

10 DAY EXT. ISSUED*Woosley, Rosemary (DEQ)***0347-16*

From: Marc Edwards <edwardsm@vt.edu>
Sent: Saturday, October 17, 2015 4:18 PM
To: DEQFOIA
Subject: FOIA Request

RMD-EXEC
Lansing
Due: 11-9-15

Please send me all e-mails and documents associated with the drafting of a 3 page letter/ e-mail supposedly sent August 25, 2015 1:56 pm to Lee-Anne Walters by Liane Shekter Smith. The people responsible for drafting the letter are Tracy Devereaux, Steve Busch, Richard Benzie, Jim Sygo, Karen Shaler.

I'd like all e-mails, notes, drafts associated with creation of this document from the time Shekter Smith was ordered to send the letter to Ms. Walters on August 4th. This includes hand written meeting notes or anything associated with creation of this e-mail/letter.

I'd like all emails in which people were forwarded this document in draft or final form, and any communications between MDEQ and Harvey Hollins about the letter.

I would also like to get Steve Busch and Tracy Devereaux's copy of that letter. They are listed as recipients of the letter. Also, any e-mails or documents associated with this e-mail, letter, to the present day.

Marc

Woosley, Rosemary (DEQ)

From: Marc Edwards <edwardsm@vt.edu>
Sent: Monday, October 19, 2015 12:33 PM
To: DEQFOIA
Subject: RE: FOIA Request

Marc Edwards
 1623 Jefferson Forest Lane
 Blacksburg, VA 24061

From: DEQFOIA [<mailto:DEQFOIA@michigan.gov>]
Sent: Monday, October 19, 2015 10:28 AM
To: Marc Edwards
Subject: RE: FOIA Request

Can you please provide your complete mailing address for our database?

Thank you,

Rose Woosley
 OEA-EAC
 Department of Environmental Quality
 517-284-6890 / 800-662-9278
 Fax: 517-241-0858
Deqfoia@michigan.gov

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Sent: Monday, August 24, 2015 1:10 PM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

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Sent: Monday, August 24, 2015 1:20 PM
To: Tommasulo, Karen (DEQ)
Subject: FW: LeeAnn Walters Draft

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To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
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Wurfel, Brad (DEQ)

From: Brown, Eric (GOV)
Sent: Thursday, August 27, 2015 3:20 PM
To: Wurfel, Brad (DEQ)
Subject: Re: LeeAnn Walters Draft

Very helpful, thanks

Sent from my mobile device

On Aug 27, 2015, at 3:14 PM, Wurfel, Brad (DEQ) <WurfelB@michigan.gov> wrote:

Don't know what it is, but I know what it's not. The key to lead and copper in drinking water is that it's not in the source water, or even the transmission lines (most of which are cast iron). It's in the premise plumbing (people's homes). The reason statute requires operators of large systems to test for lead & copper in homes when they switch sources is because large systems inevitably means old neighborhoods, where there's likely a lead connection line to the homes or lead pipes in the premise plumbing (or lead in the solder of copper lines installed before the mid-1990s), and what we're checking for is whether the Ph of the new source water is mobilizing lead in the pipes.

Ironically, the leading fix for it is adding phosphate (ironic because we're fighting to reduce phosphorus in surface water all over the state, but particularly in the Western Lake Erie Basin). The phosphate smooths the water and reduces the interaction.

In accordance with statute, we sent Flint a letter early this month saying they passed muster on the two required rounds of lead and copper tests, but we still want them to 'optimize' their system (phosphates). By law, they now have 18 months to create an optimization plan, and something like two years thereafter to implement that plan. But they're going to switch sources again in June / July of next year, which starts the whole process over again. Such is the wisdom and flexibility of the federal statute ...

This person is the one who had EPA lead specialist come to her home and do tests, then released an unvetted draft of his report (that EPA apologized to us profusely for) to the resident, who shared it with the ACLU, who promptly used it to continue raising hell with the locals.

Bottom line is that folks in Flint are upset – because they pay a ton for water and many of them don't trust the water they're getting – and they're confused, in no small part because various groups have worked hard at keeping them confused and upset. We get it. The state is trying like mad get the word out that we're working on every aspect of the health safety of local water that we can manage, and the system needs a lot of work (because the city didn't do any discernable maintenance for nearly 40 years and the transmission lines are falling apart), but it's been rough sledding with a steady parade of community groups keeping everyone hopped-up and misinformed.

Tell me what I can do to help you with the Peters' meeting, or anything else.

b

From: Brown, Eric (GOV)
Sent: Thursday, August 27, 2015 2:55 PM
To: Wurfel, Brad (DEQ)
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Sincerely,

Wurfel, Brad (DEQ)

From: Muchmore, Dennis (GOV)
Sent: Tuesday, August 25, 2015 4:53 PM
To: Wurfel, Brad (DEQ); Hollins, Harvey (GOV)
Cc: Murray, David (GOV); Wurfel, Sara (GOV); Brown, Jessica (GOV)
Subject: RE: LeeAnn Walters Draft

Nicely done.

From: Wurfel, Brad (DEQ)
Sent: Monday, August 24, 2015 1:27 PM
To: Hollins, Harvey (GOV) <hollinsh@michigan.gov>; Muchmore, Dennis (GOV) <muchmored@michigan.gov>
Cc: Murray, David (GOV) <MurrayD1@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Brown, Jessica (GOV) <BrownJ53@michigan.gov>
Subject: FW: LeeAnn Walters Draft

Just a heads up, our Drinking Water Staff closing the loop with one of the participants from the meeting with the Flint Ministers regarding water quality issues in Flint. Some very worthwhile information here, and a heads up to everyone that this letter will be going to this individual. Let me know if you have further questions, concerns, or other issues. Thanks!

b

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 10:37 AM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Brad – below is our draft response to Ms. Walters in followup to our meeting at the Governor's Office. Thought you might like to review the draft before we send it out. Also, is there anyone else that should see this before it is sent?

Dear Ms. Walters,

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

Lead and Copper Monitoring

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

Staff have confirmed that the lead 90th percentile compliance calculation of 11 parts per billion is based on 69 samples that met the appropriate sampling location site criteria, and met the sample collection site and collection protocol requirements of the Safe Drinking Water Act for this monitoring period. A minimum of 60 samples were required for this monitoring period. As indicated during the meeting, the City's sampling for lead complies with the Action Level

standard of 15 parts per billion, but based on the population served by the City and these results, the City will need to make a recommendation to the MDEQ on how they will fully optimize their corrosion control treatment. These next steps continue to follow the requirements of the Lead and Copper Rule.

Samples collected at your residence of 212 Browning Avenue were not included this compliance determination as you utilize a whole home filter. As stated in the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 710a, Lead and Copper in tap water; monitoring requirements) "Sampling sites may not include faucets that have point of use or point of entry treatment devices designed to remove inorganic contaminants." Such treatment alters the water chemistry and water quality such that it is no longer representative of public water from the City's distribution system. Therefore, the City cannot use samples collected at your residence as part of its determination for public water system compliance with the lead or copper action level standard.

Sample Summary (samples taken at your residence)

For your information, we are providing the information that we've gathered regarding samples collected at your home. Our records indicate between February and June of this year there were six samples collected by either you or Mr. Mike Glasgow with the City of Flint, and submitted to the State Laboratory for analysis as follows:

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Lead Education/Outreach

As we discussed during the meeting, we support efforts to educate homeowners about the sources of lead in their private residence, provide guidance measures to reduce the potential for lead exposure, and provide information on resources for lead abatement. Along those lines, our Office has been in contact with the Department of Health and Human Services, Environmental Health Division, Healthy Homes Section and had some preliminary discussions about a public education and assistance campaign regarding household lead issues, guidance and abatement.

Lead monitoring by public water systems serves a dual purpose. The first purpose is to ensure the public water supply is adequately treating its water to address corrosion potential and help limit lead exposure. The second purpose is to inform homeowners about lead levels within their individual residence so that they can make educated choices regarding their own exposure risk.

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During the meeting concerns were also expressed regarding pH levels within customer plumbing systems. As you may know, pH has no associated contaminant level as it is simply a numeric scale used to specify the acidity or alkalinity of a solution. The City of Flint conducts daily monitoring of pH values on both its raw and finished (treated) water at the City's water treatment plant as part of its operations. The City is also required to conduct water quality parameter monitoring in the distribution system, which includes pH. Samples are analyzed in accordance with Standard Methods using properly calibrated analytical equipment. Results for pH from these samples are summarized below.

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Jan. – March 2015: pH 7.81 average, range 7.60 – 7.99

April – June 2015: pH 7.63 Average, range 7.48 – 7.80

In addition, the City's treated water contains alkalinity, which is a measurement of the buffering capacity of water to resist a change in pH. As you can see from the water quality parameter monitoring results above there has been very little change in pH within the City's distribution system. The pH levels described within customer site piping or premise plumbing systems are believed to be the result of onsite treatment and not representative of water quality shown to be occurring in the public water supply system.

Consumer Confidence Report

Finally, there was confusion during the meeting regarding the City's annual water quality report, the Consumer Confidence Report which we have since been able to clarify.

The City of Flint issued two separate Consumer Confidence Reports (CCR's) in 2015 covering the water quality data from 2014. One report was for the period of January – April 2014 when the City was obtaining water from Detroit (DWSD). And a second report was for the period April – December 2014 when the City was using the Flint River and its own Water Treatment Plant.

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Sincerely,

Wurfel, Brad (DEQ)

From: Murray, David (GOV)
Sent: Monday, August 24, 2015 1:27 PM
To: Wurfel, Brad (DEQ)
Subject: Automatic reply: LeeAnn Walters Draft

Hello! I'm out of the office telling the Michigan story. I'll be checking email, but it might take a while to get back to you given the time difference. For immediate assistance, please contact Press Secretary Sara Wurfel at (517) 599-3470 (mobile) or via email, at wurfels@michigan.gov. Or, you can contact the Communications Department main line at (517) 335-6397. Thank you for your patience. -- Dave.

Wurfel, Brad (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 1:10 PM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

When you say they should see it as well. Do you mean see the draft or be cc'd on the e-mail?

If the former, do you wish to share it with them?

From: Wurfel, Brad (DEQ)
Sent: Monday, August 24, 2015 11:22 AM
To: Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Comprehensive. Thanks for sharing this, Liane. Lots of important information here. I'd suggest that Harvey Hollins and Dennis Muchmore need to see it as well.

b

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 10:37 AM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
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Sincerely,

Wurfel, Brad (DEQ)

From: Busch, Stephen (DEQ)
Sent: Monday, August 10, 2015 1:27 PM
To: Wurfel, Brad (DEQ)
Cc: Shekter Smith, Liane (DEQ)
Subject: RE: Response to Questions from 8/4 Meeting on Flint

Sorry, last quarter WQP pH monitoring numbers are now added in.

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

From: Busch, Stephen (DEQ)
Sent: Monday, August 10, 2015 1:24 PM
To: 'Wurfel, Brad (DEQ) (WurfelB@michigan.gov)'
Cc: Shekter Smith, Liane (DEQ) (SHEKTERL@michigan.gov)
Subject: Response to Questions from 8/4 Meeting on Flint

Brad,

Here is what I have been able to gather in response to the questions from our meeting with members of the Flint community at the Governor's Office on Tuesday August 4th.

Why Are There Different 2014 Consumer Confidence Reports for City of Flint Water System?

The City of Flint issued two separate Consumer Confidence Reports (CCR's) in 2015 covering the water quality data from 2014.

One report for the period of January – April 2014 when the City was obtaining water from Detroit (DWSD).
 A second report for the period April – December 2014 when the City was using the Flint River and its own Water Treatment Plant.

The CCR for DWSD water was mailed to customers in June. The Flint River based CCR was mailed to customers in mid-July, delayed due to issues with the printing contractor. We will work with the City to ensure both reports are posted to the City's website and both are made available when requested by customers. Should the City choose to create separate CCR's during the year that the City of Flint connects to the Karegnondi Water Authority we will work with the City to provide more clarity and try to have all material included in a single mailing.

The DWSD based CCR is the one community members had at the meeting, while the DEQ had brought a copy of the Flint River based CCR. As separate sampling was done under each source, this explains the discrepancy in the values and monitoring periods being reported in the respective CCR's.

Why Were Some Samples Not Included In The Flint Lead and Copper Monitoring January – June 2015 Period, and Are Sampled Customers Being Provided Their Results?

The City has confirmed that all lead and copper samples collected through the City, whether routine sites or customer requests, were sent to the State of Michigan lab for analysis. Individual sample results are provided to the property owner within 30 days of receiving the lab results in accordance with the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 410(5)).

Results of any lead and copper samples collected by EPA staff were not provided to the City of Flint or Michigan Department of Environmental Quality. It is also unclear whether any such samples would meet the sample site and collection protocol requirements of the Safe Drinking Water Act to be used for compliance determination during this monitoring period.

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

Why Was Sampling From 212 Browning Avenue For Lead and Copper Not Included For Compliance?

The residence at 212 Browning Avenue utilizes a whole home filter. As stated in the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 710a, Lead and Copper in tap water; monitoring requirements) "Sampling sites may not include faucets that have point of use or point of entry treatment devices designed to remove inorganic contaminants." Such treatment alters the water chemistry and water quality such that it is no longer representative of public water from the City's distribution system. Therefore, it cannot be used to determine public water system compliance with the action level standard.

