie, Richard (DEQ); Poy, Thomas; Prysby, Mike (DEQ)
Subject: Re: question on Flint

Mike got a copy of the rate schedule last week. We figured around 7500 gallon per month usage on a 5/8 th inch meter was around \$100 per month.

We can get you the full info tomorrow

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

Sent from my iPhone

On Jan 13, 2015, at 11:50 AM, Crooks, Jennifer <crooks.jennifer@epa.gov> wrote:

I just talked with Tom Poy, and he heard on one of the news lines up there that the Emergency Manager is planning to hire a consultant for the drinking water supply.

Yes, I think some people would definitely take their Internet and cellphone service over water anytime, but then complain to us—like what we saw happening in Detroit!

Jen

From: Benzie, Richard (DEQ) [<mailto:BENZIER@michigan.gov>]
Sent: Tuesday, January 13, 2015 9:44 AM
To: Crooks, Jennifer
Cc: Poy, Thomas; Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: question on Flint

Those bills seem high even if it includes sewerage. Do you know if it does include wastewater? If it does, be sure to point that out – that it is a combined bill that reflects both utilities, not just the cost of drinking water. But those bills sound almost as high as what most of those customers are probably paying for their internet and cellphone service or even their cable bills! I wonder which one they think is more essential.

I believe there have been some significant wastewater treatment plant projects in the Genesee County system in recent years, so maybe a significant component of any increase is also on the wastewater side.

Richard

From: Crooks, Jennifer [<mailto:crooks.jennifer@epa.gov>]
Sent: Tuesday, January 13, 2015 10:33 AM

To: Benzie, Richard (DEQ)
Cc: Poy, Thomas
Subject: RE: question

Thanks for the update, Richard. The numerous people I talk to from Flint say their water bills are between \$175-\$200/month. Would DWSD have raised their rates that high? (Don't answer that; just pure conjecture ☺) I talked with a woman yesterday, whose pediatrician swears there has been an increase in kidney stones in his patients since April. I told her to have the pediatrician contact CDC in Atlanta. (I prepared a briefing this summer for ATSDR/CDC about the physical ailments people were complaining about to me, but without any expert or documentation, they didn't pick it up.) Talked to another man yesterday that's mounting a campaign to stop paying their water bills, and wants to organize against the City. And on it goes...

Jen

From: Benzie, Richard (DEQ) [<mailto:BENZIER@michigan.gov>]
Sent: Monday, January 12, 2015 5:08 PM
To: Crooks, Jennifer
Subject: RE: question

Still going on – even some council members talking about going back to Detroit at least until the KWA pipeline is available sometime in 2016. I don't know that the newspapers or media are advocating for one side or the other in this issue, but covering those individuals who are keeps the flames flickering.

I can't say the city wouldn't be better off to not have switched to the River, but I believe Flint was sure that DWSD was going to raise water rates significantly after the contract expired (by decree of DWSD) in order to recoup lost bonding costs or something similar. Flint did not want to be subjected to rates without any contractual controls.

From: Crooks, Jennifer [<mailto:crooks.jennifer@epa.gov>]
Sent: Monday, January 12, 2015 4:57 PM
To: Benzie, Richard (DEQ)
Subject: question

Richard—Last week when we were on the call with Jason, Wendy, and Tom Poleck, you made a passing comment about the newspaper getting into the stories about Flint drinking water, maybe elevating the issue in the public to fire them up? Perhaps talk of going back to Detroit water?

Jen

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, January 13, 2015 12:20 PM
To: Benzie, Richard (DEQ)
Subject: Re: question on Flint

Richard,

I requested a copy of Flint's water rate schedule...of which they provided...based on our calculation...the water bill for a family of four using 1000 cuft (7500 gal) on a monthly basis having a 5/8" meter would be approx. \$98. The bill will be \$20 higher for a 3/4" meter. So I could see a family of 6 with leaking fixtures and a larger meter size seeing a monthly bill in this range. I can provide u with a copy of their rate schedule tomorrow.

Sent from my iPhone

On Jan 13, 2015, at 10:43 AM, "Benzie, Richard (DEQ)" <BENZIER@michigan.gov> wrote:

Those bills seem high even if it includes sewerage. Do you know if it does include wastewater? If it does, be sure to point that out – that it is a combined bill that reflects both utilities, not just the cost of drinking water. But those bills sound almost as high as what most of those customers are probably paying for their internet and cellphone service or even their cable bills! I wonder which one they think is more essential.

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Jen

Rennaker, Joanne (DEQ)

From: Howard Croft <hcroft@cityofflint.com>
Sent: Monday, January 12, 2015 1:37 PM
To: Prysby, Mike (DEQ)
Cc: Busch, Stephen (DEQ); Benzie, Richard (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Flint Mayor
Subject: Re: Public Works Meeting

Mike,

Thank you for your response,

We have decided to move forward with a forum that brings industry experts such as the DEQ, the Genesee County Drain Commissioner, and a health professional together to give a brief presentation and answer questions. We are targeting Wednesday January 21st at 5:30 to hold the meeting at Flint City Hall. The Mayor and I are extremely hopeful that you and any other available DEQ representatives are able to make the meeting as we believe that this will go a long way to assist in rebuilding customer confidence. Please let me know at your earliest opportunity if you can attend.

Thank you,

On Wed, Jan 7, 2015 at 2:18 PM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Howard,

This note confirms my telephone discussion with you today. The city has scheduled a Public Works Committee at 5pm today and the TTHM violation is on the agenda. The meeting will be open to the public and will also have media coverage. Given the timing of the meeting (today at 5pm) the DEQ will not be able to participate. The DEQ is willing to participate in a future public meeting (in the next one to two weeks). Please notify us of the next planned meeting(s) and request the department's participation to help answer questions and/or to speak on specific items pertaining to this issue. Please send the request to me so I can organize our participation. If you have any further questions, please call me at your earliest convenience.

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

--

Howard Croft

Public Works Director

City of Flint

1101 S. Saginaw Street

Flint, MI 48502

PH# 810.766.7346 Ext.2043

hcroft@cityofflint.com

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Monday, January 12, 2015 1:06 PM
To: lwalters313@gmail.com
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: Flint drinking water-citizen 2

Dear Ms. Walters: The names of the engineers at the Michigan Dept of Environmental Quality (MDEQ) that regulate the Flint drinking water supply are:

Steve Busch, Supervising District Engineer
517-643-2314
buschs@michigan.gov

Mike Prysby, District Engineer
517-290-8817
prysbym@michigan.gov

The Water Service Center in Flint deals with problems in the distribution system: 810-766-7202
The Water Treatment Plant in Flint deals with the actual treatment of the water prior to its pumping into the distribution system: 810-787-6537

The cloudiness in the water can be from other components of the drinking water, not necessarily from regulated contaminants. But, the laboratory analyses can give an indication what is causing the cloudiness in the water.

Jennifer Kurtz Crooks
DWSRF Set-aside Coordinator, Region 5
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604
crooks.jennifer@epa.gov
312-886-0244

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Monday, January 12, 2015 12:50 PM
To: supersteely77@gmail.com
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: Flint drinking water-citizen

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Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, January 12, 2015 11:37 AM
To: Benzie, Richard (DEQ)
Subject: Flint response

Richard,

Joanne is working with Veronica on obtaining the proper form for my summary letter...so you can dis-regard my earlier email...

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

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, January 12, 2015 10:44 AM
To: Benzie, Richard (DEQ)
Subject: RE: DIR00004 Warner / Water toxins in Flint MI

Richard,

I will draft a response for inclusion into a letter...Steve indicated the proper format to use is a Director's log letter....Joanne searched the intranet for the appropriate log letter form and found a form over eight years old w. Granholm's letter head on it. We do not think we're on the right track.... Any suggestions on where to look for the proper form as I wish to complete this assignment by COB today...since I be out all day tomorrow and out Thurs and Fri...

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

From: Benzie, Richard (DEQ)
Sent: Friday, January 09, 2015 5:24 PM
To: Prysby, Mike (DEQ); Willard, Veronica (DEQ)
Cc: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Subject: RE: DIR00004 Warner / Water toxins in Flint MI

Mike,

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District Engineer

Office of Drinking Water and Municipal Assistance

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To: Prysby, Mike (DEQ)

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

Subject: FW: DIR00004 Warner / Water toxins in Flint MI

Mike – this is the official assignment.

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Sent: Friday, January 09, 2015 11:36 AM

To: Willard, Veronica (DEQ)

Cc: Thelen, Mary Beth (DEQ); Shaler, Karen (DEQ)
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To: Benzie, Richard (DEQ); Busch, Stephen (DEQ)
Cc: Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ); Datema, Maggie (DEQ); DEQ-Legislative-Contact
Subject: RE: Flint Legislator Questions

Yes, Sen. Ananich and Rep. Phelps both received the advanced notice of the VN. I called Rep. Phelps and Rep. Neeley to let them know that DEQ was unable to attend or participate in the meeting earlier this week due to the short notice, but are happy to in the future.

I also left a message for Sen. Ananich saying that we can come over and brief him on the status and answer any questions. I haven't heard back yet.

Thanks you all for your work on this.
 Sarah

Sarah M. Howes | Legislative Liaison
 Department of Environmental Quality
 517.284.6707 O | C 517.282.9204

From: Benzie, Richard (DEQ)
Sent: Friday, January 09, 2015 10:34 AM
To: Busch, Stephen (DEQ); Howes, Sarah (DEQ)
Cc: Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ)
Subject: RE: Flint Legislator Questions

Steve and Sarah,

I assume he received the advance notice of the violation with the other legislators. We could send him the summary that Mike had prepared and left with Representatives Neeley and Phelps on Tuesday, and offer to meet with him if he still has questions. But I think it would be appropriate for that information to be delivered from Sarah or Maggie unless they advise the district to provide it to Senator Ananich's office directly and just copy them.

Richard

Richard Benzie, P.E., Chief
 Field Operations Section
 Office of Drinking Water and Municipal Assistance, MDEQ
 517-284-6512

From: Busch, Stephen (DEQ)
Sent: Friday, January 09, 2015 8:24 AM
To: Howes, Sarah (DEQ)

Cc: Prysby, Mike (DEQ); Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)

Subject: Flint Legislator Questions

Sarah,

I know Mike, Richard, and you met with Neeley and Phelps earlier this week, but we may want to check in with Senator Ananich's office, to see if they have any questions as well. See the article below.

http://www.mlive.com/news/flint/index.ssf/2015/01/legislators_from_flint_want_st.html#incart_river

Stephen Busch, P.E.

Lansing and Jackson District Supervisor

Office of Drinking Water and Municipal Assistance

MDEQ

517-643-2314

Rennaker, Joanne (DEQ)

From: Willard, Veronica (DEQ)
Sent: Friday, January 09, 2015 2:16 PM
To: Prysby, Mike (DEQ)
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Subject: FW: DIR00004 Warner / Water toxins in Flint MI
Attachments: ODWMA 15 DIR00004I Warner.pdf

Mike – this is the official assignment.

From: DEQ-LogLetter
Sent: Friday, January 09, 2015 11:36 AM
To: Willard, Veronica (DEQ)
Cc: Thelen, Mary Beth (DEQ); Shaler, Karen (DEQ)
Subject: DIR00004 Warner / Water toxins in Flint MI

Assigned to ODWMA

Letter Buckslip

09-Jan-15

ID:	DIR00004	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. _____ ☐ Delegated
Date of letter:	1/6/2015	
Date received:	1/7/2015	
Date due:	1/14/2015	
Reply date:		
Last name:	Warner	
First name:	Patricia L.	
Organization:		
Subject:	Water toxins in Flint MI	
Reply to:		
Author:		
Owner:	OLSZEWSKIR	

Action	Action Date	Due Date	Entity	Signature	Owner	CCs
Assigned 1	1/9/2015	1/14/2015	ODWM A	RD	OLSZEWSKIR	Thelen Shaler

Comments: Original to ODWMA

DIR00004

Thelen, Mary Beth (DEQ)

From: Thelen, Mary Beth (DEQ)
Sent: Friday, January 09, 2015 10:46 AM
To: Shekter Smith, Liane (DEQ)
Cc: Willard, Veronica (DEQ); Shaler, Karen (DEQ)
Subject: FW: Constituent Inquiry

Hi Liane, please scroll down to the bottom of this email. Could you please have the appropriate staff respond to this constituent as appropriate?

Please let me know if I need to make the Director aware of this particular note, or Brad.

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

From: Daniell, Sharon (DCH)
Sent: Wednesday, January 07, 2015 9:15 AM
To: Thelen, Mary Beth (DEQ)
Subject: Constituent Inquiry

Hi Mary Beth,

This was forwarded to me by Nancy Grijalva in the DCH Director's Office. In checking with our Public Health Administration, they indicated this should be reviewed/responded to by DEQ. Could you please forward to the appropriate person in your Department?

Thanks for your help. If you have any questions, please let me know.

Sharon K. Daniell
 Secretary
 Director's Office
 Michigan Department of Community Health
 Phone: (517) 335-0633
 Fax: (517) 373-4288
 Email: daniellis@michigan.gov

Confidentiality Notice: This message, including any attachments, is intended solely for the use of the named recipient(s) and may contain confidential and/or privileged information. Any unauthorized review, use, disclosure or distribution of this communication(s) is expressly prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy any and all copies of the original message.

From: stlxdesign [<mailto:stlxdesign@sbcglobal.net>]
Sent: Tuesday, January 06, 2015 11:09 AM
To: Grijalva, Nancy (DCH)
Subject: water toxins in Flint, MI

Greetings,

I wrote to the CDC regarding Flint's failure to meet safe quality standards. We were sent a notice on Friday warning of potential health risks. A second notice is forthcoming. Citizens are beyond angry and fearful and it's going viral. Articles can be found on Mlive. The CDC said they could investigate, but the request would have to come from the state. They urged me to contact you. I look forward to hearing from you. The reporter covering this story is Ron Fonger at rfonger@mlive.com

Thank you,
Patricia L. Warner
810 - 919 - 7487

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, January 09, 2015 1:04 PM
To: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ); Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Subject: FW: Facility Notification: Flint State Office Building

Steve,

Appears certain state departments are concerned with Flint's WQ. I will return the call....

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

From: Wolf, Jennifer (DEQ)
Sent: Friday, January 09, 2015 10:42 AM
To: Prysby, Mike (DEQ)
Cc: VanOtteren, Bruce (DNR); Doll, Jeanette (DTMB)
Subject: FW: Facility Notification: Flint State Office Building

Hi Mike!

Are you handling this one? If so are you able to address Jeanette's below?

SGT. JEN WOLF
 MI DEPT. OF ENVIRONMENTAL QUALITY
 MI DEPT. OF NATURAL RESOURCES
 LAW ENFORCEMENT DIVISION
 EMERGENCY MANAGEMENT
 DESK: 517-284-6231
 CELL: 517-719-0028

From: Doll, Jeanette (DTMB)
Sent: Friday, January 09, 2015 7:33 AM
To: VanOtteren, Bruce (DNR); Wolf, Jennifer (DEQ)
Subject: FW: Facility Notification: Flint State Office Building

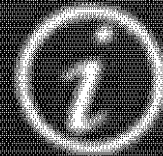
Good morning!

My phone call was referencing the advisory our Real Estate Division received from the City of Flint. Just wanted to know if we would know sooner than March 1 on the TTHM levels.

Jeanette

From: DTMB Facilities [<mailto:dtmb@govsubscriptions.michigan.gov>]
Sent: Wednesday, January 07, 2015 11:49 AM
To: Doll, Jeanette (DTMB)
Subject: Facility Notification: Flint State Office Building

Facility Notification



DTMB Customer Service

(517) 373-6227

Flint Water Advisory

Date/Time:

Effective Wednesday, January 7, 2015

Details:

The City of Flint recently sent out the attached notice regarding violations to the drinking water standards. While the City of Flint states that corrective actions are not necessary, DTMB is in the process of providing a water cooler on each occupied floor, positioned near the water fountain, so you can choose which water to drink. The coolers will arrive today and will be provided as long as the public water does not meet treatment requirements.

- [Flint Water.pdf](#)

Contact:

DTMB Customer Service Center, DTMB-Customerservice@michigan.gov or (517) 373-6227



Since we spend about 40 hours a week at our workplaces, isn't the office the best place to try out some new energy-saving tricks? The Energy Information Administration estimates that if commercial and industrial buildings improved their energy efficiency by 10 percent, our economy could see yearly savings of nearly \$20 billion.

This email was sent to doll@michigan.gov using GovDelivery, on behalf of DTMB · Lewis Cass Building · 320 South Walnut Street · Lansing, MI 48933 (517) 373-1004

Rennaker, Joanne (DEQ)

From: Wolf, Jennifer (DEQ)
Sent: Friday, January 09, 2015 10:42 AM
To: Prysby, Mike (DEQ)
Cc: VanOtteren, Bruce (DNR); Doll, Jeanette (DTMB)
Subject: FW: Facility Notification: Flint State Office Building

Hi Mike!

Are you handling this one? If so are you able to address Jeanette's below?

SGT. JEN WOLF

MI DEPT. OF ENVIRONMENTAL QUALITY

MI DEPT. OF NATURAL RESOURCES

LAW ENFORCEMENT DIVISION

EMERGENCY MANAGEMENT

DESK: 517-284-6231

CELL: 517-719-0028

From: Doll, Jeanette (DTMB)
Sent: Friday, January 09, 2015 7:33 AM
To: VanOtteren, Bruce (DNR); Wolf, Jennifer (DEQ)
Subject: FW: Facility Notification: Flint State Office Building

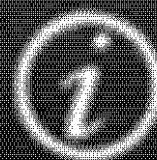
Good morning!

My phone call was referencing the advisory our Real Estate Division received from the City of Flint. Just wanted to know if we would know sooner than March 1 on the TTHM levels.

Jeanette

From: DTMB Facilities [<mailto:dtmb@govsubscriptions.michigan.gov>]
Sent: Wednesday, January 07, 2015 11:49 AM
To: Doll, Jeanette (DTMB)
Subject: Facility Notification: Flint State Office Building

Facility Notification



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- [Flint Water.pdf](#)

Contact:

DTMB Customer Service Center, DTMB-Customerservice@michigan.gov or (517) 373-6227



Since we spend about 40 hours a week at our workplaces, isn't the office the best place to try out some new energy-saving tricks? The Energy Information Administration estimates that if commercial and industrial buildings improved their energy efficiency by 10 percent, our economy could see yearly savings of nearly \$20 billion.

This email was sent to dolli@michigan.gov using GovDelivery, on behalf of DTMB · Lewis Cass Building · 320 South Walnut Street · Lansing, MI 48933 (517) 373-1004

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Thursday, January 08, 2015 10:38 AM
To: Benzie, Richard (DEQ); Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: RE: flint

Michael is talking to her.

From: Benzie, Richard (DEQ)
Sent: Thursday, January 08, 2015 9:47 AM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ); Rosenthal, Adam (DEQ)
Subject: RE: flint

Did someone call Sandra Wilkes(?) back?

From: Prysby, Mike (DEQ)
Sent: Thursday, January 08, 2015 9:27 AM
To: Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Subject: FW: flint

More reports from Flint concerning the TTHM violation.....

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

From: Bennett, Charles (DEQ)
Sent: Thursday, January 08, 2015 9:14 AM
To: Prysby, Mike (DEQ)
Cc: Rosenthal, Adam (DEQ)
Subject: flint

I don't see you named, but this looks like the story you mentioned...

http://www.mlive.com/news/flint/index.ssf/2015/01/flint_report_says_going_back_t.html#incart_river

Rennaker, Joanne (DEQ)

From: Brent Wright <bwright@cityofflint.com>
Sent: Wednesday, January 07, 2015 2:40 PM
To: Prysby, Mike (DEQ)
Subject: Water Rate Schedule
Attachments: Scan003.PDF

Mike attached is the water rates you requested, call if you need more information.

Thank you

--

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

SCHEDULE OF WATER RATES & CHARGES
EFFECTIVE FOR BILLS DUE AFTER JULY 1, 2014

WATER CONSUMPTION RATES

Metered Water

Rates per 100 cubic feet (ccf)	Rates Effective FY2014		Rates For Bills Due in FY15	
	Inside City Rate	Outside City Rate	Inside City Rate	Outside City Rate
Through 35 ccf	7.512	11.259	7.920	11.880
Next 1,965 ccf	7.310	10.765	7.620	11.420
Over 2,000 ccf	5.792	8.677	6.090	9.140

WATER MONTHLY SERVICE CHARGES

Remote Meter Monthly Charge

Meter Size	Rates Effective FY2014		Rates For Bills Due in FY15	
	Inside City Charge	Outside City Charge	Inside City Charge	Outside City Charge
6/8"	21.776	32.483	22.900	34.170
3/4"	41.861	62.708	44.030	65.950
1"	55.283	82.792	58.150	87.080
1-1/2"	55.283	82.792	58.150	87.080
2"	55.283	82.792	58.150	87.080

Commercial & Industrial Monthly Charge

Meter Size	Rates Effective FY2014		Rates For Bills Due in FY15	
	Inside City Charge	Outside City Charge	Inside City Charge	Outside City Charge
5/8"	53.385	80.134	55.790	83.740
3/4"	61.263	91.715	64.020	95.840
1"	75.103	112.673	78.480	117.740
1-1/2"	107.756	161.785	112.600	169.060
2"	150.622	226.088	157.400	236.260
3"	297.448	448.469	310.830	468.650
4"	623.495	785.368	547.050	820.710
6"	1,029.429	1,543.867	1,075.750	1,613.340
8"	1,492.875	2,239.473	1,560.050	2,340.240
10"	2,060.754	3,107.476	2,153.480	3,247.300
12"	2,493.124	3,739.505	2,605.310	3,907.770
16"	3,102.636	4,653.867	3,242.250	4,863.280
20"	3,351.483	5,463.817	3,501.980	5,709.670

SCHEDULE OF SEWER RATES & CHARGES
EFFECTIVE FOR BILLS DUE AFTER July 1, 2014

SEWAGE FLOW RATES

Residential Sewage Flow Rates

	Rates Effective FY2014		Rates For Bills Due FY15	
	Inside City Rate	Outside City Rate	Inside City Rate	Outside City Rate
Rate per 100 cubic feet (ccf) (Based upon metered water)	4.800	5.285	5.170	5.680

Commercial & Industrial Waste Rates

	Rates Effective FY2014		Rates For Bills FY15	
	Inside City Rate	Outside City Rate	Inside City Rate	Outside City Rate
Volume (per 100 cubic feet)	1.795	2.036	1.930	2.189
Suspended Solids (per pound)	0.550	0.548	0.591	0.589
Biological/Chemical Oxygen Demand (per pound)	1.169	1.312	1.257	1.410
Phosphorus (per pound)	1.657	1.683	1.781	1.809
Industrial Charge (per 100 cubic feet)	0.030	0.030	0.032	0.032

Wholesale Rates

Beecher Metro District Rate	1.335

SEWER MONTHLY SERVICE CHARGE

Residential - Remote Read Meter Charge

<u>Meter Size</u>	Rates Effective FY2014		Rates For Bills FY15	
	Inside City Charge	Outside City Charge	Inside City Charge	Outside City Charge
5/8"	32.002	41.010	34.480	44.190
3/4"	46.922	56.005	50.660	60.350
1"	65.340	76.986	70.410	82.960
1-1/2"	65.340	76.986	70.410	82.960
2"	65.340	76.986	70.410	82.960

Commercial & Industrial Charge

<u>Meter Size</u>	Rates Effective FY2014		Rates For Bills FY15	
	Inside City Charge	Outside City Charge	Inside City Charge	Outside City Charge
5/8"	51.919	58.120	55.900	62.570
3/4"	64.434	73.620	69.370	79.260
1"	84.708	98.050	91.200	105.560
1-1/2"	137.843	164.800	148.400	177.430
2"	196.163	232.430	211.190	250.240
3"	438.083	522.870	471.620	562.930
4"	721.842	888.010	777.140	953.890
6"	1,459.948	1,770.130	1,571.800	1,905.740
8"	2,148.213	2,648.520	2,312.790	2,849.270
10"	2,918.392	3,622.540	3,141.970	3,792.410
12"	3,426.233	4,132.570	3,688.720	4,449.170
16"	4,523.945	5,497.910	4,870.530	5,919.110
20"	5,326.865	6,532.020	5,734.960	7,032.440

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, January 07, 2015 2:18 PM
To: Howard Croft (hcroft@cityofflint.com)
Cc: Busch, Stephen (DEQ); Benzie, Richard (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ)
Subject: Public Works Meeting

Howard,

This note confirms my telephone discussion with you today. The city has scheduled a Public Works Committee at 5pm today and the TTHM violation is on the agenda. The meeting will be open to the public and will also have media coverage. Given the timing of the meeting (today at 5pm) the DEQ will not be able to participate. The DEQ is willing to participate in a future public meeting (in the next one to two weeks). Please notify us of the next planned meeting(s) and request the department's participation to help answer questions and/or to speak on specific items pertaining to this issue. Please send the request to me so I can organize our participation. If you have any further questions, please call me at your earliest convenience.

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

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Wednesday, January 07, 2015 12:04 PM
To: Rosenthal, Adam (DEQ); Prysby, Mike (DEQ); Rennaker, Joanne (DEQ)
Subject: FW: Tally of Flint calls
Attachments: Calls from Public list.doc

Sorry, I meant to cc you on this.

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

From: Busch, Stephen (DEQ)
Sent: Wednesday, January 07, 2015 11:43 AM
To: Shekter Smith, Liane (DEQ) (SHEKTERL@michigan.gov); Richard Benzie P.E. (BENZIER@michigan.gov)
Subject: FW: Tally of Flint calls

FYI. I had Mike put together a list of those who have contacted us and we have responded to regarding the Flint TTHM violation, I have added those Adam and I spoke with too. If you or your staff receive calls this should help to note whether the individual has already been in contact with staff, so share with your staff as appropriate. Hopefully, it will help avoid any mixed messages and can shorten the conversations to any additional concerns or questions the individual may have.

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: Wednesday, January 07, 2015 11:30 AM
To: Busch, Stephen (DEQ)
Subject: Tally of Flint calls

Steve,

Attached is a list of the calls from the public that I have taken to avoid duplication of efforts. I will update the list and re-send to you following each additional call received.

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

**Flint TTHM Violation
Completed Calls from the Public
MFP**

- 1/5: Mike P.-Ron Fonger – Flint Journal – Media inquiry
- 1/5: Mike P. - Lawrence Reynolds – Mott Children’s Health
- 1/5: Mike P. - Walter Smith-Randolph – NBC 25 Flint News – Recorded interview
- 1/5: Adam R. – Denise – Flint Resident

- 1/6: Mike P. - Arthur Woodston – resident – general questions, invite to res. Mtg
- 1/6: Mike P. - Bradley - resident – ok to boil water for baby formula bottle?
- 1/6: Mike P. - Raimy Elley – resident – gen info., most upset on city’s delay to notify
- 1/6: Mike P. - Reps. Sheldon Neeley and Phil Phelps – update State Reps for Flint Districts on TTHM issue. Richard Benzie and Sarah Howes participated.
- 1/6: Steve B. – Cheryl Wormsman – friend of Flint resident- general questions/concerns

- 1/7:

Rennaker, Joanne (DEQ)

From: Benzie, Richard (DEQ)
Sent: Wednesday, January 07, 2015 11:53 AM
To: Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Subject: RE: Meeting w Legislator

Mike's getting quite experienced at these types of meetings and handling them well.

Another question asked by Representative Neeley that I think we answered adequately was whether immunocompromised individuals and infants were more at risk from these contaminants. Mike explained that while we were not toxicologists or medical professionals, it was our understanding that those subgroups were more susceptible to microbial contaminants of an acute nature, and we were not aware of any increased risk from these chronic contaminants. We explained that these contaminants were in fact byproducts created by the thorough chlorination of the water to eliminate microbial contaminants.

In addition to Mike's summary, it also seemed that the Representatives were primarily concerned about whether Flint had the personnel to handle this situation, which I think Mike addressed. It was also made clear to us that the Representatives (or their constituents) would like more frequent monitoring. I tried to explain how any additional monitoring would be incorporated into the compliance determination – that additional sample results from the pre-established sampling sites would be averaged over each compliance period (quarter) before being averaged with previous quarterly results, and that samples from other locations would primarily be for operational considerations and public awareness, but not compliance.

Finally, they indicated that based on the number of calls they are receiving and the tenor of the callers, there appears to be a significant (I think they used the word complete) loss of public confidence in the drinking water quality in Flint. Mike indicated that we would be working with the city to try to restore that confidence. Steve and Mike may want to carry that message to the city and discuss how they can restore confidence by becoming more transparent about their monitoring and acknowledging any past oversights, like not recognizing the need to alter their pumping and storage practices from one of maintaining high volumes in the event of a pipeline break to one of frequent and complete cycling of the tank volumes to reduce stagnation and TTHM formation. It should be a brainstorming session and not one of assigning blame but how to move forward. Maybe there are some lessons to be learned from how the Lansing BWL is trying to recover from the loss of public confidence as a result of their response to the ice storm a year ago.

Richard

From: Prysby, Mike (DEQ)
Sent: Wednesday, January 07, 2015 11:02 AM
To: Datema, Maggie (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ); Shekter Smith, Liane (DEQ); Willard, Veronica (DEQ); Busch, Stephen (DEQ); Wurfel, Brad (DEQ)
Cc: Howes, Sarah (DEQ); Benzie, Richard (DEQ)
Subject: Meeting w Legislator

Richard Benzie, Sarah Howes, and I met with State Representatives Sheldon Neeley, 34th District and Phil Phelps, 48th District to discuss the TTHM violation in the city of Flint late yesterday afternoon. Attached is a summary of our discussion.

Michael Prysby, P.E.
 District Engineer

Office of Drinking Water and Municipal Assistance
517 290-8817

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, January 07, 2015 11:02 AM
To: Pallone, Maggie (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ); Shekter Smith, Liane (DEQ); Seymour, Veronica (DEQ); Busch, Stephen (DEQ); Wurfel, Brad (DEQ)
Cc: Howes, Sarah (DEQ); Benzie, Richard (DEQ)
Subject: Meeting w Legislator
Attachments: TTHM Rep. Neeley Interview Jan 6, 2015.doc

Richard Benzie, Sarah Howes, and I met with State Representatives Sheldon Neeley, 34th District and Phil Phelps, 48th District to discuss the TTHM violation in the city of Flint late yesterday afternoon . Attached is a summary of our discussion.

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

**Meeting with Rep. Neeley and Rep. Phelps
Flint TTHMs
January 6, 2015**

Richard Benzie, Sarah Howes, and I met with State Representatives Sheldon Neeley, 34th District and Phil Phelps 49th District to discuss the TTHM violation in Flint's drinking water. Several follow-up questions were asked during and after our discussion. Information provided to Mr. Neeley and Mr. Phelps was in a format similar to that provided in the NBC-25 News interview. We focused on:

What does the TTHM violation mean for Flint residents?

The violation does not pose an immediate public health threat since the health-effects requires long-term exposure to TTHMs (over a significant portion of an individual's lifespan).

TTHMs commonly occur in public water systems that disinfect with chlorine due to the reaction between chlorine and naturally occurring organic compounds (total organic carbon) in the source water.

Reason(s) for the violation:

The Flint River source is more difficult to treat since it requires more disinfection to maintain bacteriological integrity; however, this leads to more TTHM formation.

Flint did not immediately change their mode of distribution system operation after switching sources to account for higher TTHM formation potential of treated water from Flint's WTP. Historically, their mode of operation created areas of stagnation in the distribution system which then contributed to the higher levels of TTHMs.

Ongoing Efforts:

The city is working in collaboration with the DEQ towards identifying improvements in treatment to remove TTHM precursors and optimize distribution system operation. The city has already taken action on some of these measures including: complete softening to reduce chlorine dosage and increased turnover of water in the distribution system storage reservoirs to

reduce stagnation. The city is also correcting valving deficiencies to further reduce stagnation.

The city has received scrutiny on the perceived delay to inform residents of the high TTHM levels; however, we stressed that the city has met the state and federal requirements for public notification of this particular contaminant. We explained the rationale for determining compliance with the TTHM standard and how this correlates to the public notification requirements. We also informed Mr. Neeley and Mr. Phelps, that TTHM compliance is determined on a RAA (based on 4 quarters); thus, the city will likely remain in violation even with one or two subsequent quarters producing results that are below the MCL.

We also suggested, in addition to meeting our public notification requirements, it may be helpful for the city to explain to their residents how compliance with TTHMs is determined and, more importantly, keep them informed (snapshot in time) of each quarter's results (regardless of compliance status).

Result of On-going Efforts

Efforts taken by the city resulted in a significant reduction of TTHMs in the November 2014 quarter. Seasonal fluctuation of organic loading in the Flint River watershed (less loading in the winter months) also contributed to lower TTHMs.

Questions that were asked:

Can the State become involved with additional TTHM monitoring (third party monitoring)? How would the cost be covered?

The city may elect to conduct additional TTHM monitoring; however, this would be at the city's expense. DEQ staff, depending on availability, may be able to assist in the monitoring. Additional monitoring could be eligible as part of future compliance calculations; however, the monitoring protocol must be approved by the DEQ.

Are the operators at the Flint WTP properly certified?

Yes. The city has an F-1 operator, Mike Glasgow who oversees treatment

operation and is the designated OIC. There are also several F-2 operators including Brent Wright (WTP Supt.). The city has also hired additional operators for full-time plant operation. Many of these operators acquired their F-4 certification last fall.

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Wednesday, January 07, 2015 9:40 AM
To: Looney, Carolyn (DEQ); Rosenthal, Adam (DEQ); Prysby, Mike (DEQ)
Subject: RE: Voicemail from Ms. Cheryl Winston, 810-724-2536

I spoke with her yesterday and have addressed her concerns. (I also thought from my message that her last name was Winston, but when calling back it is actually Wormsman.)

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

From: Looney, Carolyn (DEQ)
Sent: Wednesday, January 07, 2015 9:37 AM
To: Rosenthal, Adam (DEQ); Prysby, Mike (DEQ)
Cc: Busch, Stephen (DEQ)
Subject: Voicemail from Ms. Cheryl Winston, 810-724-2536

I received a voicemail yesterday from Ms. Cheryl Winston, 810-724-2536. Ms. Winston is calling, on behalf of Ms. Susan Payne who lives in Flint, regarding the unsafe water in Flint and a letter Ms. Payne received regarding the water.

Please give Ms. Winston a call.

Thanks!

Carolyn Looney
Secretary for the Environmental Health Section
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
Phone: 517-284-6535
Fax: 517-241-1328
Email: looneyc@mi.gov

Rennaker, Joanne (DEQ)

From: Benzie, Richard (DEQ)
Sent: Tuesday, January 06, 2015 2:52 PM
To: Scherbarth, John (AG)
Cc: Prysby, Mike (DEQ); Busch, Stephen (DEQ); Shekter Smith, Liane (DEQ)
Subject: RE: Flint Water Supply System
Attachments: TTHM NBC Interview Jan 5, 2015.doc

John,

Michael Prysby is the district engineer that has been working with Flint for the past 25 years. Steve Busch is the District Supervisor who also has knowledge about this subject. Mike's telephone number is (517) 290-8817. Steve's number is (517) 643-2314.

I have also attached a summary of a recent media contact that Mike Prysby had earlier today that provides some background information and explains what is being done to address this issue.

In addition to the measures Mike describes in his media contact, you should know that the city of Flint is relying upon the Flint River temporarily until the pipeline from Lake Huron is completed, hopefully sometime in mid-2016. The lower organic content of Lake Huron water should significantly reduce the TTHM formation that occurs from disinfection of the Flint River, and TTHM levels should return to the levels experienced in Flint when they received Lake Huron water from the Detroit Water & Sewerage Department.

Richard Benzie, P.E., Chief
 Field Operations Section
 Office of Drinking Water and Municipal Assistance, MDEQ
 517-284-6512

From: Scherbarth, John (AG)
Sent: Tuesday, January 06, 2015 12:06 PM
To: Benzie, Richard (DEQ)
Subject: Flint Water Supply System

Richard

Who may I contact at DEQ to discuss the City of Flint water system which recently sent a notice to its citizens regarding an exceedance of TTHMs?

John C. Scherbarth
 Environment, Natural Resources, and Agriculture Division
 Michigan Department of Attorney General
 P.O. Box 30755
 Lansing, MI 48909

Telephone: 517-373-7540
 Fax: 517-241-3473

**Flint NBC 25 News Interview
Flint TTHMs
January 5, 2015**

Walter-Smith Randolth, reporter, from Flint NBC 25 News conducted a telephone interview with me for broadcast on Flint local television concerning the TTHM violation in Flint's drinking water. I led the interview and provided Mr. Randolth an opportunity for follow-up questions. Below is a summary of topics that were presented.

TTHM violation – What does this mean for Flint residents? The TTHM violation notice to residents is not an immediate public health emergency since the health-effects posted in the notice require long-term exposure to TTHMs (over a significant portion of an individual's lifespan). TTHMs commonly occur in public water systems that disinfect with chorine due to the reaction between chlorine and naturally occurring organic compounds (total organic carbon) in the source water. Surface water sources, including the Flint River watershed, typically have higher levels of naturally occurring organic compounds.

What is the DEQ's Role? The DEQ is working in collaboration with the city to ensure long-term public health protection and to keep the public informed. We are working with the city to help identify improvements in treatment and operation of the distribution system to reduce the levels of TTHMs. We are assisting the city with public notice requirements (when to post/contents). With our assistance, the city has proceeded with an operational evaluation of the water system ahead of state and federal requirements.

DEQ's perspective of the situation: The Flint River source is more difficult to treat since it requires more disinfection to maintain bacteriological integrity. Increased disinfection; however, when combined with higher levels of naturally occurring organics results in elevated levels of TTHMs that form over time out in the distribution system. The TTHM concentrations that developed in the system were more than anticipated due to several reasons:

- 1. Flint did not immediately change their mode of distribution system operation after switching sources to account for higher TTHM formation potential of treated water from Flint's WTP.**

I explained that TTHMs require time to form and are not fully developed in the treated water that enters the distribution system from the WTP. Water from Detroit; however, is several days old when it reaches Flint; thus the majority of the TTHMs are developed. TTHMs were also lower given the source water (Lake Huron). Flint's historically operated the distribution system in a manner that created conditions favorable for stagnation. This methodology of operation was not changed (initially) when switching to the Flint River; thus, this condition was one of several factors contributing to higher levels of TTHMs. Other factors included; higher TTHM formation potential in the Flint River (already explained above) and higher chlorine application rates at treatment plant to maintain bacteriological integrity.

I further explained that TTHM levels in the most recent quarter have dropped for two main reasons:

- 1. Action taken by the city including; improving dist. system operation to reduce stagnation, treatment changes (complete softening), reduced chlorination, system flushing, valving improvements**
- 2. Seasonal fluctuation of organic compounds in the Flint River. Less organic loading in the winter months.**

END of MY DISCUSSION

Mr. Smith-Randolf asked for my comment to the following questions/statements....Why this problem is occurring in Flint? Is there a problem with the water system? This was not an issue when Flint was on Detroit water.

I responded by summarizing some of the key points discussed above including:

- **Dist system operation (storage facilities and valving)**
- **TTHM formation potential in Flint River vs. Detroit and age of incoming water**
- **High chlorine dosages to maintain bacteriological integrity**
- **Treatment practices at WTP (partial by-pass of softening)**

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Tuesday, January 06, 2015 1:52 PM
To: Prysby, Mike (DEQ)
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Thank you, Mike!

From: Prysby, Mike (DEQ) [mailto:PRYSBYM@michigan.gov]
Sent: Tuesday, January 06, 2015 12:45 PM
To: Crooks, Jennifer
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Jennifer,

Attached is a copy of Flint's OEL (draft) that proposes corrective action to be taken to address the TTHM issue. The draft OEL was prepared by the city based on the first two quarters (May and Aug). The current quarter (third Qtr of monitoring – Nov), establishes the new deadline of March 1, 2015 to submit a final OEL . We were in general agreement with the recommendations in the draft OEL and we plan to meet with the city soon to go over some questions/comments and to see how much progress has been made.

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

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Monday, January 05, 2015 3:13 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Shoven, Heather
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Steve and Mike: Thank you, Steve, for giving us the heads up on the TTHM violation in December. I guess the public notice went out recently; we've been inundated with calls from the SDWA hotline, as I'm sure you are too. One caller this morning wanted to know more about how EPA would get involved in the enforcement process, so I referred him to Heather Shoven, our Enforcement Chief. Below is her communication with Mr. Arthur Woodson, FYI.

I'm not sure if I asked you in December, Steve, but could you send me a copy of Flint's corrective action plan for the TTHM MCL violation when you receive it?

Thank you both for risking developing high blood pressure in dealing with Flint....

Jennifer

From: Shoven, Heather
Sent: Monday, January 05, 2015 1:53 PM
To: Crooks, Jennifer
Cc: Murphy, Thomas; Damato, Nicholas; Poy, Thomas; Bair, Rita; Deltoral, Miguel
Subject: FYI: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Hi Jennifer,

I wanted to follow-up on our phone conversation by documenting my discussion with Mr. Arthur Woodson (810-288-1286) this morning regarding EPA enforcement and the recent TTHM MCL violation at the Flint PWS in Michigan (NOV that you provided is attached).

He was concerned about the contents of the news article at http://www.mlive.com/news/flint/index.ssf/2015/01/flint_water_has_high_disinfect.html. Specifically, his uncle has cancer and the doctor mentioned that the DBPs in the water may be contributing to his uncle's health problems. I explained the health effects of DBPs and it being a chronic contaminant.

Mr. Woodson stated that there is a Flint City Council Meeting this evening and he would like to talk about this issue during it. He wanted to know if EPA could take enforcement action if the state and the system are not doing anything to address the contamination. I explained the basics of primacy and SDWA enforcement and how EPA is able to issue a notice of violation to a public water system. I told him that we are aware of the violation and mentioned that the state NOV provides the opportunity for the PWS to develop a corrective action plan to address the MCL violation by March 1, 2015 and the next round of DBP samples will be collected in February.

I'll let you know if I hear anything else from Mr. Woodson. I appreciate you following up with MDEQ to request a copy of the PWS's corrective action plan for the TTHM MCL violation once it's received.

Best wishes,
 Heather

Heather A. Shoven
 Compliance and Enforcement Team Leader
 Ground Water and Drinking Water Branch
 U.S. Environmental Protection Agency, Region 5
 77 W. Jackson Blvd (WG-15J), Chicago, IL 60604
 Phone: (312) 886-0153 / Email: shoven.heather@epa.gov

From: Crooks, Jennifer
Sent: Tuesday, December 16, 2014 10:09 AM
To: Poy, Thomas; Bair, Rita; Damato, Nicholas; Shoven, Heather; Murphy, Thomas
Cc: Kuefler, Janet; Deltoral, Miguel; Nouredin, Mostafa; Porter, Andrea
Subject: FW: Flint Drinking Water TTHM Standard Violation

Attached is the Notice of Violation letter sent to Flint TODAY RE: TTHM violation.
 Jennifer

From: Busch, Stephen (DEQ) [<mailto:BUSCHS@michigan.gov>]
Sent: Tuesday, December 16, 2014 9:18 AM
To: Crooks, Jennifer
Subject: FW: Flint Drinking Water TTHM Standard Violation

Jennifer,

Our TTHM Violation Notice to Flint is attached in case you get any calls. If you have any questions give us a call.

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

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 16, 2014 10:16 AM
To: Datema, Maggie (DEQ); 'Wurfel, Brad (DEQ) (WurfelB@michigan.gov)'
Cc: prysby@michigan.gov; Richard Benzie P.E. (BENZIER@michigan.gov); Shekter Smith, Liane (DEQ) (SHEKTERL@michigan.gov); Adam Rosenthal (rosenthala@michigan.gov)
Subject: Flint Drinking Water TTHM Standard Violation

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 standard for Total Trihalomethanes at certain locations within the City's drinking water distribution system.

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.