An additional concern regarding water quality conditions at this residence is that the City of Flint has no record of a plumbing permit being obtained when the home was fully re-plumbed. Thus any plumbing work completed was not inspected and cannot be determined to comply with requirements of the Michigan Plumbing Code and Michigan Residential Code. As a result there may be conditions within the household that are contributing to some of the water quality issues experienced by the owner.

What Are The pH Conditions In The City's Water? Concerns over low, 4-5 pH values

Since late April 2014 – June 2015, the following pH conditions have been reported by the City.

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Distribution System – Water Quality Parameters 25 sample sites location throughout monitored quarterly

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I believe this addresses questions from the meeting directed to the MDEQ.

I did want to add that the DEQ Office of Drinking Water and Municipal Assistance has been in contact with the Department of Health and Human Services, Environmental Health Division, Healthy Homes Section and had some preliminary discussions about a public education and assistance campaign regarding household lead issues, guidance and abatement.

Please let me know if I missed something or if any additional information is needed.

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To: Wurfel, Brad (DEQ)
Cc: Shekter Smith, Liane (DEQ)
Subject: Response to Questions from 8/4 Meeting on Flint

Brad,

Here is what I have been able to gather in response to the questions from our meeting with members of the Flint community at the Governor's Office on Tuesday August 4th.

Why Are There Different 2014 Consumer Confidence Reports for City of Flint Water System?

The City of Flint issued two separate Consumer Confidence Reports (CCR's) in 2015 covering the water quality data from 2014.

One report for the period of January – April 2014 when the City was obtaining water from Detroit (DWSD).

A second report for the period April – December 2014 when the City was using the Flint River and its own Water Treatment Plant.

The CCR for DWSD water was mailed to customers in June. The Flint River based CCR was mailed to customers in mid-July, delayed due to issues with the printing contractor. We will work with the City to ensure both reports are posted to the City's website and both are made available when requested by customers. Should the City choose to create separate CCR's during the year that the City of Flint connects to the Karegnondi Water Authority we will work with the City to provide more clarity and try to have all material included in a single mailing.

The DWSD based CCR is the one community members had at the meeting, while the DEQ had brought a copy of the Flint River based CCR. As separate sampling was done under each source, this explains the discrepancy in the values and monitoring periods being reported in the respective CCR's.

Why Were Some Samples Not Included In The Flint Lead and Copper Monitoring January – June 2015 Period, and Are Sampled Customers Being Provided Their Results?

The City has confirmed that all lead and copper samples collected through the City, whether routine sites or customer requests, were sent to the State of Michigan lab for analysis. Individual sample results are provided to the property owner within 30 days of receiving the lab results in accordance with the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 410(5)).

Results of any lead and copper samples collected by EPA staff were not provided to the City of Flint or Michigan Department of Environmental Quality. It is also unclear whether any such samples would meet the sample site and collection protocol requirements of the Safe Drinking Water Act to be used for compliance determination during this monitoring period.

The lead 90th percentile calculation of 11 parts per billion is based on 69 samples that met the appropriate sampling location site criteria, and met the sample collection site and collection protocol requirements of the Safe Drinking Water Act for this monitoring period. A minimum of 60 samples were required for this monitoring period. As indicated during the meeting, the City's sampling for lead complies with the Action Level standard of 15 parts per billion, but based on the population served the City and these results, the City will need to make a recommendation to the MDEQ on how

they will fully optimize their corrosion control treatment. These next steps continue to follow the requirements of the Lead and Copper Rule.

Why Was Sampling From 212 Browning Avenue For Lead and Copper Not Included For Compliance?

The residence at 212 Browning Avenue utilizes a whole home filter. As stated in the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 710a, Lead and Copper in tap water; monitoring requirements) "Sampling sites may not include faucets that have point of use or point of entry treatment devices designed to remove inorganic contaminants." Such treatment alters the water chemistry and water quality such that it is no longer representative of public water from the City's distribution system. Therefore, it cannot be used to determine public water system compliance with the action level standard.

An additional concern regarding water quality conditions at this residence is that the City of Flint has no record of a plumbing permit being obtained when the home was fully re-plumbed. Thus any plumbing work completed was not inspected and cannot be determined to comply with requirements of the Michigan Plumbing Code and Michigan Residential Code. As a result there may be conditions within the household that are contributing to some of the water quality issues experienced by the owner.

What Are The pH Conditions In The City's Water? Concerns over low, 4-5 pH values

Since late April 2014 – June 2015, the following pH conditions have been reported by the City.

Water Treatment Plant – Finished Water plant tap pH range = 7.07 minimum to 9.9 maximum, overall average 7.7, measured daily. The 9.9 is a one- time anomaly from softening treatment.

Distribution System – Water Quality Parameters 25 sample sites location throughout monitored quarterly

July – Sept. 2014 pH 7.71 average, range 7.56 – 7.86

Oct. – Dec. 2014 pH 7.88 average, range 7.62 – 8.10

Jan. – March 2015 pH 7.81 average, range 7.60 – 7.99

April – June 2015 pH

I believe this addresses questions from the meeting directed to the MDEQ.

I did want to add that the DEQ Office of Drinking Water and Municipal Assistance has been in contact with the Department of Health and Human Services, Environmental Health Division, Healthy Homes Section and had some preliminary discussions about a public education and assistance campaign regarding household lead issues, guidance and abatement.

Please let me know if I missed something or if any additional information is needed.

Stephen Busch, P.E.

MDEQ Lansing District Coordinator

Office of Drinking Water and Municipal Assistance

Lansing and Jackson District Supervisor

517-643-2314

buschs@michigan.gov

Shekter Smith, Liane (DEQ)

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

Dear Ms. Walters,

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

Lead and Copper Monitoring

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

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

Samples collected at your residence of 212 Browning Avenue were not included this compliance determination as you utilize a whole home filter. As stated in the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 710a, Lead and Copper in tap water; monitoring requirements) "Sampling sites may not include faucets that have point of use or point of entry treatment devices designed to remove inorganic contaminants." Such treatment alters the water chemistry and water quality such that it is no longer representative of public water from the City's distribution system. Therefore, the City cannot use samples collected at your residence as part of its determination for public water system compliance with the lead or copper action level standard.

Sample Summary (samples taken at your residence)

For your information, we are providing the information that we've gathered regarding samples collected at your home. Our records indicate between February and June of this year there were six samples collected by either you or Mr. Mike Glasgow with the City of Flint, and submitted to the State Laboratory for analysis as follows:

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Lead Education/Outreach

As we discussed during the meeting, we support efforts to educate homeowners about the sources of lead in their private residence, provide guidance measures to reduce the potential for lead exposure, and provide information on resources for lead abatement. Along those lines, our Office has been in contact with the Department of Health and Human Services, Environmental Health Division, Healthy Homes Section and had some preliminary discussions about a public education and assistance campaign regarding household lead issues, guidance and abatement.

Lead monitoring by public water systems serves a dual purpose. The first purpose is to ensure the public water supply is adequately treating its water to address corrosion potential and help limit lead exposure. The second purpose is to inform homeowners about lead levels within their individual residence so that they can make educated choices regarding their own exposure risk.

pH Results

During the meeting concerns were also expressed regarding pH levels within customer plumbing systems. As you may know, pH has no associated contaminant level as it is simply a numeric scale used to specify the acidity or alkalinity of a solution. The City of Flint conducts daily monitoring of pH values on both its raw and finished (treated) water at the City's water treatment plant as part of its operations. The City is also required to conduct water quality parameter monitoring in the distribution system, which includes pH. Samples are analyzed in accordance with Standard Methods using properly calibrated analytical equipment. Results for pH from these samples are summarized below.

Since late April 2014 – June 2015, the following pH conditions were reported:

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In addition, the City's treated water contains alkalinity, which is a measurement of the buffering capacity of water to resist a change in pH. As you can see from the water quality parameter monitoring results above there has been very little change in pH within the City's distribution system. The pH levels described within customer site piping or premise plumbing systems are believed to be the result of onsite treatment and not representative of water quality shown to be occurring in the public water supply system.

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We appreciate your interest in these matters and hope this has addressed many of the questions brought up during our meeting. I would like to provide this information to both Dr. Sullivan and Ms. Mayes, but I do not have their contact information. I'm hoping you can share this with them and any others that may be interested.

Sincerely,

Liane J. Shekter Smith, P.E., Chief
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
517-284-6543

Shekter Smith, Liane (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Monday, August 24, 2015 1:27 PM
To: Shekter Smith, Liane (DEQ)
Subject: RE: LeeAnn Walters Draft

Just did it. Thanks again.
b

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 10:37 AM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Brad – below is our draft response to Ms. Walters in followup to our meeting at the Governor’s Office. Thought you might like to review the draft before we send it out. Also, is there anyone else that should see this before it is sent?

Dear Ms. Walters,

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pH Results

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Sincerely,

Shekter Smith, Liane (DEQ)

From: Shaler, Karen (DEQ)
Sent: Monday, August 24, 2015 1:11 PM
To: Shekter Smith, Liane (DEQ)
Subject: Automatic reply: LeeAnn Walters Draft

I will be out until Tuesday, August 25, and will respond to your e-mail as needed when I return. If this is an urgent matter, please call 517-284-6700 for assistance. Thank you.

Shekter Smith, Liane (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 1:10 PM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

When you say they should see it as well. Do you mean see the draft or be cc'd on the e-mail?

If the former, do you wish to share it with them?

From: Wurfel, Brad (DEQ)
Sent: Monday, August 24, 2015 11:22 AM
To: Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Comprehensive. Thanks for sharing this, Liane. Lots of important information here. I'd suggest that Harvey Hollins and Dennis Muchmore need to see it as well.

b

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To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
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Shekter Smith, Liane (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 10:37 AM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Brad – below is our draft response to Ms. Walters in followup to our meeting at the Governor's Office. Thought you might like to review the draft before we send it out. Also, is there anyone else that should see this before it is sent?

Dear Ms. Walters,

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

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From: Busch, Stephen (DEQ)
Sent: Monday, August 24, 2015 10:33 AM
To: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: RE: LeeAnn Walters Draft

I'm good with dropping the plumbing paragraph. The breakdown looks fine to me and I didn't see any other issues.

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

From: Benzie, Richard (DEQ)
Sent: Monday, August 24, 2015 9:38 AM
To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
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To: Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Benzie, Richard (DEQ)
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Cc: Devereaux, Tracy Jo (DEQ)
Subject: RE: LeeAnn Walters Draft

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

Samples collected at your residence of 212 Browning Avenue were not included this compliance determination as you utilize a whole home filter. As stated in the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 710a, Lead and Copper in tap water; monitoring requirements) "Sampling sites may not include faucets that have point of use or point of entry treatment devices designed to remove inorganic contaminants." Such treatment alters the water chemistry and water quality such that it is no longer representative of public water from the City's distribution system. Therefore, the City cannot use samples collected at your residence as part of its determination for public water system compliance with the lead or copper action level standard.

Sample Summary (samples taken at your residence)

For your information, we are providing the information that we've gathered regarding samples collected at your home. Our records indicate between February and June of this year there were six samples collected by either you or Mr. Mike Glasgow with the City of Flint, and submitted to the State Laboratory for analysis as follows:

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March 3, Kitchen tap, collected at 6:00 AM by you. This sample was analyzed for lead (397 parts per billion) and copper (non-detect).

March 18, Kitchen tap, collected at 11:10 AM by Mike Glasgow. This sample was analyzed for lead (4 parts per billion) and copper (non-detect).

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Lead Education/Outreach

As we discussed during the meeting, we support efforts to educate homeowners about the sources of lead in their private residence, provide guidance measures to reduce the potential for lead exposure, and provide information on resources for lead abatement. Along those lines, our Office has been in contact with the Department of Health and Human Services, Environmental Health Division, Healthy Homes Section and had some preliminary discussions about a public education and assistance campaign regarding household lead issues, guidance and abatement.

Lead monitoring by public water systems serves a dual purpose. The first purpose is to ensure the public water supply is adequately treating its water to address corrosion potential and help limit lead exposure. The second purpose is to inform homeowners about lead levels within their individual residence so that they can make educated choices regarding their own exposure risk.

~~You continue to express aesthetic water quality concerns at your home regarding color, taste, iron, etc. While we work with the City to continue addressing these concerns as they relate in part to the City's aging water distribution system infrastructure, we would expect homeowners to also take responsibility and due diligence to ensure proper construction and maintenance of their own household plumbing system. It has been indicated that your residence was recently re-plumbed using plastic piping materials. However, the City of Flint has no record of a plumbing permit being obtained for the completion of this work. While homeowners may choose to complete their own plumbing, it does not preclude the requirement to obtain a local permit for such construction work so that any plumbing work completed can be inspected for compliance with the requirements of the Michigan Plumbing Code and Michigan Residential Code. As a result it is uncertain whether there may be conditions within the household that are contributing to some of the water quality issues you are experiencing. (Steve – I'm proposing we delete this paragraph. I think it's a lightning rod and not sure it adds to the discussion. Are you okay with this?)~~

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Sincerely,

Shekter Smith, Liane (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Friday, August 21, 2015 6:01 PM
To: Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Benzie, Richard (DEQ)
Subject: RE: LeeAnn Walters Draft

Revised. Please review. Thanks.