Maggie Datema 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

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 District Engineer
 Office of Drinking Water and Municipal Assistance
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Heather

Heather A. Shoven
Compliance and Enforcement Team Leader
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U.S. Environmental Protection Agency, Region 5
77 W. Jackson Blvd (WG-15J), Chicago, IL 60604
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Stephen Busch, P.E.
Lansing and Jackson District Supervisor

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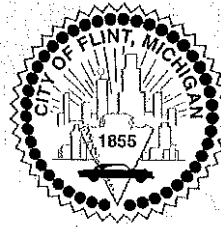
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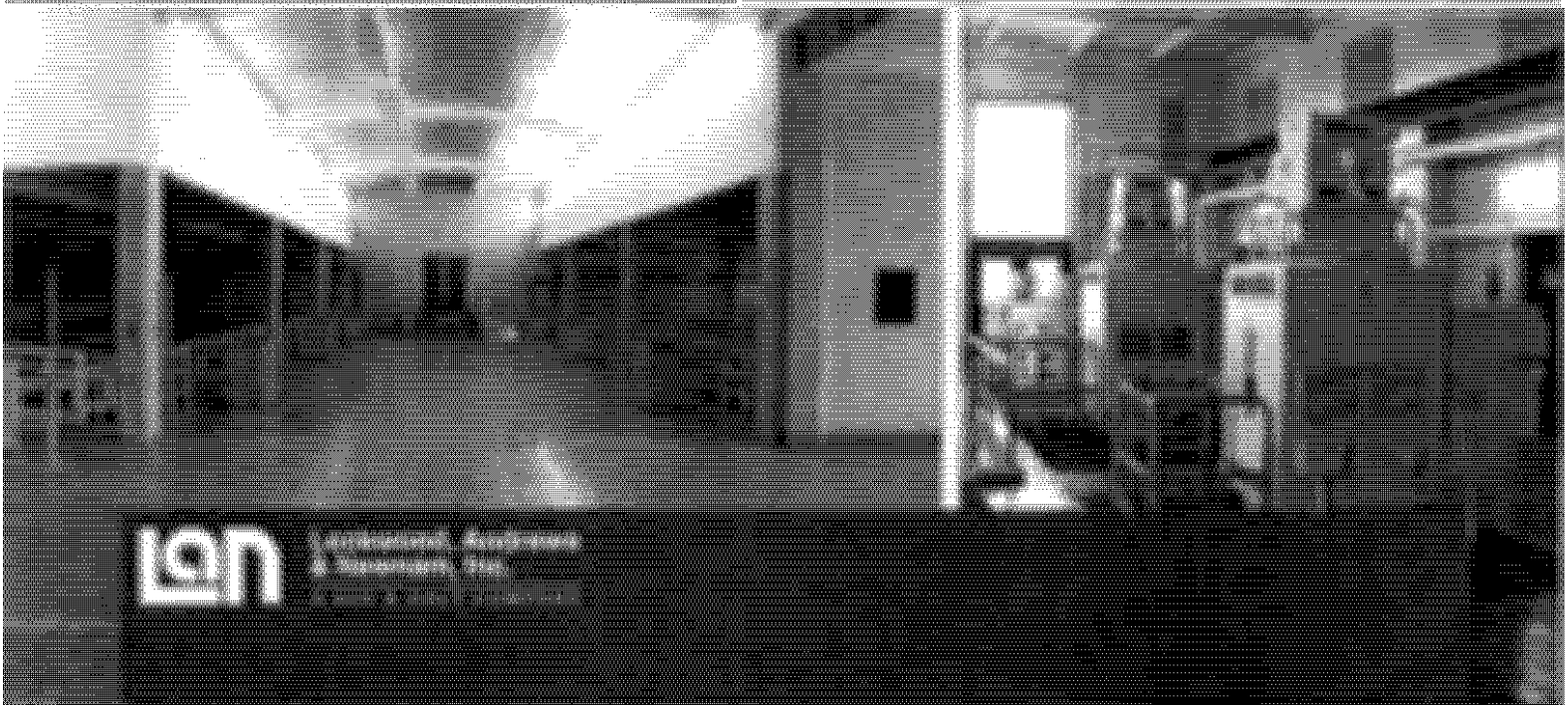
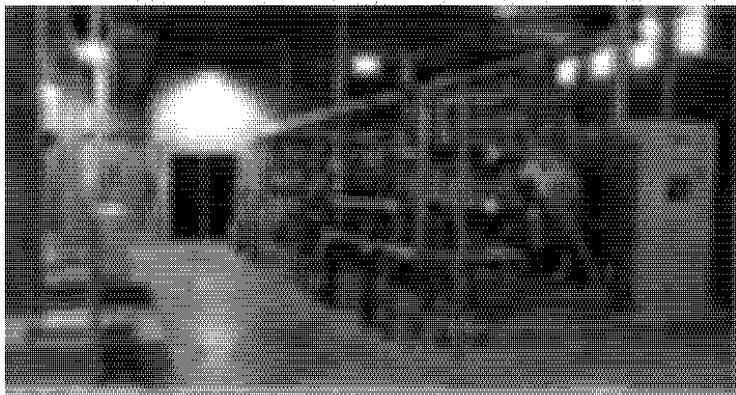
Stephen Busch, P.E.
Lansing and Jackson District Supervisor
Office of Drinking Water and Municipal Assistance
MDEQ
517-643-2314

Operational Evaluation Report City of Flint



Trihalomethane Formation Concern

November 2014



CITY OF FLINT
Operational Evaluation Report
December 1, 2014



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CITY OF FLINT
Operational Evaluation Report
December 1, 2014



EXECUTIVE SUMMARY

Environmental Protection Agency (EPA) and Michigan Department of Environmental Quality (MDEQ) regulations require that public water suppliers test drinking water quarterly throughout the distribution system for disinfectant by-products (DBP's). Two categories of DBP's, tri-halomethanes (THM) and halo-acetic acids (HAA5), are regulated and must be tested for. The City of Flint began operation of their water treatment plant (WTP) full time with the Flint River as the source on April 25, 2014. Since that time, two quarters of samples taken indicate that future violations are inevitable for total THM without some modifications to the water system. In response, the City hired Lockwood, Andrews & Newnam, Inc. (LAN) to complete this Operational Evaluation Report (OER) in conformance with EPA guidelines with the goal to determine the cause(s) of high levels of THM and evaluate possible solutions.

The EPA promulgated the Stage 2 Disinfectants and Disinfection By-Products Rule (DBPR) in January 2006 which set maximum contaminant levels (MCLs) for total trihalomethanes (TTHM) and HAA5 based on an annual running average, tested quarterly, for a given sampling location. The City of Flint reports levels from 8 sampling test locations. Of the two quarterly sampling cycles since Flint began operating the WTP full time, HAA5 levels have been acceptable but TTHM levels have been high at all 8 sampling sites.

According to the Stage 2 DBPR, the annual average value requires 3 quarters of sampling data with the most current period counting twice. Therefore, the City of Flint has not yet experienced a violation of the TTHM MCL because only 2 quarters of data have been obtained. However, levels recorded indicate the likelihood of an MCL exceedance later this year.

A number of issues have been identified as possibly contributing to the high THM levels measured.

1. Inefficient ozone system functionality which has resulted in increased chlorine feed.
2. Upstream influences in terms of increased chlorine demand.
3. Bypass stream around softening contributed to chlorine demand.
4. Unlined cast iron pipes in the distribution system contributing to chlorine demand.
5. Recirculating water in the distribution system due to less than ideal configuration of Cedar Street and West Side pump stations.
6. Broken valves resulting in stagnant water in some areas.
7. High chlorine demand in filters.
8. High THM formation potential (THMFP) in source water.
9. Less than optimal removal of THM precursors

ACTION PLAN

The City of Flint has signed an agreement with the Karegnondi Water Authority (KWA) to purchase raw water drawn from Lake Huron. The KWA system is currently under construction and expected to be operational by late 2016. The water supply from Lake Huron will have entirely different water quality characteristics from the Flint River and those characteristics are expected to yield drastically reduced DPB formation. With that, non-structural options to help reduce THM levels are much preferred over solutions requiring new construction. Therefore, two categories of actions have been devised: Stage 1 being actions that can be completed relatively quickly without major construction and Stage 2 consisting of either long term actions or solutions requiring major construction. The City has completed or intends to complete Stage 1 Actions by February 16, 2015, the week in which the next quarterly sampling is to be done. Stage 2 actions are to be implemented only if Stage 1



actions are ineffective in adequately reducing TTHM levels and therefore Stage 2 is contingent upon the outcome of Stage 1.

Stage 1 – Immediate Actions

- Hire ozone system manufacturer to troubleshoot ozone system
- Bench scale jar testing
 - Match existing process and access possible areas of improvement
 - Simulate potential modifications to treatment process
 - Evaluate coagulation and flocculation polymer aid feeds to assist with TOC removal
- WTP operational changes
 - Discontinue softening bypass stream to reduce chlorine demand
 - Disinfection of filter beds to reduce chlorine demand
 - Possibly begin coagulation and flocculation polymer aid feeds to assist with TOC removal depending on bench scale test results
- Increase water main flushing efforts to minimize stagnant water
- Water system modeling to identify areas with high water age and potential solutions
 - Cedar Street Pump Station potential recirculation
 - West Side Pump Station potential recirculation
 - Storage tank volume use
 - Possible broken closed valve locations
 - Locations in need of flushing
 - Lower high water levels in storage tanks

Stage 2 – Contingent Actions

- Fix ozone system
- Start feeding coagulation and flocculation polymer aids to lower TOC, if not completed in Stage 1
- Convert to lime and soda ash softening
- Change disinfectant to chloramine or chlorine dioxide until KWA
- Install pre-oxidant feed at intake to optimize ozone disinfection
- Implement advanced treatment for THM precursor removal
- Increased main flushing based on water modeling results
- Continue valve replacements with water model assistance
- Emphasize cast iron pipes on water main replacement priority list



I. BACKGROUND

The City of Detroit Water and Sewer Department (DWSD) has historically provided drinking water for the City of Flint and Genesee County. In the late 1990's growing concern regarding the reliability of the DWSD supply prompted the City of Flint to upgrade their existing water treatment plant (WTP). Those improvements, defined as Phase I, were completed in 2005 and were intended to allow the Flint WTP to operate, using the Flint River as the source, for an extended period of time in the event that supply from the DWSD was temporarily interrupted. Additionally, the Phase I improvements set the stage for Flint to break free from dependence on the DWSD supply and water charges over which they had no control.

A. WATER SUPPLY TRANSITION

1. Detroit Water and Sewer Department (DWSD)

Until recently the Genesee County and Flint region had been provided drinking water by the DWSD. However, due to excessive cost increases and reliability issues with the DWSD system other options had to be explored.

2. Karegnondi Water Authority (KWA)

In 2010 the Karegnondi Water Authority (KWA) was formed for the purpose of developing a new water supply from Lake Huron to serve the region in lieu of the DWSD supply and the City of Flint elected to join. The KWA expects the new system which is currently being constructed to become operational in the fall of 2016.

3. Flint River – Interim Period

With a renewing water supply agreement between Flint and the DWSD being terminated by the DWSD (effective April 30, 2014) and the KWA system not expected to be operational until late 2016, the City of Flint decided to initiate operation of the existing WTP full time utilizing the Flint River as the interim water source. A variety of WTP improvements were necessary for the Flint plant to become a full time plant. For purposes of this report, Phase II improvements to the Flint WTP are improvements which have been made to allow the plant to operate full time with either the Flint River as the source or the KWA supply as the source.

B. TTHM PENDING VIOLATIONS

The calculation for determining if the MCL has been violated for TTHM is:

$$(2 \times \text{current quarter value} + \text{previous 2 quarter values}) / 4$$

Flint has completed tests for 2 quarters and therefore has not violated an MCL limit to date. However, the third quarter of sample data is likely to provide MCL exceedances at all 8 sampling sites. Test results are tabulated below.

CITY OF FLINT
Operational Evaluation Report
December 1, 2014



TABLE 1 – 2014 DBP TEST RESULTS

Sample Location	TTHM			HAA5		
	1 st Qrt 5/21/14	2 nd Qrt 8/21/14	3 rd Qrt	1 st Qrt 5/21/14	2 nd Qrt 8/21/14	3 rd Qrt
1) 3719 Davison - McDonalds	162.4	145.3		64	43	
2) 822 S. Dort Hwy - BP Gas Sta.	111.6	112.0		52	40	
3) 3302 S. Dort Hwy – Liquor Pal.	96.5	127.2		48	31	
4) 3606 Corunna – Taco Bell	106.4	181.3		55	24	
5) 2501 Flushing – Univ. Market	75.1	196.2		38	17	
6) 3216 MLK – Salem Housing	82.2	112.4		41	25	
7) 5018 Clio – Rite Aid	88.2	144.4		49	30	
8) 6204 N. Saginaw – N. Flint Auto	79.2	118.3		50	37	

TTHM MCL = 80 ug/l

HAA5 MCL = 60 ug/l

C. WATER TREATMENT PLANT RECENT IMPROVEMENTS & STATUS

1. Phase I WTP Improvements

Since 1965, the Flint WTP has remained a secondary or backup supply system to the DWSD primary supply. Typically the secondary supply for a public water system is expected to be needed only during emergency situations and normally is designed for short term operation such as providing the average daily demand for a few days. Conversely, Phase I improvements were designed with the intent to upgrade the Flint WTP in order to allow for an extended short term period (6 weeks) because of the perceived high risk that the DWSD supply would fail and remain out of service for an extended duration. Regardless, the Flint WTP was still intended to serve as a standby plant and as such the Phase I improvements lacked redundancies that would be required for a primary supply WTP.

2. Past Pilot Study & Testing

During design of the Phase I improvements a treatability study was completed by Alvord, Burdick & Howson, LLC (AB&H) in 2002. The Treatability Study evaluated the current treatment processes that are in place at the Flint WTP today with the Flint River as the source. The report recommended the following:

TABLE 2 – 2002 WTP TREATMENT RECOMMENDATIONS

Treatment	Purpose	Point of Application	Dosage (mg/l)
Sodium permanganate	Zebra mussel control	Intake	0.3
Ozone	Taste & odor removal, disinfection	Diffusor basin	1.5
Ferric chloride	Coagulation	Rapid mix	40
Coag aid polymer	Turbidity & TOC removal	Rapid mix	2.0
Floc aid polymer	Turbidity & TOC removal	Floc basin	0.05
Lime	Softening	Softening basin	175
Soda ash	Softening	Softening basin	52
Carbon dioxide	pH adjustment	Recarb basin	37
Media filters	Filtration	Na	Na
Chlorine	Disinfection	Filter effluent	1.0



Of the recommended items, zebra mussel control, coagulant and flocculation polymer aids, and soda ash feed have not been incorporated into the treatment process.

3. Phase II WTP Improvements for Full Time Operation

Phase II WTP improvements are those needed to convert the Flint WTP from a back-up supply to a primary supply plant. A number of improvements have already been constructed as they were necessary to operate full time, treating water from the Flint River. The improvements under the title of Phase II that have been completed or are nearly complete include upgrades to the lime sludge lagoon, the lime sludge lagoon decant and disposal system, decant pump station and force main, installation of mid-point chlorination before filtration, and upgrade of the electric feed sub-station.

Additional improvements to the Flint WTP that are to be completed to become part of the normal treatment process using water supplied by the KWA are:

- New oxygen and nitrogen storage facilities for the ozone system (under construction)
- New coagulant feed system
- Electrical
 - Pump Station #4 upgrades (under construction)
 - SCADA and controls upgrades
 - Filter transfer pump station feeders
- Installation of the future raw water feed connection point for the KWA (under construction)
- Pump replacements and VFD installation in the low and high service pump station (under construction)
- Filter transfer pump station to Dort Reservoir
- Facility security improvements



II. SOURCE WATER EVALUATION

A. DATA ANALYSIS

Based on past data collected and the 2002 Treatability Study by AB&H, the Flint River water quality varies seasonally with higher hardness and alkalinity experienced in the winter. Higher magnesium concentrations are also experienced in the winter, adding difficulty to the settling process due to neutrally buoyant floc. General water quality average characteristics recorded for the 2002 Treatability Study as compared with average characteristics recorded this year are shown in Table 3 below.

TABLE 3 – FLINT RIVER WATER QUALITY CHARACTERISTICS						
Period	Turbidity NTU	TOC Mg/l	Alkalinity Mg/l	Hardness Mg/l as CaCO₃	pH	Total Col. Count/day
2001 Apr–Oct	7.9	9.4	215	272	8.1	870-1230 (7300 max)
2014 May–Oct	8.3	10.3 5/22/14	207	252	8.2	1900-9000 (48,300 max)

Other than total Coliform, the Flint River characteristics do not appear to have changed significantly over the past 10+ years. Note that further investigation by City staff revealed a sewer leak upstream of the plant that may have contributed to the total Coliform count. The leak was subsequently repaired.

B. CONCLUSIONS

Considering the minor changes in Flint River water quality, much of the information contained in the 2002 Treatability Study by AB&H remains relevant today. Data from that report assumed to be consistent today include the following:

- Flint River is influenced by groundwater from a dolomitic aquifer
- Hardness varies seasonally with higher hardness and alkalinity in the winter
- Hardness, alkalinity, magnesium concentrations tend to be reduced by run-off
- Total THMFP is likely 380-440 micrograms per liter as measured between April 2001 and January 2002. The City intends to re-test the raw water to confirm the THMFP has not changed. Results are pending.

In development of the 2002 Treatability Study, processes were simulated which resulted in low THMFP. Therefore, information contained in that report will be used to assist with establishing a baseline jar testing procedure as discussed further in Section III.



III. TREATMENT PROCESS EVALUATION

A. EXISTING PROCESS DESCRIPTION

The existing WTP consists of an intake with screening from the Flint River, low lift pumping, ozonation, rapid mix, flocculation, settling, softening, recarbonation, filtration, storage and high service pumping. A process diagram is shown as Figure 1.

1. Intake

A 72" diameter pipe draws water from the Flint River through 2 traveling screens to the low lift pump structure. No chemicals are currently fed for Zebra mussel control or pre-oxidation as recommended by the 2002 Treatability Study. Manual removal of zebra mussels proved to be more economical than installation of chemical feed equipment considering the short term need.

2. Ozone

There are 2 ozone generators designed to provide adequate ozone for a WTP flow of up to 36 mgd. There are 3 ozone contact basins. The ozone generators were designed to produce 900 lbs/day at 10% concentration and up to 1300 lbs/day at 6% concentration each. Recent readings have indicated a production rate of approximately 700 lbs/day at 4% concentration. While serving the purposes of taste and odor control and disinfection, it is possible the current ozone feed might not be optimized to realize additional TOC removal benefits demonstrated by previous tests. Also, less than optimal ozonation has led to increased chlorine feed.

3. Rapid Mix

East and West rapid mix chambers allow chemical feed prior to the flocculation basins. Each rapid mix chamber is equipped with a 5 hp mixer.

4. Coagulation / Flocculation

The WTP contains two equally sized flocculation basins, east and west, and each basin provides tapered or gradually slowed mixing from inlet to outlet. There are fifteen 2 hp mixers for each basin with VFDs to control mixing speed. The 2002 Treatability Study recommended feeding both coagulation and flocculation polymer aids. Neither polymer aid is being used today because turbidity and TOC removals have been sufficient to meet regulatory requirements.

5. Settling

Primary clarification takes place within 3 basins containing plate settlers. The settlers are operating as designed.

6. Softening

Again, there are two basins for softening: east and west. Each basin is 120' in diameter and contains a solids contact softening unit. Each softening basin/unit has a design capacity of 18 mgd. Low lift pumping limitations, flow control to the basins, and fluctuating demands have made it difficult for WTP staff to stabilize the softening process. Softening is accomplished by feeding lime. The decision was made by the City not to feed soda ash in order to remove non-carbonate hardness because acceptable hardness levels could be achieved with lime feed only and softening is short term until Lake Huron water becomes available.



7. Recarbonation

Recarbonation for pH adjustment is accomplished in east and west recarbonation basins between and to the north of the softening basins. Carbon dioxide storage and feed equipment is located west of the recarbonation basins.

8. Filtration

Filtration is accomplished with 12 dual media filters, equally sized and designed to filter 3.0 mgd each. Media consists of 12" of sand and 18" of anthracite. The filters have been operated intermittently over the years due to the standby nature of the WTP and until recently, chlorine injection took place downstream of the filters. It is possible some microbial growth has developed in the filters.

9. Disinfection

Limited disinfection is provided by ozonation, but the primary form of disinfection is chlorine fed prior to filtration and prior to finish water storage / high service pumping. The intermediate chlorine injection location was recently constructed under the Phase II, Segment 1 contract.

10. Clear Well & Pumping

The pump building sits adjacent to a 3 MG clear well and contains both low and high service pumps.

B. JAR TESTS / EXPERIMENTS

1. Approach

There are several well practiced methods by which DBPs can be reduced. First, the disinfectant can be changed to an alternate that has a lower tendency to form DBPs. Second, additional treatment systems such as activated carbon or air stripping (depending on the nature of the precursors) can be added to remove DBP precursors. Lastly, the existing treatment processes can be optimized to remove as much DBP precursor as possible. Of these options, optimizing existing treatment processes is the only strategy that does not require the construction of new and expensive facilities. It is anticipated that Flint will be receiving Lake Huron water in approximately two years and this water will have a completely different chemistry from the Flint River. Major process changes instituted to address THM levels using Flint River water are likely to be unnecessary for Lake Huron water and may even be inappropriate. Therefore, those options which require addition of new treatment processes are undesirable at this time. In recognition of this upcoming change in water source, this study will concentrate on improving the existing processes, rather than adding new ones. New treatment processes will only be recommended if operational changes to the existing treatment train prove ineffective.

Recent sample test results suggest that most of the DBPs are formed in the distribution system rather than within the treatment plant. Therefore, the most logical approach is to reduce the DBP formation potential (DBPFP) rather than simply lowering the levels of DBPs leaving the plant. During bench scale testing, formation potential (FP) levels will be the primary indicator of success or failure of any proposed process modifications.

2. Protocol

Bench scale pilot testing is intended to reflect actual plant operating and hydraulic conditions so the bench scale treatment units will be sized based on various dimensionless factors to ensure the pilot treatment matches the actual system. Bench scale ozonation is not practical due to time and cost limitations. Therefore, water



samples will be withdrawn following the plant ozone basin. These samples will be transported to the laboratory where they will be dispensed into square testing jars. The jars will act as rapid mix, three-stage flocculation, and settling. Rapid mix and flocculation conditions will be matched to the plant based on "Gt" values. The "G" value is a measure of the mixing intensity and is a function of mix time, viscosity of the liquid, and mixing power applied to the water. "Gt" then, is a size scaling factor where time has been accounted for. Settling time will be scaled to match the shorter settling depth of the testing jars. After settling, samples will be decanted from the test jars. The decanted samples will then be lime softened; softening conditions will be similarly matched on the basis of "Gt". Fluoride will be added and carbon dioxide sparged into the samples to reduce the pH. The water will then be vacuum filtered through filter paper, sized to simulate the plant's dual media filters. The samples will be dosed with excess chlorine and allowed to react for seven days before testing for DBPs to determine the formation potential.

Although these conditions may be refined based on new information, we anticipate the following:

TABLE 4 – BENCH SCALE TEST MIXING INTENSITIES

Process	G	Duration
Ozonation	Plant	-
Rapid Mix	350	25 sec
Flocculation, Stage 1	50	9 min
Flocculation, Stage 1	25	9 min
Flocculation, Stage 1	12	9 min
Settling	na	10 min
Softening	TBD	10 min
Recarbonation	na	na

It is expected that the primary variables during the testing will be chemical additions and chemical dosages. Specific chemicals and dosages used for initial testing conditions will be selected to reflect current plant usage and the recommendations of the 2002 Treatability Study.

TABLE 5 – BENCH SCALE TEST CHEMICAL FEED RATES

Chemical	Current Usage	2002 Study
Ozonation	4.66 mg/l	1.5 mg/l
Ferric Chloride	7.7 mg/l	40 mg/l
Coagulant Aid Polymer	Not used	2.0 mg/l
Flocculation Aid Polymer	Not used	0.05 mg/l
Lime	120 mg/l	175 mg/l
Soda Ash	Not used	52 mg/l
Cationic Softening Polymer	3.13 mg/l	Not used
Anionic Softening Polymer	0.88 mg/l	Not used
Fluoride	0.45 mg/l	1 mg/l
Carbon Dioxide	32 mg/l	37 mg/l
Chlorine	6.3 mg/l	1 mg/l



3. Considerations

The 2002 Treatability Study did not note significant formation of DBPs. This may be a function of different Flint River water chemistry at that time. However, recognizing the considerable differences in chemical usage and dosages between that study and current operations, those differences in chemical use and dosage are an obvious starting point for optimizing treatment to prevent DBP limit exceedance.

Although it is believed that optimization of current treatment can correct the DBP issue, should optimization of present treatment prove insufficient, alternate residual disinfectants (chloramines and chlorine dioxide) will be investigated as additional treatment measures.

4. Results

[To be completed following jar testing and experimentation]

5. Conclusions

[To be completed following jar testing and experimentation]

DRAFT



IV. DISTRIBUTION SYSTEM EVALUATION

EPA guidance for the distribution evaluation portion of an OER is focused on identification and isolation of a specific portion of the distribution system that led to the exceedance. The circumstances of Flint's apparent pending TTHM exceedances are unusual in that a new supply has been implemented which clearly corresponds to the high TTHM sample results. Despite obvious implications to the primary cause of increased TTHM levels, value remains in evaluating the distribution system as there may still be distribution improvements that can be made to help alleviate the problem.

Evaluation of the distribution system, including modeling, was recently added to LAN's scope of services. When finished, information will be provided to complete the following topics in this section.

A. INFRASTRUCTURE

1. Piping

According to the most recent MDEQ Sanitary Survey, the distribution system is estimated to contain 70% cast iron, 20% ductile iron, 2% concrete and 8% steel water mains. Unlined cast iron pipe can become pitted, allowing colonization sites for microorganisms leading to chlorine demand. Additionally, much of the piping in the system is aged and in poor condition. Increased chlorine demand could be resulting from biofilm in older pipes and from main breaks/repairs.

The City utilizes City Point software and GPS equipment to document main breaks and prioritize replacements. Areas that have been targeted for main replacements include Fenton Road, Atherton Road, Dort Highway, Averil Street, and Boulevard Drive. The extent of contribution is not known but any water main replacement project will contribute to decreasing chlorine demand somewhat if constructed properly.

2. Storage

[To be completed]

- *Appropriate capacity*
- *Mixing, baffling, other provided to prevent stagnant water*
- *Condition*

3. Pump Stations

[To be completed]

- *Condition*
- *Pump capacity evaluation*
- *Valve condition and pressure zones*

B. OPERATIONS AND MAINTENANCE

1. Pump Station & Storage Operations

[To be completed]

- *Control of pressure districts*
- *WTP Pump Station (No. 4)*
- *Cedar Street Pump Station*
- *Westside Pump Station*



- *Torrey Road Pump Station*
- *High and low levels in tanks*

2. Booster Disinfection Practices

Booster disinfection is provided at the Cedar Street and Westside pump stations. Sodium hypochlorite is applied while the reservoirs are being filled.

3. Changes in System Demands

[To be completed]

- *Long term decline in demands*
- *Short term fluctuations – max day in winter due to high volume of main breaks*

C. WATER SYSTEM HYDRAULIC MODELING

[To be completed]

1. Simulation of Existing System

Match existing conditions, particularly chlorine residual. We have chlorine feed data at plant and residuals at 10 locations in each MOR, May-October.

2. Identification of Deficiencies

Specific issues to look at:

*Worst case at minimum daily demands
 Water age in entire system
 Recirculating water through pump stations
 Use of storage tanks
 Indications of broken valves
 Effectiveness of booster disinfection*



V. RECOMMENDATIONS TO MINIMIZE FUTURE OEL EXCEEDANCES

A. SOURCE

The City of Flint has already committed to the change from the Flint River as the water source to Lake Huron under the KWA system, planned for late 2016. The risk of future TTHM limit violations will decline substantially with the use of water from Lake Huron due to much lower DBP precursors. It is important to recognize that the Flint River will become strictly an emergency supply when the KWA supply becomes available and any investments toward the Flint River should be contemplated accordingly. Recommendations discussed below in this section apply to the Flint River as the source.

Reverting to supply from the DWSD until the KWA supply is available as an option. However, the DWSD has stipulated that a \$4 million connection fee would apply and current water rates would include approximately \$900,000 a month flat fee plus usage charges. Therefore, utilizing the DWSD for interim supply is cost prohibitive under the terms defined by the DWSD.

1. Watershed Management

A volunteer group entitled the Watershed Coalition performs various tasks related to managing the Flint River watershed such as spring cleanups and annual benthic studies to evaluate the river 'health'. No additional action is recommended at this time.

2. Monitoring

The City documents typical raw water characteristics as part of standard preparation of Monthly Operating Reports (MOR). No changes are recommended at this time.

3. Intake Operations

The 2002 Treatability Study recommended pre-oxidation in the form of sodium permanganate as a feed at the intake. However, pre-oxidation with sodium permanganate is unlikely to provide significant oxidizing of organics beyond that provided by ozonation. It is possible the addition of hydrogen peroxide would enhance the ozone process.

4. Seasonal Strategies

Past data indicates the Flint River is influenced by groundwater and in particular, dolomitic spring water. The result is hard water with high concentrations of magnesium and sulfate. Also, hardness and alkalinity are higher during the winter. Upon initiation of supply from the Flint River, the City made the decision to soften with lime only to focus on removal of carbonate hardness. One potential modification that could assist with TOC removal and thus decrease THMFP would be lime and soda ash softening. If implemented soon, the procedural change would be timely as it would also address increased hardness expected going into this winter.

5. Upstream Contamination Issues

Upstream contamination issues are extremely difficult to prevent and even if detected are difficult to locate. Evaluation of raw water data collected for MORs is the easiest manner in which to detect upstream contamination issues because the data is already collected for treatment purposes. In fact, high total Coliform readings signaled a potential issue recently that the City identified and removed.

An upstream monitoring and warning system could be established to attempt to detect spill event type contamination early enough to cease intake prior to the



contamination reaching the WTP. However, given the imminent conversion to the KWA supply, the period of full time use would likely be far too short to achieve payback on the capital expenditures.

B. TREATMENT PROCESS

1. Operational Recommendations

- Coagulation and flocculation polymer aids: The 2002 Treatability Study suggested the use of coagulation and flocculation polymer aids. These polymer aids were shown in the 2002 Treatability Study to increase TOC removal and thereby reduce THMFP. Further evaluation will be completed during jar testing.
- Discontinue softening bypass: The City was previously bypassing a portion of flow around the softening basins because hardness levels did not warrant softening of the full stream. However, this practice was discontinued because it was believed the bypass stream was contributing to chlorine demand and preliminary data has supported that belief. Chlorine demand dropped 0.5 – 1.0 mg/l following elimination of the bypass stream in early November 2014.
- Soften with lime and soda ash: Research has shown that enhanced softening with both lime and soda ash may provide additional TOC removal. The efficacy of this option will be evaluated during jar testing.
- Disinfection of filter beds: In case there has been microbial growth it is recommended the filters be 'shock' treated with chlorine and rinsed. A chlorine injection point was added upstream of the filters during the first segment of Phase II so future growth in the filters should not be an issue.
- Optimization of all existing treatment processes: Depending on bench scale testing conditions and results, slight modifications to all treatment processes might in order to replicate lower DPBFP.

2. Infrastructure Change Recommendations

- Fix and/or replace faulty ozone equipment: Since the ozone equipment was installed it has not been used extensively so the hope is that major components remain in good condition and the system can be easily modified to restore proper functionality. The City has scheduled the equipment manufacturer to field inspect the system on December 15, 2014.
- Change disinfectant to chloramine or chlorine dioxide: If other options prove to be ineffective, conversion to another disinfectant should be fully evaluated. Various characteristics of chloramination indicate an advantage over chlorine dioxide, but a full analysis would provide clarity as to which would be preferred.
- Install pre-oxidant chemical feed: Hydrogen peroxide as a pre-oxidant can enhance the activity of the ozone. This option is listed as a consideration only if problems continue with ozonation.
- Repair upstream sewer leak: a sewer leak upstream of the WTP intake was discovered and has already been repaired by the City.



C. DISTRIBUTION SYSTEM

Recommendations will be incorporated into this report when available. It is anticipated details will be provided for the following topics. [To be completed]

- 1. Manage Water Age**
 - a) *Storage Tanks*
 - b) *Residence Time in Pipes*
- 2. Reduce Disinfectant Demand**
 - a) *Flushing*
 - b) *Cast Iron Pipes*

3. Water Modeling of Recommendations

*Determine best flushing locations to reduce water age
 Changes to storage tank operating levels to reduce water age
 Valves to close/add to improve pressure zones, reduce recirculation
 Optimization of pump station use – smaller pumps? Shut down?
 Evaluate booster disinfection*

A number of actions have already been taken in terms of the distribution system. Water main flushing efforts were increased until late November when freezing weather became prevalent. Also, numerous valves that were broken in the closed position and believed to have been contributing to stagnant water were replaced.

D. BOOSTER DISINFECTION

Decreasing chlorine feed at the WTP and adding booster disinfection in the distribution system is an alternative intended to reduce the reaction time at higher concentrations of chlorine to reduce DPB formation. Extensive looping and branching within the existing system complicate how to best implement and utilize booster disinfection. Water system modeling is recommended to determine the most effective feed point locations and dosages. Further discussion and details will be provided when the distribution evaluation results are available.

E. CATEGORIZATION OF ACTIONS

Considering that the Flint River is being used as the water source only until the KWA supply is available (expected late 2016), options to address high THM formation that require new construction or extensive time to implement are not preferred. On the other hand, the City understands THM sample results to date dictate that some action is necessary. Two categories have been developed to assist the City in prioritizing actions to take. Stage 1 consists of actions that can be completed relatively quickly without major construction and Stage 2 actions are either long term actions or solutions requiring major construction. Stage 1 actions are to be completed first followed by evaluation of the results prior to consideration of Stage 2 actions. Grouping of actions are shown in the table below.

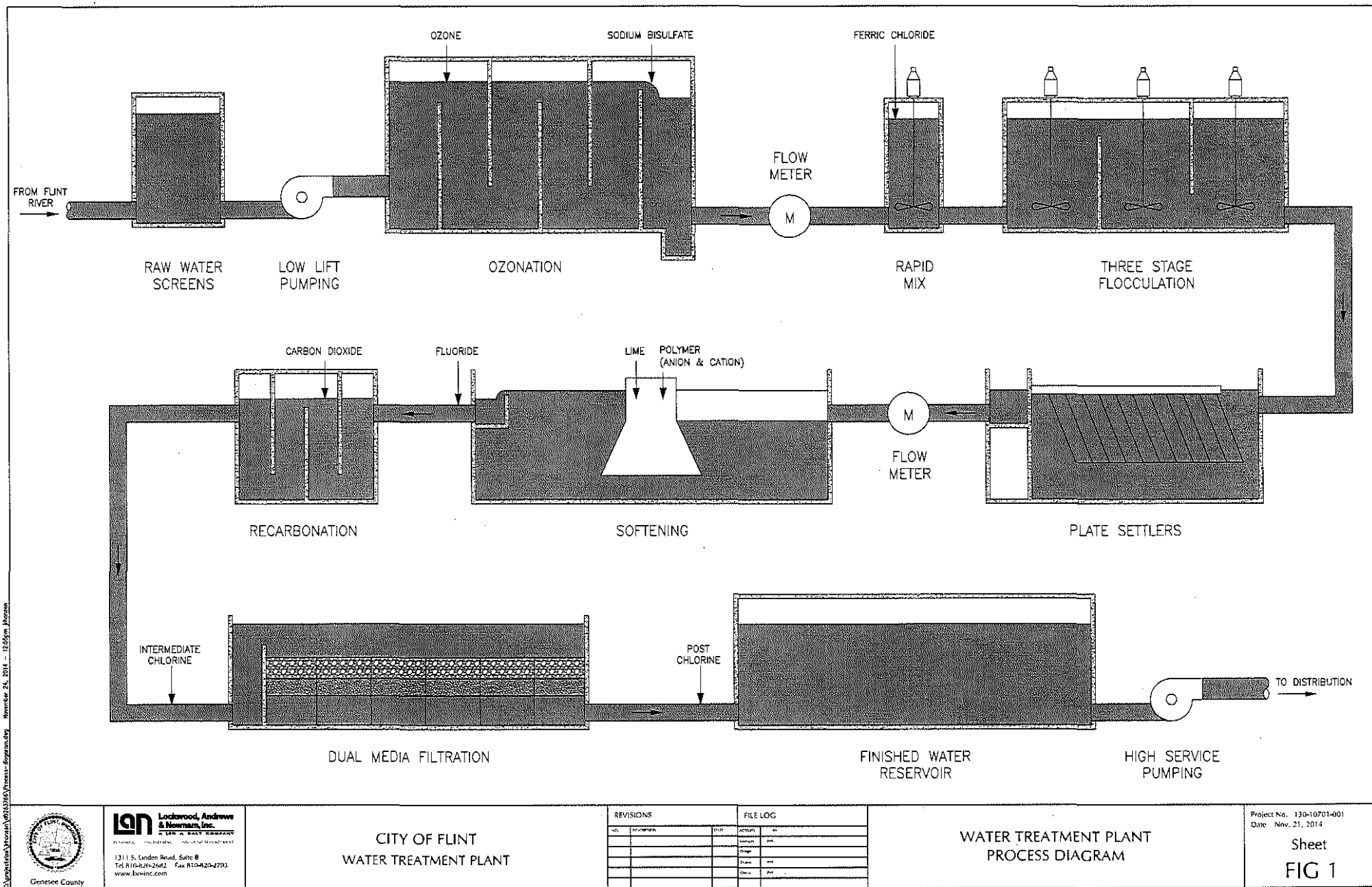
CITY OF FLINT
Operational Evaluation Report
December 1, 2014



TABLE 6 – ACTION PLAN

	Action	Purpose
Stage 1	Troubleshoot ozone feed system	Reduce chlorine feed and increase TOC removal
	Bench scale jar testing	Optimize treatment process and evaluate possible modifications
	Discontinue softening bypass	Reduce chlorine demand
	Disinfect filters	Reduce chlorine demand
	Increased water main flushing	Reduce water age / stagnant water
	Water system modeling evaluation	Determine areas with high water age and reasons
	Implement coag. & floc. polymer aids, if appropriate	Increase TOC removal
	Modify booster disinfection feeds, if appropriate	Decrease water age
Stage 2	Repair ozone system	Reduce chlorine feed and increase TOC removal
	Continue increased water main flushing	Reduce water age / stagnant water
	Convert to lime and soda ash softening	Increase TOC removal
	Continue valve replacements based on water model	Reduce water age / stagnant water
	Change disinfectant to chlorine dioxide	Reduce THMFP
	Install pre-oxidant feed at intake	Optimize ozone disinfection, reduce chlorine
	Place priority on replacing cast iron water mains	Reduce chlorine demand

Samples were taken the week of November 17th for the 3rd quarter of testing. Although the City has begun implementation of Stage 1 actions, THM results are not expected to be noticeably affected since there has not been enough time for a response. The next quarter of sampling is due to be completed the third week in February. It is the City's intent to implement Stage 1 actions prior to the 3rd quarter of THM sampling.



Rennaker, Joanne (DEQ)

From: Shoven, Heather <shoven.heather@epa.gov>
Sent: Tuesday, January 06, 2015 11:44 AM
To: Busch, Stephen (DEQ); Crooks, Jennifer; Prysby, Mike (DEQ)
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Hi Steve,

Thank you for your quick response. I am relieved to see that the "water is safe to drink" is not in the notice.

Best wishes,
 Heather

Heather A. Shoven
 Compliance and Enforcement Team Leader
 Ground Water and Drinking Water Branch
 U.S. Environmental Protection Agency, Region 5
 77 W. Jackson Blvd (WG-15J), Chicago, IL 60604
 Phone: (312) 886-0153 / Email: shoven.heather@epa.gov

From: Busch, Stephen (DEQ) [mailto:BUSCHS@michigan.gov]
Sent: Tuesday, January 06, 2015 10:40 AM
To: Shoven, Heather; Crooks, Jennifer; Prysby, Mike (DEQ)
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Here is the PN posting from the City's website:
<http://www.cityofflint.com/upload/TTHM%20Notification%20Final.PDF>

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

From: Shoven, Heather [mailto:shoven.heather@epa.gov]
Sent: Tuesday, January 06, 2015 11:35 AM
To: Crooks, Jennifer; Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation
Importance: High

Hi Steve and Mike,

I appreciate your work on this issue. Would you have a copy of the PN that was posted for the TTHM MCL? If they used the MDEQ template sent with the NOV, it should not include a line that the water is safe, which is quoted in the news article.

The notice from the city says Flint water is safe to drink but warns those with "a severely compromised immune system, (who) have an infant or are elderly" that they "may be at increased risk and should seek advice about drinking water from your health care provider."

http://www.mlive.com/news/flint/index.ssf/2015/01/flint_water_has_high_disinfect.html

I appreciate your time.

Best wishes,
Heather

Heather A. Shoven
Compliance and Enforcement Team Leader
Ground Water and Drinking Water Branch
U.S. Environmental Protection Agency, Region 5
77 W. Jackson Blvd (WG-15J), Chicago, IL 60604
Phone: (312) 886-0153 / Email: shoven.heather@epa.gov

From: Crooks, Jennifer
Sent: Monday, January 05, 2015 2:13 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Shoven, Heather
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Steve and Mike: Thank you, Steve, for giving us the heads up on the TTHM violation in December. I guess the public notice went out recently; we've been inundated with calls from the SDWA hotline, as I'm sure you are too. One caller this morning wanted to know more about how EPA would get involved in the enforcement process, so I referred him to Heather Shoven, our Enforcement Chief. Below is her communication with Mr. Arthur Woodson, FYI.

I'm not sure if I asked you in December, Steve, but could you send me a copy of Flint's corrective action plan for the TTHM MCL violation when you receive it?

Thank you both for risking developing high blood pressure in dealing with Flint....

Jennifer

From: Shoven, Heather
Sent: Monday, January 05, 2015 1:53 PM
To: Crooks, Jennifer
Cc: Murphy, Thomas; Damato, Nicholas; Poy, Thomas; Bair, Rita; Deltoral, Miguel
Subject: FYI: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Hi Jennifer,

I wanted to follow-up on our phone conversation by documenting my discussion with Mr. Arthur Woodson (810-288-1286) this morning regarding EPA enforcement and the recent TTHM MCL violation at the Flint PWS in Michigan (NOV that you provided is attached).

He was concerned about the contents of the news article at http://www.mlive.com/news/flint/index.ssf/2015/01/flint_water_has_high_disinfect.html. Specifically, his uncle has cancer and the doctor mentioned that the DBPs in the water may be contributing to his uncle's health problems. I explained the health effects of DBPs and it being a chronic contaminant.

Mr. Woodson stated that there is a Flint City Council Meeting this evening and he would like to talk about this issue during it. He wanted to know if EPA could take enforcement action if the state and the system are not doing anything to address the contamination. I explained the basics of primacy and SDWA enforcement and how EPA is able to issue a notice of violation to a public water system. I told him that we are aware of the violation and mentioned that the state NOV provides the opportunity for the PWS to develop a corrective action plan to address the MCL violation by March 1, 2015 and the next round of DBP samples will be collected in February.

I'll let you know if I hear anything else from Mr. Woodson. I appreciate you following up with MDEQ to request a copy of the PWS's corrective action plan for the TTHM MCL violation once it's received.

Best wishes,
Heather

Heather A. Shoven
Compliance and Enforcement Team Leader
Ground Water and Drinking Water Branch
U.S. Environmental Protection Agency, Region 5
77 W. Jackson Blvd (WG-15J), Chicago, IL 60604
Phone: (312) 886-0153 / Email: shoven.heather@epa.gov

From: Crooks, Jennifer
Sent: Tuesday, December 16, 2014 10:09 AM
To: Poy, Thomas; Bair, Rita; Damato, Nicholas; Shoven, Heather; Murphy, Thomas
Cc: Kuefler, Janet; Deltoral, Miguel; Noureldin, Mostafa; Porter, Andrea
Subject: FW: Flint Drinking Water TTHM Standard Violation

Attached is the Notice of Violation letter sent to Flint TODAY RE: TTHM violation.
Jennifer

From: Busch, Stephen (DEQ) [<mailto:BUSCHS@michigan.gov>]
Sent: Tuesday, December 16, 2014 9:18 AM
To: Crooks, Jennifer
Subject: FW: Flint Drinking Water TTHM Standard Violation

Jennifer,

Our TTHM Violation Notice to Flint is attached in case you get any calls. If you have any questions give us a call.

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

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 16, 2014 10:16 AM
To: Datema, Maggie (DEQ); 'Wurfel, Brad (DEQ) (WurfelB@michigan.gov)'
Cc: prysbym@michigan.gov; Richard Benzie P.E. (BENZIER@michigan.gov); Shekter Smith, Liane (DEQ) (SHEKTERL@michigan.gov); Adam Rosenthal (rosenthala@michigan.gov)
Subject: Flint Drinking Water TTHM Standard Violation

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 standard for Total Trihalomethanes at certain locations within the City's drinking water distribution system.

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.

Maggie Datema 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

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, January 06, 2015 11:40 AM
To: Shoven, Heather; Crooks, Jennifer; Prysby, Mike (DEQ)
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Here is the PN posting from the City's website:

<http://www.cityofflint.com/upload/TTHM%20Notification%20Final.PDF>

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

From: Shoven, Heather [mailto:shoven.heather@epa.gov]
Sent: Tuesday, January 06, 2015 11:35 AM
To: Crooks, Jennifer; Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation
Importance: High

Hi Steve and Mike,

I appreciate your work on this issue. Would you have a copy of the PN that was posted for the TTHM MCL? If they used the MDEQ template sent with the NOV, it should not include a line that the water is safe, which is quoted in the news article.

The notice from the city says Flint water is safe to drink but warns those with "a severely compromised immune system, (who) have an infant or are elderly" that they "may be at increased risk and should seek advice about drinking water from your health care provider."

http://www.mlive.com/news/flint/index.ssf/2015/01/flint_water_has_high_disinfect.html

I appreciate your time.

Best wishes,
 Heather

Heather A. Shoven
 Compliance and Enforcement Team Leader
 Ground Water and Drinking Water Branch
 U.S. Environmental Protection Agency, Region 5
 77 W. Jackson Blvd (WG-15J), Chicago, IL 60604
 Phone: (312) 886-0153 / Email: shoven.heather@epa.gov

From: Crooks, Jennifer
Sent: Monday, January 05, 2015 2:13 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)

Cc: Shoven, Heather

Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Steve and Mike: Thank you, Steve, for giving us the heads up on the TTHM violation in December. I guess the public notice went out recently; we've been inundated with calls from the SDWA hotline, as I'm sure you are too. One caller this morning wanted to know more about how EPA would get involved in the enforcement process, so I referred him to Heather Shoven, our Enforcement Chief. Below is her communication with Mr. Arthur Woodson, FYI.

I'm not sure if I asked you in December, Steve, but could you send me a copy of Flint's corrective action plan for the TTHM MCL violation when you receive it?

Thank you both for risking developing high blood pressure in dealing with Flint....

Jennifer

From: Shoven, Heather

Sent: Monday, January 05, 2015 1:53 PM

To: Crooks, Jennifer

Cc: Murphy, Thomas; Damato, Nicholas; Poy, Thomas; Bair, Rita; Deltoral, Miguel

Subject: FYI: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Hi Jennifer,

I wanted to follow-up on our phone conversation by documenting my discussion with Mr. Arthur Woodson (810-288-1286) this morning regarding EPA enforcement and the recent TTHM MCL violation at the Flint PWS in Michigan (NOV that you provided is attached).

He was concerned about the contents of the news article at http://www.mlive.com/news/flint/index.ssf/2015/01/flint_water_has_high_disinfect.html. Specifically, his uncle has cancer and the doctor mentioned that the DBPs in the water may be contributing to his uncle's health problems. I explained the health effects of DBPs and it being a chronic contaminant.

Mr. Woodson stated that there is a Flint City Council Meeting this evening and he would like to talk about this issue during it. He wanted to know if EPA could take enforcement action if the state and the system are not doing anything to address the contamination. I explained the basics of primacy and SDWA enforcement and how EPA is able to issue a notice of violation to a public water system. I told him that we are aware of the violation and mentioned that the state NOV provides the opportunity for the PWS to develop a corrective action plan to address the MCL violation by March 1, 2015 and the next round of DBP samples will be collected in February.

I'll let you know if I hear anything else from Mr. Woodson. I appreciate you following up with MDEQ to request a copy of the PWS's corrective action plan for the TTHM MCL violation once it's received.

Best wishes,
Heather

Heather A. Shoven
Compliance and Enforcement Team Leader
Ground Water and Drinking Water Branch
U.S. Environmental Protection Agency, Region 5
77 W. Jackson Blvd (WG-15J), Chicago, IL 60604
Phone: (312) 886-0153 / Email: shoven.heather@epa.gov

From: Crooks, Jennifer

Sent: Tuesday, December 16, 2014 10:09 AM

To: Poy, Thomas; Bair, Rita; Damato, Nicholas; Shoven, Heather; Murphy, Thomas

Cc: Kuefler, Janet; Deltoral, Miguel; Noureldin, Mostafa; Porter, Andrea

Subject: FW: Flint Drinking Water TTHM Standard Violation

Attached is the Notice of Violation letter sent to Flint TODAY RE: TTHM violation.
Jennifer

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

Sent: Tuesday, December 16, 2014 9:18 AM

To: Crooks, Jennifer

Subject: FW: Flint Drinking Water TTHM Standard Violation

Jennifer,

Our TTHM Violation Notice to Flint is attached in case you get any calls. If you have any questions give us a call.

Stephen Busch, P.E.

Lansing and Jackson District Supervisor

Office of Drinking Water and Municipal Assistance

MDEQ

517-643-2314

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Sent: Tuesday, December 16, 2014 10:16 AM

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Office of Drinking Water and Municipal Assistance

MDEQ

517-643-2314

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From: Shoven, Heather <shoven.heather@epa.gov>
Sent: Tuesday, January 06, 2015 11:35 AM
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Subject: RE: Discussion with Michigan citizen regarding the Flint Drinking Water TTHM Standard Violation

Importance: High

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Subject: FW: Flint Drinking Water TTHM Standard Violation

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Lansing and Jackson District Supervisor
Office of Drinking Water and Municipal Assistance
MDEQ
517-643-2314

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

Rennaker, Joanne (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Tuesday, December 30, 2014 3:39 PM
To: Prysby, Mike (DEQ)
Subject: RE: Flint TTHM Notice

Thanks Mike!
 b

From: Prysby, Mike (DEQ)
Sent: Tuesday, December 30, 2014 11:35 AM
To: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ); Benzie, Richard (DEQ)
Cc: Shekter Smith, Liane (DEQ); Wurfel, Brad (DEQ)
Subject: Flint TTHM Notice

A quick "heads-up regarding Flint....

Mr. Duaghtry Johnson from Flint called me today for minor clarification on the TTHM PN of which I assisted him. He also informed me that the city will be mailing out the PN this Saturday. The city will also be giving the press a "heads-up" of the PN on Sunday with an official press release on Monday Jan 5th; thus, we could get a call on Sunday. I expect most calls will be received Mon-Wed of next week. I plan to remain in the office next week (Mon-Wed) to take calls.

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

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District Engineer
Office of Drinking Water and Municipal Assistance
517 290-8817

Rennaker, Joanne (DEQ)

From: Howard Croft <hcroft@cityofflint.com>
Sent: Monday, December 29, 2014 2:22 PM
To: Prysby, Mike (DEQ)
Cc: Gerald Ambrose; Jason Lorenz
Subject: Re: TTHM Violation Notification

Liz,

This response by Mike Prysby points out using a notice in the water bill as an option for the direct delivery method.

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

From: Prysby, Mike (DEQ) <PRYSBYM@michigan.gov>
Date: Mon, Dec 29, 2014 at 11:47 AM
Subject: RE: TTHM Violation Notification
To: Brent Wright <bwright@cityofflint.com>, "Busch, Stephen (DEQ)" <BUSCHS@michigan.gov>
Cc: Howard Croft <hcroft@cityofflint.com>, Daugherty Johnson <djohnson@cityofflint.com>, Michael Glasgow <mglasgow@cityofflint.com>

Brent,

R 325.10403 (3), a , Sections i and ii of the Michigan Safe Drinking Water Act (Act 399) and Administrative Rules require suppliers to provide public notice within 30 days by mail or direct delivery (Section i) and by any other means reasonably calculated to reach customers not normally reached by mail (Section ii). The city may elect to include the public notice in their water billing. Newspaper and website posting must be utilized in the event that the city is unable to include the PN in their current billing cycle by the 30-day deadline; however, the city's next water billing cycle must include the PN. The PN must also be re-issued every three months; thus, the city needs to prepare for mail delivery.

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

From: Brent Wright [mailto:bwright@cityofflint.com]
Sent: Monday, December 29, 2014 10:58 AM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Cc: Howard Croft; Daugherty Johnson; Michael Glasgow
Subject: TTHM Violation Notification

Mike, Steve

Concerning the violation notification for TTHM's the city needs clarification on the delivery of notification. In the last violation notification for Total Coliform the City published it in the local paper and posted it on the city website, this satisfied the DEQ requirements. Would this be adequate for the TTHM notification? Thank you for your prompt reply concerning this matter.

--

Brent Wright

Water Plant Supervisor

City of Flint

4500 N. Dort Hwy.

Flint, MI. 48505

Ph: 810.787.6537 ext. 3510

Fx: 810.787.3710

--

Howard Croft
Public Works Director
City of Flint
1101 S. Saginaw Street
Flint, MI 48502
PH# 810.766.7346 Ext.2043
hcroft@cityofflint.com

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

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, December 29, 2014 11:27 AM
To: Busch, Stephen (DEQ)
Subject: RE: TTHM Violation Notification

Steve,

Yes...Section ii is also included the VN letter. No record of us waiving the requirement.....I will inform the city accordingly.

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

From: Busch, Stephen (DEQ)
Sent: Monday, December 29, 2014 11:23 AM
To: Prysby, Mike (DEQ)
Cc: Rosenthal, Adam (DEQ); Benzie, Richard (DEQ)
Subject: Re: TTHM Violation Notification

From what I see it says both section i and ii unless otherwise directed by the department in writing. I'm not sure if the dwac has some write up on this in their database. Ccrs could be different since it is generally used for tier iii notices. They may not be able to include in their bills by the 30 day deadline but could put in newspaper and web followed by the bill later. They will need to reissue every 3 months for a while anyway so they should prepare to mail it out.

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

Sent from my iPhone

On Dec 29, 2014, at 11:09 AM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Steve,

According to R 325.10403 (3), a (i)

Community water supplies shall provide notice (Tier 2) by using both of the following forms of delivery

- (i) Mail or direct delivery to each customer receiving a bill

As far as I see in the rules Flint needs to send the TTHM PN via direct mail.....and is stated in the Dec. 16th Violation Notice letter.

Michael Prysby, P.E.
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Office of Drinking Water and Municipal Assistance
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Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, December 16, 2014 11:07 AM
To: Busch, Stephen (DEQ)
Subject: Flint
Attachments: TTHM Reduction measures.doc

Steve,

I spoke with WTP staff (Brent and Mike) and the WSC (Robert Binscik) to confirm the proactive measures taken by the city; thus far, towards reducing TTHM levels. Attached is a brief summary.

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

**TTHM Reduction
Action taken by City
December 16, 2014**

Flint's 3rd quarter of TTHM monitoring (Nov 20th, 2014) shows a reduction in TTHM levels at all of the sampling locations. The reduced TTHMs are the combined result of seasonal variation of total organic carbon (TTHM precursors) in the raw water and action taken by the city towards reducing TTHM levels. The amount of reduction contributed by each factor cannot be determined; however, the following is a list of proactive measures taken by the city in their effort to reduce TTHM levels.

1. Removed the 20 MGAL Dort Reservoir from service.

The reservoir allowed treated water from the WTP to re-circulate back to high service thus adding up to one week of retention time.

2. Softening 100% of the WTP flow during normal plant operation.

Softening the complete flow reduces the chlorine demand. During high water demands (large main breaks, filling reservoirs), split treatment must be utilized due to VFD control problems with the 20 MGD low service pump; however, split treatment is no longer the WTP's main mode of operation.

3. Improved turn-over of water in distribution system reservoirs.

The operating range of the Cedar Street and Westside reservoirs was increased from 1-2 ft. (summer) to approximately 10 feet. The increased drawdown has reduced residence time and improved chlorine residuals.

4. Established a more proactive flushing program.

Increased flushing reduced residence time in the distribution system especially at dead-ends.

5. Optimizing Transmission System Operation w. repair of major valves and confirming proper valve position.

Several critical valves were replaced on one of Flint's four major transmission mains and several other valves (found to be closed) were opened. This eliminated stagnation problems in areas near this main, improved chlorine residuals and allows the main to operate in a looped configuration.

Action to be taken soon:

- **LAN treatability study – jar testing (Starting this week)**
- **Trouble shoot Ozone system – early January**
- **Disinfect filters – after the next “top-off” of system reservoirs**

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 16, 2014 10:17 AM
To: Datema, Maggie (DEQ); Wurfel, Brad (DEQ)
Cc: Prysby, Mike (DEQ); Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ); Rosenthal, Adam (DEQ)
Subject: Flint Drinking Water TTHM Standard Violation
Attachments: City of Flint VN - MCL TTHM 12_16_14.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 standard for Total Trihalomethanes at certain locations within the City's drinking water distribution system.

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.

Maggie Datema 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

December 16, 2014

Mr. Brent Wright, Operation Supervisor
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, MI 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Violation Notice – Maximum Contaminant Level for Total Trihalomethanes
Operational Evaluation – Total Trihalomethanes
4th Quarter 2014 Monitoring Period

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the City of Flint is in violation of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399); R 325.10610, *Maximum contaminant levels (MCL) for disinfection byproducts*, of the 1979 Administrative Code.

In accordance with R.325.10610, *MCLs for disinfection byproducts*, of the 1979 Administrative Code, the MCL for disinfection byproduct total trihalomethanes (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 of Flint's highest TTHM locational running annual average (LRAA), based on the last three quarters, ending November 30, 2014, is 0.099 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 R325.10719I, *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 department 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 TTHM operational evaluation levels for the City of Flint exceed 0.080 mg/L at four of the City's eight sample site locations.

TTHM Results (mg/L)					
	5/21/14	8/21/14	11/20/14	LRAA	OEL
DBP1 McDonalds 3719 Davison	0.162	0.145	0.059	0.092	0.106
DBP2 Liquor Palace 3302 S. Dort Highway	0.112	0.127	0.033	0.068	0.076
DBP3 North Flint Auto 6204 N. Saginaw St.	0.097	0.118	0.041	0.064	0.074
DBP4 University Market 2501 Flushing Road	0.106	0.196	0.094	0.099	0.122
DBP5 Taco Bell 3606 Corunna Road	0.079	0.181	0.034	0.074	0.082
DBP6 Rite-Aid Pharmacy 5018 Clio Road	0.088	0.144	0.054	0.072	0.085
DBP7 Salem Housing 3216 MLK Boulevard	0.082	0.112	0.050	0.061	0.074
DBP8 BP Gas Station 822 S. Dort Highway	0.075	0.112	0.036	0.056	0.065

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 December 1, 2014, and will continue until TTHM LRAA is below the MCL at all sample sites.

We acknowledge and appreciate the city's cooperation with our recommendation to preemptively conduct an Operational Evaluation following the City's second quarterly round of monitoring in August. That Operational Evaluation report has identified possible causes and corrective measures for the elevated TTHM levels which we encourage the City 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.

Our office is continuing to review the Operational Evaluation report that was submitted on December 1, 2014, and will provide the City and their consultant 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 719I (R325.10719I) 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 March 1, 2015.**

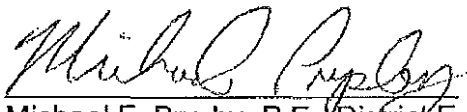
If you have any other factual information you would like us to consider regarding the violation identified in this Violation Notice (VN), please provide them in a written response by January 16, 2015.

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

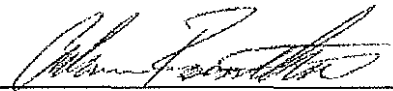
which contains the minimum required language. The City is encouraged to include additional information regarding its response to this violation. **Please notify your consumers by January 10, 2015, and send us a signed and dated copy of the notice that you issued within ten (10) days of distributing the public notice.** This violation must also be included in your 2014 Consumer Confidence Report (CCR), due by July 1, 2015. 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.

Sincerely,



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



Adam Rosenthal, EQA
Lansing District Office
Office of Drinking Water & Municipal
Assistance
517-284-6644

mfp/ar/jlr
Enclosure

cc: Mr. Darnell Early, Emergency Manager, City of Flint
Mr. Daughtry Johnson, City of Flint
Mr. Howard Croft, City of Flint
Mr. Robert Bincsik, City of Flint
Ms. Jennifer Crooks, U.S. Environmental Protection Agency, Region 5
Genesee County Health Department
Ms. Liane Shekter Smith, P.E., DEQ
Mr. Richard Benzie, P.E., DEQ
Mr. Stephen Busch, P.E., 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, and November 20 of 2014). 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 Maximum Contaminant Level (MCL). The standard for TTHMs is 80 µg/L. The location reporting the highest TTHM level was 99 µg/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 by 2015.

For more information, please contact Mr. Brent Wright at 517-787-6537 or the Flint Water Plant at 4500 North Dort Highway, Flint, MI 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 DEQ.

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Friday, December 12, 2014 3:34 PM
To: Datema, Maggie (DEQ); Wurfel, Brad (DEQ)
Cc: Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ); Sygo, Jim (DEQ); Benzie, Richard (DEQ)
Subject: Flint Drinking Water TTHM Standard Violation
Attachments: Flint DBP MCL 4Q14.doc

Maggie,

The final violation notice we plan to mail on Monday to Flint is attached.

The Director had asked us to work with you to notify impacted members of the State legislature and answer any questions they might have so that they will be informed and able to answer questions from their constituents.

Please let us know if you have any questions or need any additional assistance.

Thanks.

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

December 15, 2014

Mr. Brent Wright, Operation Supervisor
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, MI 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Violation Notice – Maximum Contaminant Level for Total Trihalomethanes
Operational Evaluation – Total Trihalomethanes
4th Quarter 2014 Monitoring Period

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the City of Flint is in violation of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399); R 325.10610, *Maximum contaminant levels (MCL) for disinfection byproducts*, of the 1979 Administrative Code.

In accordance with R.325.10610, *MCLs for disinfection byproducts*, of the 1979 Administrative Code, the MCL for disinfection byproduct total trihalomethanes (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 of Flint's highest TTHM locational running annual average (LRAA), based on the last three quarters, ending November 30, 2014, is 0.099 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 R325.10719I, *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 department 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 TTHM operational evaluation levels for the City of Flint exceed 0.080 mg/L at four of the City's eight sample site locations.

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DBP8 BP Gas Station 822 S. Dort Highway	0.075	0.112	0.036	0.056	0.065

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 December 1, 2014, and will continue until TTHM LRAA is below the MCL at all sample sites.

We acknowledge and appreciate the city's cooperation with our recommendation to preemptively conduct an Operational Evaluation following the City's second quarterly round of monitoring in August. That Operational Evaluation report has identified possible causes and corrective measures for the elevated TTHM levels which we encourage the City 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.

Our office is continuing to review the Operational Evaluation report that was submitted on December 1, 2014, and will provide the City and their consultant 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 719I (R325.10719I) 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 March 1, 2015.**

If you have any other factual information you would like us to consider regarding the violation identified in this Violation Notice (VN), please provide them in a written response by January 15, 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 to this violation. **Please notify your consumers by January 10, 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 2014 Consumer Confidence Report (CCR), due by July 1, 2015. 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.

Sincerely,

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

Adam Rosenthal, EQA
Lansing District Office
Office of Drinking Water & Municipal
Assistance
517-284-6644

mfp/ar/jlr
Enclosure

cc: Mr. Darnell Early, Emergency Manager, City of Flint
Mr. Daughtry Johnson, City of Flint
Mr. Howard Croft, City of Flint
Mr. Robert Bincsik, City of Flint
Ms. Jennifer Crooks, U.S. Environmental Protection Agency, Region 5
Genesee County Health Department
Ms. Liane Shekter Smith, P.E., DEQ
Mr. Richard Benzie, P.E., DEQ
Mr. Stephen Busch, P.E., 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, and November 20 of 2014). 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 Maximum Contaminant Level (MCL). The standard for TTHMs is 80 µg/L. The location reporting the highest TTHM level was 99 µg/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 by 2015.

For more information, please contact Mr. Brent Wright at 517-787-6537 or the Flint Water Plant at 4500 North Dort Highway, Flint, MI 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 DEQ.

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Friday, December 12, 2014 10:07 AM
To: Prysby, Mike (DEQ); Rennaker, Joanne (DEQ)
Subject: RE: Flint Letter

Importance: High

Mike take a look at lunch and give me a call.

Richard, Adam, and I think it is good to go. Once I hear back from you I will sign for you and get it out the door yet today, along with electronic copies to the executive office.

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, December 12, 2014 10:03 AM
To: Rennaker, Joanne (DEQ)
Cc: Busch, Stephen (DEQ)
Subject: Re: Flint Letter

I am out in the field today...may get an opportunity to look at it otherwise I can take a last look first thing Monday

Sent from my iPhone

On Dec 12, 2014, at 9:41 AM, "Rennaker, Joanne (DEQ)" <RENNAKERJ@michigan.gov> wrote:

Good Morning Mike,

I have attached a copy of the Flint letter. It has been finalized, but Steve would like you to take one last look at it, then e-mail me back with any changes or to let me know that it is okay.

Thanks,

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

<Flint DBP MCL 4Q14 d3.doc>

Rennaker, Joanne (DEQ)

From: Benzie, Richard (DEQ)
Sent: Thursday, December 11, 2014 6:28 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ); Rosenthal, Adam (DEQ)
Subject: RE: Flint
Attachments: Flint DBP MCL 4Q14 draft II.doc

It looked good but I've done a bit of wordsmithing. I like the tone better now as it shows we are continuing to provide compliance assistance even after identifying a violation and initiating enforcement. Be aware that compliance assistance is going to receive greater focus in the next term of this administration.

From: Prysby, Mike (DEQ)
Sent: Thursday, December 11, 2014 2:20 PM
To: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ); Benzie, Richard (DEQ)
Subject: Flint

As per Richard's thoughts... here's a stab at adding some additional language to the letter....bottom paragraph was expanded and highlighted in blue...

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



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

December 12, 2014

Mr. Brent Wright, Operation Supervisor
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, MI 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Violation Notice – Maximum Contaminant Level for Total Trihalomethanes
Operational Evaluation – Total Trihalomethanes
3rd Quarter 2014

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the City of Flint is in violation of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399); R 325.10610, *Maximum contaminant levels (MCL) for disinfection byproducts*, of the 1979 Administrative Code.

In accordance with R.325.10610, *MCLs for disinfection byproducts*, of the 1979 Administrative Code, the MCL for disinfection byproduct total trihalomethanes (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 of Flint's highest TTHM locational running annual average (LRAA), based on the last three quarters ending November 30, 2014, is 0.099 mg/l which exceeds the standard, and that two of the eight sample site locations exceed the standard of 0.080 mg/L.

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DBP8 BP Gas Station 822 S. Dort Highway	0.075	0.112	0.036	0.056	0.065

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 December 1, 2014, and will continue until TTHM LRAA is below the MCL at all sample sites.

Water systems who exceed the OEL must complete and submit an Operational Evaluation in accordance with Administrative Rule 7191(R325.101791) within 90 days of being notified since the start of the violation. We acknowledge and appreciate the city's collaborative cooperation effort with our department. recommendation to conduct towards preparing an Operational Evaluation before being required to do so several months prior to OEL exceedance and submitting a draft report when the exceedance was foreseeable. The draft report identifies possible causes and corrective measures for the elevated TTHM levels. We also acknowledge that the city has implemented some of these measures identified in the Operational Evaluation, including improved distribution system operation and initiating softening of the entire treatment plant flow, both of which have and has likely contributed to the reduction in TTHM levels reported in the most recent quarter.

The city is encouraged to continue working with their consultant towards implementing additional TTHM reduction measures identified in the draft report. At the same time, ~~We~~ we will review the draft report and provide comments as needed towards assisting the city in this endeavor. The (final?) Operational Evaluation report needs to be completed and received by our office by no later than March 1, 2015

If you have any other factual information you would like us to consider regarding the violation identified in this Notice, please provide them in a written response by January 12, 2015.

Administrative rule R 325.10403 of Act 399 requires that suppliers provide public notice 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 public notice (PN) which contains the minimum required language. The City is encouraged to ~~include~~ provide additional information regarding its response to this violation. **Please notify your consumers by January 10, 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 2014 Consumer Confidence Report (CCR,) due by July 1, 2015. The public notification 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.** ~~Contact our office for a more complete summary of our fines policies. (is the prior really sentence necessary?)~~

We anticipate and appreciate your continued cooperation in resolving this matter. If you have any questions regarding this Violation Notice, please contact us at the numbers below.

Sincerely,

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

Adam Rosenthal, EQA
Lansing District Office
Office of Drinking Water & Municipal
Assistance
517-284-6644

MFP:AR:JR

Enclosure

cc:

Genesee County Health Dept.
Jennifer Crooks, EPA Region 5
Mr. Darnell Early, Emergency Manager, City of Flint
Daughtry Johnson
Howard Croft
Robert Bincsik
Liane Shekter Smith, P.E.
Richard Benzie, P.E.
Stephen Busch, P.E.

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

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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, and November 20 of 2014). 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 µg/L. The location reporting the highest TTHM level was 99 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 by 2015.

For more information, please contact Mr. Brent Wright at 517-787-6537 or the Flint Water Plant at 4500 North Dort Highway, Flint, MI 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 DEQ.

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, December 11, 2014 2:20 PM
To: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ); Benzie, Richard (DEQ)
Subject: Flint
Attachments: Flint DBP MCL 4Q14 draft II.doc

As per Richard's thoughts... here's a stab at adding some additional language to the letter....bottom paragraph was expanded and highlighted in blue...

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



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

December 12, 2014

Mr. Brent Wright, Operation Supervisor
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, MI 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Violation Notice – Maximum Contaminant Level for Total Trihalomethanes
Operational Evaluation – Total Trihalomethanes
3rd Quarter 2014

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the City of Flint is in violation of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399); R 325.10610, *Maximum contaminant levels (MCL) for disinfection byproducts*, of the 1979 Administrative Code.

In accordance with R.325.10610, *MCLs for disinfection byproducts*, of the 1979 Administrative Code, the MCL for disinfection byproduct total trihalomethanes (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 of Flint's highest TTHM locational running annual average (LRAA), based on the last three quarters ending November 30, 2014, is 0.099 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 R325.10719I, *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 department 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 TTHM operational evaluation levels for the City of Flint exceed 0.080 mg/L, at four of the City's eight sample site locations.

TTHM Results (mg/L)	5/21/14	8/21/14	11/20/14	LRAA	OEL
DBP1 McDonalds 3719 Davison	0.162	0.145	0.059	0.092	0.106
DBP2 Liquor Palace 3302 S. Dort Highway	0.112	0.127	0.033	0.068	0.076
DBP3 North Flint Auto 6204 N. Saginaw St.	0.097	0.118	0.041	0.064	0.074

DBP4 University Market 2501 Flushing Road	0.106	0.196	0.094	0.099	0.122
DBP5 Taco Bell 3606 Corunna Road	0.079	0.181	0.034	0.074	0.082
DBP6 Rite-Aid Pharmacy 5018 Clio Road	0.088	0.144	0.054	0.072	0.085
DBP7 Salem Housing 3216 MLK Boulevard	0.082	0.112	0.050	0.061	0.074
DBP8 BP Gas Station 822 S. Dort Highway	0.075	0.112	0.036	0.056	0.065

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 December 1, 2014, and will continue until TTHM LRAA is below the MCL at all sample sites.

Water systems who exceed the OEL must complete and submit an Operational Evaluation in accordance with Administrative Rule 7191(R325.101791) within 90 days since the start of the violation. We acknowledge the city's collaborative effort with our department towards preparing an Operational Evaluation several months prior to OEL exceedance and submitting a draft report. The draft report identifies possible causes and corrective measures for the elevated TTHM levels. We also acknowledge that the city has implemented some of these measures including improved distribution system operation and softening the entire treatment plant flow and has likely attributed to the reduction in TTHM levels in the most recent quarter. The city is encouraged to continue working with their consultant towards implementing additional TTHM reduction measures identified in the draft report. We will review the draft report and provide comments as needed towards assisting the city in this endeavor. The Operational Evaluation report needs to be completed and received by our office by no later than March 1, 2015

If you have any factual information you would like us to consider regarding the violation identified in this Notice, please provide them in a written response by January 12, 2015.

Administrative rule R 325.10403 of Act 399 requires that suppliers provide public notice as soon as practical but no later than thirty (30) days after the supplier learns of the 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 public notice (PN) which contains the minimum required language. The City is encouraged to provide additional information regarding its response to this violation. **Please notify your consumers by January 10, 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 be included in your Consumer Confidence Report (CCR,) due by July 1, 2015. The public notification 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.** Contact our office for a more complete summary of our fines policies.

We anticipate and appreciate your cooperation in resolving this matter. If you have any questions regarding this Violation Notice, please contact us at the numbers below.

Sincerely,

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

Adam Rosenthal, EQA
Lansing District Office
Office of Drinking Water & Municipal
Assistance
517-284-6644

MFP:AR:JR

Enclosure

cc:

Genesee County Health Dept.
Jennifer Crooks, EPA Region 5
Mr. Darnell Early, Emergency Manager, City of Flint
Daughtry Johnson
Howard Croft
Robert Bincsik
Liane Shekter Smith, P.E.
Richard Benzie, P.E.
Stephen Busch, P.E.

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, and November 20 of 2014). 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 µg/L. The location reporting the highest TTHM level was 99 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 by 2015.

For more information, please contact Mr. Brent Wright at 517-787-6537 or the Flint Water Plant at 4500 North Dort Highway, Flint, MI 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 DEQ.

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, December 09, 2014 11:15 AM
To: 'bwright@cityofflint.com'; Michael Glasgow
Subject: Stage 2 DBP Monitoring Plan

Brent, Michael

Can you e-mail us a copy of Flint's most recent Stage 2 DDBP monitoring plan (updated plan to reflect full-time operation of the WTP – after April 25th)? We need to confirm site codes for the various TTHM/HAA5 sampling locations. Thanks...

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

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Tuesday, December 09, 2014 10:39 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: Flint TTHM letter
Attachments: Flint TTHM MCL 14 table.xlsx

Attached is the table for both OEL & LRAA. Still formatting and getting it in the letter.

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: Busch, Stephen (DEQ)
Sent: Tuesday, December 09, 2014 10:33 AM
To: Prysby, Mike (DEQ)
Cc: Rosenthal, Adam (DEQ)
Subject: RE: Flint TTHM letter

Can I get the updated table. I need to call Jennifer Crooks back this morning. 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: Tuesday, December 09, 2014 10:31 AM
To: Busch, Stephen (DEQ)
Cc: Rosenthal, Adam (DEQ)
Subject: RE: Flint TTHM letter

Steve,

Initially, I was also not coming up with the LRAA of 99 ppb; however, I discovered that the table (May 21st TTHM column) in our Sept. 10th letter was not correct....the corrected table confirms the 99 ppb LRAA.

Michael Prysby, P.E.
 District Engineer

Office of Drinking Water and Municipal Assistance
517 290-8817

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 09, 2014 10:13 AM
To: Prysby, Mike (DEQ); Rosenthal, Adam (DEQ)
Subject: RE: Flint TTHM letter

Adam,

I would like a table showing the 3 rounds of results the LRAA and the current OEL for each of the 8 sites, just for TTHM. I'm not getting a high LRAA of 99 ppb based on the info Mike had provided.

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: Monday, December 08, 2014 1:48 PM
To: Rosenthal, Adam (DEQ); Busch, Stephen (DEQ)
Subject: Flint TTHM letter

Adam, Steve

I made some tweaks to the draft letter for consideration and can be tweaked further as needed. Changes are noted in red.....

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

WSSN	System	Mon Prd	Collect Date	Site Code	Address
02310	FLINT, CITY OF	2Q2014	21-May-14	DBP1	3719 DAVISON ROAD
02310	FLINT, CITY OF	2Q2014	21-May-14	DBP2	3302 SOUTH DORT HIGHWAY
02310	FLINT, CITY OF	2Q2014	21-May-14	DBP3	6204 NORTH SAGINAW STREET
02310	FLINT, CITY OF	2Q2014	21-May-14	DBP4	2501 FLUSHING ROAD
02310	FLINT, CITY OF	2Q2014	21-May-14	DBP5	3606 CORUNNA RD
02310	FLINT, CITY OF	2Q2014	21-May-14	DBP6	5018 CLIO RD
02310	FLINT, CITY OF	2Q2014	21-May-14	DBP7	3216 MLK BLVD
02310	FLINT, CITY OF	2Q2014	21-May-14	DBP8	822 S DORT HWY
02310	FLINT, CITY OF	3Q2014	21-Aug-14	DBP1	3719 DAVISON ROAD
02310	FLINT, CITY OF	3Q2014	21-Aug-14	DBP2	3302 SOUTH DORT HIGHWAY
02310	FLINT, CITY OF	3Q2014	21-Aug-14	DBP3	6204 NORTH SAGINAW STREET
02310	FLINT, CITY OF	3Q2014	21-Aug-14	DBP4	2501 FLUSHING ROAD
02310	FLINT, CITY OF	3Q2014	21-Aug-14	DBP5	3606 CORUNNA RD
02310	FLINT, CITY OF	3Q2014	21-Aug-14	DBP6	5018 CLIO RD
02310	FLINT, CITY OF	3Q2014	21-Aug-14	DBP7	3216 MLK BLVD
02310	FLINT, CITY OF	3Q2014	21-Aug-14	DBP8	822 S DORT HWY
02310	FLINT, CITY OF	4Q2014	20-Nov-14	DBP1	3719 DAVISON ROAD
02310	FLINT, CITY OF	4Q2014	20-Nov-14	DBP2	3302 SOUTH DORT HIGHWAY
02310	FLINT, CITY OF	4Q2014	19-Nov-14	DBP3	6204 NORTH SAGINAW STREET
02310	FLINT, CITY OF	4Q2014	19-Nov-14	DBP4	2501 FLUSHING ROAD
02310	FLINT, CITY OF	4Q2014	20-Nov-14	DBP5	3606 CORUNNA RD
02310	FLINT, CITY OF	4Q2014	19-Nov-14	DBP6	5018 CLIO RD
02310	FLINT, CITY OF	4Q2014	19-Nov-14	DBP7	3216 MLK BLVD
02310	FLINT, CITY OF	4Q2014	20-Nov-14	DBP8	822 S DORT HWY

WSSN	System	MonPrd	Site Code	AveType	Analyte
02310	FLINT, CITY OF	4Q2014	DBP1	OEL	TTHM
02310	FLINT, CITY OF	4Q2014	DBP2	OEL	TTHM
02310	FLINT, CITY OF	4Q2014	DBP3	OEL	TTHM
02310	FLINT, CITY OF	4Q2014	DBP4	OEL	TTHM
02310	FLINT, CITY OF	4Q2014	DBP5	OEL	TTHM
02310	FLINT, CITY OF	4Q2014	DBP6	OEL	TTHM
02310	FLINT, CITY OF	4Q2014	DBP7	OEL	TTHM
02310	FLINT, CITY OF	4Q2014	DBP8	OEL	TTHM

Analyte	Result	Unit	LRAA	Units
2950	0.162	MG/L	0.04	MG/L
2950	0.112	MG/L	0.03	MG/L
2950	0.097	MG/L	0.02	MG/L
2950	0.106	MG/L	0.03	MG/L
2950	0.079	MG/L	0.02	MG/L
2950	0.088	MG/L	0.02	MG/L
2950	0.082	MG/L	0.02	MG/L
2950	0.075	MG/L	0.02	MG/L
2950	0.145	MG/L	0.08	MG/L
2950	0.127	MG/L	0.06	MG/L
2950	0.118	MG/L	0.05	MG/L
2950	0.196	MG/L	0.08	MG/L
2950	0.181	MG/L	0.07	MG/L
2950	0.144	MG/L	0.06	MG/L
2950	0.112	MG/L	0.05	MG/L
2950	0.112	MG/L	0.05	MG/L
2950	0.059	MG/L	0.09	MG/L
2950	0.033	MG/L	0.07	MG/L
2950	0.041	MG/L	0.06	MG/L
2950	0.094	MG/L	0.1	MG/L
2950	0.034	MG/L	0.07	MG/L
2950	0.054	MG/L	0.07	MG/L
2950	0.05	MG/L	0.06	MG/L
2950	0.036	MG/L	0.06	MG/L

ResultsUsed	LRAA	Units
3	0.106	MG/L
3	0.076	MG/L
3	0.074	MG/L
3	0.122	MG/L
3	0.082	MG/L
3	0.085	MG/L
3	0.074	MG/L
3	0.065	MG/L

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 09, 2014 10:33 AM
To: Prysby, Mike (DEQ)
Cc: Rosenthal, Adam (DEQ)
Subject: RE: Flint TTHM letter

Can I get the updated table. I need to call Jennifer Crooks back this morning. Thanks.

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 MDEQ
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Initially, I was also not coming up with the LRAA of 99 ppb; however, I discovered that the table (May 21st TTHM column) in our Sept. 10th letter was not correct....the corrected table confirms the 99 ppb LRAA.

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 Office of Drinking Water and Municipal Assistance
 517 290-8817

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 Office of Drinking Water and Municipal Assistance
 MDEQ
 517-643-2314

From: Prysby, Mike (DEQ)
Sent: Monday, December 08, 2014 1:48 PM
To: Rosenthal, Adam (DEQ); Busch, Stephen (DEQ)
Subject: Flint TTHM letter

Adam, Steve

I made some tweaks to the draft letter for consideration and can be tweaked further as needed. Changes are noted in red.....

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 District Engineer

Office of Drinking Water and Municipal Assistance
517 290-8817

Rennaker, Joanne (DEQ)

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Sent: Tuesday, December 09, 2014 10:14 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: Flint TTHM letter

ok, I'll put it in there.

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: Busch, Stephen (DEQ)
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 Office of Drinking Water and Municipal Assistance
 MDEQ
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Office of Drinking Water and Municipal Assistance
517 290-8817

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

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, December 08, 2014 9:12 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: Flint TTHM MCL letter
Attachments: Flint DBP MCL 4Q14.doc

Attached is the draft. I put the highest LRAA in the letter & have a table attachment that lists all results. Or we can put the table in the letter. Let me know.

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



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

[Date]

Mr. Brent Wright, Operation Supervisor
City Of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, MI 48505

WSSN: 02310

Dear Mr. Wright:

SUBJECT: Violation Notice – Maximum Contaminant Level for Total Trihalomethanes, 3rd Quarter of 2014

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the City of Flint is in violation of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399); R 325.10610, *Maximum contaminant levels (MCL) for disinfection byproducts*, of the 1979 Administrative Code.

In accordance with R.325.10610, *MCLs for disinfection byproducts*, of the 1979 Administrative Code, the MCL for disinfection byproduct total trihalomethanes (TTHM) is 0.080 milligrams per liter (mg/l). Our records show that the City of Flint's highest TTHM locational running annual average (LRAA), based on the last three quarters ending November 30, 2014, is 0.099 mg/l which exceeds the standard.

Administrative rule R 325.10403 of Act 399 requires that suppliers provide public notice as soon as practical but no later than thirty (30) days after the supplier learns of the 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 public notice (PN). **Please notify your consumers by January 10, 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 be included in your Consumer Confidence Report (CCR,) due by July 1, 2015. The public notification 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.** Contact our office for a more complete summary of our fines policies.

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 August 13, 2014, and will continue until TTHM LRAA is below the MCL.

If you have any factual information you would like us to consider regarding the violation identified in this Notice, please provide them in a written response by September 19, 2014.

We anticipate and appreciate your cooperation in resolving this matter. If you have any questions regarding this Violation Notice, please contact us at the numbers below.

Sincerely,

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

Adam Rosenthal, EQA
Lansing District Office
Office of Drinking Water & Municipal
Assistance
517-284-6644

MFP:AR:JR

Enclosures

cc:

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. Testing results from October 1, 2014 to December 31, 2014 show that our system exceeds the standard, or maximum contaminant level (MCL), for trihalomethanes. The standard for trihalomethanes is 80 µg/L. The level of trihalomethanes in our system was determined by averaging all samples collected by our system for the past 12 months. The average level of trihalomethanes in our system was 99 µg/L.

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 by 2015.

For more information, please contact Mr. Brent Wright at 517-787-6537 or the Flint Water Plant at 4500 North Dort Highway, Flint, MI 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.

Rennaker, Joanne (DEQ)

From: Hansen, Jeff <jrhansen@lan-inc.com>
Sent: Wednesday, November 19, 2014 10:28 AM
To: Prysby, Mike (DEQ)
Subject: Flint THM OER

Hi Mike,

As you know we have begun working on an Operational Evaluation Report for the City of Flint as requested by your office. I am sending you this email to clarify the date in which the draft is due. Your letter dated 9/10/14 specified 11/28/14 as the due date, but this date is the day after Thanksgiving and I believe the MDEQ office will be closed. Is it acceptable to provide a draft by the following Monday, 12/1/14?

Jeffrey R. Hansen
Senior Project Manager



**Lockwood, Andrews
& Newnam, Inc.**
A LEO A DALY COMPANY

1311 South Linden Road, Suite B • Flint, MI 48532
T 810.820.2682 C 810.333.3201
www.lan-inc.com • JRHansen@lan-inc.com

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Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, November 13, 2014 10:01 AM
To: Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Cc: Shekter Smith, Liane (DEQ)
Subject: RE: Flint

My call to Tom Poy went as follows:

- **Duration of drinking water advisory has been ongoing for several months.**

Complainant may have misunderstood the 30-day TCR violation notices as a continuation of the contamination and BWA. The city issued two of these notices for the TCR violation that occurred in August and again in September.

- **Main breaks are repaired only after the pressure of media coverage.**

We could not confirm this; however, we maintain frequent contact the city Water Service Center (Dist OIC) concerning main breaks and valve repairs. Visible main breaks are repaired as soon as possible.

- **Animal mortality is associated with drinking Flint water.**

We could not confirm this.

- **Drinking water advisories were issued only at certain public schools.**

The BWA issued in September affected approx. one sixth of the city's land area; thus several public schools were likely impacted. The public schools outside of the affected area were not impacted by the BWA and precautionary measures were not required.

- **Water is trucked into City Hall.**

We are not aware of this. We are certain that city hall remains connected to Flint's distribution system and obtains water from the WTP. It is possible that city hall employees bring in their own bottled water (for personal preference) or a water dispenser may be utilized.

Michael Prysby, P.E.
 District Engineer

Office of Drinking Water and Municipal Assistance
517 290-8817

From: Busch, Stephen (DEQ)
Sent: Thursday, November 13, 2014 9:16 AM
To: Benzie, Richard (DEQ)
Cc: Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ)
Subject: RE: Flint

FYI.

Mike called Tom Poy yesterday and spoke to him regarding the complaint detailed below.

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

From: Poy, Thomas [<mailto:poy.thomas@epa.gov>]
Sent: Wednesday, November 12, 2014 2:38 PM
To: Benzie, Richard (DEQ); Crooks, Jennifer
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ)
Subject: RE: Flint

Liane/Richard: FYI..Someone called the EPA Office of Inspector General's hotline with a complaint about Flint's drinking water. The OIG forwarded a log of the call with the name of the complainant redacted.

Complaint Details

Summary: Complainant calling regarding drinking water in Flint, Michigan.

Details: Complainant states the water in Flint, Michigan is not fit to drink. For several months they have been told by city officials not to drink, bathe or cook with the water. Complainant states a water scientist advised him that dogs have died and have been buried in the city water. Complainant states that some of the water mains have been broken for 2 – 3 months and only got fixed when the t.v. crews came and filmed it. Complainant states the Emergency Manager, Garnelle Early, and the city Mayor, Dane Walling stated the city was paying too much to get their water from Detroit and that they need get it from Parragondy Water Pipe Line. Complainant states the Mayor is President of the Parragondy Water Pipe Line. Complainant states the Mayor's children go to a public school and that their school has been advised not to drink the water and for the students to bring their own drinking water and the other public schools have not been told this. Also that water is trucked into city hall.

I know that you and your staff have been working with the Flint utility on their water quality and distribution system issues. Have you heard about one school being advised not to drink the water while the others have not? Or city hall getting alternate water?

Tom

Tom Poy
Chief, Ground Water and Drinking Water Branch
USEPA - Region 5
(312) 886-5991

From: Benzie, Richard (DEQ) [<mailto:BENZIER@michigan.gov>]
Sent: Thursday, November 06, 2014 9:10 AM
To: Poy, Thomas; Crooks, Jennifer
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ); shekterl@michigan.gov
Subject: Flint

Tom and Jennifer,

I received a phone call from an unidentified individual who wanted to talk to someone responsible for clean drinking water in the city of Flint. I told him that Michigan has adopted the Safe Drinking Water Act and has primary enforcement responsibility for this program. I provided him with the names of the district supervisor and district engineer that oversee this system, but he didn't want their telephone numbers because he wasn't going to waste his time with them.

He really wanted to talk to someone in Washington. I told him the EPA Administrator was Gina McCarthy, but I did not have her number or any of the others at headquarters because we work with the Region 5 EPA office. He asked for contact information, so I provided him with Tom's telephone number. I'm letting you know so you will hopefully be prepared to deal with the fact that he doesn't want to discuss this matter with the state.

I just talked to him again, as he called the OEA saying the number I gave him (312-886-5991) was incorrect, but he may have had it wrong initially. I offered to give him Jennifer Crooks phone number, and he was adamant that he did not want to talk to her. I suspect he has called about this issue previously.

Good luck.

Richard

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Good luck.

Richard

Rennaker, Joanne (DEQ)

From: Hansen, Jeff <jrhansen@lan-inc.com>
Sent: Wednesday, November 12, 2014 4:04 PM
To: Brent Wright (bwright@cityofflint.com); Daugherty Johnson (djohnson@cityofflint.com); hcroft@cityofflint.com; mglasgow@cityofflint.com; Busch, Stephen (DEQ); Prysby, Mike (DEQ); Cook, Pat (DEQ); Green, Warren; Matta, Samir
Cc: Nakashima, Jeremy
Subject: Flint TTHM Meeting
Attachments: TTHM-MDEQ-mtg-minutes_11-07-14.pdf

Hi to all,

Meeting minutes are attached. Please let me know if anyone has something to add/modify.