Dear Ms. Walters,

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

Lead and Copper Monitoring

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We appreciate your interest in these matters and hope this has addressed many of the questions brought up during our meeting. I would like to provide this information to both Dr. Sullivan and Ms. Mayes, but I do not have their contact information. I'm hoping you can share this with them and any others that may be interested.

Sincerely,

Shekter Smith, Liane (DEQ)

From: Busch, Stephen (DEQ)
Sent: Monday, August 17, 2015 11:04 AM
To: Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: LeeAnn Walters Draft

Liane,

Here is what I have drafted for Mrs. Walters:

Dear Mrs. Walters,

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

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

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Sincerely,

Benzie, Richard (DEQ)

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

Dear Ms. Walters,

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

Lead and Copper Monitoring

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Sincerely,

Liane J. Shekter Smith, P.E., Chief
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
517-284-6543

Benzie, Richard (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 1:10 PM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

When you say they should see it as well. Do you mean see the draft or be cc'd on the e-mail?

If the former, do you wish to share it with them?

From: Wurfel, Brad (DEQ)
Sent: Monday, August 24, 2015 11:22 AM
To: Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Comprehensive. Thanks for sharing this, Liane. Lots of important information here. I'd suggest that Harvey Hollins and Dennis Muchmore need to see it as well.

b

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 10:37 AM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Brad – below is our draft response to Ms. Walters in followup to our meeting at the Governor's Office. Thought you might like to review the draft before we send it out. Also, is there anyone else that should see this before it is sent?

Dear Ms. Walters,

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Benzie, Richard (DEQ)

From: Wurfel, Brad (DEQ)
Sent: Monday, August 24, 2015 11:22 AM
To: Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Comprehensive. Thanks for sharing this, Liane. Lots of important information here. I'd suggest that Harvey Hollins and Dennis Muchmore need to see it as well.

b

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 10:37 AM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
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Sent: Monday, August 24, 2015 10:33 AM
To: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: RE: LeeAnn Walters Draft

I'm good with dropping the plumbing paragraph. The breakdown looks fine to me and I didn't see any other issues.

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

From: Benzie, Richard (DEQ)
Sent: Monday, August 24, 2015 9:38 AM
To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
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To: Busch, Stephen (DEQ)
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~~You continue to express aesthetic water quality concerns at your home regarding color, taste, iron, etc. While we work with the City to continue addressing these concerns as they relate in part to the City's aging water distribution system infrastructure, we would expect homeowners to also take responsibility and due diligence to ensure proper construction and maintenance of their own household plumbing system. It has been indicated that your residence was recently re-plumbed using plastic piping materials. However, the City of Flint has no record of a plumbing permit being obtained for the completion of this work. While~~

~~homeowners may choose to complete their own plumbing, it does not preclude the requirement to obtain a local permit for such construction work so that any plumbing work completed can be inspected for compliance with the requirements of the Michigan Plumbing Code and Michigan Residential Code. As a result it is uncertain whether there may be conditions within the household that are contributing to some of the water quality issues you are experiencing. (Steve – I'm proposing we delete this paragraph. I think it's a lightning rod and not sure it adds to the discussion. Are you okay with this?)~~

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Sent: Friday, August 21, 2015 6:01 PM
To: Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Benzie, Richard (DEQ)
Subject: RE: LeeAnn Walters Draft

Revised. Please review. Thanks.

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Cc: Devereaux, Tracy Jo (DEQ); Benzie, Richard (DEQ)
Subject: RE: LeeAnn Walters Draft

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From: Benzie, Richard (DEQ)
Sent: Monday, August 24, 2015 9:38 AM
To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: RE: LeeAnn Walters Draft

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Devereaux, Tracy Jo (DEQ)

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

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Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
517-284-6543

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From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 1:10 PM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

When you say they should see it as well. Do you mean see the draft or be cc'd on the e-mail?

If the former, do you wish to share it with them?

From: Wurfel, Brad (DEQ)
Sent: Monday, August 24, 2015 11:22 AM
To: Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

Comprehensive. Thanks for sharing this, Liane. Lots of important information here. I'd suggest that Harvey Hollins and Dennis Muchmore need to see it as well.

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From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 10:37 AM
To: Wurfel, Brad (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Busch, Stephen (DEQ); Benzie, Richard (DEQ); Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: RE: LeeAnn Walters Draft

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Sent: Monday, August 24, 2015 10:33 AM
To: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: RE: LeeAnn Walters Draft

I'm good with dropping the plumbing paragraph. The breakdown looks fine to me and I didn't see any other issues.

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

From: Benzie, Richard (DEQ)
Sent: Monday, August 24, 2015 9:38 AM
To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
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In the first paragraph under pH, I would eliminate the word out from "out in the distribution system" and change the verb in the last sentence from "is" to "are."

From: Shekter Smith, Liane (DEQ)
Sent: Friday, August 21, 2015 6:01 PM
To: Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Benzie, Richard (DEQ)
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Revised. Please review. Thanks.

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~~You continue to express aesthetic water quality concerns at your home regarding color, taste, iron, etc. While we work with the City to continue addressing these concerns as they relate in part to the City's aging water distribution system infrastructure, we would expect homeowners to also take responsibility and due diligence to ensure proper construction and maintenance of their own household plumbing system. It has been indicated that your residence was recently re-plumbed using plastic piping materials. However, the City of Flint has no record of a plumbing permit being obtained for the completion of this work. While homeowners may choose to complete their own plumbing, it does not preclude the requirement to obtain a local permit for such construction work so that any plumbing work completed can be inspected for compliance with the requirements of the Michigan Plumbing Code and Michigan Residential Code. As a result it is uncertain whether there may be conditions within the household that are contributing to some of the water quality issues you are experiencing. (Steve – I'm proposing we delete this paragraph. I think it's a lightning rod and not sure it adds to the discussion. Are you okay with this?)~~

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Devereaux, Tracy Jo (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Monday, August 24, 2015 10:32 AM
To: Benzie, Richard (DEQ); Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: RE: LeeAnn Walters Draft

Steve – let me know if you have comments on the draft. I'd like to send it up to Brad before it goes out as final.

From: Benzie, Richard (DEQ)
Sent: Monday, August 24, 2015 9:38 AM
To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
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Sent: Friday, August 21, 2015 6:01 PM
To: Busch, Stephen (DEQ)
Cc: Devereaux, Tracy Jo (DEQ); Benzie, Richard (DEQ)
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To: Shekter Smith, Liane (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
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Since late April 2014 – June 2015, the following pH conditions have been reported by the City.

Water Treatment Plant – Finished Water plant tap pH range = 7.07 minimum to 9.9 maximum, overall average 7.7, measured daily. The 9.9 is a one- time anomaly from softening treatment.

Distribution System – Water Quality Parameters 25 sample sites location throughout monitored quarterly

July – Sept. 2014 pH 7.71 average, range 7.56 – 7.86

Oct. – Dec. 2014 pH 7.88 average, range 7.62 – 8.10

Jan. – March 2015 pH 7.81 average, range 7.60 – 7.99

April – June 2015 pH 7.63 Average, range 7.48 – 7.80

In addition, the City's treated water contains alkalinity, which is a measurement of the buffering capacity of water to resist a change in pH. As you can see from the water quality parameter monitoring results above there has been very little change in pH within the City's distribution system. The pH levels described within customer site piping or premise

plumbing systems would have to be the result of onsite treatment and not representative of water quality shown to be occurring in the public water supply system.

Finally, there was confusion during the meeting regarding the City's annual water quality report, the Consumer Confidence Report which we have since been able to clarify.

The City of Flint issued two separate Consumer Confidence Reports (CCR's) in 2015 covering the water quality data from 2014.

One report for the period of January – April 2014 when the City was obtaining water from Detroit (DWSD).

A second report for the period April – December 2014 when the City was using the Flint River and its own Water Treatment Plant.

The CCR for DWSD water was mailed to customers in June. The Flint River based CCR was mailed to customers in mid-July, delayed due to issues with the printing contractor. We are working with the City to ensure both reports are posted to the City's website and both are made available when requested by customers. Should the City choose to create separate CCR's during the year that the City of Flint connects to the Karegnondi Water Authority we will work with the City to provide more clarity and try to have all material included in a single mailing.

The DWSD based CCR is the one community members had at the meeting, while the DEQ had brought a copy of the Flint River based CCR. As separate sampling was done under each source, this explains the discrepancy in the values and monitoring periods being reported in the respective CCR's.

We appreciate your interest in these matters and hope this has addressed the questions brought up during our meeting.

Sincerely,

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE
**LEAD AND COPPER REPORT AND
CONSUMER NOTICE OF LEAD RESULT
CERTIFICATE FOR COMMUNITY WATER SUPPLY**

DRAFT



Issued under authority of 1976 PA 399, MCL 325.1001 *et al.*, and Administrative Rules, as amended.

Failure to submit this information is a violation of Act 399 and may subject the water supply to enforcement penalties.

Administrative Rule R 325.10710d requires water supplies to report lead and copper monitoring information within 10 days after the end of the monitoring period. This form may be used to meet this requirement. Submit the information to the appropriate Department of Environmental Quality (DEQ) district office. For district office addresses, visit www.michigan.gov/deq and click on Locations.

1. Water Supply Name: City of Flint Water Plant
2. County: Genesee 3. WSSN: 2310
4. Population: 99,763 5. Monitoring Period: From: 1/1/15 To: 6/30/15
6. Minimum # of Samples Required: 18560 7. # of Samples Taken: 117269
8. Name of Certified Laboratory: DEQ Drinking Water Laboratory

9. SAMPLE CRITERIA:

Yes	No	Explain No responses in Comments block.
☐	☒	a. Are the same sampling points used as in the previous monitoring period?
☐	☒	b. Are all samples from Tier 1 sites?
☒	☐	c. Are all samples from Tier 1, 2, or 3 sites giving Tier 1 priority?
☒	☐	d. If no Tier 1, 2, or 3 sites are available, do all sites have plumbing materials commonly found at other locations in the system?
☒	☐	e. Is the minimum number of lead service line samples taken (when applicable)?

For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

Comments:
A total of 175 sample bottles and instructions were distributed to city residents. We are continuing to solicit samples due to the fact that we did not reach the minimum number for this monitoring period.

Lead service -- majority (30,000?)

10. NAME:

Name: Michael Glasgow

Title: Utilities Administrator

Phone: 810-766-7135

Date: 7/28/2015

11. TAP SAMPLING DATA: (Use additional sheets as needed)

DRAFTWater Supply Name/County City of Flint Water PlantWSSN 2310**RESULTS:**

Sample Location	Sample Date	Sample Category ¹	Service Lines ²	Bldg Plumb-Ing ²	Lead (ppb)	Copper (ppb)	Lab #
2205 Flusing Rd	2/15/15	1	L	C,P	N.D.	0.13	54663
212 Browning Ave.	2/18/15	1	L	P	104	N.D.	54945
1809 Stevenson St.	2/10/15	1	L	P	10	N.D.	54956
4202 Custer Ave.	3/4/15	1	L	C,P	6	0.27	56223
401 E. Newall St.	3/2/15	1	L	P	5	N.D.	56225
215 Browning Ave. <i>ok</i>	3/21/15	1	L	C,P	N.D.	0.16	56226
2615 Trumbull Ave.	2/27/15	1	L	C,P	3	N.D.	56227
201 Browning Ave. <i>ok</i>	3/5/15	1	L	P	N.D.	N.D.	56228
1224 Decker St.	3/17/15	1	L	C,P	13	0.10	57728
1220 Decker St.	3/17/15	1	L	P	4	N.D.	57730
1379 Washington Ave.	3/19/15	1	L	P	8	N.D.	57731
1383 Washington Ave.	3/19/15	1	L	C,P	6	0.17	57734
1372 Washington Ave.	3/19/15	1	L	C,P	2	0.14	57733
1367 Washington Ave.	3/17/15	1	L	P	1	N.D.	57735
1701 Marquette Dr.	3/14/15	1	L	C,P	1	0.19	57736
778 Bundy Ave.	3/24/15	1	L	P	N.D.	N.D.	58413
3714 Beecher Rd.	3/24/15	1	L	C	2	0.52	58414
1016 Ingleside Ave.	4/9/15	1	L	C,P	7	0.07	59749
1818 Rock Creek Ln.	4/6/15	1	L	C,P	3	0.11	59750
3010 Cheyenne St.	4/3/15	1	L	C,P	5	0.10	59751

¹ Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

² Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90 th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

DRAFT

Water Supply Name/County City of Flint Water PlantWSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category ¹	Service Lines ²	Bldg Plumb-ing ²	Lead (ppb)	Copper (ppb)	Lab #
2606 Mountain Ave.	4/15/15	1	L	P	N.D.	N.D.	60546
2020 Crooked Ln.	4/24/15	1	L	C,P	5	0.10	61845
310 E. Moore St.	4/22/15	1	L	P	5	N.D.	61846
631 Alvord Ave.	5/6/15	1	L	P	42	N.D.	63410
216 Browning Ave.	5/7/15	1	L	C,P	22	0.31	63411
3714 Beecher Rd.	5/14/15	1	L	C,P	8	0.15	64283
625 S. Grand Traverse	5/18/15	5	L	C,P	20	0.14	64284 X
912 Lexington Ave.	5/15/15	1	L	P	6	N.D.	64285
349 Robbie Ln.	5/31/15	1	L	P	2	N.D.	67428
353 Robbie Ln.	5/30/15	1	L	C,P	5	0.11	67427
341 Robbie Ln.	5/31/15	1	L	C,P	3	0.05	67426
328 Robbie Ln.	5/30/15	1	L	C,P	2	0.09	67425
357 Robbie Ln.	5/31/15	1	L	C	3	0.20	67424
344 Robbie Ln.	5/31/15	1	L	C,P	4	0.11	67423
1807 Oren Ave.	6/8/15	1	L	P	21	N.D.	68023
421 Lyon St.	6/14/15	1	L	C,P	7	0.14	68788
1528 Delaware Ave.	6/12/15	1	L	P	3	N.D.	68789
3811 Brentwood Dr.	6/14/15	1	L	P	42	N.D.	68790
1615 S. Franklin Ave.	6/14/15	1	L	P	N.D.	N.D.	68791
853 E. 7 th St.	6/12/15	1	L	C,P	7	0.07	68792