Jeffrey R. Hansen
Senior Project Manager



**Lockwood, Andrews
& Newnam, Inc.**
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CITY OF FLINT WTP**TTHM Response Plan Meeting Minutes**

Notes from the meeting shown in red, bold font

November 7, 2014

9:30 am

Discussion Topics

I. Introductions

II. Purpose/Overview

WG provided an historical review of Flint WTP since ~1999 through today including design and regulatory concerns. Phase I improvements from 1999-2005 were completed to allow the plant to operate as an emergency back-up to DWSD supply for a moderate time period (4-6 weeks). Phase II improvements are defined as improvements to allow the plant to operate full time, without DWSD supply. The ultimate supply will be Lake Huron water supplied through the KWA system. The Flint River is the current supply until KWA supply is available. A treatability study was completed in 2002 which evaluated full time supply from the Flint River and contains information that is directly relevant to today's operations.

- A. KWA supply timing
 - 1. Expected completion fall 2016
- B. TTHM high level samples
- C. Levels at multiple sites indicate source / WTP issue
 - 1. Problem did not exist on Detroit water
 - 2. 8 sites likely to exceed OEL

III. Suspected Causes

- A. Source water
 - 1. TOC has remained consistent
 - 2. Turbidity has remained consistent
 - 3. pH has remained consistent
 - 4. Increase in total Coliform

Period	Turbidity NTU	TOC Mg/l	Alkalinity Mg/l	Hardness Mg/l	pH	Total Col. Count/day
2001 Apr–Oct	7.9	9.4	215	272	8.1	870-1230 (7300 max)
2014 May–Sept	8.1	10.3 5/22/14	205	250	8.1	1500-5000 (22,398 max)

- B. WTP operation
 - 1. Ozone feed not working properly
 - 2. Recent increased chlorine feed
 - 3. Coag or floc polymer aids might not be optimized
- C. Distribution problems
 - 1. Low flow
 - 2. Dead ends
 - 3. Too much storage
 - 4. **City has unlined CI**
 - 5. **Cedar Street and West Side pump stations do not pump into defined pressure districts and may be recirculating water**

6. City has been repairing/replacing valves which could be resulting in flow pattern changes

IV. Operational Evaluation Report Requirements

A. Distribution system evaluation

1. Distribution evaluation and modeling by others
2. Storage capacity evaluation
3. **The City is considering water model updates and new simulations to evaluate possible improvements**

B. Source water evaluation

C. Treatment evaluation

1. Jar testing
2. No ozone piloting
3. Experiment with coag and floc polymer aid dosages

D. Timing / schedule

Letter from MDEQ states the report is to be submitted by 11/28/14. However, regulations state the public water supply has 90 days from the date of violation to complete the Operational Evaluation Report and Flint has technically not had a violation yet. The next sampling period is the 3rd week of November. SB stated the MDEQ would like to have a draft report by 11/28/14 that would not need to be entirely complete, but this would show a proactive approach by the City.

V. Possible Solutions

A. Chlorine dioxide or chloramine

LAN believes there is a reasonable chance that chloramine would not be a strong enough disinfectant but chlorine dioxide warrants further consideration.

B. Decreased chlorine feed rate

A portion of flow through the WTP was being bypassed around the softening process and it was believed to be contributing to chlorine demand. The City has discontinued the bypass and it appears chlorine demand has dropped by 0.5 – 1.0 mg/l.

C. pH adjustment

D. Corrections/modifications to ozone

The City and LAN have looked at the ozone feed system and data suggests there is a problem though the exact issue is yet to be determined. Further investigation is planned as one high priority response.

E. Coag & floc polymer aids (better TOC removal)

Jar testing is planned as part of the OER during which polymer aids will be further evaluated.

F. Enhanced TOC removal with softening

G. UV??? [with chlorine after for residual]

H. Flushing to decrease water age?

The City is considering increased flushing to address both water age and rusty water.

I. Lower storage tank high water levels (use less volume)?

VI. Other

- Chlorine demand through the filters is another concern. The City may shock the filters with high chlorine feed in an attempt to 'cleanse' them.
- Addition of flocculation and/or coagulation polymer feeds: MDEQ is open to the idea and would consider a letter submittal from the City listing the details in order to provide approval if the City wants to implement into the WTP process.
- The average flow through the WTP has fallen off from 18-19 mgd over the summer to ~14 mgd at this time.
- A TTHM limit violation is Tier 2 and will require the appropriate public notice.
- The City is currently achieving ~60% TOC removal.
- pH is currently 7.5-8.0 at WTP effluent.
- Costs to reconnect to DWSD supply have become prohibitive as a viable solution: \$4 Million start up fee + \$900,000 monthly flat fee + usage charges.
-

November 7, 2014



Lockwood, Andrews
& Newnam, Inc.

A LEO A DALY COMPANY

1311 South Linden Road, Suite B • Flint, MI 48532
T 810.820.2682 C 517.819.2367

Sign-in Sheet City of Flint TTHM Response MDEQ Meeting

Date/Time: 11-07-14 @ 9:30 am

Location: LAN Okemos Office

Name	Company	Phone Number	Email
Steve Busch	MDEQ	517-643-2314	buschs@michigan.gov
Michael Prybyl	MDEQ	517 290-8817	prybylm@michigan.gov
JEFF HANSEN	LAN	810-820-2682	jrhansen@lan-inc.com
Past Cook	DEQ	517-234-6514	cookp@michigan.gov
Daugherty Johnson	Flint	810 577-8906	djohnson@cityofflint.com
Howard Croft	FLINT	810 577-1202	hcroft@cityofflint.com
Warren Green	LAN	630-495-4123	jwgreen@lan-inc.com
MIKE GUNSGOW	FLINT	810-787-6537	MGUNSGOW@CITYOFFLINT.COM
BRENT WRIGHT	FLINT	810-787-6537	bwright@CITYOFFLINT.COM
SFM	LAN	517-203-5437	sfmatta@lan-inc.com

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Good luck.

Richard

Rennaker, Joanne (DEQ)

From: Michael Glasgow <mglasgow@cityofflint.com>
Sent: Monday, November 10, 2014 3:07 PM
To: Prysby, Mike (DEQ)
Subject: Flint October MOR
Attachments: Oct 2014 MOR.pdf

Mike,

Good afternoon, just wanted to send you a copy of our October MOR. The original will go out today in the mail.

Mike Glasgow
City of Flint Water Plant

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANTWSSN: 2310Michael Glasgow

Operator-In-Charge

October 2014

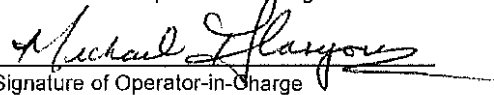
Month/Year

F-1R, F-2

Certification of Operator-in-Charge

F-1

Water Plant Classification



Signature of Operator-in-Charge

Genesee

County

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>23.3</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>84</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>1.9</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>3.3</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>2.7%</u>	Percent of Treated Water

Chemical Data

Chlorine on hand:	<u>20,000</u> lb.	Est. supply:	<u>25</u> days
Primary Coagulant (Ferric Chloride) on hand:	<u>133,600</u> lb.	Est. supply:	<u>16</u> days
Lime (CaO) on hand:	<u>239</u> tons	Est. supply:	<u>24</u> days
Fluoride on Hand:	<u>10,000</u> lb.	Est. supply:	<u>27</u> days
Cost of All Chemicals per Million Gallons:	<u>n/a</u> dollars		
Total Power Cost per Million Gallons:	<u>n/a</u> dollars		

Remarks

Confluence Point # 1 (N)

Confluence Point # 2 (S)

Number of filter confluence samples > 0.3 NTU:

00

Number of filter confluence samples collected:

246246

Percent of filter confluence samples > 0.3 NTU:

0.0%0.0%

Number of filter confluence samples > 1 NTU

00

Did any individual filter exceed:

1.0 NTU in two consecutive measurements taken 15 minutes apart?

NO

If yes, attach specific filter(s) information and indicate required follow-up status.

0.5 NTU in two consecutive measurements taken 15 minutes apart after 4 hours of operation?

NO

If yes, attach specific filter(s) information and indicate required follow-up status.

1.0 NTU in two consecutive measurements taken 15 minutes apart for 3 consecutive months?

NO

If yes, attach specific filter(s) information and indicate required follow-up status.

2.0 NTU in two consecutive measurements taken 15 minutes apart for 2 consecutive months?

NO

If yes, attach specific filter(s) information and indicate required follow-up status.

Was continuous (every 15 minutes) filter monitoring equipment off-line during the month?

NO

If yes, indicate date(s), duration, and individual filter grab sampling frequency on a separate sheet.

Did POE disinfectant residual fall below 0.2 ppm during the month?

NO

If yes, indicate date(s) and duration on a separate sheet.

Was minimum C*T credit achieved for the entire month?

YES

If no, indicate on a separate sheet the date(s) not achieved.

Was continuous POE chlorine residual monitoring equipment off-line during the month?

NO

If yes, indicate date(s) and duration on a separate sheet.

[illegible]

Filter turbidity

City of Flint Water Treatment Plant

October 2014

Page 3

WSSN: 2310

Date	Turbidity, Units												Point of Entry
	Confluence Point, No.1 (N) North						Confluence Point, No.2 (S) South						
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	
1	8	0.11	0.14	6	0	0	8	0.08	0.12	6	0	0	0.09
2	8	0.09	0.12	6	0	0	8	0.08	0.11	8	0	0	0.08
3	7	0.08	0.09	6	0	0	7	0.07	0.09	6	0	0	0.07
4	8	0.09	0.10	6	0	0	8	0.09	0.12	6	0	0	0.08
5	8	0.10	0.12	8	0	0	8	0.09	0.11	6	0	0	0.09
6	8	0.10	0.14	6	0	0	8	0.10	0.13	6	0	0	0.09
7	8	0.08	0.08	6	0	0	8	0.08	0.11	6	0	0	0.08
8	8	0.09	0.11	6	0	0	8	0.08	0.10	6	0	0	0.09
9	8	0.09	0.12	6	0	0	8	0.10	0.13	8	0	0	0.10
10	8	0.09	0.12	6	0	0	8	0.08	0.10	6	0	0	0.09
11	8	0.09	0.13	6	0	0	8	0.09	0.12	6	0	0	0.10
12	8	0.09	0.12	6	0	0	8	0.09	0.14	6	0	0	0.09
13	8	0.09	0.12	6	0	0	8	0.07	0.08	6	0	0	0.07
14	8	0.09	0.11	6	0	0	8	0.09	0.10	6	0	0	0.08
15	8	0.08	0.09	6	0	0	8	0.07	0.09	6	0	0	0.08
16	7	0.10	0.12	6	0	0	7	0.09	0.11	6	0	0	0.09
17	8	0.08	0.09	6	0	0	8	0.08	0.09	6	0	0	0.08
18	8	0.08	0.09	6	0	0	8	0.07	0.08	6	0	0	0.08
19	8	0.07	0.09	6	0	0	8	0.07	0.08	6	0	0	0.07
20	8	0.08	0.11	6	0	0	8	0.09	0.15	6	0	0	0.08
21	8	0.08	0.10	6	0	0	8	0.08	0.10	6	0	0	0.09
22	8	0.08	0.10	6	0	0	8	0.09	0.10	6	0	0	0.09
23	8	0.08	0.14	6	0	0	8	0.07	0.08	6	0	0	0.09
24	8	0.07	0.09	6	0	0	8	0.07	0.10	6	0	0	0.09
25	8	0.07	0.10	6	0	0	8	0.07	0.09	6	0	0	0.11
26	8	0.07	0.12	6	0	0	8	0.07	0.09	6	0	0	0.08
27	8	0.07	0.11	6	0	0	8	0.06	0.08	6	0	0	0.09
28	8	0.08	0.11	6	0	0	8	0.08	0.10	6	0	0	0.08
29	8	0.09	0.10	6	0	0	8	0.09	0.10	6	0	0	0.11
30	8	0.11	0.14	6	0	0	8	0.10	0.13	6	0	0	0.11
31	8	0.10	0.14	6	0	0	8	0.09	0.11	6	0	0	0.12
Avg.	8	0.09	0.11	6	0	0	8	0.08	0.10	6	0	0	
Max.	8	0.11	0.14	8	0	0	8	0.10	0.15	6	0	0	0.12
Min.	7	0.07	0.08	6	0	0	7	0.06	0.08	8	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

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Date	Fluoride Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.5	0.20	0.68		2.6	4.0	6.6	0.7	1.1	3.2	3.5	2.5	3.2
2	0.5	0.21	0.70		2.7	4.0	6.7	0.7	0.9	3.0	3.5	2.5	3.1
3	0.5	0.21	0.72		2.9	4.1	7.0	0.5	0.7	2.7	3.5	2.5	3.1
4	0.4	0.22	0.72		2.7	3.9	6.6	0.7	1.1	3.2	3.5	2.4	2.9
5	0.4	0.20	0.67		2.9	4.2	7.1	1.1	1.4	3.2	3.7	1.9	2.4
6	0.5	0.21	0.70		2.6	3.9	6.5	0.6	0.9	3.2	3.5	2.3	2.8
7	0.5	0.20	0.71	0.62	2.6	3.9	6.5	0.6	0.8	3.2	3.5	2.4	2.7
8	0.4	0.23	0.69		2.6	4.0	6.6	0.8	1.0	3.2	3.5	2.5	3.1
9	0.4	0.19	0.68		2.5	3.9	6.4	0.7	1.0	3.2	3.5	2.6	3.0
10	0.4	0.20	0.62		2.4	3.8	6.2	0.7	0.9	3.0	3.5	2.4	3.1
11	0.4	0.21	0.63		2.3	3.9	6.2	0.7	0.9	3.0	3.5	2.7	3.1
12	0.4	0.21	0.66		2.3	3.8	6.1	0.6	0.8	2.8	3.5	1.9	2.5
13	0.4	0.20	0.63		2.4	4.1	6.5	0.8	1.1	3.2	3.5	3.2	3.5
14	0.4	0.22	0.68		2.5	4.0	6.5	0.6	0.9	2.9	3.5	2.8	3.2
15	0.4	0.21	0.64		2.5	3.9	6.4	0.7	1.1	3.2	3.5	2.8	3.5
16	0.4	0.21	0.74		2.5	4.0	6.5	0.7	1.0	3.0	3.5	3.0	3.5
17	0.4	0.20	0.70	0.68	2.6	4.0	6.6	0.6	0.8	3.1	3.5	3.2	3.5
18	0.5	0.21	0.62		2.7	3.3	6.0	0.6	1.1	3.0	3.5	3.2	3.5
19	0.4	0.21	0.63		2.6	3.4	6.0	0.9	1.2	3.0	3.5	3.0	3.5
20	0.4	0.21	0.59		2.4	3.7	6.1	0.6	0.9	3.0	3.5	3.0	3.5
21	0.4	0.20	0.66	0.62	2.4	3.7	6.1	0.5	0.9	3.0	3.5	2.7	3.1
22	0.4	0.22	0.65		2.4	3.8	6.2	0.5	0.8	2.6	3.5	2.1	2.6
23	0.4	0.20	0.64		2.5	3.6	6.1	0.7	0.9	3.0	3.5	2.8	3.0
24	0.4	0.22	0.67		2.4	3.5	5.9	0.7	1.0	2.9	3.5	2.2	2.7
25	0.5	0.21	0.68		2.3	3.6	5.9	0.6	0.9	2.8	3.5	2.2	2.7
26	0.4	0.20	0.66		2.2	3.7	5.9	0.8	1.0	3.0	3.5	3.0	3.5
27	0.4	0.20	0.64		2.1	4.5	6.6	0.7	1.0	3.0	3.5	2.9	3.3
28	0.4	0.21	0.67	0.65	2.1	3.9	6.0	0.5	0.8	2.7	3.5	2.7	3.2
29	0.5	0.21	0.67		2.3	4.1	6.4	0.6	0.8	3.0	3.5	2.3	2.8
30	0.5	0.20	0.66		2.2	3.4	5.6	0.6	1.1	3.0	3.5	3.0	3.5
31	0.5	0.18	0.71		2.2	3.4	5.6	0.6	0.8	2.9	3.5	2.1	2.6

Avg.	0.43	0.21	0.67	0.64	2.5	3.8	6.3	0.7	1.0	3.0	3.5	2.6	3.1
Max.	0.50	0.23	0.74	0.68	2.9	4.5	7.1	1.1	1.4	3.2	3.7	3.2	3.5
Min.	0.40	0.18	0.59	0.62	2.1	3.3	5.6	0.5	0.7	2.6	3.5	1.9	2.4

Chemical Analyses

City of Flint Water Treatment Plant
WSSN: 2310

October 2014

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Date	pH (S.U.)		Total Hardness as CaCO ₃ (mg/L)		Total Alkalinity as CaCO ₃ (mg/L)		Non-Carbonate Hardness as CaCO ₃ (mg/L)		Calcium as Ca ²⁺ (mg/L)		Magnesium as Mg ²⁺ (mg/L)		Chloride as Cl ⁻ (mg/L)	
	Rew	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.00	7.81	254	144	219	72	35	72	81.8	45.7	12.6	7.8	41	65
2	8.19	7.85	249	147	209	68	40	79	81.8	49.7	10.2	5.8	42	62
3	8.17	7.91	254	157	206	74	48	83	85.8	54.5	10.7	4.3	44	62
4	8.13	7.43	249	160	205	83	44	77	84.2	55.2	10.7	5.8	43	61
5	8.28	7.83	253	157	210	82	43	75	77.0	51.3	15.1	6.8	43	61
6	8.26	7.89	255	152	208	74	47	78	79.4	49.7	13.6	6.3	42	62
7	8.28	7.45	259	162	210	87	49	75	77.8	48.1	15.8	9.7	41	64
8	8.26	7.85	253	162	202	76	51	86	87.4	57.7	8.2	4.9	42	64
9	8.27	7.90	252	157	209	77	43	80	79.4	47.3	13.1	8.7	42	64
10	8.26	7.60	256	166	205	84	51	82	85.8	54.5	9.7	6.3	42	65
11	8.31	7.45	254	175	203	86	51	89	86.0	63.3	7.8	4.3	43	64
12	8.25	7.69	255	156	204	71	51	85	81.0	51.3	13.1	7.3	44	65
13	8.38	7.79	256	152	210	76	46	76	72.9	48.1	17.5	6.8	45	66
14	8.34	7.53	255	155	203	73	52	82	89.0	56.9	8.3	2.9	45	65
15	7.97	7.88	249	148	206	70	43	78	71.3	48.9	18.0	5.3	43	67
16	8.32	7.90	256	156	212	80	44	76	84.2	47.3	11.2	9.2	45	68
17	8.36	7.68	280	160	210	83	50	77	69.7	45.7	21.4	10.7	43	67
18	8.24	7.96	252	167	210	79	42	88	81.8	53.7	11.7	5.8	42	70
19	8.31	8.11	262	174	211	82	51	92	83.4	54.5	13.1	8.7	42	71
20	8.21	7.60	264	182	212	93	52	89	81.0	60.1	14.6	7.8	43	72
21	8.26	7.59	262	197	215	107	47	90	83.4	60.9	12.6	10.2	43	72
22	8.26	7.63	266	186	216	90	50	96	86.6	63.3	11.7	6.8	44	69
23	8.24	7.43	267	180	222	91	45	89	84.2	58.5	14.6	8.7	42	70
24	8.19	7.82	271	162	220	71	51	91	83.4	55.3	15.6	5.8	45	69
25	8.21	7.88	273	160	221	74	52	86	86.8	56.9	14.1	3.4	43	70
26	8.04	7.76	270	161	224	70	46	91	82.6	52.1	16.0	7.3	43	70
27	8.25	7.61	278	157	233	72	45	85	87.4	49.7	14.6	9.2	42	70
28	8.33	7.41	278	164	237	76	41	88	84.2	56.1	17.1	5.3	44	62
29	8.28	7.48	276	160	230	85	46	75	86.6	46.5	16.0	10.2	43	64
30	8.40	7.88	278	158	225	75	53	83	86.6	52.9	15.1	4.4	44	62
31	8.37	7.75	280	172	223	92	57	80	87.4	53.7	15.1	8.7	47	65

Avg.	8.25	7.71	261	163	214	80	47	83	82.5	53.2	13.5	6.9	43	66
Max.	8.40	8.11	280	197	237	107	57	96	89.0	63.3	21.4	10.7	47	72
Min.	7.97	7.41	249	144	202	68	35	72	69.7	45.7	7.8	2.9	41	61

Bacteriological &
Physical ParametersCity of Flint Water Treatment Plant
WSSN: 2310

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Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap			Raw	Tap	Raw	Tap
1	1	6152	12	0	1	0	> 14760	< 2	0.39	12.9				
2	1	15402	12	0	1	0	4960	< 2	0.38	18.4				
3	1	15402	12	0	1	0	3660	< 2	0.35	18.2				
4	1	2878	12	0	1	0	4040	< 2	0.39	18.5				
5	1	2092	12	0	1	0	4620	< 2	0.39	17.2				
6	1	1498	12	0	1	0	5320	< 2	0.39	15.3				
7	1	900	12	0	1	0	200	< 2	0.38	14.3				
8	1	1646	12	0	1	0	1240	< 2	0.39	14.3				
9	1	766	12	0	1	0	1720	< 2	0.38	14.0				
10	1	1262	12	0	1	0	1940	< 2	0.38	13.6				
11	1	378	12	0	1	0	340	< 2	0.40	13.3				
12	1	524	12	0	1	0	2000	< 2	0.42	13.8				
13	1	672	12	0	1	0	2240	< 2	0.39	12.4				
14	1	728	12	0	1	0	2560	< 2	0.37	15.1				
15	1	4718	12	0	1	0	8800	< 2	0.36	15.6				
16	1	462	12	0	1	0	4180	< 2	0.36	15.3				
17	1	590	12	0	1	0	7100	< 2	0.38	15.0				
18	1	626	12	0	1	0	1600	< 2	0.38	15.7				
19	1	342	12	0	1	0	2400	< 2	0.39	14.8				
20	1	218	12	0	1	0	1300	< 2	0.43	13.1				
21	1	498	12	0	1	0	1800	< 2	0.44	13.8				
22	1	634	12	0	1	0	3780	< 2	0.44	13.3				
23	1	350	12	0	1	0	1540	< 2	0.43	14.3				
24	1	268	12	0	1	0	960	< 2	0.42	11.7				
25	1	312	12	0	1	0	860	< 2	0.39	11.4				
26	1	264	12	0	1	0	1940	< 2	0.38	12.2				
27	1	690	12	0	1	0	1180	< 2	0.38	11.9				
28	1	256	12	0	1	0	1120	< 2	0.38	11.7				
29	1	518	12	0	1	0	800	< 2	0.39	12.9				
30	1	148	12	0	1	0	660	< 2	0.38	13.2				
31	1	170	12	0	1	0	700	< 2	0.39	11.3				

Avg.									0.39	14.1				
Max.							8800	0	0.44	18.5				
Min.									0.35	11.3				

Distribution System
MonitoringCity of Flint Water Treatment Plant
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October 2014

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Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WS	
1	0.3	1.4	0.1	0.6	0.2	0.1	0.5	1.8	1.0	1.3	10
2	0.4	1.1	0.1	0.5	0.3	0.1	0.6	1.9	1.2	1.3	10
3											0
4											0
5											0
6	0.3	1.8	0.1	0.6	0.4	0.1	0.1	1.9	1.1	2.0	10
7	0.3	0.1	0.1	0.3	0.1	0.1	0.2	1.8	0.5	0.2	10
8	0.4	0.0	0.1	0.3	0.1	0.1	0.3	1.9	1.5	0.5	10
9	0.3	0.0	0.1	0.5	0.1	0.2	0.1	2.2	0.5	1.5	10
10	0.4	0.0	0.1	0.5	0.2	0.1	0.6	2.3	1.5	1.5	10
11											0
12											0
13											0
14	0.6	0.0	0.1	0.7	0.1	0.1	0.5	2.2	0.7	1.2	10
15	0.3	0.0	0.1	0.5	0.1	0.1	0.3	2.2	0.8	1.0	10
16	0.5	0.0	0.1	0.5	0.3	0.1	0.2	2.6	1.7	0.6	10
17											0
18											0
19											0
20											0
21	0.4	0.2	0.2	0.4	0.3	0.1	0.2	1.5	1.0	1.5	10
22	0.6	0.8	0.4	0.6	0.1	0.1	0.6	2.2	1.9	1.4	10
23	0.4	1.7	0.4	1.0	0.7	0.1	0.5	1.7	1.7	1.7	10
24											0
25											0
26											0
27									1.3	1.0	2
28	0.4	1.7	0.9	0.8	0.7	0.1	0.6	2.0	1.5	1.4	10
29	0.2	1.1	0.1	1.0	0.6	0.1	0.1	1.8	1.4	1.2	10
30	0.1	0.6	0.6	0.7	0.9	0.1	0.3	2.1	1.5	1.1	10
31									1.5	1.3	2

Distribution Sample Summary

Total # of routine distribution samples analyzed	164
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	5
Percent of routine distribution samples positive	3%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	96%
Average disinfectant residual this month	0.72

Distribution
System Monitoring

City of Flint Water Treatment Plant
WSSN: 2310

October 2014

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Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WS	
1	0.6	1.7	0.3	0.9	0.4	0.2	0.7	2.2	1.3	1.5	10
2	0.7	1.4	0.3	0.8	0.6	0.2	0.8	2.4	1.6	1.6	10
3											0
4											0
5											0
6	0.6	2.3	0.3	1.0	0.6	0.2	0.2	2.1	1.4	2.3	10
7	0.6	0.2	0.2	0.5	0.2	0.2	0.4	2.1	0.7	0.3	10
8	0.8	0.1	0.2	0.5	0.2	0.3	0.5	2.3	2.0	0.8	10
9	0.5	0.1	0.2	0.8	0.2	0.2	0.2	2.5	0.8	1.7	10
10	0.6	0.1	0.3	0.9	0.4	0.3	0.8	2.7	1.8	1.8	10
11											0
12											0
13											0
14	1.0	0.0	0.3	1.1	0.3	0.4	0.9	2.5	1.0	1.6	10
15	0.6	0.0	0.3	0.7	0.2	0.2	0.5	2.7	0.9	1.4	10
16	0.9	0.0	0.3	0.9	0.5	0.3	0.4	3.0	2.0	1.0	10
17											0
18											0
19											0
20											0
21	0.7	0.4	0.5	0.7	0.5	0.2	0.4	1.7	1.2	1.8	10
22	1.1	1.2	0.6	1.0	0.1	0.1	0.9	2.5	2.3	2.0	10
23	0.7	2.3	0.7	1.3	0.9	0.2	0.7	2.2	2.2	1.9	10
24											0
25											0
26											0
27									1.5	1.3	2
28	0.7	2.0	1.2	1.1	1.0	0.2	0.9	2.3	1.8	1.7	10
29	0.4	1.5	0.3	1.4	0.9	0.2	0.3	2.3	1.7	1.5	10
30	0.1	1.0	1.0	1.1	1.4	0.2	0.6	2.5	1.8	1.5	10
31									1.8	1.7	2

Distribution Disinfectant Total Residual Summary

Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.0

[illegible]

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Monday, November 10, 2014 3:00 PM
To: Poy, Thomas; Benzie, Richard (DEQ)
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ)
Subject: Re: Flint

Yes, if this was Lathan Jefferson, he doesn't want to talk to me. I kept trying to discuss the actual lab data I received from Mike Prysby, and he definitely didn't want to talk with the State or any data from the State. I believe Mr Jefferson did talk with Tinka early on, since she referred him to talk with me.

Jen

From: Poy, Thomas
Sent: Thursday, November 6, 2014 1:39 PM
To: Benzie, Richard (DEQ); Crooks, Jennifer
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ); shekterl@michigan.gov
Subject: RE: Flint

Richard: Lathan Jefferson called this morning and got our receptionist. Same person who called you or a coincidence??? He told her that he did not want to talk to me because I cannot help him. He wanted to talk to my supervisor. Our receptionist tried to have him talk to me anyways but I was in a meeting. He has not called back but will be sent to our front office. I'm pretty sure Tinka talked to him when he originally called months ago. Plus, he talked to Jennifer, myself, Tom Murphy and Mindy Eisenberg (HQ).

Tom

Tom Poy
 Chief, Ground Water and Drinking Water Branch
 USEPA - Region 5
 (312) 886-5991

From: Benzie, Richard (DEQ) [<mailto:BENZIER@michigan.gov>]
Sent: Thursday, November 06, 2014 9:10 AM
To: Poy, Thomas; Crooks, Jennifer
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ); shekterl@michigan.gov
Subject: Flint

Tom and Jennifer,

I received a phone call from an unidentified individual who wanted to talk to someone responsible for clean drinking water in the city of Flint. I told him that Michigan has adopted the Safe Drinking Water Act and has primary enforcement responsibility for this program. I provided him with the names of the district supervisor and district engineer that oversee this system, but he didn't want their telephone numbers because he wasn't going to waste his time with them.

He really wanted to talk to someone in Washington. I told him the EPA Administrator was Gina McCarthy, but I did not have her number or any of the others at headquarters because we work with the Region 5 EPA office. He asked for contact information, so I provided him with Tom's telephone

number. I'm letting you know so you will hopefully be prepared to deal with the fact that he doesn't want to discuss this matter with the state.

I just talked to him again, as he called the OEA saying the number I gave him (312-886-5991) was incorrect, but he may have had it wrong initially. I offered to give him Jennifer Crooks phone number, and he was adamant that he did not want to talk to her. I suspect he has called about this issue previously.

Good luck.

Richard

Rennaker, Joanne (DEQ)

From: Benzie, Richard (DEQ)
Sent: Thursday, November 06, 2014 10:10 AM
To: Poy, Thomas; Crooks, Jennifer
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ)
Subject: Flint

Tom and Jennifer,

I received a phone call from an unidentified individual who wanted to talk to someone responsible for clean drinking water in the city of Flint. I told him that Michigan has adopted the Safe Drinking Water Act and has primary enforcement responsibility for this program. I provided him with the names of the district supervisor and district engineer that oversee this system, but he didn't want their telephone numbers because he wasn't going to waste his time with them.

He really wanted to talk to someone in Washington. I told him the EPA Administrator was Gina McCarthy, but I did not have her number or any of the others at headquarters because we work with the Region 5 EPA office. He asked for contact information, so I provided him with Tom's telephone number. I'm letting you know so you will hopefully be prepared to deal with the fact that he doesn't want to discuss this matter with the state.

I just talked to him again, as he called the OEA saying the number I gave him (312-886-5991) was incorrect, but he may have had it wrong initially. I offered to give him Jennifer Crooks phone number, and he was adamant that he did not want to talk to her. I suspect he has called about this issue previously.

Good luck.

Richard

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Thursday, October 23, 2014 4:04 PM
To: janburgess52@comcast.net
Cc: Poy, Thomas; Howard, Donna; Prysby, Mike (DEQ); Busch, Stephen (DEQ); Porter, Andrea
Subject: Flint, Michigan Citizen complaint - Drinking water quality and Chloride levels

Dear Ms. Burgess: You stated below that GM is not using the treated Flint water anymore because of higher chloride levels, which is correct. If you read thru the article link that you sent me or the links below, the Michigan Dept of Environmental Quality (MDEQ) clarified that the higher chloride levels are most likely coming from the City's treatment of the Flint River water with Ferric Chloride, which acts as a coagulant to help remove suspended and dissolved solids and contaminants. A chloride is a salt compound resulting from the combination of the gas chlorine and a metal. As EPA explains (see: <http://water.epa.gov/drink/contaminants/secondarystandards.cfm>), chlorides cause corrosion.

The Secondary Maximum Contaminant Levels (SMCL) listed in the Federal regulations at 40 CFR 143.3, are levels of contaminants that represent reasonable goals for drinking water quality, and are not enforceable by the State or the Federal governments. The SMCL for chloride is 250 milligrams per liter (mg/L). The MDEQ reports that the chloride levels in the Flint drinking water are approx. 50-60 mg/L which are acceptable levels, based on the SMCL of 250 mg/L. However, it appears General Motors requires a source of water with chloride levels below 20 mg/L.

Chlorine reacts with water to create different species of compounds that serve as disinfectants and acts to oxidize viruses/bacteria, so chlorine is not the same as chloride.

http://www.mlive.com/news/flint/index.ssf/2014/10/gms_decision_to_stop_using_fli.html

http://www.mlive.com/news/flint/index.ssf/2014/10/general_motors_wont_use_flint.html

Secondly, your email refers to the poor quality of the Flint drinking water. The source of drinking water for the City of Flint was changed from Detroit (which comes from Lake Huron) to the Flint River at the end of April this year. The Flint River raw water is a different quality than the Lake Huron raw water; and requires additional treatment to ensure an acceptable quality drinking water. The MDEQ has been working closely with the Operator-in-Charge at the Flint Water Treatment plant to ensure a palatable drinking water is provided to the citizens of Flint. Please note that the use of Flint River water as a source for your drinking water is an interim source; the City of Flint plans to connect to the Karegnondi Water Authority pipeline which will draw water from Lake Huron, in 2016.

The MDEQ is aware of the multiple complaints from citizens and is working closely with the Flint Water Department to ensure the distribution system and the water treatment processes work more efficiently and more effectively. For further information, you can contact Mike Prysby at:

Mike Prysby, District Engineer
 Michigan Department of Environmental Quality
 Office of Drinking Water and Municipal Assistance, Lansing District Office
 P.O. Box 30242
 Lansing, Michigan 48909-7742

(517) 290-8817

prysbym@michigan.gov

The most likely cause of the brown water (iron deposits and sediments from the very old cast iron pipes that make up the distribution system in Flint), is incorrect use of fire hydrants by demolition contractors in the area during this time. The fire hydrants are turned on for the contractors to use, and since the water is under pressure, the fast flow of the water scours the insides of the pipes, causing sediment and rust to become free floating. The City conducts this type of cleaning of the pipes in a regulated/controlled process, and requires at least ten minutes for all the sediment to be flushed out of the water main. However, the contractors do not always let the water flush for ten minutes, thus sediment remains in the water main. The City's flushing of the water mains should alleviate the sediment and brown water issues. You can contact the Flint Water Service Center to request that your lines be fully flushed.

Telephone numbers for you to call if you have further concerns:

Flint Water Service Center deals with problems in the distribution system: 810-766-7202

Water Treatment Plant deals with the actual treatment of the water prior to its pumping into the distribution system: 810-787-6537

If you have additional questions, please contact me at (312) 886-0244 or crooks.jennifer@epa.gov.

Jennifer Kurtz Crooks
Michigan Program Manager
Ground Water and Drinking Water Branch
United States Environmental Protection Agency, Region 5
77 West Jackson Blvd, WG-15J
Chicago, Illinois 60604
312.886.0244
crooks.jennifer@epa.gov

From: howard.donna@epa.gov [mailto:howard.donna@epa.gov]
Sent: Wednesday, October 15, 2014 11:46 AM
To: Poy, Thomas
Subject: FWD: (SDWA - FY15-122649-3715-CV) Referred to Region - Michigan

10/15/2014

SUBJECT: FWD: (SDWA - FY15-122649-3715-CV) Referred to Region - Michigan
FROM: howard.donna@epa.gov
TO: poy.thomas@epa.gov
CC:

-----Original Message-----

10/14/2014 9:07 AM

HQ LEAD NUMBER: FY15-122649-3715-CV

SUBJECT: Referred to Region - Michigan

FROM: janburgess52@comcast.net

TO:

Name: Jan Burgess

Address: 720 Commonwealth Ave

City: Flint

State: Michigan

Zip: 48503

Phone: 810-235-6530

Alleged Violator's Name: City of Flint

Alleged Violator's Address: 1101 S. Saginaw St.

Alleged Violator's City: Flint

Alleged Violator's State: Michigan

Alleged Violator's Zip: 48502

Tip or Complaint: Earlier this year, the City of Flint, MI changed its water supply from the City of Detroit [Lake Huron] to the Flint River. This river has a very long history of pollution. Since this change, our drinking water has tripled in cost and the quality varies daily. Some days it smells like an over-chlorinated swimming pool; other days, like pond scum. It often is brown in color and frequently has visible particles floating in it. We've been under several boil water advisories due to e-coli contamination. Just this morning our local paper reports that General Motors Engine plant has shut off Flint River water to the plant due to the over-chlorination and the fears that the water will cause corrosion.

http://www.mlive.com/news/flint/index.ssf/2014/10/general_motors_wont_use_flint.html#cmpid=nsltr_stryheadline.

People in Flint have had to resort to buying bottled water or having purification systems installed in their homes. Some residents have even had private wells dug. The water is not safe to drink, cook or wash dishes with, or even give to pets. We worry every time we shower. The City of Flint is still very economically depressed and most citizens cannot afford to do anything other than use the river water. Many of them have NO water at all due to the extremely high water bills. There is reasonable suspicion that reports have been falsified. Some residents have had water tested privately and the results are not even close to those reported by the City. Calls to the City and State have resulted in no action whatsoever.

Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? No

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Saturday, October 18, 2014 7:57 PM
To: Busch, Stephen (DEQ)
Subject: Flint repeat samples Site no. 4

Steve,

All repeat samples collected yesterday in response to the TC positive at Site #4 (taco bell) from Thurs were non detect.

Sent from my iPho

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Thursday, October 16, 2014 9:18 AM
To: Crooks, Jennifer; Prysby, Mike (DEQ)
Subject: RE: Another Flint complaint

Jennifer,

Here is some info on the chloride issue GM has indicated regarding water in Flint and Mike's discussion with the reporter below. As we discussed we do not follow the secondary MCL's in Michigan, but even if we did these levels are well below the secondary level for chloride.

http://www.mlive.com/news/flint/index.ssf/2014/10/gms_decision_to_stop_using_fli.html

http://www.mlive.com/news/flint/index.ssf/2014/10/general_motors_wont_use_flint.html

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: Monday, October 13, 2014 3:48 PM
To: Busch, Stephen (DEQ); Shekter Smith, Liane (DEQ); Wurfel, Brad (DEQ); Feuerstein, Heather (DEQ); Willard, Veronica (DEQ); Benzie, Richard (DEQ)
Subject: Media Inquiry

Ron Fonger from the Flint Journal called me today concerning the GM Engine manufacturing plant in Flint and their intent to temporarily terminate water service from Flint and purchase water from Genesee County (via Flint Twp) until Flint is either treating water from KWA or reducing their chloride concentration from their treated water that meets GM's limit for manufacturing. Ron asked if elevated chlorides are a health concern in Flint. I looked up Flint's MOR and noted that the treated water chloride concentration leaving the WTP ranges between 55 and 65 mg/l which, although not optimal (optimal being <20 mg/l), is satisfactory. Concentrations > 250 mg/l become objectionable due to taste & corrosion issues; however, based on the concentration leaving the WTP, we did not have any health-effect concerns. Ron was not able to recall the maximum chloride level acceptable to GM; however, I stressed the importance of not branding Flint's water as "corrosive" from a public health standpoint simply because it does not meet a manufacturing facility's limit for production. Ron also asked if the treatment process adds chloride. I explained that their primary coagulant is ferric chloride and this does add some chloride to the finished water; however, raw water chloride concentration is generally in the mid 40s mg/l; thus, the contribution from ferric chloride is not significant.

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

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Thursday, October 16, 2014 8:45 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: Another Flint complaint

This complaint came thru the SDWA Hotline. Interesting—this citizen reported that General Motors shut off their line to Flint water due to over-chlorination. See the link below.
 Jennifer

From: Poy, Thomas
Sent: Wednesday, October 15, 2014 12:07 PM
To: Crooks, Jennifer
Subject: FW: (SDWA - FY15-122649-3715-CV) Referred to Region - Michigan

Jen: Can you use the same reply for the control to reply to this similar complaint about Flint water?

Thanks.

Tom

Tom Poy
 Chief, Ground Water and Drinking Water Branch
 USEPA - Region 5
 (312) 886-5991

From: howard.donna@epa.gov [mailto:howard.donna@epa.gov]
Sent: Wednesday, October 15, 2014 11:46 AM
To: Poy, Thomas
Subject: FWD: (SDWA - FY15-122649-3715-CV) Referred to Region - Michigan

10/15/2014

SUBJECT: FWD: (SDWA - FY15-122649-3715-CV) Referred to Region - Michigan
 FROM: howard.donna@epa.gov
 TO: poy.thomas@epa.gov
 CC:

-----Original Message-----

10/14/2014 9:07 AM

HQ LEAD NUMBER: FY15-122649-3715-CV

SUBJECT: Referred to Region - Michigan

FROM: janburgess52@comcast.net

TO:

Name: Jan Burgess

Address: 720 Commonwealth Ave

City: Flint

State: Michigan

Zip: 48503

Phone: 810-235-6530

Alleged Violator's Name: City of Flint

Alleged Violator's Address: 1101 S. Saginaw St.

Alleged Violator's City: Flint

Alleged Violator's State: Michigan

Alleged Violator's Zip: 48502

Tip or Complaint: Earlier this year, the City of Flint, MI changed its water supply from the City of Detroit [Lake Huron] to the Flint River. This river has a very long history of pollution. Since this change, our drinking water has tripled in cost and the quality varies daily. Some days it smells like an over-chlorinated swimming pool; other days, like pond scum. It often is brown in color and frequently has visible particles floating in it. We've been under several boil water advisories due to e-coli contamination. Just this morning our local paper reports that General Motors Engine plant has shut off Flint River water to the plant due to the over-chlorination and the fears that the water will cause corrosion.

http://www.mlive.com/news/flint/index.ssf/2014/10/general_motors_wont_use_flint.html#cmpid=nsltr_storyheadline.

People in Flint have had to resort to buying bottled water or having purification systems installed in their homes. Some residents have even had private wells dug. The water is not safe to drink, cook or wash dishes with, or even give to pets. We worry every time we shower. The City of Flint is still very economically depressed and most citizens cannot afford to do anything other than use the river water. Many of them have NO water at all due to the extremely high water bills. There is reasonable suspicion that reports have been falsified. Some residents have had water tested privately and the results are not even close to those reported by the City. Calls to the City and State have resulted in no action whatsoever.

Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? No

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Thursday, October 16, 2014 8:45 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: Another Flint complaint

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Tom Poy
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 USEPA - Region 5
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10/15/2014

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 FROM: howard.donna@epa.gov
 TO: poy.thomas@epa.gov
 CC:

-----Original Message-----

10/14/2014 9:07 AM

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Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? No

Rennaker, Joanne (DEQ)

From: Brent Wright <bwright@cityofflint.com>
Sent: Wednesday, October 15, 2014 3:01 PM
To: Busch, Stephen (DEQ)
Cc: rbincsik@cityofflint.com; Prysby, Mike (DEQ)
Subject: Re: Flint Water Complaint

Steve,

I had Mike Glasgow check on this and we have no record of any complaints at this address. We are going to make an attempt to visit this citizen, but with no phone number and name it makes it difficult to schedule a visit. At least we will flush and test hydrants in the area.

Thank you

On Tue, Oct 14, 2014 at 1:54 PM, Busch, Stephen (DEQ) <BUSCHS@michigan.gov> wrote:

Rob,

We have been forwarded the following complaint information from EPA. Could you please let us know whether you have received their complaint and provide a summary of any action or communication with the complaintant? Thanks.

Citizen lives at 324 West Jackson Avenue, Flint, 48505

She states, "Water quality is bad since switching to Flint River. My water stinks like sewage at times. I have developed a cough and rash, brown sediment in sink basins and kitchen sink stays backed up. I have written City Hall Water Dept and Council President for help, but no response."

Stephen Busch, P.E.

Lansing and Jackson District Supervisor

Office of Drinking Water and Municipal Assistance

MDEQ

517-643-2314

--

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

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, October 15, 2014 11:56 AM
To: Busch, Stephen (DEQ)
Subject: Fwd: Governor questions

Not sure if you are aware of this

Sent from my iPhone

Begin forwarded message:

From: Daugherty Johnson <djohnson@cityofflint.com>
Date: October 15, 2014, 11:12:00 AM EDT
To: "Mike Prysby (DEQ)" <PRYSBYM@michigan.gov>
Subject: Governor questions

Hello Mike. We have a conference call with the Governor's office at noon to respond to questions from Council persons about the safety of Flint's water. Is your office on the call? The TTHM issue may come up. My question is how many other communities are dealing with TTHM corrective actions in Michigan? Estimate would be fine.