¹ Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

² Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90 th percentile	Ave	Max	# > AL
Pb				
Cu				

DRAFT

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water PlantWSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category ¹	Service Lines ²	Bldg Plumb-ing ²	Lead (ppb)	Copper (ppb)	Lab #
1150 Woodside Dr.	6/14/15	1	L	P	29	N.D.	68793
547 Copeman Blvd.	6/14/15	1	L	P	18	N.D.	68794
920 Stocker Ave.	6/21/15	1	L	P	1	N.D.	69622
742 Lincoln Ave.	6/19/15	1	L	P	2	N.D.	69623
3517 Bennett Ave.	6/24/15	1	L	C,P	3	0.06	69624
1730 Overhill Dr.	6/22/15	1	L	C,P	1	0.08	69625
2117 Stanford Ave.	6/23/15	1	L	C,P	5	0.08	69626
2432 Beta Ln.	6/21/15	1	L	P	N.D.	N.D.	69627
2023 Miller Rd.	6/21/15	1	L	C,P	3	0.06	69628
721 East St. Apt #2	6/25/15	4	L	C,P	10	0.16	70222
3814 Whitter	6/25/15	1	L	P	2	N.D.	70223
3120 Norwood	6/24/15	1	L	P	5	N.D.	70224
2122 Pierce St.	6/21/15	1	L	P	2	N.D.	70225
3521 Bennett Ave.	8/25/15	1	L	P	3	N.D.	70226
1602 Raspberry Ln.	6/24/15	1	L	P	N.D.	N.D.	70227
1809 Lynbrook	6/26/15	1	L	P	3	N.D.	70228
2112 Sherff	6/24/15	1	L	C,P	9	0.06	70229
1205 Blanchard Ave.	6/24/15	1	L	C,P	11	0.05	70230
860 Schafer St.	6/26/15	1	L	C,P	N.D.	0.06	70231
2110 Flushing Rd.	6/30/15	1	L	C	N.D.	0.10	71158

¹ Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

² Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90 th percentile	Ave	Max	# > AL
Pb				
Cu				

20

42

11. TAP SAMPLING DATA: (Use additional sheets as needed)

DRAFT

Water Supply Name/County City of Flint Water PlantWSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category ¹	Service Lines ²	Bldg Plumbing ²	Lead (ppb)	Copper (ppb)	Lab #
2300 Flushing Rd.	6/29/15	1	L	C	3	0.28	71159
2130 Flushing Rd.	6/28/15	1	L	C,P	6	0.05	71160
2202 Flushing Rd.	6/29/15	1	L	C,P	2	0.06	71162
2429 Flushing Rd.	6/30/15	1	L	C,P	N.D.	0.06	71163
4013 Brownell Blvd.	6/29/15	1	L	C,P	2	0.08	71165
2414 Flushing Rd.	6/30/15	1	L	P	N.D.	N.D.	71166
1914 Penbrook Ln	6/29/15	1	L	P	2	N.D.	71167
3901 Leedra St.	6/26/15	1	L	P	N.D.	N.D.	71168
3142 McClure	6/26/15	1	L	P	3	N.D.	71169
2114 Flushing Rd.	6/30/15	1	L	C,P	5	0.05	71170
709 Frost St.	6/30/15	1	L	P	2	N.D.	72033

¹ Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

² Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90 th percentile	Ave	Max	# > AL
Pb				
Cu				

Consumer Notice of Lead Result in Drinking Water **DRAFT**

Water Supply Name: City of Flint
 County: Genesee WSSN: 2310
 Sample Location: 401 E. Newall St. Date Sampled: 3/2/15

Thank you for participating in the lead and copper monitoring of drinking water. The levels of lead and copper found at your location are in the table below.

Key to Table	Contaminant	AL	MCLG	Your Result
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. ppb: parts per billion or micrograms per liter.	Lead (ppb)	15	0	5
	Copper (ppb)	1300	1300	Not Detected

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

To reduce exposure to lead in drinking water:

- *Run your water to flush out lead.* Run the water until it becomes cold.
- *Use cold water for cooking and preparing baby formula.* Do not cook with or drink water from the hot water tap; lead dissolves more easily in hot water.
- *Do not boil water to remove lead.* Boiling water will not reduce lead levels.
- *Look for alternative sources or treatment of water.* If your lead result is above 15 ppb, you may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010, or www.nsf.org for information on performance standards for water filters.
- *Identify if your plumbing fixtures contain lead.* New faucets, fittings, and valves, may contain up to 8 percent lead including those advertised or labeled as "lead-free" and may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions.

Although the primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated soil, the U.S. EPA estimates that 10 to 20 percent of human exposure to lead may come from drinking water.

For more information, contact us at: City of Flint Water Plant (810) 787-6537

For more information on reducing lead exposure around your home and the health effects of lead, visit the U.S. EPA's Web site at www.epa.gov/lead, call the National Lead Information Center at 800-424-LEAD, or contact your health care provider.

Certification: WSSN: 2310
 I certify that this public water supply has provided the consumer notice of lead result to persons served at each of the taps that was tested, either by mail or by another method approved by the DEQ, within 30 days of knowing the result. The Notice includes required content.

Michael Flanagan UTILITIES ADMINISTRATOR 3/2/15
 Signature Title Date Sent to Consumer

Reminder to water supplier: Complete this certification on only one (1) example copy of a notice sent to a consumer and submit it to the DEQ.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE
**LEAD AND COPPER REPORT AND
CONSUMER NOTICE OF LEAD RESULT
CERTIFICATE FOR COMMUNITY WATER SUPPLY**



Issued under authority of 1976 PA 399, MCL 325.1001 *et al.*, and Administrative Rules, as amended.

Failure to submit this information is a violation of Act 399 and may subject the water supply to enforcement penalties.

Administrative Rule R 325.10710d requires water supplies to report lead and copper monitoring information within 10 days after the end of the monitoring period. This form may be used to meet this requirement. Submit the information to the appropriate Department of Environmental Quality (DEQ) district office. For district office addresses, visit www.michigan.gov/deq and click on Locations.

1. Water Supply Name: City of Flint Water Plant
2. County: Genesee 3. WSSN: 2310
4. Population: 99,763 5. Monitoring Period: From: 1/1/15 To: 6/30/15
6. Minimum # of Samples Required: 60 7. # of Samples Taken: 69
8. Name of Certified Laboratory: DEQ Drinking Water Laboratory

9. SAMPLE CRITERIA:

Yes	No	Explain No responses in Comments block.
☐	☒	a. Are the same sampling points used as in the previous monitoring period?
☐	☒	b. Are all samples from Tier 1 sites?
☒	☐	c. Are all samples from Tier 1, 2, or 3 sites giving Tier 1 priority?
☒	☐	d. If no Tier 1, 2, or 3 sites are available, do all sites have plumbing materials commonly found at other locations in the system?
☒	☐	e. Is the minimum number of lead service line samples taken (when applicable)?
Comments: Revised report after conference call with DEQ staff. Two samples were removed from list for not meeting sample criteria, and due to population the number of samples required was reduced to 60.		

10. NAME:

Name: Michael Glasgow

Title: Utilities Administrator Phone: 810-766-7135 Date: 8/20/2015

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water PlantWSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category ¹	Service Lines ²	Bldg Plumb-Ing ²	Lead (ppb)	Copper (ppb)	Lab #
2205 Flusing Rd	2/15/15	1	L	C,P	N.D.	0.13	54663
1809 Stevenson St.	2/10/15	1	L	P	10	N.D.	54956
4202 Custer Ave.	3/4/15	1	L	C,P	6	0.27	56223
401 E. Newall St.	3/2/15	1	L	P	5	N.D.	56225
215 Browning Ave.	3/21/15	1	L	C,P	N.D.	0.16	56226
2615 Trumbull Ave.	2/27/15	1	L	C,P	3	N.D.	56227
201 Browning Ave.	3/5/15	1	L	P	N.D.	N.D.	56228
1224 Decker St.	3/17/15	1	L	C,P	13	0.10	57728
1220 Decker St.	3/17/15	1	L	P	4	N.D.	57730
1379 Washington Ave.	3/19/15	1	L	P	8	N.D.	57731
1383 Washington Ave.	3/19/15	1	L	C,P	6	0.17	57734
1372 Washington Ave.	3/19/15	1	L	C,P	2	0.14	57733
1367 Washington Ave.	3/17/15	1	L	P	1	N.D.	57735
1701 Marquette Dr.	3/14/15	1	L	C,P	1	0.19	57736
778 Bundy Ave.	3/24/15	1	L	P	N.D.	N.D.	58413
3714 Beecher Rd.	3/24/15	1	L	C	2	0.52	58414
1016 Ingleside Ave.	4/9/15	1	L	C,P	7	0.07	59749
1818 Rock Creek Ln.	4/6/15	1	L	C,P	3	0.11	59750
3010 Cheyenne St.	4/3/15	1	L	C,P	5	0.10	59751
2606 Mountain Ave.	4/15/2015	1	L	P	N.D.	N.D.	60546

¹ Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

² Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90 th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water PlantWSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category ¹	Service Lines ²	Bldg Plumb-Ing ²	Lead (ppb)	Copper (ppb)	Lab #
2020 Crooked Ln.	4/24/15	1	L	C,P	5	0.10	61845
310 E. Moore St.	4/22/15	1	L	P	5	N.D.	61846
631 Alvord Ave.	5/6/15	1	L	P	42	N.D.	63410
216 Browning Ave.	5/7/15	1	L	C,P	22	0.31	63411
3714 Beecher Rd.	5/14/15	1	L	C,P	8	0.15	64283
912 Lexington Ave.	5/15/15	1	L	P	6	N.D.	64285
349 Robble Ln.	5/31/15	1	L	P	2	N.D.	67428
353 Robble Ln.	5/30/15	1	L	C,P	5	0.11	67427
341 Robble Ln.	5/31/15	1	L	C,P	3	0.05	67426
328 Robble Ln.	5/30/15	1	L	C,P	2	0.09	67425
357 Robble Ln.	5/31/15	1	L	C	3	0.20	67424
344 Robble Ln.	5/31/15	1	L	C,P	4	0.11	67423
1807 Oren Ave.	6/8/15	1	L	P	21	N.D.	68023
421 Lyon St.	6/14/15	1	L	C,P	7	0.14	68788
1528 Delaware Ave.	6/12/15	1	L	P	3	N.D.	68789
3811 Brentwood Dr.	6/14/15	1	L	P	42	N.D.	68790
1615 S. Franklin Ave.	6/14/15	1	L	P	N.D.	N.D.	68791
853 E. 7th St.	6/12/15	1	L	C,P	7	0.07	68792
1150 Woodside Dr.	6/14/15	1	L	P	29	N.D.	68793
547 Copeman Blvd.	6/15/14	1	L	P	18	N.D.	68794

¹ Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

² Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90 th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water PlantWSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category ¹	Service Lines ²	Bldg Plumb-ing ²	Lead (ppb)	Copper (ppb)	Lab #
2114 Flushing Rd.	6/30/15	1	L	P	5	0.05	71170
709 Frost St.	6/30/15	1	L	P	2	N.D.	72033
920 Stocker Ave.	6/21/15	1	L	P	1	N.D.	69622
742 Lincoln Ave.	6/19/15	1	L	P	2	N.D.	69623
3517 Bennett Ave.	6/24/15	1	L	C,P	3	0.06	69624
1730 Overhill Dr.	6/22/15	1	L	C,P	1	0.08	69625
2117 Stanford Ave.	6/23/15	1	L	C,P	5	0.08	69626
2432 Beta Ln.	6/21/15	1	L	P	N.D.	N.D.	69627
2023 Miller Rd.	6/21/15	1	L	C,P	3	0.06	69628
721 East St. Apt #2	6/25/15	4	L	C,P	10	0.16	70222
3814 Whitter	6/25/15	1	L	P	2	N.D.	70223
3120 Norwood	6/24/15	1	L	P	5	N.D.	70224
2122 Pierce St.	6/21/15	1	L	P	2	N.D.	70225
3521 Bennett Ave.	6/25/15	1	L	P	3	N.D.	70226
1602 Raspberry Ln.	6/24/15	1	L	P	N.D.	N.D.	70227
1809 Lynbrook	6/26/15	1	L	P	3	N.D.	70228
2112 Sherff	6/24/15	1	L	C,P	9	0.06	70229
1205 Blanchard Ave.	6/24/15	1	L	C,P	11	0.05	70230
860 Schafer St.	6/26/15	1	L	C,P	N.D.	0.06	70231
2110 Flushing Rd.	6/30/15	1	L	C	N.D.	0.10	71158

¹ Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

² Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90 th percentile	Ave	Max	# > AL
Pb				
Cu				

11. TAP SAMPLING DATA: (Use additional sheets as needed)

Water Supply Name/County City of Flint Water PlantWSSN 2310

RESULTS:

Sample Location	Sample Date	Sample Category ¹	Service Lines ²	Bldg Plumb-Ing ²	Lead (ppb)	Copper (ppb)	Lab #
2300 Flushing Rd.	6/29/15	1	L	C	3	0.28	71159
2130 Flushing Rd.	6/28/15	1	L	C,P	6	0.05	71160
2202 Flushing Rd.	6/29/15	1	L	C,P	2	0.06	71162
2429 Flushing Rd.	6/30/15	1	L	C,P	N.D.	0.06	71163
4013 Brownell Blvd.	6/29/15	1	L	C,P	2	0.08	71165
2414 Flushing Rd.	6/30/15	1	L	P	N.D.	N.D.	71166
1914 Penbrook Ln	6/29/15	1	L	P	2	N.D.	71167
3901 Leedra St.	6/26/15	1	L	P	N.D.	N.D.	71168
3142 McClure	6/26/15	1	L	P	3	N.D.	71169

¹ Sample Category: Enter a number 1 through 6 to designate the category of tap sample site. For more information see *Instructions* paragraph 11, subparagraph "Sample Category."

² Materials used for service line and building plumbing: Enter C = copper; G = galvanized; L = lead; or P = plastic.

TO BE DETERMINED BY DEQ

	90 th percentile	Ave	Max	# > AL
Pb				
Cu				

Consumer Notice of Lead Result in Drinking Water

Water Supply Name: City of Flint

County: Genesee WSSN: 2310

Sample Location: 401 E. Newall St. Date Sampled: 3/2/15

Thank you for participating in the lead and copper monitoring of drinking water. The levels of lead and copper found at your location are in the table below.

Key to Table	Contaminant	AL	MCLG	Your Result
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. ppb: parts per billion or micrograms per liter.	Lead (ppb)	15	0	5
	Copper (ppb)	1300	1300	Not Detected

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

To reduce exposure to lead in drinking water:

- *Run your water to flush out lead.* Run the water until it becomes cold.
- *Use cold water for cooking and preparing baby formula.* Do not cook with or drink water from the hot water tap; lead dissolves more easily in hot water.
- *Do not boil water to remove lead.* Boiling water will not reduce lead levels.
- *Look for alternative sources or treatment of water.* If your lead result is above 15 ppb, you may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010, or www.nsf.org for information on performance standards for water filters.
- *Identify if your plumbing fixtures contain lead.* New faucets, fittings, and valves, may contain up to 8 percent lead including those advertised or labeled as "lead-free" and may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions.

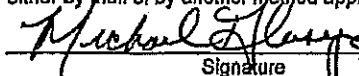
Although the primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated soil, the U.S. EPA estimates that 10 to 20 percent of human exposure to lead may come from drinking water.

For more information, contact us at: City of Flint Water Plant (810) 787-6537

For more information on reducing lead exposure around your home and the health effects of lead, visit the U.S. EPA's Web site at www.epa.gov/lead, call the National Lead Information Center at 800-424-LEAD, or contact your health care provider.

Certification:

I certify that this public water supply has provided the consumer notice of lead result to persons served at each of the taps that was tested, either by mail or by another method approved by the DEQ, within 30 days of knowing the result. The Notice includes required content.


UTILITIES ADMINISTRATOR
WSSN: 2310
 Signature Title Date Sent to Consumer

Reminder to water supplier: Complete this certification on only one (1) example copy of a notice sent to a consumer and submit it to the DEQ.



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

August 17, 2015

Mr. Brent Wright
City of Flint - DPW
Flint Water Plant
4500 North Dort Highway
Flint, Michigan 48505

Dear Mr. Wright:

SUBJECT: Flint, City of WSSN: 02310
Lead and Copper Monitoring of Drinking Water Taps

The Department of Environmental Quality (DEQ), Office of Drinking Water and Municipal Assistance (ODWMA), received your report for the monitoring period January 1, 2015, through June 30, 2015.

Action Levels	Results this monitoring period			
	90th Percentile	# of Samples Above Action Level	# of Samples Required	# of Samples Collected
Lead 15 parts per billion (ppb)	11 ppb	6	60	69
Copper 1.3 parts per million (ppm)	0.16 ppm	0	60	69

Ninety percent or more of the sites you tested are within action levels under the administrative rules promulgated under the Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399). These results must be reported on your 2015 Consumer Confidence Report (CCR) due to our office, your customers, and the local health department, by July 1, 2016. Also include the following statement in the CCR, regardless of the lead and copper levels:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Flint is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or at <http://www.water.epa.gov/drink/info/lead>.

Mr. Brent Wright

2

August 17, 2015

Recent changes to the Lead and Copper Rule (LCR) require the water supply to provide individual lead tap results to people who receive water from sites that were sampled, even if lead was not detected, within 30 days of learning of results. You must also send us a certification that you met all the delivery requirements along with a sample copy of your customer notice by three months after the end of the monitoring period. To download the *Lead and Copper Report and Consumer Notice of Lead Result Certificate* in Microsoft Word or PDF format, visit <http://www.michigan.gov/deq>. Click on Water, Drinking Water, Community Water Supply, and Reporting Forms under the Manuals, Forms and Brochures heading. Water supplies that fail to distribute the Consumer Notice of Lead Results must include the following statement in their CCR, "During the year, we failed to provide lead results to persons served at the sites that were tested as required by the Lead and Copper Rule."

While the City's LCR compliance monitoring has continued to meet action level requirements, the LCR also requires all large systems (those serving over 50,000 people) to optimize corrosion control regardless of their 90th percentile lead concentration. One way to demonstrate fully optimized corrosion control treatment is through two consecutive six month rounds of LCR compliance monitoring in which the difference between the 90th percentile level and the highest source water lead concentration is less than the Practical Quantitative Level for lead (0.005 milligrams per liter). Since the City did not meet these criteria in both the July – December 2014, and January – June 2015, sampling periods, the City must now recommend a treatment to fully optimize corrosion control treatment within six months in accordance with requirements under Act 399, Administrative Rule 604f (R 325.10604f). This recommendation must be provided to our office as soon as possible, but no later than January 1, 2016.

However, given the past use of phosphate treatment by the Detroit Water and Sewerage Department (DWSD) to fully optimize corrosion control treatment when the City was a wholesale customer of DWSD, the ODWMA recommends the City select this as its recommended treatment option, and begin implementation as soon as possible to address ongoing concerns by customers regarding lead levels within their premise plumbing systems. Under the second step of this Rule, the DEQ can specify optimal corrosion control treatment.

Our office will inform you when monitoring needs to be conducted as part of the optimization of the implemented corrosion control treatment. Customer requested samples for lead shall continue to be collected and analyzed. Please make every attempt to select the same sites used in the previous monitoring period, giving Tier 1 sites first priority. If original sites are unavailable, select replacement sites based on the Tier 1, 2, and 3 criteria.

Please contact me at 517-284-6644 or rosenthala@michigan.gov at your earliest convenience to discuss how the City will be complying with the above requirements.

Sincerely,



Adam Rosenthal, Environmental Quality Analyst
Lansing District Office
Office of Drinking Water and Municipal Assistance

cc: Mr. Michael Glasgow, City of Flint

Pb	Cu	02310 - Flint PbCu 1st 1/2 2015
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	1	0
15	1	0
16	1	0
17	1	0
18	2	0
19	2	0
20	2	0
21	2	0
22	2	0
23	2	0
24	2	0
25	2	0
26	2	0
27	2	0
28	2	0
29	3	0
30	3	0
31	3	0
32	3	0
33	3	0
34	3	50
35	3	50
36	3	50
37	3	50
38	3	60
39	3	60
40	4	60
41	4	60
42	5	60
43	5	60
44	5	70
45	5	70
46	5	80
47	5	80
48	5	80
49	5	90
50	6	100
51	6	100
52	6	100
53	6	100
54	7	110
55	7	110
56	7	110
57	8	130
58	8	140
59	9	140
60	10	150
61	10	160
62	11	160
63	13	170
64	18	190
65	21	200
66	22	270
67	29	280
68	42	310
69	42	520

90th = 62.1

90th	11.2	161 ppb
average	5.72	66.38
max	42	520
min	0	0
# > AL	6	0



Michigan Department of Environmental Quality

***Replicate Laboratory Report for
Lansing Drinking Water Laboratory***

Owner/Location Information:

CITY OF FLINT
212 BROWNING AVE
FLINT MI 48507

Sample Number: LLF54944

Sample/Collection Information:

WSSN: 02310
County: Genesee
Township:
Section:
Well #:
Collection Date: 2/11/2015 10:20:00 AM
Arrival Date: 2/19/2015 11:13:00 AM

Site Code:
Water Source: Public Community Water Supply
Sample Reason: Other
Sample Point: Treated Public Distribution System
Point Description: BATHROOM T
Collector: Public Water Supply Operator
Collected By: MIEK GLASGOW

<u>CasNo</u>	<u>Analyte</u>	<u>Result</u>	<u>Detect</u>	<u>Units</u>	<u>Method</u>
7440-50-8	COPPER (RECOVERABLE)	0.11	0.05	mg/L	EPA 200.8
7439-89-6	IRON	1.63	0.02	mg/L	EPA 200.8
7439-96-5	MANGANESE	0.18	0.01	mg/L	EPA 200.8
7440-66-6	ZINC	0.20	0.01	mg/L	EPA 200.8

Laboratory Comments:

By authority of PA 368 of 1978 as amended.

Print Date: Wed Dec 16 14:58:25 EST
2015



Michigan Department of Environmental Quality

**Replicate Laboratory Report for
Lansing Drinking Water Laboratory**

Owner/Location Information:

CITY OF FLINT
212 BROWNING AVE
FLINT MI 48507

Sample Number: LLF54945

Sample/Collection Information:

WSSN: 02310
County: Genesee
Township:
Section:
Well #:
Collection Date: 2/18/2015 7:15:00 AM
Arrival Date: 2/19/2015 11:13:00 AM

Site Code:
Water Source: Public Community Water Supply
Sample Reason: Routine Monitoring
Sample Point: Treated Public Distribution System
Point Description: KITCHEN
Collector: Private Citizen
Collected By: LEANNE WALTERS

<u>CasNo</u>	<u>Analyte</u>	<u>Result</u>	<u>Detect</u>	<u>Units</u>	<u>Method</u>
7440-50-8	COPPER (RECOVERABLE)	ND	0.05	mg/L	EPA 200.8
7439-92-1	LEAD (TOTAL)	0.104	0.001	mg/L	EPA 200.8

Laboratory Comments:

By authority of PA 368 of 1978 as amended.

Print Date: Tue Aug 4 14:16:40 EDT
2015

was whole house filter



Michigan Department of Environmental Quality

*Replicate Laboratory Report for
Lansing Drinking Water Laboratory*

Owner/Location Information:

CITY OF FLINT
212 BROWNING AVE
FLINT MI 48507

Sample Number: LLF56229

Sample/Collection Information:

WSSN: 02310
County: Genesee
Township:
Section:
Well #:
Collection Date: 2/25/2015 10:26:00 AM
Arrival Date: 3/6/2015 11:34:24 AM

Site Code:
Water Source: Single Family Dwelling
Sample Reason: Water Quality Problem
Sample Point: Treated Public Distribution System
Point Description: KITCHEN
Collector: Public Water Supply Operator
Collected By: MIKE GLASGOW

<u>CasNo</u>	<u>Analyte</u>	<u>Result</u>	<u>Detect</u>	<u>Units</u>	<u>Method</u>
7440-38-2	ARSENIC (TOTAL)	ND	0.002	mg/L	EPA 200.8
7440-39-3	BARIUM	0.01	0.01	mg/L	EPA 200.8
7440-41-7	BERYLLIUM	ND	0.0004	mg/L	EPA 200.8
7440-43-9	CADMIUM (TOTAL)	ND	0.0003	mg/L	EPA 200.8
7440-47-3	CHROMIUM (TOTAL)	ND	0.01	mg/L	EPA 200.8
7439-97-6	MERCURY	ND	0.0001	mg/L	EPA 200.8
7440-02-0	NICKEL	ND	0.01	mg/L	EPA 200.8
7439-92-1	LEAD (TOTAL)	ND	0.001	mg/L	EPA 200.8
7440-36-0	ANTIMONY	ND	0.0006	mg/L	EPA 200.8
7782-49-2	SELENIUM (TOTAL)	ND	0.001	mg/L	EPA 200.8
7440-28-0	THALLIUM	ND	0.0002	mg/L	EPA 200.8

Laboratory Comments:

By authority of PA 368 of 1978 as amended.