Thanks
Duffy

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks,jennifer@epa.gov>
Sent: Tuesday, October 14, 2014 3:16 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: Controlled Correspondence RE: Flint drinking water

Question—I was just talking with Tom Poy about this woman's complaint. He was wondering—has Flint changed their flushing routine? If the illegal use of the hydrants by contractors is what is stirring up the debris in the pipes/iron, how come this is now being complained about? Was this a problem when Flint was using Detroit water?
 Jennifer

From: Busch, Stephen (DEQ) [mailto:BUSCHS@michigan.gov]
Sent: Tuesday, October 14, 2014 1:00 PM
To: Crooks, Jennifer; Prysby, Mike (DEQ)
Subject: RE: Controlled Correspondence RE: Flint drinking water

Jennifer,

I have forwarded the address and complaint information to the City to confirm if they received any complaint and what follow up may have occurred.

I am not aware of any additional TC positive samples since the BWA at the beginning of September. In addition this address does not appear to be included in the BWA area from August or September.

I await any info from the City on flushing. You may want to ask whether there has been any building work (blight removal) in the area, as contractors have been problematic with hydrant use.

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

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Tuesday, October 14, 2014 1:38 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: Controlled Correspondence RE: Flint drinking water
Importance: High

Hi, Mike. Yep, another complaint about our favorite water supply ☺

Citizen lives at 324 West Jackson Avenue, Flint, 48505

She states, "Water quality is bad since switching to Flint River. My water stinks like sewage at times. I have developed a cough and rash, brown sediment in sink basins and kitchen sink stays backed up. I have written City Hall Water Dept and Council President for help, but no response."

I think the pos bacti/boil water advisory was in Sept, so can I say that bactis in the past few weeks have met State/Fed'l health standards? How's the TTHMs right now? Any other health standards close to being exceeded?

What do you attribute the sewer smell, and the brown sediment to? Has her area been flushed recently?

I will include the phone numbers of the Water Service Center and the Water Treatment plant that you gave me last time we spoke about Flint.

Can I include your phone number as a contact as well?

Thank you!

Jennifer

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Tuesday, October 14, 2014 2:05 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: Controlled Correspondence RE: Flint drinking water

Hey, thank you, Steve. Yes, I did include some wording about the improper use of hydrants by local contractors, and the possible need to flush her lines. Let me know if the City will be flushing her lines, so I can include in this letter. I will forward my draft response/letter to both of you on Thursday, to make sure it is acceptable to you both. Thanks!
 Jennifer

From: Busch, Stephen (DEQ) [mailto:BUSCHS@michigan.gov]
Sent: Tuesday, October 14, 2014 1:00 PM
To: Crooks, Jennifer; Prysby, Mike (DEQ)
Subject: RE: Controlled Correspondence RE: Flint drinking water

Jennifer,

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

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Tuesday, October 14, 2014 1:38 PM
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Jennifer

Rennaker, Joanne (DEQ)

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 Office of Drinking Water and Municipal Assistance
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Can I include your phone number as a contact as well?

Thank you!

Jennifer

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Tuesday, October 14, 2014 1:56 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: RE: Controlled Correspondence RE: Flint drinking water
Importance: High

Sorry, we did discuss the probably source of the brown sediment in the water (my memory should be better):

"... the cause of brown water (iron deposits and sediments from the very old cast iron pipes that make up the distribution system)..."

But I have a few more questions below.

Jennifer

From: Crooks, Jennifer
Sent: Tuesday, October 14, 2014 12:38 PM
To: 'Prysby, Mike (DEQ)'; Busch, Stephen (DEQ)
Subject: Controlled Correspondence RE: Flint drinking water
Importance: High

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What do you attribute the sewer smell? Has her area been flushed recently? Probably needs flushing?

I will include the phone numbers of the Water Service Center and the Water Treatment plant that you gave me last time we spoke about Flint.

Can I include your phone number as a contact as well?

Thank you!

Jennifer

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, October 14, 2014 1:54 PM
To: rbincsik@cityofflint.com
Cc: Brent Wright (bwright@cityofflint.com); Prysby, Mike (DEQ)
Subject: Flint Water Complaint

Importance: High

Rob,

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

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From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Tuesday, October 14, 2014 1:38 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: Controlled Correspondence RE: Flint drinking water

Importance: High

Hi, Mike. Yep, another complaint about our favorite water supply ☺

Citizen lives at 324 West Jackson Avenue, Flint, 48505

She states, "Water quality is bad since switching to Flint River. My water stinks like sewage at times. I have developed a cough and rash, brown sediment in sink basins and kitchen sink stays backed up. I have written City Hall Water Dept and Council President for help, but no response. "

I think the pos bacti/boil water advisory was in Sept, so can I say that bactis in the past few weeks have met State/Fed'l health standards? How's the TTHMs right now? Any other health standards close to being exceeded?

What do you attribute the sewer smell, and the brown sediment to? Has her area been flushed recently?

I will include the phone numbers of the Water Service Center and the Water Treatment plant that you gave me last time we spoke about Flint.

Can I include your phone number as a contact as well?

Thank you!

Jennifer

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, October 13, 2014 3:48 PM
To: Busch, Stephen (DEQ); Shekter Smith, Liane (DEQ); Wurfel, Brad (DEQ); Feuerstein, Heather (DEQ); Seymour, Veronica (DEQ); Benzie, Richard (DEQ)
Subject: Media Inquiry

Ron Fonger from the Flint Journal called me today concerning the GM Engine manufacturing plant in Flint and their intent to temporarily terminate water service from Flint and purchase water from Genesee County (via Flint Twp) until Flint is either treating water from KWA or reducing their chloride concentration from their treated water that meets GM's limit for manufacturing. Ron asked if elevated chlorides are a health concern in Flint. I looked up Flint's MOR and noted that the treated water chloride concentration leaving the WTP ranges between 55 and 65 mg/l which, although not optimal (optimal being <20 mg/l), is satisfactory. Concentrations > 250 mg/l become objectionable due to taste & corrosion issues; however, based on the concentration leaving the WTP, we did not have any health-effect concerns. Ron was not able to recall the maximum chloride level acceptable to GM; however, I stressed the importance of not branding Flint's water as "corrosive" from a public health standpoint simply because it does not meet a manufacturing facility's limit for production. Ron also asked if the treatment process adds chloride. I explained that their primary coagulant is ferric chloride and this does add some chloride to the finished water; however, raw water chloride concentration is generally in the mid 40s mg/l; thus, the contribution from ferric chloride is not significant.

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

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, October 07, 2014 8:11 AM
To: Rosenthal, Adam (DEQ); Prysby, Mike (DEQ)
Subject: RE: Flint MCL VN

I think we need to remove all of the August stuff and just focus this VN on the September MCL. The August violation was the acute E.coli which is stated in the letter but totaling the August monitoring and including it looks like we are hitting them with the same violation. My understanding was that the August acute MCL was public noticed and the violation previously resolved so there is no need to readdress August.

Let's revise the letter and just keep it to the samples that were collected in September and the September TC MCL.

If there is something I'm missing here, let me know.

For CC's include those Mike indicated and the ones from the OEL letter as we discussed. I will be back this afternoon so we should still be able to get it out today. Thanks.

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

From: Rosenthal, Adam (DEQ)
Sent: Monday, October 06, 2014 3:23 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: Flint MCL VN

Attached is the VN for edit/review. Wasn't sure who needed to be CC'd, so let me know.

Adam

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, October 06, 2014 3:23 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: Flint MCL VN
Attachments: Flint MCLVN 8-9 14.doc

Attached is the VN for edit/review. Wasn't sure who needed to be CC'd, so let me know.

Adam



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

Date

Mr. Brent Wright, Operation Supervisor
City Of Flint - D P W
Flint Water Plant
4500 North Dort Highway
Flint, MI 48505

WSSN: 02310
City Of Flint

Dear Mr. Wright:

SUBJECT: Violation Notice – Maximum Contaminant Level for Total Coliform

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), records show that the City of Flint is in violation of the Safe Drinking Water Act 1976 PA 399, as amended (Act 399); R 325.10602 *MCLs for total coliform bacteria*; of the 1979 Administrative Code.

In accordance with R 325.10602 *MCLs for total coliform bacteria*, a water supply that collects 40 or more samples per month is in compliance with the MCL for total coliforms if not more than 5% of the samples collected during a month are total coliform-positive. Our records show that 15 out of 124 and 15 of 150 samples collected were total coliform-positive during the months of August and September 2014 respectively, which are violations of the MCL. Our investigation consisted of a review of ODWMA files for laboratory reports received for compliance monitoring. The ODWMA guided you in the response of the total coliform-positive samples and repeat sampling protocol.

Our investigation is considered complete. These violations began on August 15, 2014 and September 5, 2014 and continued until you returned to compliance.

To return to compliance, you collected repeat samples on August 18, 2014 and September 8, 2014 that did not detect coliform bacteria. Although the specific cause of contamination has not been conclusively identified, it appears the situations have been corrected."

The August MCL violation was elevated to an acute MCL which required immediate notification and was correctly public noticed, however the September MCL violation still requires a Tier 2 public notice. Administrative rule R 325.10403 requires that suppliers provide public notice not later than 30 days after learning of the violation by mail or direct delivery and by any other means reasonably calculated to reach other persons regularly served by the system. Enclosed is a sample public notice. Please notify your consumers by November 2, 2014 and send us a signed and dated copy of the notice that was issued within 10 days of distributing the public notice. These violations must be included in your Consumer Confidence Report (CCR,) due by July 1, 2015.

Failure to issue a public notice for this violation may result in a fine of at least \$1000 per day of the violation up to a maximum of \$5000. Additional violations are subject to fines of increasing

amounts. If you would like more information on the ODWMA policy on administrative fines policy, contact us at the numbers below.

If you have any factual information you would like us to consider regarding the violations identified in this Notice please provide it in a written response by October 20, 2014.

We anticipate and appreciate your cooperation in resolving this matter. If you have any questions regarding this Violation Notice, please contact us at the numbers below.

Sincerely,

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

Adam Rosenthal, EQA
Lansing District Office
Office of Drinking Water & Municipal
Assistance
517-284-6644

MFP:AR:JR

Enclosures

cc:
Genesee County Health Department

Important Information About Your Drinking Water

Tests showed coliform bacteria in the City of Flint water

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 did to correct the situation.

We routinely monitor for drinking water contaminants. We took 150 samples to test for the presence of coliform bacteria during September 2014. 15 of those samples (10%) showed the presence of coliform bacteria. The standard is that no more than 5 percent of our samples may do so.

What should I do?

You do not need to boil your water or take other corrective actions. However, if you have specific health concerns, consult your doctor. People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their healthcare providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

What does this mean?

This is not an emergency. A portion of the City was notified to boil their water at the time of the incident until it was resolved. Coliform bacteria are generally not harmful themselves.

Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than were allowed and this was a warning of potential problems.

Usually, coliforms are a sign that there could be a problem with the system's treatment or distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or E. coli, are present. We did not find any of these bacteria in our subsequent testing, and further testing shows that this problem has been resolved.

What happened? What was done? On September 5, 2014, after routine and repeat samples showed the presence of total coliform, a boil water order was issued to the affected area. That area was flushed and resampled until samples were non-detect for total coliform. The boil order was lifted on September 9, 2014. Samples collected since then show that all results met acceptable limits.

For more information, please contact Mr. Brent Wright, Water Plant Supervisor, City Of Flint - DPW at 810.787.6537 ext. 3510 or Flint Water Plant - 4500 North Dort Highway, Flint, MI 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 DNRE.

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Friday, October 03, 2014 4:20 PM
To: Busch, Stephen (DEQ)
Cc: Prysby, Mike (DEQ)
Subject: Flint Tier 2 for Sept BMCL

If the letter goes out 10/6, the PN must be posted by 11/5/14.

Adam

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, September 29, 2014 3:01 PM
To: Busch, Stephen (DEQ)
Attachments: Governor Briefing - Flint-1stDraft.docx

Steve,

A few other minor tweaks shown in red...otherwise....looks good.

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

MDEQ - Governor's Office Briefing - City of Flint Drinking Water (1st draft)

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 (BWA's) 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 City's water treatment plant (WTP) has performed well above treatment requirements for organic carbon removal. In addition, less than 20% 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 570 miles of water mains are now over 75 years old, and constructed of cast iron piping. Cast iron pipe is subject to internal corrosion, 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. Present in almost every water system, biofilm when uncontrolled may present a threat to public health. Biofilm growth, 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 along with vacant homes, commercial businesses and industrial property. This leads to excess water stagnation that uses up chlorine within the City's distribution pipes and water storage facilities, accelerating both tuberculation and biofilm growth. While the City has recently seen an infusion of funding for blight removal, contractors completing this work have been found improperly using fire hydrants, causing hydraulic disturbances which may also have contributed to the 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% has seen even greater losses since February due to an increase in cold weather related water main breaks and leaks. The over 7,250 valves normally used to limit impacts during break repairs, lack a formal maintenance program. Two valves on the transmission line used to supply the area of the BWA were found to be closed during the City's investigation, causing longer residence time, reduced flow, and reduced pressure. One of these valves has remained broken.

The BWA's 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 Cancellation of a Boil Water Advisory

There are a number of conditions that can trigger boil water advisories. 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 DEQ has developed a policy regarding BWAs (deleted under) to help guide staff, provide consistency, and maintain public health. A copy of the policy is attached.

BWA's 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 BWA's which recently occurred in the City of Flint were associated with bacteria monitoring detections and violations of bacteria standards. These advisories were issued in a collaborative manner by the City of Flint in consultation with the DEQ.

Current regulations regarding monitoring and standards for bacteria in water distribution systems were developed by the EPA, have been in effect since 1990, and incorporated into the Michigan Safe Drinking Water Act 399 & Adm Rules. There are a variety of bacteria, parasites, and viruses which 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. While 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.

When 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 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 City of 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 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 City of Flint WTP that would allow continuous operation of the WTP utilizing the Flint River 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 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 DWSD.

A BWA was issued from August 15–20, 2014, for a portion of the City of Flint due to localized detections of Total Coliform and Fecal Coliforms. Another BWA was issued from 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 approximately 6 square miles. The City of Flint has a total land area 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, water main breaks, and the status and condition of system valves.

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, September 29, 2014 2:19 PM
To: Busch, Stephen (DEQ)
Subject: RE: Flint - Governor Briefing - 1st Draft

Steve,

Flint's valve count is 7, 256 ...so 7,250 is good.

I have 550 miles of water system piping. This information was provided to me from the Water Service Center during the 2011 Sanitary Survey. We may want to subtract approx.. 10 miles since Flint sold the 72-inch main to Genesee County.

The duration of both WTP emergency operation events in 2009 is correct.

Other steps being taken by the city (not operational) to limit the potential for future BWA's are as follows:

.....Investigating different types of chlorine feed systems at each water storage reservoirs
Investigating mixing system(s) at each reservoir (topic of tomorrow's site visit).

.....Also, the city investigated and confirmed unauthorized water use that consisted of water theft at several residencies in the BWA area (running hoses to neighboring homes that are abandoned).

These have been eliminated and perpetrators are being prosecuted.

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

From: Busch, Stephen (DEQ)
Sent: Monday, September 29, 2014 12:18 PM
To: Benzie, Richard (DEQ); Prysby, Mike (DEQ)
Cc: Shekter Smith, Liane (DEQ)
Subject: Flint - Governor Briefing - 1st Draft

Attached is a 1st draft of the briefing to the Governor's Office regarding the City of Flint water system as requested by Director Wyant following our meeting on 9/25.

I have managed to keep it to less than 2 pages while including, I think, all the talking points we discussed with the Director.

Please review the draft and provide me any comments by COB today. I need to get the final draft to the Director by COB on Tuesday as I will be out the rest of the week.

Mike, please take a look and confirm some of the numbers we have (WM miles, valves, etc.). The City's recent BWA report appeared to have some different numbers and I want to be sure our numbers are still accurate. Also let me know if there are any other confirmed steps the City is taking to proactively prevent additional BWA's from occurring.

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

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Lansing and Jackson District Supervisor
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MDEQ - Governor's Office Briefing - City of Flint Drinking Water (1st draft)

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Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Thursday, September 25, 2014 10:31 AM
To: Mike Glasgow
Cc: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: lead copper monitoring

Morning Mike, have you collected any lead/copper samples yet? If so please forward results. If you haven't sampled yet, please let us know what your plan is for the 1st 6 month round of monitoring due between 7/1 – 12/31/14.

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

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, September 25, 2014 10:16 AM
To: Busch, Stephen (DEQ)
Subject: FW: Water rates
Attachments: Water Rates FY2015.xls

Here's more recent water rate info from Flint

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

From: Brent Wright [<mailto:bwright@cityofflint.com>]
Sent: Thursday, September 25, 2014 10:14 AM
To: Prysby, Mike (DEQ)
Subject: Re: Water rates

Here you go Mike, also did you get my voice mail on Tuesday?

On Thu, Sep 25, 2014 at 10:08 AM, Brent Wright <bwright@cityofflint.com> wrote:
 Working on it.

On Thu, Sep 25, 2014 at 9:02 AM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:
 Brent

Can u provide me with a copy of Flint's most recent water rate structure? I have an 11am meeting today and that info may be helpful....thanks

Sent from my iPhone

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

--

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

**SCHEDULE OF WATER RATES & CHARGES
EFFECTIVE FOR BILLS DUE AFTER JULY 1, 2014**

WATER CONSUMPTION RATES

Metered Water

Rates per 100 cubic feet (ccf)	Rates Effective FY2014		Rates For Bills Due in FY15	
	Inside City Rate	Outside City Rate	Inside City Rate	Outside City Rate
Through 35 ccf	7.512	11.259	7.920	11.880
Next 1,965 ccf	7.310	10.765	7.620	11.420
Over 2,000 ccf	5.792	8.677	6.090	9.140

WATER MONTHLY SERVICE CHARGES

Remote Meter Monthly Charge

Meter Size	Rates Effective FY2014		Rates For Bills Due in FY15	
	Inside City Charge	Outside City Charge	Inside City Charge	Outside City Charge
5/8"	21.776	32.483	22.900	34.170
3/4"	41.861	62.706	44.030	65.950
1"	55.283	82.792	58.150	87.080
1-1/2"	55.283	82.792	58.150	87.080
2"	55.283	82.792	58.150	87.080

Commercial & Industrial Monthly Charge

Meter Size	Rates Effective FY2014		Rates For Bills Due in FY15	
	Inside City Charge	Outside City Charge	Inside City Charge	Outside City Charge
5/8"	53.385	80.134	55.790	83.740
3/4"	61.263	91.715	64.020	95.840
1"	75.103	112.673	78.480	117.740
1-1/2"	107.756	161.785	112.600	169.060
2"	150.622	226.086	157.400	236.260
3"	297.448	448.469	310.830	468.650
4"	523.495	785.366	547.050	820.710
6"	1,029.429	1,543.867	1,075.750	1,613.340
8"	1,492.875	2,239.473	1,560.050	2,340.240
10"	2,060.754	3,107.476	2,153.480	3,247.300
12"	2,493.124	3,739.505	2,605.310	3,907.770
16"	3,102.636	4,653.867	3,242.250	4,863.280
20"	3,351.483	5,463.817	3,501.980	5,709.670

**SCHEDULE OF SEWER RATES & CHARGES
EFFECTIVE FOR BILLS DUE AFTER July 1, 2014**

SEWAGE FLOW RATES

Residential Sewage Flow Rates

	Rates Effective FY2014		Rates For Bills Due FY15	
	Inside City Rate	Outside City Rate	Inside City Rate	Outside City Rate
Rate per 100 cubic feet (ccf) (Based upon metered water)	4.800	5.285	5.170	5.680

Commercial & Industrial Waste Rates

	Rates Effective FY2014		Rates For Bills FY15	
	Inside City Rate	Outside City Rate	Inside City Rate	Outside City Rate
Volume (per 100 cubic feet)	1.795	2.036	1.930	2.189
Suspended Solids (per pound)	0.550	0.548	0.591	0.589
Biological/Chemical Oxygen Demand (per pound)	1.169	1.312	1.257	1.410
Phosphorus (per pound)	1.657	1.683	1.781	1.809
Industrial Charge (per 100 cubic feet)	0.030	0.030	0.032	0.032

Wholesale Rates

Beecher Metro District Rate	1.335

SEWER MONTHLY SERVICE CHARGE

Residential - Remote Read Meter Charge

Meter Size	Rates Effective FY2014		Rates For Bills FY15	
	Inside City Charge	Outside City Charge	Inside City Charge	Outside City Charge
5/8"	32.002	41.010	34.480	44.190
3/4"	46.922	56.005	50.560	60.350
1"	65.340	76.986	70.410	82.960
1-1/2"	65.340	76.986	70.410	82.960
2"	65.340	76.986	70.410	82.960

Commercial & Industrial Charge

Meter Size	Rates Effective FY2014		Rates For Bills FY15	
	Inside City Charge	Outside City Charge	Inside City Charge	Outside City Charge
5/8"	51.919	58.120	55.900	62.570
3/4"	64.434	73.620	69.370	79.260
1"	84.708	98.050	91.200	105.560
1-1/2"	137.843	164.800	148.400	177.430
2"	196.163	232.430	211.190	250.240
3"	438.083	522.870	471.620	562.930
4"	721.842	886.010	777.140	953.890
6"	1,459.948	1,770.130	1,571.800	1,905.740
8"	2,148.213	2,646.520	2,312.790	2,849.270
10"	2,918.392	3,522.540	3,141.970	3,792.410
12"	3,426.233	4,132.570	3,688.720	4,449.170
16"	4,523.945	5,497.910	4,870.530	5,919.110
20"	5,326.865	6,532.020	5,734.960	7,032.440

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, September 25, 2014 9:03 AM
To: Brent Wright
Subject: Water rates

Brent
Can u provide me with a copy of Flint's most recent water rate structure? I have an 11am meeting today and that info may be helpful....thanks

Sent from my iPhone

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Thursday, September 18, 2014 3:48 PM
To: Benzie, Richard (DEQ)
Subject: RE: City of Flint BWA follow-up - media inquiry

Thanks Richard...now off to physical therapy....perhaps mental therapy with all these Flint calls....lol

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

From: Benzie, Richard (DEQ)
Sent: Thursday, September 18, 2014 3:45 PM
To: Prysby, Mike (DEQ); Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Subject: RE: City of Flint BWA follow-up - media inquiry

Wow is exactly what I was thinking – your technical expertise comes through loud and clear. Excellent customer service Mike – nice job.

From: Wurfel, Brad (DEQ)
Sent: Thursday, September 18, 2014 2:43 PM
To: Prysby, Mike (DEQ); Feuerstein, Heather (DEQ); Shekter Smith, Liane (DEQ); Willard, Veronica (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Subject: RE: City of Flint BWA follow-up - media inquiry

Wow. Thanks, Mike!
 b

From: Prysby, Mike (DEQ)
Sent: Thursday, September 18, 2014 2:08 PM
To: Wurfel, Brad (DEQ); Feuerstein, Heather (DEQ); Shekter Smith, Liane (DEQ); Willard, Veronica (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Subject: City of Flint BWA follow-up - media inquiry

Mr. Ron Fonger from the Flint Journal called me this morning concerning a follow-up meeting with Flint city council yesterday evening and their summary of the most recent localized BWA (rescinded on 9/9/14). The city agrees that there are underlying problems in the water distribution system; however, the following question was asked.....Why weren't these problems being experienced while we were purchasing water from Detroit? Howard Kroft (City Administrator) responded that the difference in the source water (higher temperature in the Flint River) creates a treated water that is not fully stabilized and reduce chlorine residuals in the distribution system. This problem was exasperated further in the distribution system

due to several transmission main valves being closed causing stagnation and ineffective disinfection. Ron asked if I agreed with Mr. Kroft's discussion and if there may be a link between the Flint River source water and the problems recently experienced in the distribution system.

I agreed, in part, that low chlorine residuals (< 0.1 to trace free) and stagnation is ineffective in maintaining adequate disinfection especially in old tuberculated cast-iron piping that is susceptible to bacteriological growth under low chlorine conditions. Stagnation due to closed valves can worsen these conditions; thus, the city needs to optimize system operation to minimize stagnation. Efforts could include; improve turn-over of water within their existing water storage reservoirs on the west side of town, operate their pumping stations in segregated pressure districts instead of re-circulating water. Also, the water storage reservoirs should be inspected and cleaned (removal of any excessive sediment) as needed.

I also agreed with Mr. Kroft's statement that the Flint River is more difficult source to treat than Lake Huron water. Although higher raw water temperature can accelerate the loss of free chlorine in the distribution system, I also added that treated water from the Flint River water likely has an increased chlorine demand due to higher organic content (typically associated with surface water – river sources). Although an adequate free chlorine residual is being distributed from the WTP, the higher chlorine demand will reduce the free residual over time out in the distribution system – which makes it important to optimize distribution system operation.

I also informed Ron that that there has be no further BWAs since last Tuesday nor evidence of contamination in the Flint distribution system. Also, free chlorine residuals have increased in the BWA area based on our most recent discussion with Flint water utility operators.

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

Rennaker, Joanne (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Thursday, September 18, 2014 2:43 PM
To: Prysby, Mike (DEQ); Feuerstein, Heather (DEQ); Shekter Smith, Liane (DEQ); Willard, Veronica (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Subject: RE: City of Flint BWA follow-up - media inquiry

Wow. Thanks, Mike!

b

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Sent: Thursday, September 18, 2014 2:08 PM
To: Wurfel, Brad (DEQ); Feuerstein, Heather (DEQ); Shekter Smith, Liane (DEQ); Willard, Veronica (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ)
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Michael Prysby, P.E.
District Engineer
Office of Drinking Water and Municipal Assistance
517 290-8817

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Wednesday, September 17, 2014 3:47 PM
To: young.vannah@gmail.com
Cc: Poy, Thomas; Prysby, Mike (DEQ)
Subject: RE: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Dear Ms. Young:

My name is Jennifer Crooks and I am the Michigan Program Manager for the Drinking Water Program at U.S. EPA, Region 5 in Chicago. I contacted the Michigan Dept of Environmental Quality (MDEQ) to discuss possible problems in Flint. After several calls to the City of Flint Water Treatment Plant and the Water Service Center, the MDEQ and the City staff sent out a team to flush the water lines in your neighborhood. This problem is most likely unrelated to the recent Boil Water Advisory (BWA) issued over the past 2 weeks, since your neighborhood is south of the BWA area. Most likely the cause of brown water (iron deposits and sediments from the very old cast iron pipes that make up the distribution system), is incorrect use of the hydrants by demolition contractors in the area during this time. The hydrants are turned on for the contractors to use, and since the water is under pressure, the fast flow of the water scours the insides of the pipes, causing lots of sediment and rust to become free floating. The City conducts this type of cleaning out of the pipes in a regulated/controlled method, and requires about 10 minutes at least for all the sediment to be flushed out of the main. But the contractors don't always let the water flush for 10 minutes, so they turn off the hydrant and the sediment is still in the main. Your distribution lines were flushed this afternoon, so your water should be more clear now.

Phone numbers for you to call in the future:

Water Service Center – deals with problems in the distribution system: 810-766-7202

Water Treatment Plant – deals with the actual treatment of the water prior to its pumping into the distribution system: 810-787-6537

And if you need further assistance, please call me. I'm in Chicago, but I have several contacts at the MDEQ that are very actively assisting the City of Flint with their drinking water issues.

Jennifer Crooks

Jennifer Kurtz Crooks
 Michigan Program Manager/Set-Aside Coordinator
 Ground Water and Drinking Water Branch
 U.S. EPA, Region 5
 77 West Jackson Blvd., WG-15J
 Chicago, Illinois 60604
 (312) 886-0244
 (312) 582-5853 (fax)
crooks.jennifer@epa.gov

From: Poy, Thomas
Sent: Tuesday, September 16, 2014 5:20 PM
To: Crooks, Jennifer
Subject: Fwd: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Jen: Can you please provide a response to this person? Inform her of the valve issue and that the water flow should improve. Was Flint flushing too?

T

Tom Poy
Chief, Ground and Drinking Water Branch
USEPA - Region 5
(312) 886-5991

Begin forwarded message:

From: <howard.donna@epa.gov>
Date: September 16, 2014 at 3:01:05 PM CDT
To: <poy.thomas@epa.gov>
Subject: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

09/16/2014

SUBJECT: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan
FROM: howard.donna@epa.gov
TO: poy.thomas@epa.gov
CC:

-----Original Message-----

9/14/2014 4:15 PM

HQ LEAD NUMBER: FY14-121728-3715-CV

SUBJECT: Referred to Region - Michigan

FROM: young.vannah@gmail.com

TO:

Name: Savannah Young

Address: 1423 Irene Ave

City: Flint

State: Michigan

Zip: 48503

Phone: 8108776343

Alleged Violator's Name: City of Flint, Water Dept.

Alleged Violator's Address: 1001 S. Saginaw St.

Alleged Violator's City: Flint

Alleged Violator's State: Michigan

Alleged Violator's Zip: 48502

Tip or Complaint: My Flint City tap water is brown. It cannot possibly be safe to drink. No person is available to discuss this issue with me, even after already having three boil water advisories in less than two months time. There has been no announcement made of this current issue, nor has there been any advisory to not drink the water. This has not been addressed or even acknowledged by the city. My neighbor has been having the same issue, and she has also not received any answers, acknowledgement, or regard for her lack of safe drinking water. I have bottled some of the tap water and plan on contacting the local college to request an analysis. I will provide a photo at your request. It is disgusting and they are not even informing the citizens that it is happening.

Specific Directions: The 1400 block of Irene Ave, off off of Miller rd.

Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? Yes

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, September 17, 2014 3:35 PM
To: Howard Croft
Cc: Busch, Stephen (DEQ)
Subject: RE: Boil Water Advisory Report

Howard,

A few changes.....

Overview – 3rd bulleted item - Change date of expanded advisory to Sat. Sept 6th

Background – 3rd bulleted item - two consecutive tests taken 24 hrs apart with negative results are required to lift the boil notice.....not three

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

From: Howard Croft [<mailto:hcroft@cityofflint.com>]
Sent: Wednesday, September 17, 2014 2:53 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: Boil Water Advisory Report

Mike,

I wanted you to have a copy of the report I sent to the Mayor and EM today as an overview of the recent biol water advisory. Please let me know if anything here appears amiss.

Thanks,

--

Howard Croft
 Public Works Director
 City of Flint
 1101 S. Saginaw Street
 Flint, MI 48502
 PH# 810.766.7346 Ext.2043
hcroft@cityofflint.com

Rennaker, Joanne (DEQ)

From: Howard Croft <hcroft@cityofflint.com>
Sent: Wednesday, September 17, 2014 2:53 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: Boil Water Advisory Report
Attachments: Boil Water Overview_Memorandum.pdf

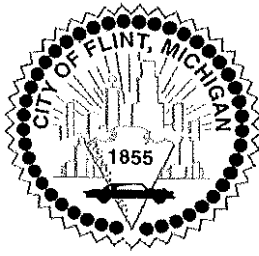
Mike,

I wanted you to have a copy of the report I sent to the Mayor and EM today as an overview of the recent boil water advisory. Please let me know if anything here appears amiss.

Thanks,

--

Howard Croft
Public Works Director
City of Flint
1101 S. Saginaw Street
Flint, MI 48502
PH# 810.766.7346 Ext.2043
hcroft@cityofflint.com



Dayne Walling
Mayor

CITY OF FLINT
Department of Public Works

Darnell Earley, ICMA-CM, MPA
Emergency Manager

Howard Croft
Director

MEMORANDUM

TO: Darnell Earley, Emergency Manager
Dayne Walling, Mayor

FROM: Howard Croft, Public Works Director

DATE: September 16, 2014

RE: Recent Boil Water Advisory

Mr. Earley,

I have compiled a bullet point list of the pertinent events surrounding the recent boil water advisory in the City of Flint. I have separated the events into five categories and attempted to condense them into a comprehensive sequence for your review.

OVERVIEW

- On Friday September 5, 2014 the City of Flint issued a boil water advisory to residents in two of ten test areas around the city.
- The advisory was due to multiple positive tests for "total coliform" and the area covered approximately 9 square miles.
- On Sunday September 7, 2014 the City expanded the advisory to include another of the ten test areas due to a subsequent positive total coliform test.
- The boil water advisories were lifted on Tuesday September 9th at 5:00pm after consultation with the DEQ.

BACKGROUND

- State of Michigan Regulations requires that the City of Flint Water Treatment Plant perform testing of its water distribution system on a routine basis in ten different locations around the City.
- The tests take twenty four hours to produce valid results and are sent directly to the Department of Environmental Quality for review.
- Test results which show positive for "E.coli" or "fecal coliform" trigger boil water notices for the test area and the advisories usually remain in effect until three consecutive tests return negative results.
- A single positive test for "total coliform" does not generally result in a boil water advisory, rather it indicates that the environment is conducive for bacteria.
- Typically, investigation into possible causes followed by corrective measures such as flushing the affected area with open hydrants will cleanse the system.
- This process is overseen by an employee who is required to hold an F-1 State License and is listed as the Operator in Charge of the Water Plant and an employee who holds an S-1 State License which is required to maintain distribution systems of this municipal size.
- The City of Flint has over 500 miles of pipe in its distribution system, much of which is over 70 years old.
- The City of Flint has over ten-thousand valves throughout its distribution system.
- The City of Flint has a professional reliability study of its system which was updated in December 2013.

PROBLEM

- ❖ After detecting the initial positive test for total coliform, normal procedures did not clear the condition and multiple positive tests ensued.
- ❖ The continued positive total coliform tests were the cause for issuing the boil water notice.
- ❖ Additional discoveries showed that residual chlorine levels in the affected area were considerably lower than normal.

SOLUTION

- ✓ On Monday September 8, 2014 the City convened all licensed personnel, Utility Supervisors, and DPW Director to a single meeting location and held a brainstorming session with the DEQ on conference call.
- ✓ It was agreed that while not totally isolated, the concern was mainly present in a specific large transmission line that ran through all positive testing areas.
- ✓ It was determined to expand the hydrant flushing outside of the immediate impact area.
- ✓ It was found that a 24" valve which feeds this transition main was broken in the OFF position outside of the immediate impact area.
- ✓ The broken valve was preventing fresh water from being pushed directly into the impacted area while causing water to travel from the water plant around the entire city and preventing adequate circulation of fresh water.
- ✓ After repairing the broken valve, virtually all of the symptoms were erased over a 24 hour period and the chlorine count has steadily risen back to normal levels throughout the transmission main.

CONCLUSION

- ✓ It was determined that the broken valve was not the single cause of the problem but was a significant factor in the development of the problem.
- ✓ Other possible factors include:
 - Low usage in the area
 - Pipe size in relation to volume of usage
 - Temperature change of surface water
 - Water Pressure in the area
- ✓ It was determined that the broken valve was the main reason that normal remedies were ineffective.
- ✓ Throughout the event, the City was in direct contact with DEQ personnel daily.
- ✓ The positive tests were for "total coliform" only.
- ✓ The following statement about total coliform was approved by the DEQ and distributed to the public as part of the recent boil water advisory:

Total coliform bacteria are generally not harmful themselves. Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.

Usually, coliforms are a sign that there could be a problem with the treatment or

distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or E. coli, are present. We did not find any of these bacteria in our subsequent testing. If we had, we would have notified you immediately. However, we are still finding coliforms in the drinking water.

- ✓ The City of Flint is in the first year of strategic budgetary investment in an infrastructure strategy.
- ✓ The City of Flint infrastructure strategy has been, and will continue to be developed with state licensed employees, industry experts, and proven experienced consultants.

Howard D. Croft
Public Works Director

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Wednesday, September 17, 2014 2:27 PM
To: Prysby, Mike (DEQ)
Subject: RE: FW: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

312-886-0244

From: Prysby, Mike (DEQ) [mailto:PRYSBYM@michigan.gov]
Sent: Wednesday, September 17, 2014 1:04 PM
To: Crooks, Jennifer
Subject: RE: FW: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Jennifer...what is ur contact number....I wish to call you

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

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Wednesday, September 17, 2014 1:22 PM
To: Prysby, Mike (DEQ)
Subject: RE: FW: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Again, many thanks to you, Mike, and the team at Flint WTP. I will call Savannah Young today. Sounds like she never contacted the Water Service Center. What is their phone number, so I can pass it on to her? Brent said that Mike Glasgow did a bacti and Chlorine at the other house on Irene; she may want to call for a bacti and chlorine too.

Mike—what is the “COF”? (Robert’s email below) How do the demolition contractors use the hydrants incorrectly, thus causing high iron?
 Jen

From: Prysby, Mike (DEQ) [mailto:PRYSBYM@michigan.gov]
Sent: Wednesday, September 17, 2014 12:02 PM
To: Crooks, Jennifer
Cc: Busch, Stephen (DEQ)
Subject: FW: FW: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Jennifer,

I received the response from the Flint WTP staff....nothing from that person; however, a complaint from another resident on that street. Robert Bincsik just informed me that he is

sending out a crew to flush several hydrants on that street to help alleviate the iron in the water.

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

From: Brent Wright [mailto:bwright@cityofflint.com]
Sent: Wednesday, September 17, 2014 12:56 PM
To: Prysby, Mike (DEQ)
Subject: Re: FW: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

No one here has spoke with this person, but Mike Glasgow did go to a Brooke Awad's house yesterday on Irene and sampled her water for chlorine and bacti. Her complaint was cloudy water.

On Wed, Sep 17, 2014 at 12:36 PM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Jennifer,

Below is the response from Water Service Center (WSC). The location was not in the BWA area; however, as Robert indicates, this person did not contact the WSC. Let's hold-off on calling her until I hear whether the Flint WTP staff has had any involvement with this complaint. Robert also indicate local contractors using hydrants improperly as a potential cause.

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

From: Robert Bincsik [mailto:rbincsik@cityofflint.com]
Sent: Wednesday, September 17, 2014 12:13 PM
To: Prysby, Mike (DEQ)
Cc: bwright@cityofflint.com
Subject: Re: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

To my knowledge we never received a complaint from this address. This would've been south of the effected area and wouldn't have been in the boil water notice. I will have someone go out and flush the hydrants near this address but obviously I have to be made aware of the problem first in order to be able to fix it. I'm quite certain its iron she is seeing in her water and this has been a problem this year in the COF given all the demolition contractors using hydrants improperly.

On Wed, Sep 17, 2014 at 11:13 AM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Brent, Robert,

As part of my follow-up to EPA on this latest complaint, provide a summary of action taken and/or communication by the city to address Savanna Young's concerns?

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

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

Sent: Wednesday, September 17, 2014 11:04 AM

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

Cc: Benzie, Richard (DEQ)

Subject: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Hi, Steve and Mike. Yep, have another Flint complaint. See below. Her water at the tap is brown as of this past Sunday. I thought Flint was flushing in the areas where the valves were closed? Not sure if this woman's address is close to that area. Have there been other complaints of brown water?

I plan to call her this morning and explain the valve issue. Could you also look into her complaint?

Jennifer

From: Poy, Thomas
Sent: Tuesday, September 16, 2014 5:20 PM
To: Crooks, Jennifer
Subject: Fwd: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Jen: Can you please provide a response to this person? Inform her of the valve issue and that the water flow should improve. Was Flint flushing too?

T

Tom Poy

Chief, Ground and Drinking Water Branch

USEPA - Region 5

(312) 886-5991

Begin forwarded message:

From: <howard.donna@epa.gov>
Date: September 16, 2014 at 3:01:05 PM CDT
To: <poy.thomas@epa.gov>
Subject: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

09/16/2014

SUBJECT: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan
FROM: howard.donna@epa.gov
TO: poy.thomas@epa.gov
CC:

-----Original Message-----

9/14/2014 4:15 PM

HQ LEAD NUMBER: FY14-121728-3715-CV

SUBJECT: Referred to Region - Michigan

FROM: young.vannah@gmail.com

TO:

Name: Savannah Young

Address: 1423 Irene Ave

City: Flint

State: Michigan

Zip: 48503

Phone: 8108776343

Alleged Violator's Name: City of Flint, Water Dept.

Alleged Violator's Address: 1001 S. Saginaw St.

Alleged Violator's City: Flint

Alleged Violator's State: Michigan

Alleged Violator's Zip: 48502

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Specific Directions: The 1400 block of Irene Ave, off off of Miller rd.

Violation Still Occurring? Yes

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Thank you,

Robert Bincsik

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Sewer Maintenance Supervisor

City of Flint

3310 E. Court Street

Flint, MI 48506

Ph: 810.766.7202 ext. 3413

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Brent Wright

Water Plant Supervisor

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4500 N. Dort Hwy.

Flint, MI. 48505

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Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, September 17, 2014 2:04 PM
To: Crooks, Jennifer
Subject: RE: FW: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Jennifer...what is ur contact number....I wish to call you

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

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Below is the response from Water Service Center (WSC). The location was not in the BWA area; however, as Robert indicates, this person did not contact the WSC. Let's hold-off on calling her until I hear whether the Flint WTP staff has had any involvement with this complaint. Robert also indicate local contractors using hydrants improperly as a potential cause.

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

From: Robert Bincsik [mailto:rbincsik@cityofflint.com]
Sent: Wednesday, September 17, 2014 12:13 PM
To: Prysby, Mike (DEQ)
Cc: bwright@cityofflint.com
Subject: Re: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

To my knowledge we never received a complaint from this address. This would've been south of the effected area and wouldn't have been in the boil water notice. I will have someone go out and flush the hydrants near this address but obviously I have to be made aware of the problem first in order to be able to fix it. I'm quite certain its iron she is seeing in her water and this has been a problem this year in the COF given all the demolition contractors using hydrants improperly.

On Wed, Sep 17, 2014 at 11:13 AM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Brent, Robert,

As part of my follow-up to EPA on this latest complaint, provide a summary of action taken and/or communication by the city to address Savanna Young's concerns?

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Wednesday, September 17, 2014 11:04 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Benzie, Richard (DEQ)
Subject: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Hi, Steve and Mike. Yep, have another Flint complaint. See below. Her water at the tap is brown as of this past Sunday. I thought Flint was flushing in the areas where the valves were closed? Not sure if this woman's address is close to that area. Have there been other complaints of brown water?

I plan to call her this morning and explain the valve issue. Could you also look into her complaint?

Jennifer

From: Poy, Thomas
Sent: Tuesday, September 16, 2014 5:20 PM
To: Crooks, Jennifer
Subject: Fwd: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Jen: Can you please provide a response to this person? Inform her of the valve issue and that the water flow should improve. Was Flint flushing too?

T

Tom Poy

Chief, Ground and Drinking Water Branch

USEPA - Region 5

(312) 886-5991

Begin forwarded message:

From: <howard.donna@epa.gov>
Date: September 16, 2014 at 3:01:05 PM CDT
To: <poy.thomas@epa.gov>
Subject: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

09/16/2014

SUBJECT: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan
FROM: howard.donna@epa.gov
TO: poy.thomas@epa.gov

CC:

-----Original Message-----

9/14/2014 4:15 PM

HQ LEAD NUMBER: FY14-121728-3715-CV

SUBJECT: Referred to Region - Michigan

FROM: young.vannah@gmail.com

TO:

Name: Savannah Young

Address: 1423 Irene Ave

City: Flint

State: Michigan

Zip: 48503

Phone: 8108776343

Alleged Violator's Name: City of Flint, Water Dept.

Alleged Violator's Address: 1001 S. Saginaw St.

Alleged Violator's City: Flint

Alleged Violator's State: Michigan

Alleged Violator's Zip: 48502

Tip or Complaint: My Flint City tap water is brown. It cannot possibly be safe to drink. No person is available to discuss this issue with me, even after already having three boil water advisories in less than two months time. There has been no announcement made of this current issue, nor has there been any advisory to not drink the water. This has not been addressed or even acknowledged by the city. My neighbor has been having the same issue, and she has also not received any answers, acknowledgement, or regard for her lack of safe drinking water. I have bottled some of the tap water and plan on contacting the local college to request an analysis. I will provide a photo at your request. It is disgusting and they are not even informing the citizens that it is happening.

Specific Directions: The 1400 block of Irene Ave, off off of Miller rd.

Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? Yes

--

Thank you,

Robert Bincsik

Water Distribution and

Sewer Maintenance Supervisor

City of Flint

3310 E. Court Street

Flint, MI 48506

Ph: 810.766.7202 ext. 3413

Fx: 810.743.5758

--

Brent Wright

Water Plant Supervisor

City of Flint

4500 N. Dort Hwy.

Flint, MI. 48505

Ph: 810.787.6537 ext. 3510

Fx: 810.787.3710

Rennaker, Joanne (DEQ)

From: Brent Wright <bwright@cityofflint.com>
Sent: Wednesday, September 17, 2014 12:56 PM
To: Prysby, Mike (DEQ)
Subject: Re: FW: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

No one here has spoke with this person, but Mike Glasgow did go to a Brooke Awad's house yesterday on Irene and sampled her water for chlorine and bacti. Her complaint was cloudy water.

On Wed, Sep 17, 2014 at 12:36 PM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Jennifer,

Below is the response from Water Service Center (WSC). The location was not in the BWA area; however, as Robert indicates, this person did not contact the WSC. Let's hold-off on calling her until I hear whether the Flint WTP staff has had any involvement with this complaint. Robert also indicate local contractors using hydrants improperly as a potential cause.

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

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Subject: Re: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

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its iron she is seeing in her water and this has been a problem this year in the COF given all the demolition contractors using hydrants improperly.