Print Date: Thu Aug 27 09:25:58 EDT
2015



Michigan Department of Environmental Quality

*Replicate Laboratory Report for
Lansing Drinking Water Laboratory*

Owner/Location Information:

CITY OF FLINT
212 BROWNING AVE
FLINT MI 48507

Sample Number: LLF56224

Sample/Collection Information:

WSSN: 02310
County: Genesee
Township:
Section:
Well #:
Collection Date: 3/3/2015 6:00:00 AM
Arrival Date: 3/6/2015 11:33:07 AM

Site Code:
Water Source: Single Family Dwelling
Sample Reason: Other
Sample Point: Treated Public Distribution System
Point Description: KITCHEN
Collector: Private Citizen
Collected By: LEEANNE WALTERS

<u>CasNo</u>	<u>Analyte</u>	<u>Result</u>	<u>Detect</u>	<u>Units</u>	<u>Method</u>
7440-50-8	COPPER (RECOVERABLE)	ND	0.05	mg/L	EPA 200.8
7439-92-1	LEAD (TOTAL)	0.397	0.001	mg/L	EPA 200.8

Laboratory Comments:

By authority of PA 368 of 1978 as amended.

Print Date: Wed Dec 16 15:01:25 EST
2015



**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
LF57729

Official Laboratory Report

Report To: MIKE GLASGOW
4500 N DORT HWY
FLINT MI 48505

System Name/Owner: CITY OF FLINT
Collection Address: 212 BROWNING AVE, FLINT
Collected By: MIKE GLASGOW
Township/Well#/Section: //
County: Genesee
Sample Point: KITCHEN
Water System: Treated Public Distribution System

WSSN/Pool ID: 2310
Source: Single Family Dwelling
Site Code:
Collector: Public Water Supply Operator
Date Collected: 03/18/2015 11:10
Date Received: 03/24/2015 11:05
Purpose: Other

TESTING INFORMATION			REGULATORY INFORMATION			
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	Method	CAS #
Copper	Not detected	03/25/2015	0.05	1.3	EPA 200.8	7440-50-8
Lead	0.004	03/25/2015	0.001	0.015	EPA 200.8	7439-92-1

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

*Not 1st draw
whole house filter*

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

**Replicate Laboratory Report for
Lansing Drinking Water Laboratory**

Owner/Location Information:CITY OF FLINT
212 BROWNING AVE
FLINT MI 48507Sample Number: LLF59748

Sample/Collection Information:WSSN: 02310
County: Genesee
Township:
Section:
Well #:
Collection Date: 4/2/2015 8:00:00 AM
Arrival Date: 4/14/2015 11:07:48 AMSite Code:
Water Source: Single Family Dwelling
Sample Reason: Other
Sample Point: Treated Public Distribution System
Point Description: PRE P O S
Collector: Private Citizen
Collected By: LEEANNE WALTERS

<u>CasNo</u>	<u>Analyte</u>	<u>Result</u>	<u>Detect</u>	<u>Units</u>	<u>Method</u>
7440-50-8	COPPER (RECOVERABLE)	0.11	0.05	mg/L	EPA 200.8
7439-92-1	LEAD (TOTAL)	0.707	0.001	mg/L	EPA 200.8

Laboratory Comments:

*Basement
Tap pre filter*

By authority of PA 368 of 1978 as amended.

Print Date: Thu Aug 27 09:27:00 EDT
2015

9/11/15.

Kory
Michelle

consumer awareness

campaign needs a dedicated resource/FTE
funding?

vision for what would the work be?

- analytical indicates needs SDWA regts.
- community is concerned
- coalition building
- information / message

reaction at this point

Michelle - suggests we need to meet

need agreement re: direction

Don W. } ?
 Nick L. }

- still need to contact Genesee County LHD.

EH Director

interest?

trusted party?

Michigan Department of Community Health
Flint Water Lead Communication Plan

September 9, 2015

Presented by:

MDHHS-DEH Toxicology & Response Section

Plan Overview

Project: Flint Water Lead

Name of Campaign: To be Determined (e.g. Lead us to Water: Flint Clean Water)

Objective

The Michigan Department of Health & Human Services has a mission to protect, preserve, and promote the health and safety of the people of Michigan with particular attention to providing for the needs of vulnerable and under-served populations. The residents of Flint currently perceive problems related to the usage of the Flint River as their temporary water source until a pipeline is completed which will bring water from Lake Huron. Problems – both substantiated and unsubstantiated included excess TTHM, discolored water, and high levels of lead in tap water. These problems have given rise to a well-organized community group Water You Fighting For (wateryoufightingfor.com) and has gotten the attention of water activists/researchers from Virginia Tech University (flintwaterstudy.org).

Given there is no safe level of lead for young children, a public health outreach campaign to inform the public of the sources of lead in their community is recommended. MDHHS will promote collaboration between the City of Flint, the County Health Department, community members, and other interested parties to halt human exposure of lead through development and proactive delivery of scientifically accurate information delivered in multiple formats at a literacy level that is accessible to all.

Background

Drinking water analytical reports find that the water meets the federal drinking water standards and is safe for public consumption. The aesthetic quality of the water, which may make the water unappealing to drink or use, does not make the water unsafe. Poor aesthetic quality, if true, will be a barrier to conducting an effective public health outreach campaign.

Lead is not found to be elevated in the drinking water at the source; however, citizens have reported high lead levels in their tap water. Sources of lead to the tap water are likely from lead piping or solder in or entering the home. Lead piping and solder are sources that the home-owner needs to know how to address. Additionally, older homes (pre-1978) can have lead containing paint and homes near historic high-traffic areas can have elevated lead levels in soil.

Target Markets

- Citizens of Flint who use Flint City Water
- Citizens of Flint who live in homes built in 1987 or before
- Citizens of Flint who are pregnant or have children living in the home that are 6 or

*1st bullet -
quality it to
say residents
that have lead
plumbing service
lines or high lead
solder.*

Message Summary

- There are personal actions individuals can take to prevent exposure to lead.
- Lead exposure does not just occur through water.
- You can be tested for blood lead levels to determine if you or your children been exposed.
- There are resources available to assist with remediation.

Call to Action

Exposure to lead through pipes, paint, and soil are preventable. There are steps people can take to be proactive in preventing their exposure and potential health issues. MDHHS notes that this problem is also not limited to Flint. This campaign will be created and piloted with the City of Flint, but may be expanded statewide.

Project Plan

Public Meetings –

- Begin with small groups to identify key stakeholders
- Plan larger meeting addressing
 - the lifespan of water from source to treatment center to home
 - how people can identify if their home may be affected
 - what the VTU results really mean
 - what can be done on an individual, city, and state level

e-Toolkits, Social Media & Print Outreach

- Compile existing information on being lead-safe
- Create easily shared infographics – what can be done, what are signs and symptoms
- Create brochures about health effects of lead

Project Timeline

Responsibilities	Target Date	Objective	Tasked to:
TBD	TBD	TBD	TBD

Current Media Review

<http://www.washingtontimes.com/news/2015/sep/2/flint-water-is-risky-in-old-homes-researchers-say/>

http://www.mlive.com/news/flint/index.ssf/2015/07/marchers_continue_drumbeat_for.html

- great photos

<http://www.washingtontimes.com/news/2015/jul/10/activists-rally-about-water-in-flint-after-weeklon/>

http://www.deadlinedetroit.com/articles/12697/scary_leaded_water_and_one_flint_family_s_toxic_nightmare#.VfCCoBFVhBc

<http://flintwaterstudy.org/about-page/about-us/>

<http://www.wateryoufightingfor.com/>

http://www.mlive.com/news/flint/index.ssf/2015/09/flint_mayoral_challenger_calls.html

<http://www.mlive.com/news/flint/index.ssf/2015/09/mayor.html>

<http://michiganradio.org/post/team-testing-flint-water-lead-sample-sample#stream/0>

http://www.mlive.com/news/flint/index.ssf/2015/09/new_testing_shows_flint_water.html

- On Monday, Aug. 31, the researchers reported 42 percent of 120 initial samples from Flint had lead levels that were more than 5 parts per billion, "which suggests a serious lead-in-water problem, according to our experience and criteria."
- The EPA requires water systems like Flint's to collect tap samples from sites that are more likely to have plumbing materials containing lead.
- If more than 10 percent of samples exceed 15 ppb, then water systems are required to take action, including steps to optimize corrosion control treatment.
- "The city of Flint has offered free and independent testing to residents since spring, and I encourage people to use this service if they have questions," Walling's statement said.
- Edwards, a professor of civil and environmental engineering, said the elevated lead levels he has seen in Flint tap water are tied to a corrosive water source that contains about eight times more chloride than Detroit water does.
- "Chloride is generally considered to be very corrosive to iron. For instance, chloride present in road salts applied in the winter causes iron in cars and bridges to rust," the Virginia Tech team's website says.
- "This could be a huge public health problem. ... The Flint water just ate the pipe up," Edwards said of the testing he has overseen so far.
- "If it were me, I would not be using (Flint River water) for cooking or drinking unless I had it tested for lead," said Edwards, who previously mounted a six-year campaign that succeeded in forcing the U.S. Centers for Disease Control and Prevention to admit it had misled the public about the risk of lead in the Washington, D.C., area's drinking water, according to The

Washington Post.

- Since the switch, the city has been plagued by issues such as water main breaks and boil water advisories because of bacteria and has been in violation of the Safe Drinking Water Act because of high levels of total trihalomethanes (TTHM), a byproduct of chlorinating river water.
- The Rev. Allen Overton, who hand-delivered petitions to Walling on Monday, asking that city officials reconnect the Flint water system to Detroit, said Wednesday that the Virginia Tech experiment is more evidence Flint is not using the best quality of water available.
- "We have a major health issue here, (and) they are not being honest with the citizens of Flint," Overton said.

Flint Water Petition:

https://secure3.convio.net/fww/site/Advocacy;jsessionid=7266B35978FAD2EFBD3A57D87D5085AB.app334b?pagename=homepage&page=UserAction&id=2199&autologin=true&s_src=blg&s_subsrc=070915
a

Dear [Flint Mayor Dayne Walling and Flint City Council],

Water is a basic human right. The United Nations General Assembly recognizes that access to safe drinking water and sanitation are essential to the realization of all human rights.

In 2014, Flint's emergency manager disconnected the city from the Detroit Water and Sewerage Department (DWSD) and started providing residents with water from the Flint River. Since that time, residents have been struggling to maintain access to a clean, safe drinking water supply.

Residents of Flint report having tap water with high levels of copper, lead, THMs (chemicals that result when chlorine mixes with organic matter), tin, lime and iron. The water is often brown or bluish-green in color and contains sediment. As a result, people are experiencing symptoms including hair loss, lead poisoning and diseases related to consuming high levels of copper (to name a few).

The Flint River clearly is not a safe, reliable source for the city's drinking water. It was as easy as pushing a button to disconnect from DWSD; it's time to push the button again, reconnecting Flint to DWSD and providing Flint residents with the clean, safe water they deserve.

Please reconnect Flint to the Detroit Water and Sewerage Department immediately and make water safe and clean for all.

Sincerely,

[Your Name]

[Your Address]

[City, State ZIP]

Washington DC

<https://www.dwater.com/lead/>

- Sources of lead in drinking water

- **Lead service pipe**

In the U.S., lead service pipes were installed until the mid-1950s. Older properties may still have lead service pipes, which connect the water main in the street to household plumbing. The service pipe is owned by the property owner. Under certain conditions, DC Water is authorized to repair, maintain or renew the portion of the service pipe in public space. The maintenance of the portion of the service pipe on private property is the exclusive responsibility of the property owner. A "partial" lead service pipe replacement is where a portion of the service pipe is replaced, but a portion made of lead remains in public or private space.

Lead service pipes were installed until the mid-1950s.

- **Lead solder**

This connects pipes in household plumbing. In 1987, lead solder was banned from use in household plumbing. If your house was built before 1987, your plumbing may have lead solder.

- **Brass faucets, valves or fittings**

Almost all faucets, valves and fittings have brass components. Until 2014, brass faucets and fittings sold in the U.S. and labeled "lead-free" could contain up to eight percent lead. Effective January 2014, the Reduction of Lead in Drinking Water Act specifies that these materials may not contain more than 0.25 percent lead.

- **Galvanized iron pipes**

Household galvanized pipes are old, corroded ^{? typically} pipes that were installed in many homes before the 1960s. These pipes can release lead in water if the property has, or previously had, a lead service pipe. Galvanized pipes are made with a protective layer of zinc. However, the zinc layer erodes over time and results in corrosion. When lead is released from a lead service pipe and passes through galvanized plumbing (particularly over decades of use), lead can accumulate on the inside, corroded walls of this plumbing.

Lead release from galvanized pipes can vary from home to home and can continue to occur even after a lead service pipe is replaced. Galvanized pipes can cause other water quality problems, such as low water pressure and discolored water. For additional information on household plumbing, click here.

odor + taste problems too!

<https://www.sciencenews.org/article/stillbirth-rates-tied-lead-drinking-water>

Shekter Smith, Liane (DEQ)

Subject: Flint Pb - Talk with Genesee Co. HD
Location: Conference Call -
Start: Tue 9/22/2015 3:00 PM
End: Tue 9/22/2015 4:00 PM
Recurrence: (none)
Meeting Status: Accepted
Organizer: Groetsch, Kory J. (DCH)
Required Attendees: Dawn Hallwood (dhallwood@gchd.us); Shekter Smith, Liane (DEQ); Dykema, Linda D. (DCH); Benzie, Richard (DEQ); Busch, Stephen (DEQ)

Hello All,

Attempt #3 - Genesee Co. HD is available at 3 pm on 9/22. It appears that the state employees are currently open during this time.

Purpose of the meeting is to exchange thoughts on health education needs regarding lead (Pb) exposure in Flint, MI with particular attention on the drinking water messaging needs.

Agenda:

1. Status of the situation:
 - a. DEQ
 - b. Genesee Co HD
2. Suggestions / Discussion on the correct type of effort/actions to be applied to this situation
3. Current status of resources to put toward desired efforts (i.e., Who has time to do what? aka – reality check)

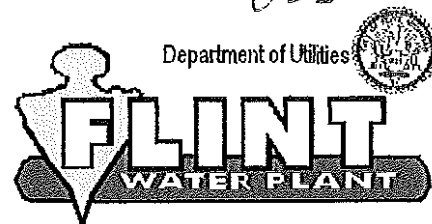
Conference Line:

Call-in Number: 1-877-873-8018
 Access code: 8282547



Dayne Walling
Mayor

DEPARTMENT OF UTILITIES
Water Plant & Facilities



Brent Wright
Water Plant Supervisor

August 25, 2014

Adam Rosenthal, EQA
Department of Environmental Quality
Water Bureau - Field Operations

Mr. Adam Rosenthal,

Enclosed are the results from our 2014 3rd quarter Water Quality Monitoring for the City of Flint Water Plant (WSSN 2310). We have added 15 sites to the 10 routine distribution sites to obtain a total of 25 samples. If you have any questions or comments, please contact me anytime.

Thank you,

DEQ
RESOURCE MANAGEMENT DIVISION

SEP 02 2014

LANSING DISTRICT

Mike Glasgow
City of Flint Water Plant
Laboratory & Water Quality Supervisor
(810)787-6537 ext. 3512
Mglasgow@cityofflint

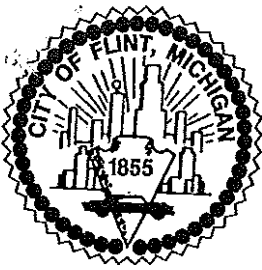


Water Quality Monitoring

3rd Quarter 2014

SAMPLE POINT IDENTIFICATION				PARAMETERS AND RESULTS				
Distribution System Location #	Sample Point Name & Address	Sample Date	Time	Temperature (C)	Conductivity (mS)	pH (su)	Total Alkalinity (mg/L CaCO ₃)	Calcium (mg/L Ca ²⁺)
#1	Arby's 3742 Davison Rd.	8/6/2014	10:36	23.0	0.388	7.74	60	49.7
#2	BP Gas Station 822 S. Dort Hwy	8/6/2014	10:49	23.9	0.372	7.76	70	52.1
#3	Liquor Palace 3302 S. Dort Hwy	8/6/2014	11:00	23.8	0.369	7.65	72	51.3
#4	Taco Bell 3606 Corunna Rd.	8/6/2014	11:34	26.8	0.359	7.69	74	53.7
#5	University Market 2501 Flushing Rd.	8/6/2014	11:47	26.5	0.383	7.58	80	56.9
#6	Salem Housing 3216 MLK Blvd.	8/6/2014	12:09	27.3	0.350	7.73	70	49.7
#7	Rite-Aid 5018 Clio Rd.	8/8/2014	10:22	20.9	0.387	7.74	78	50.5
#8	N. Flint Automotive 6204 N. Saginaw St.	8/6/2014	12:38	25.5	0.363	7.83	72	52.9
CS	Cedar Street Reservoir & Pump Station	8/6/2014	11:16	25.5	0.395	7.69	78	54.5
WS	West Side Reservoir & Pump Station	8/6/2014	11:57	26.5	0.408	7.56	82	52.1
N/A	Russell Collection Agency 3285 Van Slyke Rd	8/8/2014	11:12	25.6	0.370	7.78	74	55.3
N/A	Southwestern Academy High School 1420 W. 12th St.	8/8/2014	11:42	26.7	0.403	7.82	86	59.3
N/A	Cummings Elementary School G-2200 Walton St.	8/8/2014	11:00	25.8	0.359	7.62	78	53.7
N/A	Rite-Aid 3521 Corunna Rd.	8/8/2014	10:47	23.0	0.390	7.86	86	56.1
N/A	Kroger 2629 W. Pierson Rd.	8/6/2014	12:24	27.3	0.370	7.76	88	58.5
N/A	Tim Hortons 1274 Ballanger Hwy.	8/8/2014	10:35	21.9	0.411	7.73	86	56.1
N/A	Arby's 3559 S. Dort Hwy.	8/5/2014	11:19	23.1	0.401	7.63	88	61.7
N/A	Ya Ya's 519 S. Dort Hwy	8/5/2014	10:57	23.7	0.392	7.60	80	60.1
N/A	Taco Bell 1740 S. Dort Hwy	8/5/2014	11:09	23.2	0.412	7.60	90	60.9
N/A	Grandma's Recipe 3538 Richfield Rd.	8/5/2014	10:28	23.1	0.406	7.69	88	61.7
N/A	Flint City Hall 1101 S. Saginaw St.	8/5/2014	11:35	23.0	0.396	7.75	88	58.9
N/A	Quizzno's 3818 E. Court St.	8/5/2014	10:48	23.3	0.415	7.67	86	60.1
N/A	Whitehorse Tavern 621 W. Court St.	8/8/2014	11:53	26.1	0.390	7.81	78	57.7
N/A	Flint Public Library 1026 E. Kearsley Rd.	8/8/2014	11:45	22.2	0.446	7.82	82	64.1
N/A	Rite-Aid 3717 Fenton Rd.	8/8/2014	11:30	22.0	0.394	7.78	88	58.5

(7.7 Avg)



Dayne Walling
Mayor

DEPARTMENT OF UTILITIES
Water Plant & Facilities



Brent Wright
Water Plant Supervisor

December 21, 2014

Adam Rosenthal, EQA
Department of Environmental Quality
Water Bureau - Field Operations

DEQ
RESOURCE MANAGEMENT DIVISION

JAN 08 2015

LANSING DISTRICT

Mr. Adam Rosenthal,

Enclosed are the results from our 2014 4th quarter Water Quality Monitoring for the City of Flint Water Plant (WSSN 2310). If you have any questions or comments, please contact me anytime.

Thank you,

Mike Glasgow
City of Flint Water Plant
Laboratory & Water Quality Supervisor
(810)787-6537 ext. 3512
Mglasgow@cityofflint



Water Quality Monitoring
4th Quarter 2014

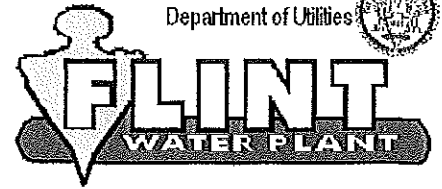
SAMPLE POINT IDENTIFICATION				PARAMETERS AND RESULTS				
Distribution System Location #	Sample Point Name & Address	Sample Date	Time	Temperature (C)	Conductivity (mS)	pH (su)	Total Alkalinity (mg/L CaCO ₃)	Calcium (mg/L Ca ²⁺)
#1	Arby's 3742 Davison Rd.	11/25/2014	10:40	16.8	0.465	7.96	114	58.5
#2	BP Gas Station 822 S.Dort Hwy	11/25/2014	10:53	14.9	0.421	7.99	114	60.9
#3	Liquor Palace 3302 S. Dort Hwy	11/25/2014	11:08	11.6	0.461	7.98	118	59.3
#4	Taco Bell 3606 Corunna Rd.	11/25/2014	11:49	17.4	0.479	7.99	118	60.1
#5	University Market 2501 Flushing Rd.	11/25/2014	12:08	15.6	0.442	7.90	116	63.3
#6	Salem Housing 3216 MLK Blvd.	11/25/2014	12:34	15.0	0.437	7.85	104	58.5
#7	Rite-Aid 5018 Clio Rd.	11/25/2014	13:00	16.1	0.448	7.99	118	62.5
#8	N. Flint Automotive 6204 N. Saginaw St.	11/25/2014	13:14	16.1	0.488	8.00	114	59.3
CS	Cedar Street Reservoir & Pump Station	11/25/2014	11:25	11.1	0.442	7.99	108	60.9
WS	West Side Reservoir & Pump Station	11/25/2014	12:18	9.1	0.449	7.96	114	59.3
N/A	Russell Collection Agency 3285 Van Slyke Rd	12/2/2014	11:35	12.2	0.372	7.67	100	64.1
N/A	Southwestern Academy High School 1420 W.12th St.	12/2/2014	11:23	12.7	0.352	7.71	100	65.7
N/A	Cummings Elementary School G-2200 Walton St.	12/2/2014	11:51	11.2	0.382	7.65	108	64.1
N/A	Rite-Aid 3521 Corunna Rd.	11/28/2014	12:37	13.2	0.405	8.03	106	55.3
N/A	Clio Rd. Pharmacy 4902 Clio Rd.	12/2/2014	13:00	13.4	0.356	7.62	100	65.7
N/A	Tim Hortons 1274 Ballanger Hwy.	11/28/2014	12:58	11.7	0.404	7.95	106	50.5
N/A	Arby's 3559 S. Dort Hwy.	11/26/2014	11:07	15.5	0.443	7.87	108	68.1
N/A	Ya Ya's 519 S. Dort Hwy	11/26/2014	10:33	12.2	0.424	7.95	106	66.5
N/A	Taco Bell 1740 S. Dort Hwy	11/26/2014	10:50	9.5	0.414	7.86	108	64.1
N/A	Grandma's Recipe 3538 Richfield Rd.	11/26/2014	9:55	15.3	0.426	7.68	114	65.7
N/A	Flint City Hall 1101 S. Saginaw St.	12/3/2014	10:00	15.7	0.404	7.84	98	61.7
N/A	Quizzno's 3818 E. Court St.	11/26/2014	10:19	11.5	0.421	7.88	122	68.1
N/A	Whitehorse Tavern 621 W. Court St.	11/28/2014	12:00	12.0	0.405	8.10	104	56.9
N/A	Flint Public Library 1026 E. Kearsley Rd.	12/3/2014	11:00	18.4	0.449	7.76	100	59.3
N/A	Rite-Aid 3717 Fenton Rd.	11/28/2014	11:48	10.5	0.407	7.88	102	56.1

7:58 AM



Dayne Walling
Mayor

DEPARTMENT OF UTILITIES
Water Plant & Facilities



Brent Wright
Water Plant Supervisor

March 24, 2015

Adam Rosenthal, EQA
Department of Environmental Quality
Water Bureau - Field Operations

Mr. Adam Rosenthal,

Enclosed are the results from our 2015 1st quarter Water Quality Monitoring for the City of Flint Water Plant (WSSN 2310). If you have any questions or comments, please contact me anytime.

Thank you,

DEQ
RESOURCE MANAGEMENT DIVISION

MAR 30 2015

LANSING DISTRICT

Mike Glasgow
City of Flint Water Plant
Laboratory & Water Quality Supervisor
(810)787-6537 ext. 3512
Mglasgow@cityofflint



Water Quality Monitoring
1st Quarter 2014

DEQ
RESOURCE MANAGEMENT DIVISION

MAR 30 2015

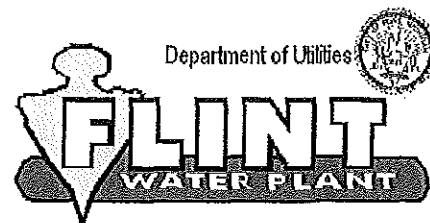
SAMPLE POINT IDENTIFICATION				PARAMETERS AND RESULTS				
Distribution System Location #	Sample Point Name & Address	Sample Date	Time	Temperature (C)	Conductivity (mS)	pH (su)	Total Alkalinity (mg/L CaCO ₃)	Calcium (mg/L Ca ²⁺)
#1	Arby's 3742 Davison Rd.	3/4/2015	10:11	6.5	0.594	7.65	119	70.5
#2	BP Gas Station 822 S.Dort Hwy	3/4/2015	10:34	3.6	0.594	7.77	128	71.3
#3	Liquor Palace 3302 S. Dort Hwy	3/4/2015	10:51	8.7	0.604	7.83	130	70.5
#4	Taco Bell 3606 Corunna Rd.	3/4/2015	11:13	4.8	0.607	7.87	128	72.1
#5	University Market 2501 Flushing Rd.	3/4/2015	11:28	3.5	0.618	7.85	124	75.4
#6	Salem Housing 3216 MLK Blvd.	3/4/2015	12:31	10.3	0.573	7.95	116	65.7
#7	Rite-Aid 5018 Clio Rd.	3/4/2015	12:46	8.1	0.602	7.93	128	77.0
#8	N. Flint Automotive 6204 N. Saginaw St.	3/4/2015	13:05	12.8	0.584	7.84	132	73.7
CS	Cedar Street Reservoir & Pump Station	3/17/2015	10:45	7.8	0.570	7.66	114	73.7
WS	West Side Reservoir & Pump Station	3/4/2015	11:49	1.9	0.609	7.86	120	77.8
N/A	Russell Collection Agency 3285 Van Slyke Rd	3/6/2015	9:49	6.4	0.540	7.69	110	81.0
N/A	Southwestern Academy High School 1420 W. 12th St.	3/11/2015	11:08	19.7	0.630	7.99	128	80.2
N/A	Cummings Elementary School G-2200 Walton St.	3/11/2015	11:23	7.1	0.569	7.81	128	83.4
N/A	Rite-Aid 3521 Corunna Rd.	3/10/2015	11:10	8.4	0.596	7.88	130	78.6
N/A	Clio Rd. Pharmacy 4902 Clio Rd.	3/5/2015	11:55	7.7	0.611	7.80	128	85.6
N/A	Tim Hortons 1274 Ballanger Hwy.	3/5/2015	11:06	5.3	0.620	7.76	124	82.6
N/A	Arby's 3559 S. Dort Hwy.	3/5/2015	10:36	11.0	0.629	7.80	130	83.4
N/A	Ya Ya's 519 S. Dort Hwy	3/13/2015	10:31	14.8	0.603	7.77	134	84.2
N/A	Taco Bell 1740 S. Dort Hwy	3/13/2015	10:41	4.7	0.586	7.77	134	84.2
N/A	Grandma's Recipe 3538 Richfield Rd.	3/5/2015	9:45	6.5	0.580	7.73	130	84.2
N/A	Flint City Hall 1101 S. Saginaw St.	3/6/2015	10:33	14.1	0.630	7.71	136	83.4
N/A	Quizzno's 3818 E. Court St.	3/12/2015	11:03	7.9	0.572	7.93	122	87.4
N/A	Whitehorse Tavern 621 W. Court St.	3/8/2015	10:12	9.1	0.834	7.60	134	84.2
N/A	Flint Public Library 1026 E. Kearsley Rd.	3/6/2015	10:56	20.7	0.606	7.85	126	81.8
N/A	Rite-Aid 3717 Fenton Rd.	3/10/2015	10:53	9.6	0.623	7.84	126	75.4