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Brent, Robert,

As part of my follow-up to EPA on this latest complaint, provide a summary of action taken and/or communication by the city to address Savanna Young's concerns?

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

From: Crooks, Jennifer [<mailto:crooks.jennifer@epa.gov>]
Sent: Wednesday, September 17, 2014 11:04 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Benzie, Richard (DEQ)
Subject: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Hi, Steve and Mike. Yep, have another Flint complaint. See below. Her water at the tap is brown as of this past Sunday. I thought Flint was flushing in the areas where the valves were closed? Not sure if this woman's address is close to that area. Have there been other complaints of brown water?

I plan to call her this morning and explain the valve issue. Could you also look into her complaint?

Jennifer

From: Poy, Thomas
Sent: Tuesday, September 16, 2014 5:20 PM
To: Crooks, Jennifer
Subject: Fwd: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Jen: Can you please provide a response to this person? Inform her of the valve issue and that the water flow should improve. Was Flint flushing too?

T

Tom Poy

Chief, Ground and Drinking Water Branch

USEPA - Region 5

(312) 886-5991

Begin forwarded message:

From: <howard.donna@epa.gov>
Date: September 16, 2014 at 3:01:05 PM CDT
To: <poy.thomas@epa.gov>
Subject: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

09/16/2014

SUBJECT: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan
FROM: howard.donna@epa.gov
TO: poy.thomas@epa.gov
CC:

-----Original Message-----

9/14/2014 4:15 PM

HQ LEAD NUMBER: FY14-121728-3715-CV

SUBJECT: Referred to Region - Michigan

FROM: young.vannah@gmail.com

TO:

Name: Savannah Young

Address: 1423 Irene Ave

City: Flint

State: Michigan

Zip: 48503

Phone: 8108776343

Alleged Violator's Name: City of Flint, Water Dept.

Alleged Violator's Address: 1001 S. Saginaw St.

Alleged Violator's City: Flint

Alleged Violator's State: Michigan

Alleged Violator's Zip: 48502

Tip or Complaint: My Flint City tap water is brown. It cannot possibly be safe to drink. No person is available to discuss this issue with me, even after already having three boil water advisories in less than two months time. There has been no announcement made of this current issue, nor has there been any advisory to not drink the water. This has not been addressed or even acknowledged by the city. My neighbor has been having the same issue, and she has also not received any answers, acknowledgement, or regard for her lack of safe drinking water. I have bottled some of the tap water and plan on contacting the local college to request an analysis. I will provide a photo at your request. It is disgusting and they are not even informing the citizens that it is happening.

Specific Directions: The 1400 block of Irene Ave, off off of Miller rd.

Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? Yes

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Thank you,

Robert Bincsik

Water Distribution and

Sewer Maintenance Supervisor

City of Flint

3310 E. Court Street

Flint, MI 48506

Ph: 810.766.7202 ext. 3413

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Brent Wright

Water Plant Supervisor

City of Flint

4500 N. Dort Hwy.

Flint, MI. 48505

Ph: 810.787.6537 ext. 3510

Fx: 810.787.3710

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, September 17, 2014 12:46 PM
To: Brent Wright
Subject: RE: FW: phone call regarding Flint's water

Thanks Brent....I will make a note of that...

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

From: Brent Wright [mailto:bwright@cityofflint.com]
Sent: Wednesday, September 17, 2014 12:41 PM
To: Prysby, Mike (DEQ)
Cc: rbincsik@cityofflint.com
Subject: Re: FW: phone call regarding Flint's water

Mike in the future could you also include Mike Glasgow in these emails, most water complaints are forwarded to him. But neither of us have spoke with this person.

Thank you

On Wed, Sep 17, 2014 at 12:19 PM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Has the city spoken to this person? before I return the call....

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

From: HelpDesk, Wellogic (DEQ)
Sent: Wednesday, September 17, 2014 12:12 PM
To: Prysby, Mike (DEQ)
Subject: phone call regarding Flint's water

Hi Mike:

This person left a message on my phone regarding the City of Flint's water. He would like a call back.

A.C. Dumas

810-275-5339

Anita

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

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Office of Drinking Water and Municipal Assistance
517 290-8817

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Anita

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, September 17, 2014 11:19 AM
To: Crooks, Jennifer
Cc: Busch, Stephen (DEQ)
Subject: RE: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

Jennifer,

I forwarded your e-mail to the Flint water utility staff (WTP and WSC) and requested a summary of any action and/or communication taken by the city to address this complaint. I will keep you updated as soon as I receive a response from the city.

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

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
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09/16/2014

SUBJECT: FWD: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan
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9/14/2014 4:15 PM

HQ LEAD NUMBER: FY14-121728-3715-CV

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Specific Directions: The 1400 block of Irene Ave, off off of Miller rd.

Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? Yes

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, September 17, 2014 11:14 AM
To: 'bwright@cityofflint.com'; 'rbincsik@cityofflint.com'
Subject: FW: (SDWA - FY14-121728-3715-CV) Referred to Region - Michigan

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

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 Chief, Ground and Drinking Water Branch
 USEPA - Region 5
 (312) 886-5991

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09/16/2014

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CC:

-----Original Message-----

9/14/2014 4:15 PM

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City: Flint

State: Michigan

Zip: 48503

Phone: 8108776343

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Specific Directions: The 1400 block of Irene Ave, off off of Miller rd.

Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? Yes

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Thursday, September 11, 2014 11:59 AM
To: Mike Glasgow; 'bwright@cityofflint.com'
Cc: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: Bromate Monitoring
Attachments: 2014 Flint MS startup.doc

Attached is a revised monitoring schedule for 2014 which now includes monthly monitoring for bromate. This is required for systems that use ozone. Your 1st sample needs to be collected by the end of September 2014 and monthly thereafter. Follow the link in the schedule to find a certified lab as the State Drinking Water lab no longer runs tests for bromate. Depending on results, monitoring may be reduced to quarterly after 1 year.

let us know if you have any questions.

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

2014 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	09/30/2014	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 month	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	Bi-weekly	Every 2 Weeks	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 09/30/2014	TP001	\$130.00	36HA	CXHA
Diquate	1/12 months	Between 04/01 and 09/30/2014	TP001	\$150.00	36DQ	CXDQ
Endothall	1/12 months	Between 04/01 and 09/30/2014	TP001	\$150.00	36EN	CXEN
EDB & DBCP	1/12 months	Between 04/01 and 09/30/2014	TP001	\$70.00	36VO	CXEV

2014 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	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.					
Lead Copper for Corrosion Control	Lead and Copper Sampling Pool	100/6 months	Between 07/01 and 12/31/2014	DIST	\$26.00	36CC	CCUB
Water Quality Parameters	Representative Sites	25/Quarterly	Quarterly	DIST	Various	Various	Various
Total Trihalomethanes	DBP Monitoring Plan	8/3 months	During February, May, August and November 2014	See DBP Monitoring Plan	\$65.00	36VO	CXTM
Haloacetic Acids		8/3 months	During February, May, August and November 2014	See DBP Monitoring Plan	\$130.00	36HA	CXHA

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, September 10, 2014 2:15 PM
To: 'bwright@cityofflint.com'
Cc: Busch, Stephen (DEQ)
Subject: Flint Distribution System OEL
Attachments: TTHM - OEL letter.pdf

Brent,

Attached is a compliance communication letter to the city of Flint confirming the two most recent rounds of TTHM/HAA5 monitoring. Based upon the sampling results, the city will need to proceed with an Operational Evaluation of the treatment and distribution operational practices in effort to minimize future exceedances.

The MDEQ will not be available to participate at tomorrow's 10am press conference. While the unexpected closure of the two transmission main valves may have exasperated a total coliform MCL violation— it may be pre-mature in pinpointing the closed valves as the source of the total coliform MCL. Did the closure of these valves create low pressure conditions in the affected area (<35psi – utilize hydraulic model to confirm) ? If low pressure, then any discovered cross connections – illegal connections – leaks – breaks could suggest contaminants entered the system. Low chlorine residuals due to longer transmission time (in part to the closed valves) would likely not provide adequate disinfection – especially in areas of tuberculation, biofilm, or phosphate coating on the interior pipe walls. Although the BWA is rescinded, please continue to investigate all of the other potential causes that Steve and I have provided.

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



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

September 10, 2014

Mr. Brent Wright
City of Flint Water Treatment Plant
4500 North Dort Highway
Flint, Michigan 48505

SUBJECT: Compliance Communication
Total Trihalomethane Operational Evaluation Requested

Under the Stage 2 Disinfectants and Disinfection Byproduct Rule, the City of Flint has been required to collect samples for the analysis of Total Trihalomethane (TTHM) and Haloacetic Acids (HAA5) at eight sites within the City's water distribution system. The City has completed two quarterly monitoring periods since changing its source water to the Flint River effective April 25, 2014.

Normally an Operational Evaluation Level (OEL) would be calculated in accordance with the Michigan Safe Drinking Water Act, Public Act 399, 1976, as amended, Administrative Rule 7196 (R 325.107196), each quarter once three quarters of results have been obtained and compared with the respective maximum contaminant level (MCL) for TTHM. Normally the calculation would be made as follows:

$(2 \times \text{current quarter} + \text{sum of 2 previous quarters}) \text{ divided by } 4$

As the City of Flint currently has only two quarters of data, the calculation has been modified as follows:

$(2 \times \text{current quarter} + \text{previous quarter}) \text{ divided by } 4$

The resulting OEL for each site is listed in the table below. All results are in parts per billion (ppb):

		TTHM			HAA5		
	5/21/14	8/21/14	Mod. OEL		5/21/14	8/21/14	Mod. OEL
DBP1 McDonalds 3719 Davison	162.4	145.3	113		64	43	38
DBP2 Liquor Palace 822 S. Dort Highway	111.6	112	84		52	40	33
DBP3 North Flint Auto 3302 S. Dort Highway	96.5	127.2	88		48	31	28
DBP4 University Market 3606 Corunna	106.4	181.3	117		55	24	26
DBP5 B&P Gas Station 2501 Flushing	75.1	196.2	117		38	17	18
DBP6 Salem Housing 3216 MLK Boulevard	82.2	112.4	77		41	25	23
DBP7 Kroger 5018 Clio Road	88.2	144.4	94		49	30	27
DBP8 Taco Bell 6204 N. Saginaw	79.2	118.3	79		50	37	31

Mr. Brent Wright

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September 10, 2014

As shown in the table above, even with this less restrictive modified method, six of the City's eight sites already exceed the OEL limit of 80 ppb for TTHM. In addition, the City's two other sites are both more than 95% of the TTHM OEL limit.

The MCL for TTHM and HAA5 is based on a locational running annual average for each site, essentially the average at each site over the four previous quarterly monitoring periods. However, with TTHM levels of this magnitude, it is likely the MCL will be exceeded for at least one of these eight sites from just three quarters of monitoring results. For TTHM, four quarters at the MCL of 80 ppb (4 x 80) would provide 320 ppb allowable. As an example, site DBP1 through just two quarterly monitoring periods has a total of 307 ppb (162+145), leaving only 13 ppb over two more quarterly monitoring periods to maintain compliance with the MCL.

Therefore, this office is requesting the City of Flint complete an Operational Evaluation in accordance with Administrative Rule 719I (R325.10179I). The Operational Evaluation Report shall be submitted to this office no later than November 28, 2014. The report shall not be limited in scope and shall include the following:

Examination of Treatment Operational Practices

- Changes in source water quality
- Treatment changes
- Storage tank operations
- Excess storage capacity
- Treatment problems that contribute to TTHM formation

Examination of Distribution Operational Practices

- Storage tank operations
- Excess storage capacity
- Distribution system flushing

The report shall also include steps the City could consider to minimize future exceedances.

Additional guidance on completing the Operational Evaluation Report, including a number of forms that can be used to gather and evaluate water system information is provided in the United States Environmental Protection Agency's (U.S. EPA) Operational Evaluation Guidance Manual. This document is available on the U.S. EPA's website at the following link:

http://www.epa.gov/ogwdw/disinfection/stage2/pdfs/draft_guide_stage2_operationalevaluation.pdf

Be advised, failure to submit an Operational Evaluation Report by this deadline is a reporting violation subject to Tier 3 Public Notification.

The OEL is an indicator of operational performance. The water system must take proactive steps to be able to comply with the MCL's for TTHM and HAA5. While it is recognized that removal of Total Organic Carbon disinfection byproduct precursors as part of the treatment process has performed above minimum removal requirements under the treatment technique, around 4 parts per million of organic carbon are still present in the treated water and may be leading to additional TTHM formation in the City's distribution system.

While health effects associated with disinfection byproducts contaminants are based on chronic exposure, the City has available alternatives that must be considered to achieve compliance with this drinking water public health standard.

Mr. Brent Wright

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September 10, 2014

If you have any questions regarding this information, please contact me at the number below.

Sincerely,



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

cc: Mr. Darrell Early, City of Flint
Mr. Daugherty Johnson III, City of Flint
Mr. Howard Croft, City of Flint
Mr. Robert Bincsik, City of Flint
Ms. Llane Shekter Smith, P.E., DEQ
Mr. Richard Benzie, P.E., DEQ
Mr. Stephen Busch, P.E., DEQ
Genesee Co. Health Dept.

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, September 10, 2014 9:30 AM
To: 'bwright@cityofflint.com'; Michael Glasgow
Subject: RE: September 2014 Boil Water Notice Timeline

Brent, Michael

Please send us copies of the official boil water notices that were issued. The first notice was late last Friday...and the second notice to expand the aerial coverage was issued last Sat. Also, send us a copy of the all-clear that was sent out yesterday. Thanks.

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

From: Michael Glasgow [<mailto:mglasgow@cityofflint.com>]
Sent: Tuesday, September 09, 2014 9:47 AM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ); Rosenthal, Adam (DEQ)
Cc: Brent Wright; Daugherty Johnson; Howard Croft
Subject: September 2014 Boil Water Notice Timeline

Gentlemen,

Attached is a timeline of events that led us to the recent boil water notice. It shows all sampling and results from 9/2 thru today.

FYI:

I was just talking with a couple of employee's from the Water Service Center who have been helping us with our investigation of the the distribution system. It seems that they have found one of the possible causes of our recent issues. A 36" transmission main not far west of the treatment plant had a valve that was closed, and the 24" transmission main that leads west also has a valve that is closed. The 36" valve was opened, however the valve on the 24" is inoperable. With these valves closed, it appears the water leaving the plant has no direct route to the west side of the city (or the West Side Reservoir)

Mike Glasgow
 City of Flint Water Plant

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, September 09, 2014 3:17 PM
To: Crooks, Jennifer; Prysby, Mike (DEQ)
Cc: Poy, Thomas; Benzie, Richard (DEQ)
Subject: RE: Citizen complaint call from man who lives in Flint, MI

Jennifer

All of the sample results today were non-detect so the boil water advisory has been lifted. In addition chlorine residuals are beginning to show improvement in the area.

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

From: Crooks, Jennifer [<mailto:crooks.jennifer@epa.gov>]
Sent: Tuesday, September 09, 2014 11:03 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Poy, Thomas; Benzie, Richard (DEQ)
Subject: RE: Citizen complaint call from man who lives in Flint, MI

Thank you, Steve, for your prompt response. We appreciate your update in locating the source of contamination, and the results of your ongoing TC sampling. Please let us know when you lift the BWA—when you get a minute—we know you've got your hands full; we've been keeping our management informed.

Jennifer

From: Busch, Stephen (DEQ) [<mailto:BUSCHS@michigan.gov>]
Sent: Tuesday, September 09, 2014 9:19 AM
To: Crooks, Jennifer; Prysby, Mike (DEQ)
Cc: Poy, Thomas; Benzie, Richard (DEQ)
Subject: RE: Citizen complaint call from man who lives in Flint, MI

Jennifer,

The City has found two transmission valves that were closed (36 inch and 24 inch) which transport water to that section of the system. This likely contributed to more stagnant water conditions and lower chlorine residuals in that area. The 36 inch valve has been opened but the 24 inch is inoperable and will need to be repaired or replaced.

Given these valve issues, I have inquired whether low pressure conditions less than 35 psi, would be present in this portion of the system? If low pressure conditions exist, a cross connection or siphon condition where leaks or breaks are present may be occurring. While longer transmission times may contribute to lower chlorine residual, the presence of coliform bacteria suggests contaminants have entered the system and their regrowth and resurgence could be assisted by the presence of a biofilm or tuberculation on the pipe walls.

They are continuing to investigate to identify and address any such issues.

All 6 samples collected Saturday came back ND on Sunday, but we had 1 of 6 sites come back TC positive yesterday (collected Sunday) and they collected the normal full distribution set (10+1 samples) Monday which we expect results early this afternoon. If all results are ND today the BWA could be lifted.

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Lansing and Jackson District Supervisor
Office of Drinking Water and Municipal Assistance
MDEQ
517-643-2314

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Sent: Tuesday, September 09, 2014 10:00 AM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Cc: Poy, Thomas; Benzie, Richard (DEQ)
Subject: Citizen complaint call from man who lives in Flint, MI

Hi, Steve and Mike. We heard about the boil water advisory for Flint for 9/3 last week. Tom Poy also had several calls from Lathan Jefferson yesterday, re-iterating his past calls/claims that the Flint water is unfit to drink.

Any update as to the source of positive bacti? I heard no E.coli, which is good.

Thank you for your time

From: Murphy, Thomas
Sent: Monday, September 08, 2014 1:48 PM
To: Poy, Thomas
Cc: Shoven, Heather; Crooks, Jennifer
Subject: Citizen complaint call from man who lives in Flint, MI

I checked Flint's website and found the attached 9/3/2014 Boil Water Notice (affected area expanded on 9/5/2014) for an apparent monthly total coliform bacteria MCL violation.

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From: Prysby, Mike (DEQ)
Sent: Tuesday, September 09, 2014 10:31 AM
To: Busch, Stephen (DEQ)
Cc: Michael Glasgow; Rosenthal, Adam (DEQ); Brent Wright; Daugherty Johnson; Howard Croft
Subject: Re: September 2014 Boil Water Notice Timeline

It may be worthwhile to see if Wade Trim can run an updated hydraulic model with these valves closed to see what the pressure is in the affected area. I recall the north central area of Flint having marginal pressures (35 to 40 psi) under peak conditions as identified in the reliability study.

Sent from my iPhone

On Sep 9, 2014, at 10:00 AM, "Busch, Stephen (DEQ)" <BUSCHS@michigan.gov> wrote:

Mike,

Thanks for the information.

Given these valve issues, would low pressure conditions less than 35 psi, be present in this portion of the system? If low pressure conditions exist, a cross connection or siphon condition where leaks or breaks are present may be occurring. While longer transmission times may contribute to lower chlorine residual, the presence of coliform bacteria suggests contaminants have entered the system and their regrowth and resurgence could be assisted by the presence of a biofilm, tuberculation on the pipe walls, and/or phosphate coating.

Please continue with your investigation and let us know how the valve repair/replacement goes.

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

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Attachments: BoilWater09022014.pdf

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LOCALIZED DRINKING WATER WARNING
Coliform bacteria detected in localized area of Flint water system
BOIL YOUR WATER BEFORE USING

Our water system detected the presence of coliform bacteria in the water supply on September 3, 2014. We routinely monitor for the presence of drinking water contaminants. We took routine samples for coliform bacteria during on September 2, 2014 from all sampling locations throughout the city. The location near Flushing Road and Chevrolet Avenue showed the presence of coliform bacteria. We took three repeat samples at this location and at adjacent locations on September 3 and again on September 4, 2014. Two of the three samples on the 3rd showed the presence of total coliform bacteria and three of the three samples collected on the 4th in this same area showed the presence of total coliform bacteria. On September 5th two of three sample showed presence of total coliform bacteria. **Updated area of ML King and Pasadena.** On September 4th one sample showed presence of total coliform bacteria. On September 5th two of the three samples at adjacent locations showed presence of total coliform bacteria. All other monitoring locations in the City continue to show no presence of Coliform bacteria.

What should I do?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food. Boiling kills bacteria and other organisms in the water. **Continue using boiled or bottled water until further notice.** This boil notice is limited to the area bordered by Dayton Street (north), DuPont Street (east), Flint River (south), and LaVelle Road to Flint River (west).

The current boil water notice is being expanded to the north. This boil water notice is being expanded to the area bordered by Stewart Ave. (north), Saginaw (east), Hamilton Ave (south), and Clio Rd (west).

If you have a severely compromised immune system, have an infant, are pregnant, or are elderly, you may be at increased risk and should seek advice from your health care providers about drinking this water.

What does this mean?

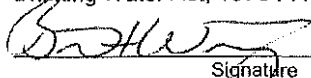
Total coliform bacteria are generally not harmful themselves. *Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.*

Usually, coliforms are a sign that there could be a problem with the treatment or distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or E. coli, are present. We did not find any of these bacteria in our subsequent testing. If we had, we would have notified you immediately. However, we are still finding coliforms in the drinking water.

CERTIFICATION:

2310
WSSN: «WSSN»

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

PLANT SUPERVISOR

Title

9/16/2014

Date Distributed

Reminder to water supplier: This notice / certification must be sent to the DNRE.

What happened? What is being done?

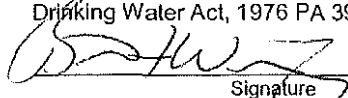
We are still detecting coliform bacteria. We will inform you when our sampling shows that no bacteria are detected. We are flushing the system and increasing the chlorine residual within the affected area. We anticipate resolving the problem within the next two to three days. In the meantime, please continue using boiled or bottled water until we notify you otherwise.

If you have questions, you may contact Mr. Brent Wright of the City of Flint at 810-787-6537, bwright@cityofflint.com, 4500 North Dort Highway, Flint MI. 48505 or Daughtry Johnson, Utilities Administrator (810) 766-7135, ext. 2602. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

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SignaturePLANT SUPERVISOR
Title9/6/2014
Date Distributed

Reminder to water supplier: This notice / certification must be sent to the DNRE.

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, September 08, 2014 2:06 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: Flint DBP data
Attachments: Flint DPB OEL 2nd qtr 14.xlsx

data summary as requested.

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

What happened? What is being done?

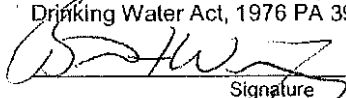
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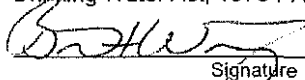
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City of Flint - 02310

Theoretical OEL based on 1st 2 quarters post Treatment Plant startup 2014

TTHM/ppm	DBP1	DBP2	DBP3	DBP4	DBP5	DBP6	DBP7	DBP8
		Liquor	N. Flint	University	B&P Gas	Salem		
	McDonalds	Palace	Auto	Market	Station	Housing	Kroger	Taco Bell
	3719	822 S Dort	3302 S	3606	2501	3216 MLK	5018 Clio	6204 N
DATE	Davison Rd	Hwy	Dort Hwy	Corunna	Flushing	Blvd	Rd	Saginaw
5/21/2014	0.1624	0.1116	0.0965	0.1064	0.0751	0.0822	0.0882	0.0792
8/21/2014	0.1453	0.1120	0.1272	0.1813	0.1962	0.1124	0.1444	0.1183
Theoretical OEL based on 2 qtrs	0.113	0.084	0.088	0.117	0.117	0.077	0.094	0.079

HAA5/ppm	DBP1	DBP2	DBP3	DBP4	DBP5	DBP6	DBP7	DBP8
		Liquor	N. Flint	University	B&P Gas	Salem		
	McDonalds	Palace	Auto	Market	Station	Housing	Kroger	Taco Bell
	3719	822 S Dort	3302 S	3606	2501	3216 MLK	5018 Clio	6204 N
DATE	Davison Rd	Hwy	Dort Hwy	Corunna	Flushing	Blvd	Rd	Saginaw
5/21/2014	0.0640	0.0520	0.0480	0.0550	0.0380	0.0410	0.0490	0.0500
8/21/2014	0.0430	0.0400	0.0310	0.0240	0.0170	0.0250	0.0300	0.0370
Theoretical OEL based on 2 qtrs	0.038	0.033	0.028	0.026	0.018	0.023	0.027	0.031

Theoretical OEL = (1st qtr + (2nd qtr x2))/4

Quarterly TOC in ppm

Date	Raw	Finished
5/22/2014	10.3	4.57
8/19/2014	8.48	4.06

City of Flint - 02310

Theoretical OEL based on 1st 2 quarters post Treatment Plant startup 2014

9/8/2014

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, September 08, 2014 2:06 PM
To: 'bwright@cityofflint.com'; Michael Glasgow
Cc: Rosenthal, Adam (DEQ)
Subject: Flint BWA

Brent, Michael

When you get a chance, please send us a summary of the bacti sample results starting from last Tuesday from the affected area.....similar to the summary provided to us from the first BWA episode. Thanks

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

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Saturday, September 06, 2014 10:10 PM
To: Busch, Stephen (DEQ)
Subject: Fwd: Boil Water Update
Attachments: Scan028.PDF; ATT000001.htm

See attached. I will contact Brent tomorrow afternoon on the latest sample results.

Sent from my iPhone

Begin forwarded message:

From: Brent Wright <bwright@cityofflint.com>
Date: September 6, 2014, 7:51:29 PM EDT
To: "Prysby, Mike (DEQ)" <prysbym@michigan.gov>
Subject: Boil Water Update

Mike see attached

--

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

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Friday, September 05, 2014 2:47 PM
To: Daugherty Johnson (djohnson@cityofflint.com); Brent Wright (bwright@cityofflint.com); mglasgow@cityofflint.com
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ); Prysby, Mike (DEQ); Rosenthal, Adam (DEQ)
Subject: Flint Site 5 Boil water advisory documents
Attachments: Boil PN TC detected.pdf; Flint-Site5-BWA.pdf

Gentlemen,

Attached are the boil water advisory public notice with all required language and a map of the impacted zone. Please distribute to your media contacts immediately.

Once we have 2 sets of non-detect samples from the impacted area we can discuss lifting the advisory.

You indicated that flushing of the area has already started.

Please ensure the water system is taking investigative steps to identify a possible source

- Inspect storage facilities
- Verify pumping and treatment system remains intact and uncontaminated
- Inspect cross connection accounts in the affected area
- Survey the area for any unidentified cross connections
- Review any recent construction or maintenance in the area
- Check for building permits and with building inspectors for any recent construction in the area
- Check with fire departments and DPW for any temporary or improper hydrant use
- Review pumpage and check for breaks, leaks, or an uptick in unaccounted water loss
- Ensure any vacant properties have had the water service shutoff
- Review CI residual data, conduct additional CI monitoring, and increase disinfectant residual

I will be in contact with the County Health Department and the MDARD Food and Dairy Division.

You can reach me over the weekend at this number or Mike Prysby at his number.

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

LOCALIZED DRINKING WATER WARNING

Coliform bacteria detected in localized area of Flint water system

BOIL YOUR WATER BEFORE USING

Our water system detected the presence of coliform bacteria in the water supply on September 3, 2014. We routinely monitor for the presence of drinking water contaminants. We took routine samples for coliform bacteria during on September 2, 2014 from all sampling locations throughout the city. The location near Flushing Road and Chevrolet Avenue showed the presence of coliform bacteria. We took three repeat samples at this location and at adjacent locations on September 3 and again on September 4, 2014. Two of the three samples on the 3rd showed the presence of total coliform bacteria and three of the three samples collected on the 4th in this same area showed the presence of total coliform bacteria. All other monitoring locations in the City continue to show no presence of Coliform bacteria.

What should I do?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food. Boiling kills bacteria and other organisms in the water. **Continue using boiled or bottled water until further notice.** This boil notice is limited to the area bordered by Dayton Street (north), DuPont Street (east), Flint River (south), and LaVelle Road to Flint River (west).

If you have a severely compromised immune system, have an infant, are pregnant, or are elderly, you may be at increased risk and should seek advice from your health care providers about drinking this water.

What does this mean?

Total coliform bacteria are generally not harmful themselves. *Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.*

Usually, coliforms are a sign that there could be a problem with the treatment or distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or E. coli, are present. We did not find any of these bacteria in our subsequent testing. If we had, we would have notified you immediately. However, we are still finding coliforms in the drinking water.

What happened? What is being done?

We are still detecting coliform bacteria. We will inform you when our sampling shows that no bacteria are detected. We are flushing the system and increasing the chlorine residual within the affected area. We anticipate resolving the problem within the next two to three days. In the meantime, please continue using boiled or bottled water until we notify you otherwise.

If you have questions, you may contact Mr. Brent Wright of the City of Flint at 810-787-6537, bwright@cityofflint.com, 4500 North Dort Highway, Flint MI. 48505 or Daughtry Johnson, Utilities Administrator (810) 766-7135, ext. 2602. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

CERTIFICATION:

WSSN: [enter Water Supply Serial Number]

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 DEQ.

cc: [cc the local health department and the Michigan Department of Agriculture and Rural Development if the boil affects a municipal supply.]

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 as a precautionary measure by the City of Flint.

CERTIFICATION:

WSSN: [enter Water Supply Serial Number]

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 DEQ.

cc: [cc the local health department and the Michigan Department of Agriculture and Rural Development if the boil affects a municipal supply.]



Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Wednesday, August 20, 2014 3:39 PM
To: 'bwright@cityofflint.com'; Mike Glasgow; djohnson@cityofflint.com
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: Flint - 02310 Fecal Positive / Boil order
Attachments: Boil PN Rescind Notice.doc

Attached is a rescind boil notice for you to use. Your public notice requirements include sending us signed and dated copies of the notices you issued within 10 days – we need copies by Monday, August 25, 2014. As a heads up, failure to do so would result in a violation with possible monetary penalties.

You also need to put the public notices (boil notice and lift notice) on your website – the media took liberties on what parts were published, and you need the whole notice available.

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

From: Rosenthal, Adam (DEQ)
Sent: Friday, August 15, 2014 5:48 PM
To: 'bwright@cityofflint.com'; Mike Glasgow; 'djohnson@cityofflint.com'
Cc: Busch, Stephen (DEQ); Sygo, Jim (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Benzie, Richard (DEQ); Philip, Kris (DEQ); Prysby, Mike (DEQ); Joseph, Mark (DEQ); Skinker, Bethel (DEQ); Cook, Pat (DEQ)
Subject: Flint - 02310 Fecal Positive / Boil order

Summary:

8/12/14 – 3 routine samples test positive for total coliform (TC), Cedar Reservoir, Site 4 & Site 5.

Free Chlorine was 0 and Total Cl around 0.1 ppm.

8/13/14 – 9 repeat samples collected, 7 TC positive & 1 fecal positive downstream of Site 4

Site 4 is a Taco Bell, downstream site is a repair shop with a questionable tap.

8/14/14 – 2nd set of 9 repeat samples collected, 8 repeats Non Detect and Site 4 TC positive (downstream site with the fecal positive was cleaned and is now non detect.) Chlorine has been increased and detected at 0.2 – 0.5 ppm Free Cl.

With the confirmed fecal positive, the MCL has been elevated to require a Tier 1 Public Notice to be issued within 24 hrs of notification. The DEQ is issuing a Boil Water Order to the affected area (Public Notice attached). A 2nd Tier 2 MCL PN may be necessary once the August monitoring period is complete and the situation is resolved.

The City of Flint has been instructed to issue the Tier 1 PN according to their Emergency Response Plan, flush the system, and collect 2 sets of 5 samples 24 hrs apart in the affected area before lifting the boil order.

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

[System Name]
BOIL WATER NOTICE LIFTED
[date]

It is no longer necessary to use boiled or bottled water for drinking or cooking.

On [date] you were notified of the need to boil all tap water used for drinking and cooking. Corrective measures have been taken and no coliform bacteria have been detected in follow-up testing of the system's water. The water is safe to drink. We apologize for any inconvenience and thank you for your patience.

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.

For more information, please contact [name of water system contact] of [system name or organization] at [phone number, email address, and mailing address].

This notice is being sent to you by [system name], water supply serial number [WSSN].

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, August 20, 2014 3:28 PM
To: Busch, Stephen (DEQ); Shekter Smith, Liane (DEQ); Benzie, Richard (DEQ); Wurfel, Brad (DEQ); Feuerstein, Heather (DEQ); Seymour, Veronica (DEQ); Lawrence, Deana (DEQ)
Cc: Rosenthal, Adam (DEQ)
Subject: Flint BWA

Ron Fonger (Flint Journal) contacted me concerning the status of the BWA in the southwest portion of the Flint water distribution system. I informed Mr. Fonger, that the MDEQ is authorizing the city to rescind the BWA based upon the absence of total or fecal coliform bacteria from any of the samples (system-wide set) collected yesterday (Aug 19th) and from the affected area on Monday Aug. 18th. Mr. Fonger asked whether the city or the MDEQ has identified a cause to the contamination. I responded that a direct cause has not been identified. The water utility inspected both reservoirs and noted a one vent screen not totally intact; however, the inside of the reservoir did not appear compromised. The screen was repaired. The water utility is continuing to investigate other potential system anomalies including unprotected cross connections, nearby water distribution system repairs and/or loss of pressure, and un-authorized connections. I concluded that the MDEQ will be providing the city, as soon as possible, a standard notice to rescind the BWA.

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

Rennaker, Joanne (DEQ)

From: Cherry, John (DNR)
Sent: Tuesday, August 19, 2014 4:53 PM
To: Prysby, Mike (DEQ)
Subject: Flint Water

Hi Mike,

I don't believe we've met before, I work over at DNR. But I live in the City of Flint and I just wanted to know, what is going on with the water, I hear a lot of conflicting things, its testing positive for fecal coliform, then that the test was wrong, now that there is another test for total coliform that was positive. A lot of my neighbors are asking me if its safe to drink the water (because for the average person the DNR and DEQ are the same thing and we are expected to know the answer). We don't live in the advisory area, but, people from all areas are still worried. Any help that you can give me to explain what's going on and what is causing the situation would be helpful.

Thanks,

John D. Cherry
DNR Performance Management
Office: 517-284-5801
Cell: 517-331-4795

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, August 19, 2014 10:36 AM
To: Busch, Stephen (DEQ)
Subject: RE: Email Inquiry - Community Drinking Water Contamination Complaint

Steve,

I attempted to contact Mr. Russell this morning to discuss his concerns regarding the BWA in Flint. I left him a message to return my call.

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

From: Busch, Stephen (DEQ)
Sent: Monday, August 18, 2014 1:05 PM
To: Prysby, Mike (DEQ)
Subject: FW: Email Inquiry - Community Drinking Water Contamination Complaint
Importance: High

Mike could you please respond to the attached complaint. I would suggest via the phone number provided.

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

From: deq-assist
Sent: Monday, August 18, 2014 12:52 PM
To: Busch, Stephen (DEQ)
Subject: FW: Email Inquiry - Community Drinking Water Contamination Complaint
Importance: High

Good Afternoon Stephen,
 Please review and respond to the customer email attached, or if you determined it appropriate please forward to other staff for response.

Thank you for you assistance.

Tonya

Tonya Schelter, Department Analyst
 Michigan Department of Environmental Quality
 Office of Environmental Assistance
 Environmental Assistance Center 1-800-662-9278

517-284-6873

Deq-assist@michigan.gov

scheltert@michigan.gov

517-284-7272 SARA Title III Program Phone

Deq-sara@michigan.gov

Thanks for contacting our Department of Environmental Quality, Office of Environmental Assistance. To help us improve our services, we encourage you to complete our short customer service survey

<https://www.surveymonkey.com/s/oeacs>

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Tuesday, August 19, 2014 10:26 AM
To: Busch, Stephen (DEQ); Rosenthal, Adam (DEQ)
Subject: FW: PRESS RELEASE: Water Advisory Update
Attachments: Water Advisory 8.18.2014.pdf

Here is a copy of the most recent press release from the city concerning the BWA. Although the statement is accurate in that no additional Fecal Coliform sample results were obtained from the affected area; the remaining portion of the first paragraph is poorly worded and doesn't portray the reason for issuing the BWA. The statement defers to an "abnormal test" due to sampling error over the most recent 48 hours as the trigger for the BWA. This is false as the BWA was in effect for over 72 hours at the time of the press release and was issued because of the fecal coliform result and the number of total coliform results obtained from the affected area between the 12th and the 14th. Also, while sampling error could be possible...other potential causes (LOP, mainbreak, Xconn, improper connections, etc.) should have been discussed in the press release.

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

From: Fonger, Ronald [<mailto:RFONGER1@mlive.com>]
Sent: Tuesday, August 19, 2014 9:50 AM
To: Prysby, Mike (DEQ)
Subject: FW: PRESS RELEASE: Water Advisory Update

Mike. Here's the city statement I mentioned.

Ron Fonger
 MLive Media Group
 Reporter

mobile 810.347.9963
 email rfonger1@mlive.com
 address 540 S. Saginaw St. #101, Flint MI 48502

From: Jason Lorenz [<mailto:jlorenz@cityofflint.com>]
Sent: Monday, August 18, 2014 5:52 PM
Subject: PRESS RELEASE: Water Advisory Update

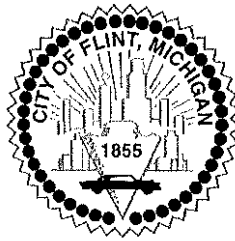
For Immediate Release**City of Flint Boil Water Advisory Still in Effect for Area Affected by Discovery of Abnormal Water Sample**

Flint, Michigan – August 18, 2014 – The City of Flint's Utilities Department has received word today from the Department of Environmental Quality that the boil water advisory issued for a small portion of the city is still in effect although additional testing has shown no signs of E-coli or fecal coliform bacteria in the water. Testing over the last 48 hours has shown that the water tests negative for the presence of fecal coliform bacteria and E-coli, but an abnormal test result triggered the advisory. It is believed that a sampling error is to blame for the abnormal test; however, as a precaution, the advisory will remain in effect until the next citywide sampling has been completed. The next round of routine testing will take place on Tuesday, August 19, 2014 with the possibility that the advisory could be lifted as early as Wednesday, August 20, 2014.

Testing of the drinking water is a part of the routine process for ensuring the quality and safety of the system which happens weekly at nine different sites around the city. Drinking water contamination due to E-coli or coliform bacteria is very rare due to the fact that the bacteria cannot survive in the water for very long. The colder temperature of water in the system coupled with the regular blending of chlorine into the water makes for a hostile environment for these kinds of bacteria. The Flint Water Treatment Plant works diligently to provide water of the highest quality to everyone in the city.

–END–

-Jason Lorenz
Public Information Officer
City of Flint
(810) 237-2039
jlorenz@cityofflint.com



CITY OF FLINT
OFFICE OF EMERGENCY MANAGER
DARNELL EARLEY
ICMA-CM, MPA

Jason Lorenz
Public Information Officer
(810) 237-2039
jlorenz@cityofflint.com

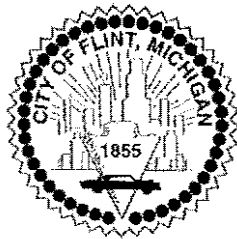
For Immediate Release

**City of Flint Boil Water Advisory Still in Effect for Area Affected by
Discovery of Abnormal Water Sample**

Flint, Michigan – August 18, 2014 – The City of Flint's Utilities Department has received word today from the Department of Environmental Quality that the boil water advisory issued for a small portion of the city is still in effect although additional testing has shown no signs of E-coli or fecal coliform bacteria in the water. Testing over the last 48 hours has shown that the water tests negative for the presence of fecal coliform bacteria and E-coli, but an abnormal test result triggered the advisory. It is believed that a sampling error is to blame for the abnormal test; however, as a precaution, the advisory will remain in effect until the next citywide sampling has been completed. The next round of routine testing will take place on Tuesday, August 19, 2014 with the possibility that the advisory could be lifted as early as Wednesday, August 20, 2014.

Testing of the drinking water is a part of the routine process for ensuring the quality and safety of the system which happens weekly at nine different sites around the city. Drinking water contamination due to E-coli or coliform bacteria is very rare due to the fact that the bacteria cannot survive in the water for very long. The colder temperature

–CONTINUE–



CITY OF FLINT
OFFICE OF EMERGENCY MANAGER
DARNELL EARLEY
ICMA-CM, MPA

of water in the system coupled with the regular blending of chlorine into the water makes for a hostile environment for these kinds of bacteria. The Flint Water Treatment Plant works diligently to provide water of the highest quality to everyone in the city.

—END—

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Monday, August 18, 2014 12:45 PM
To: 'bwright@cityofflint.com'
Cc: Michael Glasgow; Rosenthal, Adam (DEQ); Busch, Stephen (DEQ)
Subject: Sample results

Brent,

I need to clarify a discrepancy in my field notes concerning the single TC Positive result obtained last Thurs Aug 14th (the second set of 9 repeat samples). I noted last Friday that the positive result on that day was from Sample Site #4 – Taco Bell; however, during our call this morning; it was mentioned that the positive result was from Sample Site #5. Please confirm.

Also, I will be out today after 2pm for physician appt. Please contact Steve Busch and/or Adam Rosenthal concerning new sample results and/or additional information. I will be back in the office tomorrow morning at 7:00am.

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

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, August 18, 2014 10:47 AM
To: mvalacak@gchd.us; Dunleavy, Sean (MDA)
Cc: Prysby, Mike (DEQ)
Subject: FW: Flint - 02310 Fecal Positive / Boil order
Attachments: PN Tier 1 - Fecal or E-coli Dist Sys.doc

FYI. For questions contact Mike Prysby @ 517-290-8817 or me.

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

From: Rosenthal, Adam (DEQ)
Sent: Friday, August 15, 2014 5:48 PM
To: 'bwright@cityofflint.com'; Mike Glasgow; 'djohnson@cityofflint.com'
Cc: Busch, Stephen (DEQ); Sygo, Jim (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Benzie, Richard (DEQ); Philip, Kris (DEQ); Prysby, Mike (DEQ); Joseph, Mark (DEQ); Skinker, Bethel (DEQ); Cook, Pat (DEQ)
Subject: Flint - 02310 Fecal Positive / Boil order

Summary:

8/12/14 – 3 routine samples test positive for total coliform (TC), Cedar Reservoir, Site 4 & Site 5.

Free Chlorine was 0 and Total Cl around 0.1 ppm.

8/13/14 – 9 repeat samples collected, 7 TC positive & 1 fecal positive downstream of Site 4

Site 4 is a Taco Bell, downstream site is a repair shop with a questionable tap.

8/14/14 – 2nd set of 9 repeat samples collected, 8 repeats Non Detect and Site 4 TC positive (downstream site with the fecal positive was cleaned and is now non detect.) Chlorine has been increased and detected at 0.2 – 0.5 ppm Free Cl.

With the confirmed fecal positive, the MCL has been elevated to require a Tier 1 Public Notice to be issued within 24 hrs of notification. The DEQ is issuing a Boil Water Order to the affected area (Public Notice attached). A 2nd Tier 2 MCL PN may be necessary once the August monitoring period is complete and the situation is resolved.

The City of Flint has been instructed to issue the Tier 1 PN according to their Emergency Response Plan, flush the system, and collect 2 sets of 5 samples 24 hrs apart in the affected area before lifting the boil order.

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

DRINKING WATER WARNING

The City of Flint water is contaminated with fecal coliform BOIL YOUR WATER BEFORE USING

Fecal coliform bacteria were found in the water supply on August 14, 2014. These bacteria can make you sick, and are a particular concern for people with weakened immune systems.

What should I do? What does this mean?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food. Boiling kills bacteria and other organisms in the water. Continue using boiled or bottled water until further notice. This boil notice is limited to (affected area).

Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers.

What happened? What is being done?

3 routine samples tested total coliform positive, repeat samples were also total coliform positive as well as 1 fecal coliform positive. We are increasing our chlorine levels and flushing the system. We will inform you when tests show no bacteria and you no longer need to boil your water. We anticipate resolving the problem within a few days.

For more information, please contact Mr. Brent Wright of the City of Flint at 810-787-6537, bwright@cityofflint.com, 4500 North Dort Highway, Flint MI 48505. General guidelines on ways to lessen the risk of infection by microbes are available from the EPA Safe Drinking Water Hotline at 1(800) 426-4791.

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 DNRE.

Rennaker, Joanne (DEQ)

From: Cook, Pat (DEQ)
Sent: Monday, August 18, 2014 9:41 AM
To: Rosenthal, Adam (DEQ)
Cc: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: RE: Flint - 02310 Fecal Positive / Boil order

Adam – nicely done. One thing I forgot to mention to you last Friday was that we should have also contacted both the Dept of Ag and the local health dept about Flint's boil order. Hopefully someone remembered to do it.

pat

From: Rosenthal, Adam (DEQ)
Sent: Friday, August 15, 2014 5:48 PM
To: 'bwright@cityofflint.com'; Mike Glasgow; djohnson@cityofflint.com
Cc: Busch, Stephen (DEQ); Sygo, Jim (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Benzie, Richard (DEQ); Philip, Kris (DEQ); Prysby, Mike (DEQ); Joseph, Mark (DEQ); Skinker, Bethel (DEQ); Cook, Pat (DEQ)
Subject: Flint - 02310 Fecal Positive / Boil order

Summary:

8/12/14 – 3 routine samples test positive for total coliform (TC), Cedar Reservoir, Site 4 & Site 5.

Free Chlorine was 0 and Total Cl around 0.1 ppm.

8/13/14 – 9 repeat samples collected, 7 TC positive & 1 fecal positive downstream of Site 4

Site 4 is a Taco Bell, downstream site is a repair shop with a questionable tap.

8/14/14 – 2nd set of 9 repeat samples collected, 8 repeats Non Detect and Site 4 TC positive (downstream site with the fecal positive was cleaned and is now non detect.) Chlorine has been increased and detected at 0.2 – 0.5 ppm Free Cl.

With the confirmed fecal positive, the MCL has been elevated to require a Tier 1 Public Notice to be issued within 24 hrs of notification. The DEQ is issuing a Boil Water Order to the affected area (Public Notice attached). A 2nd Tier 2 MCL PN may be necessary once the August monitoring period is complete and the situation is resolved.

The City of Flint has been instructed to issue the Tier 1 PN according to their Emergency Response Plan, flush the system, and collect 2 sets of 5 samples 24 hrs apart in the affected area before lifting the boil order.

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

Rennaker, Joanne (DEQ)

From: Brent Wright <bwright@cityofflint.com>
Sent: Monday, August 18, 2014 8:58 AM
To: Prysby, Mike (DEQ)
Cc: Daugherty Johnson; Michael Glasgow
Subject: Fwd: Flint Boil water notice
Attachments: boil water localized detail.jpg; boil water noitce City scale.jpg; Boil Water Notice signed.PDF

Mike attached is the boil water notice and map of the effective area that was sent out the evening of Friday the 15th.

Thank you

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

From: **Brent Wright** <bwright@cityofflint.com>
Date: Sat, Aug 16, 2014 at 10:40 AM
Subject: Fwd: Flint Boil water notice
To: Michael Glasgow <mglasgow@cityofflint.com>

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

From: **Daugherty Johnson** <djohnson@cityofflint.com>
Date: Fri, Aug 15, 2014 at 10:24 PM
Subject: Fwd: Flint Boil water notice
To: Brent Wright <bwright@cityofflint.com>

Here's what I sent

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

From: **Daugherty Johnson** <djohnson@cityofflint.com>
Date: Fri, Aug 15, 2014 at 10:19 PM
Subject: Flint Boil water notice
To: abc12news@abc12.com, news@nbc25.net, wnem@wnem.com, flnews@mlive.com, GCHD-EHwater@gchd.us
Cc: Daugherty Johnson <djohnson@cityofflint.com>, Jason Lorenz <jlorenz@cityofflint.com>

I have attached a localized boil water notice for a portion of Flint. The maps and notice are attached. This is NOT a Citywide notice. It is anticipated this will be in effect until Monday due to testing duration. If your team has questions please call me at 577-8906.

Thank you
 Daugherty Johnson
 Utilities Administrator
 City of Flint

--

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

--

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

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Esni, HERE, DeLorme, USG

Flint Golf Course

LOCALIZED DRINKING WATER WARNING

**A localized area of the City of Flint water is contaminated with fecal coliform
BOIL YOUR WATER BEFORE USING**

Fecal coliform bacteria were found in the water supply on August 14, 2014. These bacteria can make you sick, and are a particular concern for people with weakened immune systems.

What should I do? What does this mean?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food. Boiling kills bacteria and other organisms in the water. Continue using boiled or bottled water until further notice. This boil notice is limited to the area bordered by Mann Hall Ave. (North), Mann Ave. (East), Whitney Ave. (South) and the City limits (West).

This boil water notice is only for the affected area. The Water Treatment Plant tests verify that the overall system is operating within DEQ drinking water standards.

Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers.

What happened? What is being done?

3 routine samples tested total coliform positive, repeat samples were also total coliform positive as well as 1 fecal coliform positive. We are increasing our chlorine levels and flushing the system. We will inform you when tests show no bacteria and you no longer need to boil your water. We anticipate resolving the problem within a few days.

For more information, please contact Mr. Brent Wright of the City of Flint at 810-787-6537, bwright@cityofflint.com, 4500 North Dort Highway, Flint MI 48505 or Daugherty Johnson Utilities Administrator (810) 766-7135 ext 2602. General guidelines on ways to lessen the risk of infection by microbes are available from the EPA Safe Drinking Water Hotline at 1(800) 426-4791.

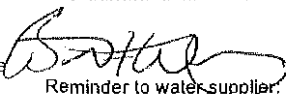
Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you as a precautionary measure 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 PLANT SUPERVISOR

Date Distributed 8/15/2014

Reminder to water supplier: This notice / certification must be sent to the DNRE.

Rennaker, Joanne (DEQ)

From: Benzie, Richard (DEQ)
Sent: Saturday, August 16, 2014 10:33 AM
To: Rosenthal, Adam (DEQ)
Cc: Busch, Stephen (DEQ); Shekter Smith, Liane (DEQ); Prysby, Mike (DEQ); Cook, Pat (DEQ)
Subject: RE: Flint - 02310 Fecal Positive / Boil order
Attachments: image001.gif

Sorry I missed your calls - I was doing yard work outside when you called and didn't get your messages until I went inside the house after 8 PM.

I don't have any concerns with the way you handled this situation. The only point of discussion I may have commented upon if I had been reached is the establishment of the "area affected." I recall having conversations with EPA on this matter some years ago, and we were not always agreeing with them because we planned to use judgment on a case by case basis in these situations. They were a bit more rigid. We can discuss more on Monday.

Richard

From: Rosenthal, Adam (DEQ)
Sent: Friday, August 15, 2014 5:48 PM
To: 'bwright@cityofflint.com'; Mike Glasgow; djohnson@cityofflint.com
Cc: Busch, Stephen (DEQ); Sygo, Jim (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Benzie, Richard (DEQ); Philip, Kris (DEQ); Prysby, Mike (DEQ); Joseph, Mark (DEQ); Skinker, Bethel (DEQ); Cook, Pat (DEQ)
Subject: Flint - 02310 Fecal Positive / Boil order

Summary:

8/12/14 – 3 routine samples test positive for total coliform (TC), Cedar Reservoir, Site 4 & Site 5.

Free Chlorine was 0 and Total Cl around 0.1 ppm.

8/13/14 – 9 repeat samples collected, 7 TC positive & 1 fecal positive downstream of Site 4

Site 4 is a Taco Bell, downstream site is a repair shop with a questionable tap.

8/14/14 – 2nd set of 9 repeat samples collected, 8 repeats Non Detect and Site 4 TC positive (downstream site with the fecal positive was cleaned and is now non detect.) Chlorine has been increased and detected at 0.2 – 0.5 ppm Free Cl.

With the confirmed fecal positive, the MCL has been elevated to require a Tier 1 Public Notice to be issued within 24 hrs of notification. The DEQ is issuing a Boil Water Order to the affected area (Public Notice attached). A 2nd Tier 2 MCL PN may be necessary once the August monitoring period is complete and the situation is resolved.

The City of Flint has been instructed to issue the Tier 1 PN according to their Emergency Response Plan, flush the system, and collect 2 sets of 5 samples 24 hrs apart in the affected area before lifting the boil order.

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

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Friday, August 15, 2014 5:48 PM
To: 'bwright@cityofflint.com'; Mike Glasgow; djohnson@cityofflint.com
Cc: Busch, Stephen (DEQ); Sygo, Jim (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ); Benzie, Richard (DEQ); Philip, Kris (DEQ); Prysby, Mike (DEQ); Joseph, Mark (DEQ); Skinker, Bethel (DEQ); Cook, Pat (DEQ)
Subject: Flint - 02310 Fecal Positive / Boil order
Attachments: PN Tier 1 - Fecal or E-coli Dist Sys.doc

Summary:

8/12/14 – 3 routine samples test positive for total coliform (TC), Cedar Reservoir, Site 4 & Site 5.

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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

DRINKING WATER WARNING

The City of Flint water is contaminated with fecal coliform BOIL YOUR WATER BEFORE USING

Fecal coliform bacteria were found in the water supply on August 14, 2014. These bacteria can make you sick, and are a particular concern for people with weakened immune systems.

What should I do? What does this mean?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food. Boiling kills bacteria and other organisms in the water. Continue using boiled or bottled water until further notice. This boil notice is limited to (affected area).

Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

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What happened? What is being done?

3 routine samples tested total coliform positive, repeat samples were also total coliform positive as well as 1 fecal coliform positive. We are increasing our chlorine levels and flushing the system. We will inform you when tests show no bacteria and you no longer need to boil your water. We anticipate resolving the problem within a few days.

For more information, please contact Mr. Brent Wright of the City of Flint at 810-787-6537, bwright@cityofflint.com, 4500 North Dort Highway, Flint MI 48505. General guidelines on ways to lessen the risk of infection by microbes are available from the EPA Safe Drinking Water Hotline at 1(800) 426-4791.

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 DNRE.

Rennaker, Joanne (DEQ)

From: Ryan Felton <rfelton@metrotimes.com>
Sent: Saturday, August 09, 2014 11:27 AM
To: Prysby, Mike (DEQ)
Subject: Re: Flint Water Discoloration

Thanks for the comment and explanation, Mike!

On Fri, Aug 8, 2014 at 4:44 PM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Ryan,

I was forwarded your inquiry concerning the potential cause(s) of the water discoloration in the College Cultural and downtown areas of Flint. Upon further discussion with water treatment plant staff, the discoloration appears to have been caused by un-authorized drafting of water from fire hydrants in these areas for street sweeping activities. This issue was discussed with the city and the department of public works and this method of obtaining water for street sweeping will be discontinued. Any future activities that involve drafting of water are to be coordinated with the Water Service Center and the drafting will occur at specified locations. Also, the presence of cast-iron watermain in or near these areas can also cause discoloration, especially under high flow conditions (main breaks, flushing, and un-authorized hydrant use) as this stirs up of accumulated sediment and rust (typically associated with old cast-iron mains). If you have any further questions, please don't hesitate to contact me at the number provided below.

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

--

Ryan Felton
Investigative Reporter, Metro Times
C: 734-353-2221
O: 313-961-4060 EXT. 8019
rfelton@metrotimes.com

Rennaker, Joanne (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Friday, August 08, 2014 7:09 PM
To: Prysby, Mike (DEQ)
Cc: Busch, Stephen (DEQ); Shekter Smith, Liane (DEQ)
Subject: Re: Flint Water Discoloration

Well done, Mike.

Sent from my iPhone

On Aug 8, 2014, at 4:44 PM, "Prysby, Mike (DEQ)" <PRYSBYM@michigan.gov> wrote:

Ryan,

I was forwarded your inquiry concerning the potential cause(s) of the water discoloration in the College Cultural and downtown areas of Flint. Upon further discussion with water treatment plant staff, the discoloration appears to have been caused by un-authorized drafting of water from fire hydrants in these areas for street sweeping activities. This issue was discussed with the city and the department of public works and this method of obtaining water for street sweeping will be discontinued. Any future activities that involve drafting of water are to coordinated with the Water Service Center and the drafting will occur at specified locations. Also, the presence of cast-iron watermain in or near these areas can also cause discoloration, especially under high flow conditions (main breaks, flushing, and un-authorized hydrant use) as this stirs up of accumulated sediment and rust (typically associated with old cast-iron mains). If you have any further questions, please don't hesitate to contact me at the number provided below.

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

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, August 08, 2014 4:45 PM
To: rfelton@metrotimes.com
Cc: Busch, Stephen (DEQ); Wurfel, Brad (DEQ); Shekter Smith, Liane (DEQ)
Subject: Flint Water Discoloration

Ryan,

I was forwarded your inquiry concerning the potential cause(s) of the water discoloration in the College Cultural and downtown areas of Flint. Upon further discussion with water treatment plant staff, the discoloration appears to have been caused by un-authorized drafting of water from fire hydrants in these areas for street sweeping activities. This issue was discussed with the city and the department of public works and this method of obtaining water for street sweeping will be discontinued. Any future activities that involve drafting of water are to coordinated with the Water Service Center and the drafting will occur at specified locations. Also, the presence of cast-iron watermain in or near these areas can also cause discoloration, especially under high flow conditions (main breaks, flushing, and un-authorized hydrant use) as this stirs up of accumulated sediment and rust (typically associated with old cast-iron mains). If you have any further questions, please don't hesitate to contact me at the number provided below.

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

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, August 08, 2014 1:15 PM
To: Michael Glasgow
Subject: RE: City of Flint July MOR

Thanks Mike,

Something odd...when I dropped off the cooler with the Unit 37 and the extra TTHM plant tap sample.....there was no TTHM sample in the cooler....I recall you collecting the sample.....

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

From: Michael Glasgow [<mailto:mglasgow@cityofflint.com>]
Sent: Friday, August 08, 2014 12:48 PM
To: Prysby, Mike (DEQ)
Subject: City of Flint July MOR

Mike,

Good afternoon. Here is a copy of the July MOR, I'll have Brent get a copy out in the mail today also. Have a good weekend.

Mike Glasgow

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Wednesday, August 06, 2014 7:51 AM
To: 'bwright@cityofflint.com'; Michael Glasgow
Subject: July MOR

Brent, Michael

Steve and I are still planning on meeting with you today to observe WTP operation and discuss optimization of distribution system operation to reduce disinfection by-products. We would like to review the July monthly operation report.....if the report is substantially complete please send us an electronic copy this morning....thanks!

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

Rennaker, Joanne (DEQ)

From: Rosenthal, Adam (DEQ)
Sent: Monday, June 30, 2014 11:33 AM
To: Busch, Stephen (DEQ)
Cc: Prysby, Mike (DEQ)
Subject: Flint

I did not receive a revised May '14 MOR from Flint, nor a list of lead/copper sites.

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

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Tuesday, June 24, 2014 9:02 AM
To: Johnson, Mark; Crooks, Jennifer
Cc: Poy, Thomas; Prysby, Mike (DEQ); Shoven, Heather; Murphy, Thomas
Subject: RE: Briefing -- Flint River for drinking water, Michigan

Finished water (plant tap) pH levels ranged from 7.1-7.7 for the entire month of May.

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

From: Johnson, Mark [mailto:johnson.mark@epa.gov]
Sent: Monday, June 23, 2014 6:24 PM
To: Crooks, Jennifer
Cc: Poy, Thomas; Prysby, Mike (DEQ); Busch, Stephen (DEQ); Shoven, Heather; Murphy, Thomas
Subject: FW: Briefing -- Flint River for drinking water, Michigan

Jennifer

Here is an initial response from Joe Carpenter, a water quality engineer at the CDC Waterborne Disease Prevention Program in Atlanta. His comments focus on the pH of the finished water as a possible contributor to the reports of skin rashes. In this files that were provided, there were pH measurements for the last week of April. Are there additional data available to determination if pH fluctuations in the distribution system may correspond to the complaints?

Just looking at it from a chemical perspective, I don't see anything in the analysis that would be of a health concern. We can have a follow-up discussion with CDC staff about other constituents if that would be helpful.

Mark

Mark D. Johnson, PhD, DABT
 Regional Director/ Senior Environmental Health Scientist
 Agency for Toxic Substances and Disease Registry (ATSDR)
 77 West Jackson Blvd.
 Chicago, IL 60604
 e-mail: mdjohnson@cdc.gov
 phone: 312-353-3436 (office)

From: Carpenter, Joe (CDC/OID/NCEZID) [mailto:jcc0@cdc.gov]
Sent: Saturday, June 21, 2014 4:46 PM
To: Beach, Michael J. (CDC/OID/NCEZID); Johnson, Mark
Cc: Yoder, Jonathan S. (CDC/OID/NCEZID); Robinson, Felecia (CDC/OID/NCEZID) (CTR); Gargano, Julia Marie W. (CDC/OID/NCEZID); Sarisky, John (CDC/ONDIEH/NCEH); Blake, Robert G. (CDC/ONDIEH/NCEH)
Subject: RE: Briefing -- Flint River for drinking water, Michigan

Here is a recent article (06/12/2014) about the changes in lime addition at the Flint water plant. It might be a bit challenging to make pH adjustments quickly in the finished water if they had to make this significant lime addition adjustment. High pH from lime softening plants has been associated with consumer issues in the past. See below for a background document about lime softening and a WHO document about the health effects of both high and low pH values. Skin rashes are known to be caused by extreme pH variations in drinking water.

Hope some of this info is helpful.

Joe Carpenter

http://www.mlive.com/news/flint/index.ssf/2014/06/treated_flint_river_water_meet.html

FLINT, MI -- Workers at the city's water treatment plant have bumped up their use of lime in an effort to cut down on both water hardness and rising customer complaints.

Daugherty Johnson, utilities administrator at Flint's water treatment plant, said today, June 12, that 75 percent of raw water is now being treated with lime compared to 25 percent treatment when the city made the **initial switch** from using Lake Huron to using the Flint River as a drinking water source on April 25.

Background info about lime softening:

http://www.nesc.wvu.edu/pdf/dw/publications/ontap/2009_tb/lime_softening_DWFSOM41.pdf

Health Effects of pH -- WHO

http://www.who.int/water_sanitation_health/dwq/chemicals/en/ph.pdf

EFFECTS ON HUMANS

Exposure to extreme pH values results in irritation to the eyes, **skin**, and mucous membranes. Eye irritation and exacerbation of skin disorders have been associated with pH values greater than 11. In addition, solutions of pH 10–12.5 have been reported to cause hair fibres to swell (10). In sensitive individuals, gastrointestinal irritation may also occur. Exposure to low pH values can also result in similar effects. Below pH 4, redness and irritation of the eyes have been reported, the severity of which increases with decreasing pH. Below pH 2.5, damage to the epithelium is irreversible and extensive (10). In addition, because pH can affect the degree of corrosion of metals as well as disinfection efficiency, it may have an indirect effect on health.

From: Beach, Michael J. (CDC/OID/NCEZID)

Sent: Saturday, June 21, 2014 12:53 PM

To: Johnson, Mark (EPA) (CDC epa.gov)

Cc: Carpenter, Joe (CDC/OID/NCEZID); Yoder, Jonathan S. (CDC/OID/NCEZID); Robinson, Felecia (CDC/OID/NCEZID) (CTR); Beach, Michael J. (CDC/OID/NCEZID); Gargano, Julia Marie W. (CDC/OID/NCEZID); Sarisky, John (CDC/ONDIEH/NCEH); Blake, Robert G. (CDC/ONDIEH/NCEH)
Subject: FW: Briefing -- Flint River for drinking water, Michigan

Mark,
 Am ccing our water engineer, Joe Carpenter, for his take on this. We have heard of the rashes related to switch to chloramine (not happening here) w, which has become very activist oriented but not sure from the data here what this might be. Also including the EH services Branch for input
 Michael

Michael J. Beach, Ph.D.
 Associate Director for Healthy Water
 National Center for Emerging and Zoonotic Infectious Diseases
 Centers for Disease Control and Prevention
 Mailstop C-09
 1600 Clifton Rd NE
 Atlanta, GA 30329-4018

Tel: 404-639-1591
 E-mail: mbeach@cdc.gov
 Visit CDC's Healthy Water website at www.cdc.gov/healthywater



Please only print this e-mail if necessary.

From: Johnson, Mark (EPA) (CDC epa.gov)
Sent: Friday, June 20, 2014 5:57 PM
To: Beach, Michael J. (CDC/OID/NCEZID); Roberts, Virginia (CDC/OID/NCEZID)
Subject: FW: Briefing -- Flint River for drinking water, Michigan

Michael and Virginia

We were contacted by USEPA this week regarding complaints from residents of Flint, Michigan associated with the quality of their drinking water. There have been recent taste and odor complaints, but also claims of people developing rashes. The complaints seem to correspond to the timeframe the City of Flint switching from purchasing water from the City of Detroit to utilizing their own treatment system that takes water from the Flint River, which began in late April, 2014.

Although this is a regulatory compliance issue, ATSDR was contacted to assist in addressing health concerns in the community. Although the analytical testing does not indicate the presence of chemicals that appear to be a health concern, the fact that their raw water is coming from a new source raises questions about other constituents that have not been evaluated. We will be contacting the Michigan Dept. of Community Health, but we also wanted to contact your program to see if you get involved with these situations and can offer some advice.

Let me know what you think.

Mark

Mark D. Johnson, PhD, DABT
 Regional Director/ Senior Environmental Health Scientist
 Agency for Toxic Substances and Disease Registry (ATSDR)
 77 West Jackson Blvd.
 Chicago, IL 60604

e-mail: mdjohnson@cdc.gov
 phone: 312-353-3436 (office)

From: Crooks, Jennifer
Sent: Friday, June 20, 2014 3:07 PM
To: Johnson, Mark
Cc: Poy, Thomas; Prysby, Mike (DEQ); Busch, Stephen (DEQ); Shoven, Heather; Murphy, Thomas
Subject: Briefing -- Flint River for drinking water, Michigan

Mark—as we discussed earlier this week, below is a briefing containing the information we discussed regarding the Flint, Michigan water supply. I am out of the office this coming week; if you have questions, please contact Tom Poy, Ground Water and Drinking Water Branch Chief.

Thank you for your time!

Jennifer

Drinking Water in Flint, Michigan

ISSUE: Flint began pumping/treating/distributing Flint River water as their drinking water source on April 25, 2014, and beginning in mid-May, there have been numerous complaints to the Region 5 Ground Water and Drinking Water Branch regarding the drinking water, including rotten egg smell, swamp water smell, people developing rashes. The Region immediately contacted and involved the Drinking Water program at the Michigan Dept of Environmental Quality (MDEQ).

BACKGROUND: Flint has been purchasing finished drinking water from Detroit for decades (source water is Lake Huron). It has been delivered by a large single pipeline from Detroit. In the late 1980's, the State drinking water staff requested that Flint renovate their old surface water treatment plant to meet the State's redundancy requirements, in case the single pipeline from Detroit was unable to transmit finished drinking water. Flint would treat Flint River water periodically throughout the year, to verify that the water treatment plant (WTP) was able to treat Flint River water that met Safe Drinking Water Act (SDWA) standards.

Over the past 15 years or so, Detroit has seen a decrease in its City population, and an increase in poverty/low income residents. Detroit currently has an Emergency Manager due to poor financial situation. (As an aside, last year the City of Highland Park told Detroit it was unable to pay its water/sewer bills, and currently has an Emergency Manager. Highland Park was unable to obtain funding to retrofit its surface water treatment plant, so Detroit is providing water/sewer currently to Highland Park for free.) In order to continue to provide adequately treated water that meets SDWA Health standards, the suburbs have been subsidizing the lower income residents for years. Consequently, communities like Flint have decided to find an alternate source of drinking water.

A regional water authority was formed in 2010, the Karegnondi Water Authority (KWA), which will serve water in mid-Michigan and the Thumb areas. Members of the KWA include Flint, Lapeer; and Genesee, Lapeer and Sanilac Counties. The KWA is currently constructing the Karegnondi pipeline to bring raw water from Lake Huron. It will be completed in about 2 years. Flint has an Emergency Manager now, and I think on paper, it looked like a savings to pump and treat Flint River water for the 2-year interim period prior to connecting to the Karegnondi pipeline, than to continue to pay Detroit prices for finished drinking water. MDEQ has worked long and hard with the City of Flint and water operators to get the WTP ready to treat Flint River water for the next few years. Complete operation/treatment began April 25, 2014.

In mid-May, Region 5 Ground Water and Drinking Water Branch began receiving calls from Flint citizens regarding the quality of the Flint drinking water. Complaints include rotten egg smell, swamp water smell, people developing rashes. I talked with Richard Benzie, the Community Drinking Water Unit Chief, at MDEQ about any possible chemical releases into the Flint River, and neither he nor Mike Prysby, the Lansing District engineer for Flint, have heard of anything such as this. The normal procedure of chemical releases is that Mike Prysby and Richard would be alerted/notified through the Pollution Emergency Alert System (PEAS), and that hasn't happened.

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crooks.jennifer@epa.gov

Rennaker, Joanne (DEQ)

From: Johnson, Mark <johnson.mark@epa.gov>
Sent: Monday, June 23, 2014 6:24 PM
To: Crooks, Jennifer
Cc: Poy, Thomas; Prysby, Mike (DEQ); Busch, Stephen (DEQ); Shoven, Heather; Murphy, Thomas
Subject: FW: Briefing -- Flint River for drinking water, Michigan

Jennifer

Here is an initial response from Joe Carpenter, a water quality engineer at the CDC Waterborne Disease Prevention Program in Atlanta. His comments focus on the pH of the finished water as a possible contributor to the reports of skin rashes. In this files that were provided, there were pH measurements for the last week of April. Are there additional data available to determination if pH fluctuations in the distribution system may correspond to the complaints?

Just looking at it from a chemical perspective, I don't see anything in the analysis that would be of a health concern. We can have a follow-up discussion with CDC staff about other constituents if that would be helpful.

Mark

Mark D. Johnson, PhD, DABT
 Regional Director/ Senior Environmental Health Scientist
 Agency for Toxic Substances and Disease Registry (ATSDR)
 77 West Jackson Blvd.
 Chicago, IL 60604
 e-mail: mdjohnson@cdc.gov
 phone: 312-353-3436 (office)

From: Carpenter, Joe (CDC/OID/NCEZID) [mailto:jcc0@cdc.gov]
Sent: Saturday, June 21, 2014 4:46 PM
To: Beach, Michael J. (CDC/OID/NCEZID); Johnson, Mark
Cc: Yoder, Jonathan S. (CDC/OID/NCEZID); Robinson, Felecia (CDC/OID/NCEZID) (CTR); Gargano, Julia Marie W. (CDC/OID/NCEZID); Sarisky, John (CDC/ONDIEH/NCEH); Blake, Robert G. (CDC/ONDIEH/NCEH)
Subject: RE: Briefing -- Flint River for drinking water, Michigan

Here is a recent article (06/12/2014) about the changes in lime addition at the Flint water plant. It might be a bit challenging to make pH adjustments quickly in the finished water if they had to make this significant lime addition adjustment. High pH from lime softening plants has been associated with consumer issues in the past. See below for a background document about lime softening and a WHO document about the health effects of both high and low pH values. Skin rashes are known to be caused by extreme pH variations in drinking water.

Hope some of this info is helpful.

Joe Carpenter

http://www.mlive.com/news/flint/index.ssf/2014/06/treated_flint_river_water_meet.html

FLINT, MI -- Workers at the city's water treatment plant have bumped up their use of lime in an effort to cut down on both water hardness and rising customer complaints.

Daugherty Johnson, utilities administrator at Flint's water treatment plant, said today, June 12, that 75 percent of raw water is now being treated with lime compared to 25 percent treatment when the city made the **initial switch** from using Lake Huron to using the Flint River as a drinking water source on April 25.

Background info about lime softening:

http://www.nesc.wvu.edu/pdf/dw/publications/ontap/2009_tb/lime_softening_DWFSOM41.pdf

Health Effects of pH -- WHO

http://www.who.int/water_sanitation_health/dwg/chemicals/en/ph.pdf

EFFECTS ON HUMANS

Exposure to extreme pH values results in irritation to the eyes, **skin**, and mucous membranes. Eye irritation and exacerbation of skin disorders have been associated with pH values greater than 11. In addition, solutions of pH 10–12.5 have been reported to cause hair fibres to swell (10). In sensitive individuals, gastrointestinal irritation may also occur. Exposure to low pH values can also result in similar effects. Below pH 4, redness and irritation of the eyes have been reported, the severity of which increases with decreasing pH. Below pH 2.5, damage to the epithelium is irreversible and extensive (10). In addition, because pH can affect the degree of corrosion of metals as well as disinfection efficiency, it may have an indirect effect on health.

From: Beach, Michael J. (CDC/OID/NCEZID)

Sent: Saturday, June 21, 2014 12:53 PM

To: Johnson, Mark (EPA) (CDC epa.gov)

Cc: Carpenter, Joe (CDC/OID/NCEZID); Yoder, Jonathan S. (CDC/OID/NCEZID); Robinson, Felecia (CDC/OID/NCEZID) (CTR); Beach, Michael J. (CDC/OID/NCEZID); Gargano, Julia Marie W. (CDC/OID/NCEZID); Sarisky, John (CDC/ONDIEH/NCEH); Blake, Robert G. (CDC/ONDIEH/NCEH)

Subject: FW: Briefing -- Flint River for drinking water, Michigan

Mark,

Am cc'ing our water engineer, Joe Carpenter, for his take on this. We have heard of the rashes related to switch to chloramine (not happening here) w, which has become very activist oriented but not sure from the data here what this might be. Also including the EH services Branch for input

Michael

Michael J. Beach, Ph.D.
 Associate Director for Healthy Water
 National Center for Emerging and Zoonotic Infectious Diseases
 Centers for Disease Control and Prevention
 Mailstop C-09
 1600 Clifton Rd NE
 Atlanta, GA 30329-4018

Tel: 404-639-1591

E-mail: mbeach@cdc.gov

Visit CDC's Healthy Water website at www.cdc.gov/healthywater



Please only print this e-mail if necessary.

From: Johnson, Mark (EPA) (CDC epa.gov)
Sent: Friday, June 20, 2014 5:57 PM
To: Beach, Michael J. (CDC/OID/NCEZID); Roberts, Virginia (CDC/OID/NCEZID)
Subject: FW: Briefing -- Flint River for drinking water, Michigan

Michael and Virginia

We were contacted by USEPA this week regarding complaints from residents of Flint, Michigan associated with the quality of their drinking water. There have been recent taste and odor complaints, but also claims of people developing rashes. The complaints seem to correspond to the timeframe the City of Flint switching from purchasing water from the City of Detroit to utilizing their own treatment system that takes water from the Flint River, which began in late April, 2014.

Although this is a regulatory compliance issue, ATSDR was contacted to assist in addressing health concerns in the community. Although the analytical testing does not indicate the presence of chemicals that appear to be a health concern, the fact that their raw water is coming from a new source raises questions about other constituents that have not been evaluated. We will be contacting the Michigan Dept. of Community Health, but we also wanted to contact your program to see if you get involved with these situations and can offer some advice.

Let me know what you think.

Mark

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From: Crooks, Jennifer
Sent: Friday, June 20, 2014 3:07 PM
To: Johnson, Mark
Cc: Poy, Thomas; Prysby, Mike (DEQ); Busch, Stephen (DEQ); Shoven, Heather; Murphy, Thomas
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Mark—as we discussed earlier this week, below is a briefing containing the information we discussed regarding the Flint, Michigan water supply. I am out of the office this coming week; if you have questions, please contact Tom Poy, Ground Water and Drinking Water Branch Chief.

Thank you for your time!

Jennifer

Drinking Water in Flint, Michigan

ISSUE: Flint began pumping/treating/distributing Flint River water as their drinking water source on April 25, 2014, and beginning in mid-May, there have been numerous complaints to the Region 5 Ground Water and Drinking Water Branch regarding the drinking water, including rotten egg smell, swamp water smell, people developing rashes. The Region immediately contacted and involved the Drinking Water program at the Michigan Dept of Environmental Quality (MDEQ).

BACKGROUND: Flint has been purchasing finished drinking water from Detroit for decades (source water is Lake Huron). It has been delivered by a large single pipeline from Detroit. In the late 1980's, the State drinking water staff requested that Flint renovate their old surface water treatment plant to meet the State's redundancy requirements, in case the single pipeline from Detroit was unable to transmit finished drinking water. Flint would treat Flint River water periodically throughout the year, to verify that the water treatment plant (WTP) was able to treat Flint River water that met Safe Drinking Water Act (SDWA) standards.

Over the past 15 years or so, Detroit has seen a decrease in its City population, and an increase in poverty/low income residents. Detroit currently has an Emergency Manager due to poor financial situation. (As an aside, last year the City of Highland Park told Detroit it was unable to pay its water/sewer bills, and currently has an Emergency Manager. Highland Park was unable to obtain funding to retrofit its surface water treatment plant, so Detroit is providing water/sewer currently to Highland Park for free.) In order to continue to provide adequately treated water that meets SDWA Health standards, the suburbs have been subsidizing the lower income residents for years. Consequently, communities like Flint have decided to find an alternate source of drinking water.

A regional water authority was formed in 2010, the Karegnondi Water Authority (KWA), which will serve water in mid-Michigan and the Thumb areas. Members of the KWA include Flint, Lapeer; and Genesee, Lapeer and Sanilac Counties. The KWA is currently constructing the Karegnondi pipeline to bring raw water from Lake Huron. It will be completed in about 2 years. Flint has an Emergency Manager now, and I think on paper, it looked like a savings to pump and treat Flint River water for the 2-year interim period prior to connecting to the Karegnondi pipeline, than to continue to pay Detroit prices for finished drinking water. MDEQ has worked long and hard with the City of Flint and water operators to get the WTP ready to treat Flint River water for the next few years. Complete operation/treatment began April 25, 2014.

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(312) 582-5853 (fax)

crooks.jennifer@epa.gov

Rennaker, Joanne (DEQ)

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Friday, June 20, 2014 4:07 PM
To: Johnson, Mark
Cc: Poy, Thomas; Prysby, Mike (DEQ); Busch, Stephen (DEQ); Shoven, Heather; Murphy, Thomas
Subject: Briefing -- Flint River for drinking water, Michigan
Attachments: Flint River Test Run Phase2 5 July 2013.pdf; GENESEE-2014-05-30.pdf; GENESEE-2014-05-27.pdf; Flint04-2014MOR.pdf

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**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
LE83917**

Official Laboratory Report

Report To: **MICHAEL GLASGOW**
4500 N DORT HWY
FLINT MI 48505

System Name/Owner: **CITY OF FLINT**
Collection Address: **4500 N DORT HWY, FLINT**
Collected By: **MICHAEL GLASGOW**
Township/Well#/Section: **//**
County: **Genesee**
Sample Point: **FILTER EFFLUENT**
Water System: **Other**

WSSN/Pool ID: **2310**
Source: **TYPE III**
Site Code: **FILTER EFF**
Collector: **Public Water Supply Operator**
Date Collected: **07/18/2013 07:30**
Date Received: **07/18/2013 12:23**
Purpose: **Routine Monitoring**

TESTING INFORMATION				REGULATORY INFORMATION		
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Antimony	Not detected	07/19/2013	0.006	0.006	EPA 200.8	7440-36-0
Arsenic	Not detected	07/19/2013	0.002	0.010	EPA 200.8	7440-38-2
Barium	0.04	07/19/2013	0.01	2	EPA 200.8	7440-39-3
Beryllium	Not detected	07/19/2013	0.0004	0.004	EPA 200.8	7440-41-7
Cadmium	Not detected	07/19/2013	0.0003	0.005	EPA 200.8	7440-43-9
Chloride	72	07/18/2013	4		SM 4500-Cl E	7647-14-5
Chromium	Not detected	07/19/2013	0.01	0.1	EPA 200.8	7440-47-3
Cyanide-Available	Not Detected	07/26/2013	0.02	0.2	OIA-1877	57-12-5
Fluoride	0.13	07/18/2013	0.1	4.0	SM 4500 FC	16984-48-8
Hardness as CaCO ₃	168	07/18/2013	20		SM 2340 C	HARD-00-C
Iron (automated)	Not detected	07/18/2013	0.1		SM 3500 FeB	7439-89-6
Lead	Not detected	07/19/2013	0.001	0.015	EPA 200.8	7439-92-1
Mercury	Not detected	07/19/2013	0.0001	0.002	EPA 200.8	7439-97-6
Nickel	Not detected	07/19/2013	0.01	0.1	EPA 200.8	7440-02-0
Nitrate as N	0.5	07/18/2013	0.4	10	10-107-04-2-B	14797-55-8
Nitrite as N	Not detected	07/18/2013	0.05	1	10-107-04-2-B	14797-65-0
Selenium	Not Detected	07/19/2013	0.001	0.05	EPA 200.8	7782-49-2
Sodium (automated)	13	07/18/2013	5		SM 3500 NaB	7440-23-5
Sulfate	12	07/18/2013	10		SM 4500 SO ₄ E	14808-79-8
Thallium	Not detected	07/19/2013	0.0002	0.002	EPA 200.8	7440-28-0

Carbamates by HPLC

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

LE83917

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #

Carbamates by HPLC

3 Hydroxycarbofuran	Not Detected	07/23/2013	0.001		EPA 531.2	16656-82-6
Aldicarb	Not Detected	07/23/2013	0.0005		EPA 531.2	116-06-3
Aldicarb sulfone	Not Detected	07/23/2013	0.0005		EPA 531.2	1646-88-4
Aldicarb sulfoxide	Not Detected	07/23/2013	0.0005		EPA 531.2	1646-87-3
Carbaryl	Not Detected	07/23/2013	0.001		EPA 531.2	63-25-2
Carbofuran	Not Detected	07/23/2013	0.0005	0.04	EPA 531.2	1569-66-2
Methiocarb	Not Detected	07/23/2013	0.001		EPA 531.2	2032-65-7
Methomyl	Not Detected	07/23/2013	0.001		EPA 531.2	16752-77-5
Oxamyl	Not Detected	07/23/2013	0.001	0.2	EPA 531.2	23135-22-0
Propoxur	Not Detected	07/23/2013	0.001		EPA 531.2	114-26-1

Chlorinated Acid Herbicides

2,4,5-T	Not Detected	07/24/2013	0.002		EPA 515.4	93-76-5
2,4,5-TP (silvex)	Not Detected	07/24/2013	0.0003	0.05	EPA 515.4	93-72-1
2,4-D	Not Detected	07/24/2013	0.002	0.07	EPA 515.4	94-75-7
Acifluorfen	Not Detected	07/24/2013	0.004		EPA 616.4	60594-86-6
Antazon	Not Detected	07/24/2013	0.002		EPA 515.4	25057-89-0
Alcamba	Not Detected	07/24/2013	0.002		EPA 515.4	1918-00-9
Dinoseb	Not Detected	07/24/2013	0.0003	0.007	EPA 515.4	88-85-7
Pentachlorophenol	Not Detected	07/24/2013	0.00006	0.001	EPA 515.4	87-86-5
Picloram	Not Detected	07/24/2013	0.001	0.5	EPA 515.4	1918-02-1
Total DCPA degradates, mono- and di-acid	Not Detected	07/24/2013	0.001		EPA 515.4	1861-32-1

Pesticides Analysis by GC/MS

4,4'-DDD	Not Detected	07/23/2013	0.001		EPA 525.2	72-54-8
4,4'-DDE	Not Detected	07/23/2013	0.001		EPA 525.2	72-55-9
4,4'-DDT	Not Detected	07/23/2013	0.0005		EPA 525.2	50-29-3
Acetochlor	Not Detected	07/23/2013	0.001		EPA 525.2	34256-82-1
Alachlor	Not Detected	07/23/2013	0.0002	0.002	EPA 525.2	15972-60-8
Aldrin	Not Detected	07/23/2013	0.0004		EPA 525.2	309-00-2
alpha-Chlordane	Not Detected	07/23/2013	0.0002	0.002	EPA 525.2	5103-71-9
Atrazine	0.0005	07/23/2013	0.0002	0.003	EPA 525.2	1912-24-9
Dieldrin	Not Detected	07/23/2013	0.0005		EPA 525.2	60-57-1
Endrin	Not Detected	07/23/2013	0.0001	0.002	EPA 525.2	72-20-8
Endrin aldehyde	Not Detected	07/23/2013	0.001		EPA 525.2	7421-93-4
gamma-Chlordane	Not Detected	07/23/2013	0.0002	0.002	EPA 525.2	5103-74-2
Heptachlor	Not Detected	07/23/2013	0.0002	0.0004	EPA 525.2	76-44-8
Heptachlor epoxide	Not Detected	07/23/2013	0.0001	0.0002	EPA 525.2	1024-57-3
Hexachlorobenzene	Not Detected	07/23/2013	0.0001	0.001	EPA 525.2	118-74-1

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TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #

Pesticides Analysis by GC/MS

Hexachlorocyclohexane (alpha-BHC)	Not Detected	07/23/2013	0.001		EPA 525.2	319-84-6
Hexachlorocyclohexane (beta-BHC)	Not Detected	07/23/2013	0.001		EPA 525.2	319-85-7
Hexachlorocyclohexane (delta-BHC)	Not Detected	07/23/2013	0.001		EPA 525.2	319-86-8
Hexachlorocyclopentadiene	Not Detected	07/23/2013	0.0005	0.05	EPA 525.2	77-47-4
Lindane (gamma-BHC)	Not Detected	07/23/2013	0.0001	0.0002	EPA 525.2	58-89-9
Methoxychlor	Not Detected	07/23/2013	0.0001	0.04	EPA 525.2	72-43-5
Metolachlor	Not Detected	07/23/2013	0.001		EPA 525.2	51218-45-2
Metribuzin	Not Detected	07/23/2013	0.001		EPA 525.2	21087-64-9
Mollinate	Not Detected	07/23/2013	0.0005		EPA 525.2	2212-67-1
PCB (aroclor 1016)	Not Detected	07/23/2013	0.0001	0.0005	EPA 525.2	12674-11-2
PCB (aroclor 1221)	Not Detected	07/23/2013	0.0001	0.0005	EPA 525.2	11104-28-2
PCB (aroclor 1232)	Not Detected	07/23/2013	0.0001	0.0005	EPA 525.2	11141-16-5
PCB (aroclor 1242)	Not Detected	07/23/2013	0.0001	0.0005	EPA 525.2	53469-21-9
PCB (aroclor 1246)	Not Detected	07/23/2013	0.0001	0.0005	EPA 525.2	12672-29-6
PCB (aroclor 1254)	Not Detected	07/23/2013	0.0001	0.0005	EPA 525.2	11097-69-1
PCB (aroclor 1260)	Not Detected	07/23/2013	0.0001	0.0005	EPA 525.2	11096-82-5
Polychlorinated biphenyls	Not Detected	07/23/2013	0.0001		EPA 525.2	59536-65-1
Simazine	Not Detected	07/23/2013	0.0002	0.004	EPA 525.2	122-34-9
Toxaphene	Not Detected	07/23/2013	0.001	0.003	EPA 525.2	8001-35-2

Volatile Organic Compounds

1,1 Dichloroethane	Not Detected	07/25/2013	0.0005		EPA 524.2	75-34-3
1,1 Dichloroethylene	Not Detected	07/25/2013	0.0005	0.007	EPA 524.2	75-35-4
1,1 Dichloropropene	Not Detected	07/25/2013	0.0005		EPA 524.2	663-58-6
1,1,1 Trichloroethane	Not Detected	07/25/2013	0.0005	0.2	EPA 524.2	71-55-6
1,1,1,2 Tetrachloroethane	Not Detected	07/25/2013	0.0005		EPA 524.2	630-20-6
1,1,2 Trichloroethane	Not Detected	07/25/2013	0.0005	0.005	EPA 524.2	79-00-5
1,1,2,2 Tetrachloroethane	Not Detected	07/25/2013	0.0005		EPA 524.2	79-34-5
1,2 Dichlorobenzene	Not Detected	07/25/2013	0.0005	0.6	EPA 524.2	95-50-1
1,2 Dichloroethane	Not Detected	07/25/2013	0.0005	0.005	EPA 524.2	107-06-2
1,2 Dichloropropane	Not Detected	07/25/2013	0.0005	0.005	EPA 524.2	78-87-5
1,2,3 Trichlorobenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	87-61-6
1,2,3 Trichloropropane	Not Detected	07/25/2013	0.0005		EPA 524.2	96-18-4
1,2,4 Trichlorobenzene	Not Detected	07/25/2013	0.0005	0.07	EPA 524.2	120-82-1
1,2,4 Trimethylbenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	95-63-6
1,3 Dichlorobenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	541-73-1
1,3 Dichloropropane	Not Detected	07/25/2013	0.0005		EPA 524.2	142-28-9
1,3,5 Trimethylbenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	108-67-8
1,4 Dichlorobenzene	Not Detected	07/25/2013	0.0005	0.075	EPA 524.2	106-46-7

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TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Volatile Organic Compounds						
2,2 Dichloropropane	Not Detected	07/25/2013	0.0005		EPA 524.2	594-20-7
Benzene	Not Detected	07/25/2013	0.0005	0.005	EPA 524.2	71-43-2
Bromobenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	108-86-1
Bromochloromethane	Not Detected	07/25/2013	0.0005		EPA 524.2	74-97-5
Bromodichloromethane	0.029	07/25/2013	0.0005	0.080	EPA 524.2	75-27-4
Bromoform	0.0008	07/25/2013	0.0005	0.080	EPA 524.2	75-25-2
Bromomethane	Not Detected	07/25/2013	0.001		EPA 524.2	74-83-9
Carbon tetrachloride	Not Detected	07/25/2013	0.0005	0.005	EPA 524.2	56-23-5
Chlorobenzene	Not Detected	07/25/2013	0.0005	0.1	EPA 524.2	108-90-7
Chlorodibromomethane	0.014	07/25/2013	0.0005	0.080	EPA 524.2	124-48-1
Chloroethane	Not Detected	07/25/2013	0.0005		EPA 524.2	75-00-3
Chloroform	0.030	07/25/2013	0.0005	0.080	EPA 524.2	67-66-3
Chloromethane	Not Detected	07/25/2013	0.0005		EPA 524.2	74-87-3
cis-1,2 Dichloroethylene	Not Detected	07/25/2013	0.0005	0.07	EPA 524.2	156-59-2
cis-1,3 Dichloropropene	Not Detected	07/25/2013	0.0005		EPA 524.2	10061-01-5
Dibromomethane	Not Detected	07/25/2013	0.0005		EPA 524.2	74-95-3
Dichlorodifluoromethane	Not Detected	07/25/2013	0.001		EPA 524.2	75-71-8
Dichloromethane	Not Detected	07/25/2013	0.0006	0.005	EPA 524.2	75-08-2
Ethylbenzene	Not Detected	07/25/2013	0.0005	0.7	EPA 524.2	100-41-4
Fluorotrichloromethane	Not Detected	07/25/2013	0.001		EPA 524.2	75-69-4
Hexachlorobutadiene	Not Detected	07/25/2013	0.0005		EPA 524.2	87-68-3
Isopropylbenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	98-82-8
m & p-Xylene	Not Detected	07/25/2013	0.0005	10	EPA 524.2	XYLMP-00-C
Methyl ethyl ketone	Not Detected	07/25/2013	0.005		EPA 524.2	78-93-3
Methyl isobutyl ketone	Not Detected	07/25/2013	0.005		EPA 524.2	108-10-1
Methyl-tert-butyl ether (MTBE)	Not Detected	07/25/2013	0.001		EPA 524.2	1634-04-4
Naphthalene	Not Detected	07/25/2013	0.0005		EPA 524.2	91-20-3
n-Butylbenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	104-51-8
Nitrobenzene	Not Detected	07/25/2013	0.01		EPA 524.2	98-95-3
n-Propylbenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	103-65-1
o-Chlorotoluene	Not Detected	07/25/2013	0.0005		EPA 524.2	95-49-8
o-Xylene	Not Detected	07/25/2013	0.0005	10	EPA 524.2	95-47-6
p-Chlorotoluene	Not Detected	07/25/2013	0.0005		EPA 524.2	106-43-4
p-Isopropyltoluene	Not Detected	07/25/2013	0.0005		EPA 524.2	99-87-6
sec-Butylbenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	135-98-8
Styrene	Not Detected	07/25/2013	0.0005	0.1	EPA 524.2	100-42-5
tert-Butylbenzene	Not Detected	07/25/2013	0.0005		EPA 524.2	98-06-6
Tetrachloroethylene	Not Detected	07/25/2013	0.0005	0.005	EPA 524.2	127-18-4

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Laboratory Contacts
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**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY**

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Sample Number

LE83917



TESTING INFORMATION				REGULATORY INFORMATION		
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Volatile Organic Compounds						
Tetrahydrofuran	Not Detected	07/25/2013	0.005		EPA 524.2	109-99-9
Toluene	Not Detected	07/25/2013	0.0005	1	EPA 524.2	108-88-3
Total Trihalomethanes	0.074	07/25/2013	NA	0.080	EPA 524.2	TTHM-00-C
Total Xylenes	Not Detected	07/25/2013	NA	10	EPA 524.2	1330-20-7
trans-1,2 Dichloroethylene	Not Detected	07/25/2013	0.0005	0.1	EPA 524.2	156-60-5
trans-1,3 Dichloropropene	Not Detected	07/25/2013	0.0005		EPA 524.2	10061-02-6
Trichloroethylene	Not Detected	07/25/2013	0.0005	0.005	EPA 524.2	79-01-6
Vinyl chloride	Not Detected	07/25/2013	0.0004	0.002	EPA 524.2	75-01-4

A trip blank was not available for analysis with this sample. This sample contained acetone at an approximate concentration of 20 ppb.

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:

CAS# : Chemical Abstract Service Registry Number
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**Sample Number
LF19430**

Official Laboratory Report

Report To: **MICHAEL GLASGOW**
4500 N DORT HWY
FLINT MI 48505

System Name/Owner: **CITY OF FLINT -WATER PLANT**
Collection Address: **4500 N DORT HWY,FLINT**
Collected By: **MICHAEL GLASGOW**
Township/Well#/Section: **//**
County: **Genesee**
Sample Point: **PLANT LAB TAP**
Water System: **Treated Public Distribution System**

WSSN/Pool ID: **2310**
Source: **TYPE I**
Site Code: **LAB TAP**
Collector: **Public Water Supply Operator**
Date Collected: **05/22/2014 08:30**
Date Received: **05/22/2014 13:19**
Purpose: **Routine Monitoring**

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Antimony	Not detected	05/23/2014	0.0006	0.006	EPA 200.8	7440-36-0
Arsenic	Not detected	05/23/2014	0.002	0.010	EPA 200.8	7440-38-2
Barium	0.03	05/23/2014	0.01	2	EPA 200.8	7440-39-3
Beryllium	Not detected	05/23/2014	0.0004	0.004	EPA 200.8	7440-41-7
Cadmium	Not detected	05/23/2014	0.0003	0.005	EPA 200.8	7440-43-9
Chloride	79	05/22/2014	4		SM 4500-Cl E	7647-14-5
Chromium	Not detected	05/23/2014	0.01	0.1	EPA 200.8	7440-47-3
Cyanide-Available	Not Detected	05/27/2014	0.02	0.2	OIA-1677	57-12-5
Fluoride	0.16	05/22/2014	0.1	4.0	SM 4500 FC	16984-48-8
Hardness as CaCO3	209	05/22/2014	20		SM 2340 C	HARD-00-C
Iron (automated)	Not detected	05/22/2014	0.1		SM 3500 FeB	7439-89-6
Lead	Not detected	05/23/2014	0.001	0.015	EPA 200.8	7439-92-1
Mercury	Not detected	05/23/2014	0.0001	0.002	EPA 200.8	7439-97-6
Nickel	Not detected	05/23/2014	0.01	0.1	EPA 200.8	7440-02-0
Nitrate as N	0.4	05/22/2014	0.4	10	10-107-04-2-B	14797-55-8
Nitrite as N	Not detected	05/22/2014	0.05	1	10-107-04-2-B	14797-65-0
Selenium	Not Detected	05/23/2014	0.001	0.05	EPA 200.8	7782-49-2
Sodium (automated)	15	05/22/2014	5		SM 3500 NaB	7440-23-5
Sulfate	25	05/22/2014	10		SM 4500 SO4E	14808-79-8
Thallium	Not detected	05/23/2014	0.0002	0.002	EPA 200.8	7440-28-0

Carbamates by HPLC

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Sample Number**LF19430**

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Carbamates by HPLC						
3 Hydroxycarbofuran	Not Detected	05/27/2014	0.001		EPA 531.2	16655-82-6
Aldicarb	Not Detected	05/27/2014	0.0005		EPA 531.2	116-06-3
Aldicarb sulfone	Not Detected	05/27/2014	0.0005		EPA 531.2	1646-88-4
Aldicarb sulfoxide	Not Detected	05/27/2014	0.0005		EPA 531.2	1646-87-3
Carbaryl	Not Detected	05/27/2014	0.001		EPA 531.2	63-25-2
Carbofuran	Not Detected	05/27/2014	0.0005	0.04	EPA 531.2	1563-66-2
Methiocarb	Not Detected	05/27/2014	0.001		EPA 531.2	2032-65-7
Methomyl	Not Detected	05/27/2014	0.001		EPA 531.2	16752-77-5
Oxamyl	Not Detected	05/27/2014	0.001	0.2	EPA 531.2	23135-22-0
Propoxur	Not Detected	05/27/2014	0.001		EPA 531.2	114-26-1
Chlorinated Acid Herbicides						
2,4,5-T	Not Detected	05/23/2014	0.002		EPA 515.4	93-76-5
2,4,5-TP (silvex)	Not Detected	05/23/2014	0.0003	0.05	EPA 515.4	93-72-1
2,4-D	Not Detected	05/23/2014	0.002	0.07	EPA 515.4	94-75-7
Acifluorfen	Not Detected	05/23/2014	0.004		EPA 515.4	50594-66-6
Bentazon	Not Detected	05/23/2014	0.002		EPA 515.4	25057-89-0
Dicamba	Not Detected	05/23/2014	0.002		EPA 515.4	1918-00-9
Dinoseb	Not Detected	05/23/2014	0.0003	0.007	EPA 515.4	88-85-7
Pentachlorophenol	Not Detected	05/23/2014	0.00006	0.001	EPA 515.4	87-86-5
Picloram	Not Detected	05/23/2014	0.001	0.5	EPA 515.4	1918-02-1
Total DCPA degradates, mono- and di-acid	Not Detected	05/23/2014	0.001		EPA 515.4	1861-32-1
Pesticides Analysis by GC/MS						
4,4'-DDD	Not Detected	05/23/2014	0.001		EPA 525.2	72-54-8
4,4'-DDE	Not Detected	05/23/2014	0.001		EPA 525.2	72-55-9
4,4'-DDT	Not Detected	05/23/2014	0.0005		EPA 525.2	50-29-3
Acetochlor	Not Detected	05/23/2014	0.001		EPA 525.2	34256-82-1
Alachlor	Not Detected	05/23/2014	0.0002	0.002	EPA 525.2	15972-60-8
Aldrin	Not Detected	05/23/2014	0.0004		EPA 525.2	309-00-2
alpha-Chlordane	Not Detected	05/23/2014	0.0002	0.002	EPA 525.2	5103-71-9
Atrazine	Not Detected	05/23/2014	0.0002	0.003	EPA 525.2	1912-24-9
Dieldrin	Not Detected	05/23/2014	0.0005		EPA 525.2	60-57-1
Endrin	Not Detected	05/23/2014	0.0001	0.002	EPA 525.2	72-20-8
Endrin aldehyde	Not Detected	05/23/2014	0.001		EPA 525.2	7421-93-4
gamma-Chlordane	Not Detected	05/23/2014	0.0002	0.002	EPA 525.2	5103-74-2
Heptachlor	Not Detected	05/23/2014	0.0002	0.0004	EPA 525.2	76-44-8
Heptachlor epoxide	Not Detected	05/23/2014	0.0001	0.0002	EPA 525.2	1024-57-3
Hexachlorobenzene	Not Detected	05/23/2014	0.0001	0.001	EPA 525.2	118-74-1

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

LF19430

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Pesticides Analysis by GC/MS						
Hexachlorocyclohexane (alpha-BHC)	Not Detected	05/23/2014	0.001		EPA 525.2	319-84-6
Hexachlorocyclohexane (beta-BHC)	Not Detected	05/23/2014	0.001		EPA 525.2	319-85-7
Hexachlorocyclohexane (delta-BHC)	Not Detected	05/23/2014	0.001		EPA 525.2	319-86-8
Hexachlorocyclopentadiene	Not Detected	05/23/2014	0.0005	0.05	EPA 525.2	77-47-4
Lindane (gamma-BHC)	Not Detected	05/23/2014	0.0001	0.0002	EPA 525.2	58-89-9
Methoxychlor	Not Detected	05/23/2014	0.0001	0.04	EPA 525.2	72-43-5
Metolachlor	Not Detected	05/23/2014	0.001		EPA 525.2	51218-45-2
Metribuzin	Not Detected	05/23/2014	0.001		EPA 525.2	21087-64-9
Molinate	Not Detected	05/23/2014	0.0005		EPA 525.2	2212-67-1
PCB (aroclor 1016)	Not Detected	05/23/2014	0.0001	0.0005	EPA 525.2	12674-11-2
PCB (aroclor 1221)	Not Detected	05/23/2014	0.0001	0.0005	EPA 525.2	11104-28-2
PCB (aroclor 1232)	Not Detected	05/23/2014	0.0001	0.0005	EPA 525.2	11141-16-5
PCB (aroclor 1242)	Not Detected	05/23/2014	0.0001	0.0005	EPA 525.2	53469-21-9
PCB (aroclor 1248)	Not Detected	05/23/2014	0.0001	0.0005	EPA 525.2	12672-29-6
PCB (aroclor 1254)	Not Detected	05/23/2014	0.0001	0.0005	EPA 525.2	11097-69-1
PCB (aroclor 1260)	Not Detected	05/23/2014	0.0001	0.0005	EPA 525.2	11096-82-5
Polybrominated biphenyls	Not Detected	05/23/2014	0.0001		EPA 525.2	59536-65-1
Simazine	Not Detected	05/23/2014	0.0002	0.004	EPA 525.2	122-34-9
Toxaphene	Not Detected	05/23/2014	0.001	0.003	EPA 525.2	8001-35-2
Volatile Organic Compounds						
1,1 Dichloroethane	Not Detected	05/27/2014	0.0005		EPA 524.2	75-34-3
1,1 Dichloroethylene	Not Detected	05/27/2014	0.0005	0.007	EPA 524.2	75-35-4
1,1 Dichloropropene	Not Detected	05/27/2014	0.0005		EPA 524.2	563-58-6
1,1,1 Trichloroethane	Not Detected	05/27/2014	0.0005	0.2	EPA 524.2	71-55-6
1,1,1,2 Tetrachloroethane	Not Detected	05/27/2014	0.0005		EPA 524.2	630-20-6
1,1,2 Trichloroethane	Not Detected	05/27/2014	0.0005	0.005	EPA 524.2	79-00-5
1,1,2,2 Tetrachloroethane	Not Detected	05/27/2014	0.0005		EPA 524.2	79-34-5
1,2 Dichlorobenzene	Not Detected	05/27/2014	0.0005	0.6	EPA 524.2	95-50-1
1,2 Dichloroethane	Not Detected	05/27/2014	0.0005	0.005	EPA 524.2	107-06-2
1,2 Dichloropropane	Not Detected	05/27/2014	0.0005	0.005	EPA 524.2	78-87-5
1,2,3 Trichlorobenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	87-61-6
1,2,3 Trichloropropane	Not Detected	05/27/2014	0.0005		EPA 524.2	96-18-4
1,2,4 Trichlorobenzene	Not Detected	05/27/2014	0.0005	0.07	EPA 524.2	120-82-1
1,2,4 Trimethylbenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	95-63-6
1,3 Dichlorobenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	541-73-1
1,3 Dichloropropane	Not Detected	05/27/2014	0.0005		EPA 524.2	142-28-9
1,3,5 Trimethylbenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	108-67-8
1,4 Dichlorobenzene	Not Detected	05/27/2014	0.0005	0.075	EPA 524.2	106-46-7

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CFU : Colony Forming Unit

Laboratory Contacts

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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
LF19430



TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Volatile Organic Compounds						
2,2 Dichloropropane	Not Detected	05/27/2014	0.0005		EPA 524.2	594-20-7
Benzene	Not Detected	05/27/2014	0.0005	0.005	EPA 524.2	71-43-2
Bromobenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	108-86-1
Bromochloromethane	Not Detected	05/27/2014	0.0005		EPA 524.2	74-97-5
Bromodichloromethane	0.020	05/27/2014	0.0005	0.080	EPA 524.2	75-27-4
Bromoform	0.0010	05/27/2014	0.0005	0.080	EPA 524.2	75-25-2
Bromomethane	Not Detected	05/27/2014	0.001		EPA 524.2	74-83-9
Carbon tetrachloride	Not Detected	05/27/2014	0.0005	0.005	EPA 524.2	56-23-5
Chlorobenzene	Not Detected	05/27/2014	0.0005	0.1	EPA 524.2	108-90-7
Chlorodibromomethane	0.013	05/27/2014	0.0005	0.080	EPA 524.2	124-48-1
Chloroethane	Not Detected	05/27/2014	0.0005		EPA 524.2	75-00-3
Chloroform	0.022	05/27/2014	0.0005	0.080	EPA 524.2	67-66-3
Chloromethane	Not Detected	05/27/2014	0.0005		EPA 524.2	74-87-3
cis-1,2 Dichloroethylene	Not Detected	05/27/2014	0.0005	0.07	EPA 524.2	156-59-2
cis-1,3 Dichloropropene	Not Detected	05/27/2014	0.0005		EPA 524.2	10061-01-5
Dibromomethane	Not Detected	05/27/2014	0.0005		EPA 524.2	74-95-3
Dichlorodifluoromethane	Not Detected	05/27/2014	0.001		EPA 524.2	75-71-8
Dichloromethane	Not Detected	05/27/2014	0.0006	0.005	EPA 524.2	75-09-2
Ethylbenzene	Not Detected	05/27/2014	0.0005	0.7	EPA 524.2	100-41-4
Fluorotrichloromethane	Not Detected	05/27/2014	0.001		EPA 524.2	75-69-4
Hexachlorobutadiene	Not Detected	05/27/2014	0.0005		EPA 524.2	87-68-3
Isopropylbenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	98-82-8
m & p-Xylene	Not Detected	05/27/2014	0.0005	10	EPA 524.2	XYLMP-00-C
Methyl ethyl ketone	Not Detected	05/27/2014	0.005		EPA 524.2	78-93-3
Methyl isobutyl ketone	Not Detected	05/27/2014	0.005		EPA 524.2	108-10-1
Methyl-tert-butyl ether (MTBE)	Not Detected	05/27/2014	0.001		EPA 524.2	1634-04-4
Naphthalene	Not Detected	05/27/2014	0.0005		EPA 524.2	91-20-3
n-Butylbenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	104-51-8
Nitrobenzene	Not Detected	05/27/2014	0.01		EPA 524.2	98-95-3
n-Propylbenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	103-65-1
o-Chlorotoluene	Not Detected	05/27/2014	0.0005		EPA 524.2	95-49-8
o-Xylene	Not Detected	05/27/2014	0.0005	10	EPA 524.2	95-47-6
p-Chlorotoluene	Not Detected	05/27/2014	0.0005		EPA 524.2	106-43-4
p-Isopropyltoluene	Not Detected	05/27/2014	0.0005		EPA 524.2	99-87-6
sec-Butylbenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	135-98-8
Styrene	Not Detected	05/27/2014	0.0005	0.1	EPA 524.2	100-42-5
tert-Butylbenzene	Not Detected	05/27/2014	0.0005		EPA 524.2	98-06-6
Tetrachloroethylene	Not Detected	05/27/2014	0.0005	0.005	EPA 524.2	127-18-4
Tetrahydrofuran	Not Detected	05/27/2014	0.005		EPA 524.2	109-99-9

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ppm : parts per million
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CFU : Colony Forming Unit

Laboratory Contacts
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DRINKING WATER LABORATORY**

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P.O. Box 30270

Lansing, MI 48909

TEL: (517) 335-8184

FAX: (517) 335-8562

Sample Number

LF19430

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Volatile Organic Compounds						
Toluene	Not Detected	05/27/2014	0.0005	1	EPA 524.2	108-88-3
Total Trihalomethanes	0.056	05/27/2014	NA	0.080	EPA 524.2	TTHM-00-C
Total Xylenes	Not Detected	05/27/2014	NA	10	EPA 524.2	1330-20-7
trans-1,2 Dichloroethylene	Not Detected	05/27/2014	0.0005	0.1	EPA 524.2	156-60-5
trans-1,3 Dichloropropene	Not Detected	05/27/2014	0.0005		EPA 524.2	10061-02-6
Trichloroethylene	Not Detected	05/27/2014	0.0005	0.005	EPA 524.2	79-01-6
Vinyl chloride	Not Detected	05/27/2014	0.0004	0.002	EPA 524.2	75-01-4

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

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Lansing, MI 48909
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FAX: (517) 335-8562



**Sample Number
LF19431**

Official Laboratory Report

Report To: MICHAEL GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT - WATER PLANT	WSSN/Pool ID:	2310
Collection Address:	4500 N DORT HWY, FLINT	Source:	TYPE I
Collected By:	MICHAEL GLASGOW	Site Code:	PS4
Township/Well#/Section:	//	Collector:	Public Water Supply Operator
County:	Genesee	Date Collected:	05/22/2014 08:30
Sample Point:	SINK	Date Received:	05/22/2014 13:20
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 #
Total Organic Carbon	4.57	05/22/2014	0.5		SM 5310C	TOC-00-C

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**Genesee County Health Dept.
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

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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
LF19432**

Official Laboratory Report

Report To: MICHAEL GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner:	CITY OF FLINT/ WATER PLANT	WSSN/Pool ID:	2310
Collection Address:	4500 N DORT HWY, FLINT	Source:	TYPE I
Collected By:	MICHAEL GLASGOW	Site Code:	RAW
Township/Well#/Section:	//	Collector:	Public Water Supply Operator
County:	Genesee	Date Collected:	05/22/2014 08:30
Sample Point:	SINK	Date Received:	05/22/2014 13:20
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 #
Total Organic Carbon	10.3	05/22/2014	0.5		SM 5310C	TOC-00-C

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
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mg/L : milligrams / Liter (ppm)
ppm : parts per million
MPN : Most Probable Number
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Laboratory Contacts
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Systems Mgmt. Unit Mgr: George Krisztian

[illegible]

**Fluoridation &
Chlorination**

 City of Flint Water Treatment Plant
WSSN: 2310

April 2014

Page 3

Date	Fluoride Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25	0	0.14	0.59		3.5	0	3.5	1.8	2.1			0.8	1.0
26	0	0.14	0.53		3.5	0	3.5	1.7	1.9			0.9	1.1
27	0	0.13	0.53		3.6	0	3.6	1.7	1.9	1.5	1.8	1.0	1.1
28	0	0.13	0.19		3.7	0	3.7	1.7	1.9	1.4	1.8	0.9	1.0
29	0	0.15	0.58	0.43	3.7	0	3.7	n/a	n/a	n/a	n/a	0.9	1.1
30	0	0.15	0.62		3.5	0	3.5	1.7	2.0	1.5	1.8	1.0	1.1
Avg.	0	0.14	0.51	0.43	3.6	0	3.6	1.7	2.0	1.5	1.8	0.9	1.1
Max.	0	0.15	0.62	0.43	3.7	0	3.7	1.8	2.1	1.5	1.8	1.0	1.1
Min.	0	0.13	0.19	0.43	3.5	0	3.5	1.7	1.9	1.4	1.8	0.8	1.0

Chemical Analyses

City of Flint Water Treatment Plant
WSSN: 2310

April 2014

Page 4

Date	pH (S.U.)		Total Hardness as CaCO ₃ (mg/L)		Total Alkalinity as CaCO ₃ (mg/L)		Non-Carbonate Hardness as CaCO ₃ (mg/L)		Calcium as Ca ²⁺ (mg/L)		Magnesium as Mg ²⁺ (mg/L)		Chloride as Cl ⁻ (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25		7.39		96		75		21		29.7		5.3		
26	8.31	7.28	255	98	200	73	55	25	77.9	29.7	13.6	5.8	48	24
27	8.34	7.32	249	98	199	70	50	28	75.4	30.5	14.6	5.8	42	32
28	8.39	8.46	247	92	205	60	42	32	82.6	46.5	9.8	8.3	43	68
29	8.46	7.35	230	98	190	70	40	28	76.2	30.5	9.7	5.3		
30	8.41	7.30	248	98	208	73	40	25	72.1	29.7	17.5	5.8	45	17
Avg.	8.38	7.52	246	97	200	70	45	27	76.8	32.8	13.0	6.1	45	35
Max.	8.46	8.46	255	98	208	75	55	32	82.6	46.5	17.5	8.3	48	68
Min.	8.31	7.28	230	92	190	60	40	21	72.1	29.7	9.7	5.3	42	17

**Bacteriological &
Physical Parameters**

 City of Flint Water Treatment Plant
WSSN: 2310

April 2014

Page 5

Date	Total Coliform						Standard Plate Count		Wind Direction	Temp. C	Color		Odor	
	Raw (Coliart MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap			Raw	Raw	Tap	Raw
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25	1		12	0	1	0		< 2		11.0				
26	1		12	0	1	0	> 1476	< 2		11.4				
27	1		12	0	1	0	142	< 2		11.1				
28	1		8	0	1	0	532	< 2		11.5				
29	1		0	0	1	0		< 2		12.1				
30	1		4	0	1	0	1246	< 2		13.5				
Avg.							n/a	< 2		11.8				
Max.							> 1476	< 2		13.5				
Min.							142	< 2		11.0				

**Distribution System
Monitoring**

 City of Flint Water Treatment Plant
WSSN: 2310

April 2014

Page 6

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WR	
1											0
2											0
3											0
4											0
5											0
6											0
7											0
8											0
9											0
10											0
11											0
12											0
13											0
14											0
15											0
16											0
17											0
18											0
19											0
20											0
21											0
22											0
23											0
24											0
25											0
26											0
27											0
28											0
29	1.0	0.8	1.0	0.7	0.8	0.8	1.1	0.8	0.7	0.9	10
30											0
31											0

Distribution Sample Summary

Total # of routine distribution samples analyzed	115
Total # of routine distribution samples required	100

Distribution Disinfectant Residual Summary

Percent samples with a detectable disinfectant residual	100
Average disinfectant residual this month	0.9

Distribution Bacteriological Summary

Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0

Positive Distribution Samples

Date	Monitoring Station	Date	Repeat Monitoring Stations	Residual	Positive or Negative

April 2014

[illegible]

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Thursday, June 12, 2014 1:16 PM
To: Wurfel, Brad (DEQ); Feuerstein, Heather (DEQ); Shekter Smith, Liane (DEQ); Benzie, Richard (DEQ); Willard, Veronica (DEQ)
Cc: Prysby, Mike (DEQ); McClellan, Michael (DEQ)
Subject: Media Contact - Flint WTP

I just spoke with Ron Fongers of the Flint Journal.

He said he was at a press conference this morning held by the Flint Emergency Manager in which the EM brought in Flint Water System staff to report on the first full month of operation at the City's Water Treatment Plant. Ron indicated the City stated they were in 100% compliance with the treatment standards.

Ron asked me to confirm that this statement was accurate. I stated that the City has been meeting all applicable standards for water quality and treatment operations.

Ron asked about the City using lime treatment to soften the water. I explained that when the City was a customer of DWSD, the source of their water was from the Great Lakes which have natural levels of hardness that normally don't require softening to meet customer expectations. However, the City's current source of the Flint River has higher levels of hardness and the City is using lime softening to lower the hardness level. I also indicated that this treatment is for aesthetic purposes and goes beyond minimum treatment requirements for public health protection.

Ron indicated the City was receiving an increase in complaints from customers and asked whether we had seen a significant increase in complaint calls. I indicated we have received a couple of complaints specific to Flint, but that this is not a significant increase as we receive complaints from customers sporadically for all the water systems we regulate.

Ron asked if we were in contact with the City regarding their operations. I stated that we have been in consultation with the City regarding the operation of all of their water facilities, treatment (including softening) and distribution.

Ron asked about what monitoring we have reviewed mentioning bacteria and turbidity. I indicated in addition the City has monitored for metals, organics including disinfection byproducts, and other inorganics such as nitrate along with microbial contaminants and applicable operational requirements like turbidity and disinfection.

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

Rennaker, Joanne (DEQ)

From: Matta, Samir <SFMatta@lan-inc.com>
Sent: Wednesday, April 09, 2014 4:14 PM
To: Busch, Stephen (DEQ)
Cc: Prysby, Mike (DEQ); Daugherty Johnson
Subject: Re: Flint Construction Permits

Thanks Steve.

Lockwood, Andrews & Newnam
Samir Matta, PE
(517) 819-2367

On Apr 9, 2014, at 4:12 PM, "Busch, Stephen (DEQ)" <BUSCHS@michigan.gov> wrote:

Samir,

The revisions provided on 4/8 addressed the remaining comments regarding construction of the proposed facilities.

Act 399 construction permit nos. 141025 and 141026 have been issued for the WTP and Bray Road facility improvements, respectively, today 4/9 and a copy is being mailed to the city.

Please contact our office at completion of the proposed work for final inspection prior to startup of the WTP.

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

Sent from my iPhone

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Rennaker, Joanne (DEQ)

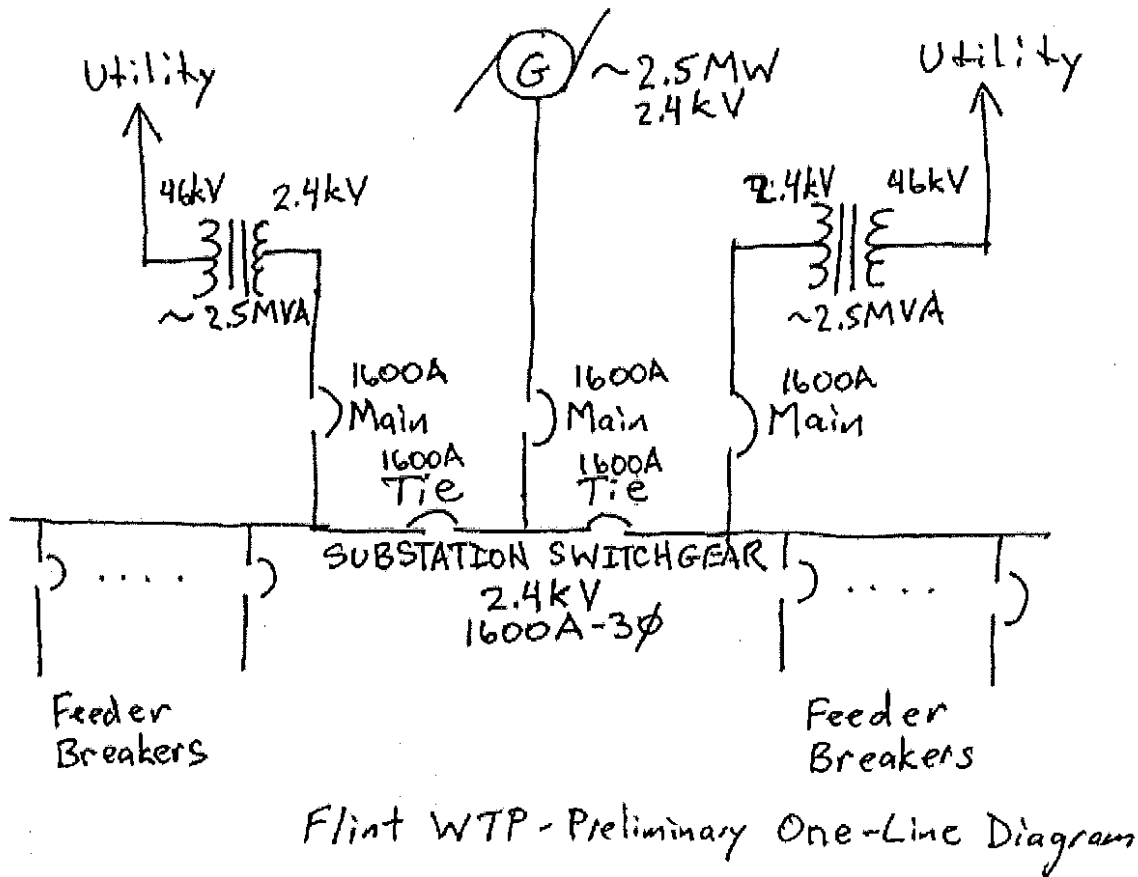
From: Green, Warren <jwgreen@lan-inc.com>
Sent: Wednesday, October 23, 2013 3:41 PM
To: Prysby, Mike (DEQ)
Cc: 'Brent Wright'
Subject: City of Flint

Mike

As you know, the Flint Water Plant (FWP) currently uses 2400V as primary power throughout the facility. All of the power feeders in the plant site are 5kV rated and it appears the existing switchgear is also rated at 5kV. Most of the major electrical improvements installed during Phase I were dual voltage (2400/4160) equipment in anticipation of the plant power being changed to 4160V in the future. However, this voltage conversion is not needed for the phase of work.

The current sub-station has two 2.5 MVA transformers running in parallel for a total capacity 5 MVA. These old transformers are not equipped with cooling fans. Based on the evaluation performed during the Phase II study, which was completed in 2003, the full connected load to these transformers is estimated to be 6.97 MVA while the estimated power load at 36-mgd is 4.22 MVA. Based on these estimates there is sufficient power for the plant with both sub-station transformers in service. Even though the transformers are owned by Consumers Energy, it could take weeks to replace one of these main transformers in the event of a unit failure, which will result in reduced treatment and pumping capacity. The sub-station switchgear was installed in 1960 and is antiquated and difficult to maintain.

Since the 2003 study, Flint's maximum day water demand has decreased to approximately 20-mgd, which has correspondingly reduced the estimated power load. At this time it is believed that two 2.0 to 2.5 MW transformers will be required to power the FWP to meet maximum day demand and one transformer will meet average day demand under emergency conditions. We are proposing to construct a new substation with two – 2.0 to 2.5 MW pad mounted transformers, along with substation switch gear, interconnected with one 2.0 to 2.5 MW intermittent duty diesel generator as shown below. This arrangement will allow the generator to backup either transformer to cover maximum day demands should one of the transformers or transformer feeds drop off line and to provide sufficient generation capacity to meet average day demands.



Would you please review and provide any comments that you may have.

Thanks Warren

J. Warren Green, PE
Director of Engineering



**Lockwood, Andrews
& Newnam, Inc.**
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Rennaker, Joanne (DEQ)

From: Cook, Pat (DEQ)
Sent: Monday, September 09, 2013 10:57 AM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: FW: Flint WTP CT
Attachments: FlintCTcalculator.xls

Steve spreadsheet is correct. If you open it up and in the flow rate box insert 18 mgd rather than 36, you'll notice the log inactivation achieved is 0.46, which is what Mike came up with this morning when he used 18 mgd. This is not a %, it's a log number. They need 0.5 logs but are getting 0.46, that's 92% of what they need.

pat

From: Busch, Stephen (DEQ)
Sent: Friday, August 30, 2013 4:28 PM
To: Prysby, Mike (DEQ)
Cc: Cook, Pat (DEQ)
Subject: RE: Flint WTP CT

They seem to meet the extra 0.5 log removal with no problem (see attached) at 0.25 intermediate CL, 1.0 PT CL and 9 pH.

Also they will not be producing 36 MGD during the interim period so the flow rate can be significantly reduced.

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: Wednesday, August 28, 2013 11:30 AM
To: Cook, Pat (DEQ); Busch, Stephen (DEQ)
Subject: Flint WTP CT

Attached is the Flint WTP CT calculation for several different operating scenarios with worst case meaning cold water – 0.5 deg C.

1. 12 MGD (0.5 C, pH 7.5, final CL 1.0 ppm)
2. 18 MGD (0.5 C, pH 7.5, final CL2 1.5 ppm)
3. 18 MGD w. softening (0.5 C, pH, final CL2 2.5 ppm)

Based on the higher pH, a minimum free residual of 2.5 mg/l from the clearwell appears necessary to meet the required CT in the third scenario.

I also ran the CT calc for the 3 MGAL clearwell at 2 deg C using the regression method. I will place a hard copy of the calc on your desk since my computer not mapped to the scanner on the printer....

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

Instructions for using this C*T Calculator:

1.) Gather data for the water supply. Data of concern is the maximum pH value and the minimum chlorine residual for each monitoring location within the plant. The sheets here allow the last 2 years worth of data to be entered, as well as an "other value".

*The "other value" can be useful if there is a historic minimum or maximum value that you would like to use, or to determine the minimum residual that needs to be maintained in order to satisfy the C*T requirement.*

*The data contained in these sheets is transferred to a "Water Quality Report" sheet that will print out with the C*T calculation when the "Print Report" button is clicked.*

2.) Be sure to label each monitoring location on the two data sheets. The label allows you to associate a monitoring location with each process on the CT Calculator sheet.

3.) Determine the number of processes that will be used in the C*T calculation. Then, on the CT Calculator worksheet, click the "Add Process" button until the appropriate number of processes are shown. The add and remove process buttons  their operations on the second column.

4.) Title each process and fill in **ALL** of the yellow cells for each process. Make sure that the monitoring locations on the CT Calculator sheet match the appropriate monitoring location specified on the pH and Cl sheets. Also determine the log inactivation required through disinfection and fill in the cell on the left side to reflect the requirement.

5.) Once all of the pH and chlorine residual data is entered and all of the yellow cells are filled in on the CT Calculator sheet, you are ready to make the CT calculation. Click on the "Calculate C*T" button. The rest of the empty cells should fill in and provide you with a percentage of the inactivation requirement. If the requirement is above 100%, then C*T has been attained. 

6.) Before printing the report, fill in the text boxes on the "CT Calculator" sheet to reflect the plant evaluated, the purpose of the evaluation, and the assumptions made during the calculation.

7.) When you are ready to print, click the "Print Report" button. Three pages will print: The C*T calculation, the Water Quality Report, and the Chlorine Residual Graph. You can still print a single sheet if you wish by selecting print from the file menu. 

Other Instructions:

This button will clear the blue cells, which are filled in by the macro when the "Calculate C*T" button is pressed.



This button will clear all of the cells on the "CT Calculator" sheet and remove  ss.
****You will lose any data you had previously entered****



	E. Solid Contact	W. Solid Contact	Filter	Clearwell
Volume (gallons)	1,280,000	1,280,000	500,000	3,000,000
Flowrate (MGD)	19	18	36	36
Flowrate (gpm)	13186	12492	24984	24984
Flowrate (cfs)	29.38	27.83	55.66	55.66
Detention time (min)	97.07	102.47	20.01	120.08
Baffling Factor	0.5	0.5	1	0.28
Cl ₂ Monitoring Location	Intermediate	Intermediate	Plant Tap	Plant Tap
True Min Cl	0.25	0.25	1	1
Min Cl for CT Table	0.4	0.4	1	1
pH Monitoring Location	Tap	Tap	Tap	Tap
Max pH	9	9	9	9
C*T Attained	12.13	12.81	20.01	33.62
C*T Req (1 log rem)	130	130	146	146
Log inactivation attained	0.0933	0.0985	0.1371	0.2303
% of required attained	18.67	19.70	27.41	46.06

0.5
log inactivation required

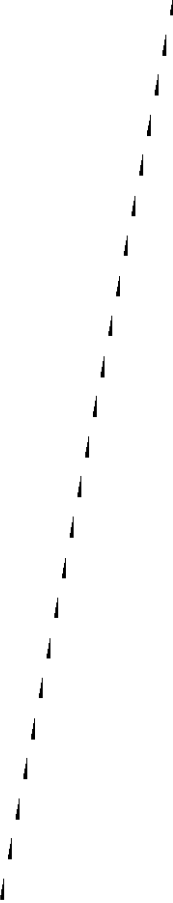
0.559
log inactivation attained

111.8
% of required

Water Treatment Plant

Sanitary Survey 2005

Assumptions:



Mon. Location	Minimum Free Chlorine Residual					
	Pretreatment	Intermediate	Plant Tap			
Other Value		0.25	1			
Oct-03						
Nov-03						
Dec-03						
Jan-04						
Feb-04						
Mar-04						
Apr-04						
May-04						
Jun-04						
Jul-04						
Aug-04						
Sep-04						
Oct-04						
Nov-04						
Dec-04						
Jan-05						
Feb-05						
Mar-05						
Apr-05						
May-05						
Jun-05						
Jul-05						
Aug-05						
Sep-05						
Minimum =	0.00	0.25	1.00	0.00	0.00	0.00



Mon. Location	Maximum pH			
	Raw	Tap		
Other Value	9	9		
Oct-03				
Nov-03				
Dec-03				
Jan-04				
Feb-04				
Mar-04				
Apr-04				
May-04				
Jun-04				
Jul-04				
Aug-04				
Sep-04				
Oct-04				
Nov-04				
Dec-04				
Jan-05				
Feb-05				
Mar-05				
Apr-05				
May-05				
Jun-05				
Jul-05				
Aug-05				
Sep-05				

Maximum = 9.00 9.00 0.00 0.00

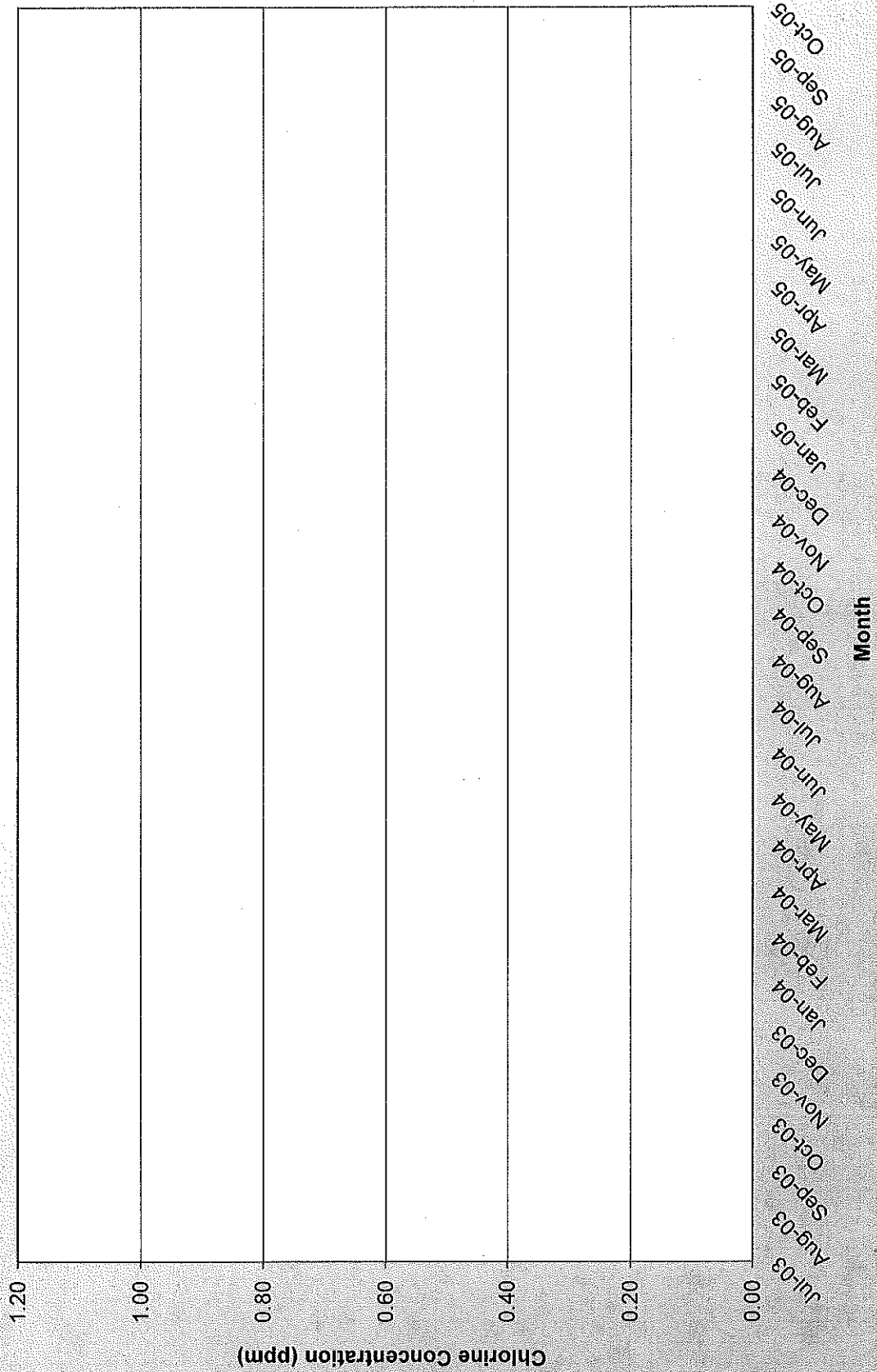
C*T Water Quality Parameters

Mon. Location	Maximum pH			
	Raw	Tap		
Other Value	9	9		
Oct-03				
Nov-03				
Dec-03				
Jan-04				
Feb-04				
Mar-04				
Apr-04				
May-04				
Jun-04				
Jul-04				
Aug-04				
Sep-04				
Oct-04				
Nov-04				
Dec-04				
Jan-05				
Feb-05				
Mar-05				
Apr-05				
May-05				
Jun-05				
Jul-05				
Aug-05				
Sep-05				

Maximum = 9 9 0 0

Mon. Location	Minimum Free Chlorine Residual					
	Pretreatment	Intermediate	Plant Tap			
Other Value	0.25	1				
Oct-03						
Nov-03						
Dec-03						
Jan-04						
Feb-04						
Mar-04						
Apr-04						
May-04						
Jun-04						
Jul-04						
Aug-04						
Sep-04						
Oct-04						
Nov-04						
Dec-04						
Jan-05						
Feb-05						
Mar-05						
Apr-05						
May-05						
Jun-05						
Jul-05						
Aug-05						
Sep-05						

Minimum = 0 0.25 1 0 0 0

Minimum Free Cl Residuals

	7.0	7.5	8.0	8.5	9.0
0.4	65	79	92	110	130
0.6	67	80	95	114	136
0.8	68	82	98	113	141
1	70	84	101	122	146
1.2	72	86	104	125	150
1.4	74	89	107	129	155
1.6	75	91	110	132	159
1.8	77	93	113	12	163
2	79	95	115	129	167
2.2	81	99	118	142	170
2.4	82	99	120	145	174
2.6	84	101	123	148	178
2.8	86	103	125	151	181
3	87	105	127	153	184

pH

Values at 0.5 °C and 1 log inactivation

Free Chlorine Residual