(7.81 Avg)



Dayne Walling
Mayor

DEPARTMENT OF UTILITIES
Water Plant & Facilities



Brent Wright
Water Plant Supervisor

July 2, 2015

Adam Rosenthal, EQA
Department of Environmental Quality
Water Bureau - Field Operations

DEQ
RESOURCE MANAGEMENT DIVISION

JUL 08 2015
LANSING DISTRICT

Mr. Adam Rosenthal,

Enclosed are the results from our 2015 2nd quarter Water Quality Monitoring for the City of Flint Water Plant (WSSN 2310). If you have any questions or comments, please contact me anytime.

Thank you,

Mike Glasgow
City of Flint Water Plant
Laboratory & Water Quality Supervisor
(810)787-6537 ext. 3512
Mglasgow@cityofflint



Water Quality Monitoring

2nd Quarter 2015

SAMPLE POINT IDENTIFICATION				PARAMETERS AND RESULTS				
Distribution System Location #	Sample Point Name & Address	Sample Date	Time	Temperature (C)	Conductivity (mS)	pH (su)	Total Alkalinity (mg/L CaCO ₃)	Calcium (mg/L Ca ²⁺)
#1	Arby's 3742 Davison Rd.	5/14/2015	10:17	15.1	0.475	7.53	62	62.5
#2	BP Gas Station 822 S.Dort Hwy	5/14/2015	13:32	14.7	0.471	7.51	58	60.9
#3	Liquor Palace 3302 S. Dort Hwy	5/14/2015	10:51	16.2	0.470	7.49	60	63.3
#4	Taco Bell 3606 Corunna Rd.	5/14/2015	11:25	15.2	0.471	7.52	58	61.7
#5	University Market 2501 Flushing Rd.	5/14/2015	11:42	16.5	0.480	7.48	61	64.1
#6	Salem Housing 3216 MLK Blvd.	5/14/2015	12:04	13.9	0.490	7.58	68	64.9
#7	Rite-Aid 5018 Clio Rd.	5/14/2015	12:25	11.9	0.485	7.52	64	65.7
#8	N. Flint Automotive 6204 N. Saginaw St.	5/14/2015	12:44	17.6	0.460	7.52	47	61.7
CS	Cedar Street Reservoir & Pump Station	5/12/2015	9:28	14.1	0.470	7.80	76	56.1
WS	West Side Reservoir & Pump Station	5/13/2015	10:22	17.1	0.497	7.59	70	67.3
N/A	Russell Collection Agency 3285 Van Slyke Rd	6/22/2015	12:06	19.1	0.512	7.61	77	69.7
N/A	Southwestern Academy High School 1420 W.12th St.	6/17/2015	11:14	22.3	0.523	7.66	84	70.5
N/A	Cummings Elementary School G-2200 Walton St.	6/17/2015	11:28	18.8	0.508	7.66	80	68.1
N/A	Rite-Aid 3521 Corunna Rd.	6/17/2015	11:35	19.3	0.536	7.79	92	74.5
N/A	Clio Rd. Pharmacy 4902 Clio Rd.	6/22/2015	12:30	21.4	0.498	7.69	84	66.5
N/A	Tim Hortons 1274 Ballanger Hwy.	6/17/2015	11:54	18.9	0.540	7.68	90	72.9
N/A	Arby's 3559 S. Dort Hwy.	6/15/2015	13:07	22.4	0.504	7.73	82	65.7
N/A	Ya Ya's 519 S. Dort Hwy	6/15/2015	13:17	20.4	0.506	7.70	82	68.9
N/A	Taco Bell 1740 S. Dort Hwy	6/15/2015	12:57	20.2	0.485	7.62	74	60.9
N/A	Grandma's Recipe 3538 Richfield Rd.	6/15/2015	10:27	19.3	0.496	7.61	76	64.1
N/A	Flint City Hall 1101 S. Saginaw St.	5/13/2015	10:00	18.5	0.484	7.69	68	64.9
N/A	Quizzno's 3818 E. Court St.	6/15/2015	12:45	23.6	0.495	7.73	76	64.9
N/A	Whitehorse Tavern 621 W. Court St.	6/17/2015	10:49	21.2	0.526	7.67	84	72.1
N/A	Flint Public Library 1026 E. Kearsley Rd.	6/23/2015	13:21	18.6	0.494	7.73	81	65.7
N/A	Rite-Aid 3717 Fenton Rd.	5/12/2015	9:10	17.6	0.506	7.67	80	68.9

DEQ
RESOURCE MANAGEMENT DIVISION

MAY 15 2014

LANSING DISTRICT



Coagulation Parameters

WSSN 2310

Apr-14

D A T E	Total Million Gallons Purchased	Million Gallons to County	Million Gallons to Flint			Ferric Chloride as Fe 3+ mg/l	Turbidity, NTU units						
							Raw				Plant Tap		
							# of Sample s	Avg.	Max		# of Samples	Avg.	Max
	1	1A	1B	4	5	6	7	8	9	10	11	12	13
1		0.00									3	0.12	0.18
2		0.00									3	0.08	0.08
3		0.00									3	0.07	0.08
4		0.00									3	0.08	0.08
5		0.00									3	0.07	0.08
6		0.00									3	0.07	0.08
7		0.00									2	0.08	0.10
8		0.00									3	0.08	0.08
9		0.00									3	0.08	0.10
10		0.00									3	0.07	0.08
11		0.00									3	0.06	0.07
12		0.00									3	0.08	0.08
13		0.00									3	0.06	0.06
14		0.00									1	0.09	0.09
15		0.00									1	0.11	0.11
16		0.00									0	n.s	n.s
17		0.00									3	0.07	0.08
18		0.00									3	0.06	0.07
19		0.00									3	0.06	0.07
20		0.00									0	n.s	n.s
21		0.00									3	0.08	0.08
22		0.00									3	0.07	0.08
23		0.00									3	0.07	0.07
24		0.00									3	0.07	0.08
25		0.00					2	10.2	11.8		1	0.10	0.10
26		0.00					2	11.4	13.4		2	0.08	0.10
27		0.00					2	11.4	13.7		2	0.07	0.08
28		0.00					2	14.6	15.6		2	0.07	0.07
29		0.00					2	11.3	13.2		2	0.06	0.07
30		0.00					2	10.5	11.1		2	0.08	0.10
AVG	#DIV/0!	0.00	#####				2	11.6	13.1		2	0.08	0.08
MAX	0.00	0.00	0.00				2	14.6	15.6		3	0.12	0.18
MIN	0.00	0.00	0.00				2	10.2	11.1		0	0.06	0.06
Total	0.00	0.00	0.00										

COMPLETED



Flouridation & Chlorination

WSSN 2310

Apr-14

D A T E	Fluorid e Applied F- mg/l	Fluoride Analyses mg/l			Chlorine App. Mg/l			Chlorine Residual mg/l							
						Chlorine (prior to filtration) mg/L OCl-	Post Chlorin e mg/L	B&P	Sta II	Dort	3MG Well		Tap		
		Free	Free	Free				Free			Free				
		Raw	Tap	Dist				18	19	20	21	22	23	24	25
1			0.59				0.8	0.9	0.9	0.9			0.9		
2			0.58				1.0	1.0	0.9	0.9			0.9		
3			0.63				0.8	1.1	1.0	0.9			0.9		
4			0.65				1.0	1.1	0.9	1.0			1.0		
5			0.66				1.0	1.1	1.1	1.0			1.1		
6			0.65				1.0	1.0	1.0	1.0			0.9		
7			0.71				n.s	n.s	n.s	n.s			1.0		
8			0.68				0.8	1.0	0.9	0.9			0.9		
9			0.64				1.0	1.0	0.9	0.9			0.8		
10			0.68				0.9	1.0	0.9	0.9			0.8		
11			0.64				1.0	1.2	1.0	1.0			1.0		
12			0.63				0.8	0.9	0.8	0.8			1.0		
13			0.67				0.9	1.0	0.9	0.8			0.9		
14			0.62				0.9	1.0	1.0	0.9			1.0		
15			0.54				0.9	1.1	1.0	n/a			1.0		
16			0.54				0.9	1.0	0.9	n/a			0.8		
17			0.59				0.8	1.1	0.9	n/a			0.9		
18			0.54				0.9	1.0	1.0	n/a			1.0		
19			0.57				0.8	1.0	0.9	n/a			1.0		
20			n/a				n.s	n.s	n.s	n/a			n.s		
21			0.61				0.9	1.0	0.9	n/a			1.0		
22			0.66				0.8	1.1	0.9	n/a			1.0		
23			0.61				0.8	1.0	0.9	n/a			0.8		
24			0.61				n.s	1.0	0.9	n/a			0.9		
25		0.14	0.59			3.5	n.s	n/a	n.s	1.7			0.8		
26		0.14	0.53			3.5	n.s	n/a	n.s	1.6			0.9		
27		0.13	0.53			3.6	n.s	n/a	n.s	1.5			1.0		
28		0.13	0.19			3.7	n.s	n/a	n.s	1.4			0.9		
29		0.15	0.58			3.7	n.s	n/a	n.s	1.5			0.9		
30		0.15	0.62			3.5	n.s	n/a	n.s	1.7			0.8		
AVG		0.14	0.60			3.6	0.9	1.0	0.9	1.1			0.9		
MAX		0.15	0.71			3.7	1.0	1.2	1.1	1.7			1.1		
MIN		0.13	0.19			3.5	0.8	0.9	0.8	0.8			0.8		

n.s. = no sample collected/tested



Chemical Analyses

WSSN 2310

Apr-14

D A T E	pH		Total Hard as CaCO ₃ mg/l		Total Alk as CaCO ₃ mg/l		NonCarbonate Hardness as CaCO ₃ mg/l				Calcium Ca ++ mg/l		Magnesium as Mg ++ mg/l		Chloride as Cl - mg/l	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1		7.57		98		74		24				30.5		5.3		
2		7.36		98		73		25				29.7		5.8		
3		7.33		98		74		24				30.5		5.3		
4		7.32		100		75		25				32.1		4.9		
5		7.44		100		76		24				30.5		5.8		
6		7.32		98		74		24				28.9		6.3		
7		7.41		100		73		27				31.3		5.3		
8		7.62		98		69		29				28.9		6.3		
9		7.46		98		72		26				29.7		5.8		
10		7.39		98		71		27				28.9		6.3		
11		7.34		100		75		25				31.3		5.3		
12		7.56		102		71		31				28.1		7.8		
13		7.37		96		64		32				28.9		5.8		
14		7.32		96		75		21				28.9		5.8		
15		7.46		98		73		25				28.9		6.3		
16		7.47		96		66		30				28.9		5.8		
17		7.32		96		71		25				29.7		5.3		
18		7.30		98		73		25				31.3		4.9		
19		7.28		100		72		28				28.9		6.8		
20		n.s		n.s		n.s		n.s				n.s		n.s		
21		7.34		98		74		24				29.7		5.8		
22		7.26		98		72		26				29.7		5.8		
23		7.25		98		71		27				29.7		5.8		
24		7.46		96		71		25				29.7		5.3		
25		7.39		96		75	0	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		7.42		98		72		26				30.4		5.9		
MAX		8.46		102		76		32				46.5		8.3		
MIN		7.25		92		60		21				28.1		4.9		

n.s. = no sample collected/tested



Bacteriological & Physical Parameters

WSSN 2310

Apr-14

D A T E	Total Coliform							Standard Plate Count		Wind Direction	Temp deg.C	Color		Odor	
	Plant Tap							Raw	Tap			Raw	Tap	Raw	Tap
	B&P	C.F.E.	Dort	3MG Well	C.S. #2	Lab Tap									
60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	
1	1/0		2/0	2/0	2/0	2/0					10.1				
2	1/0		2/0	2/0	2/0	2/0					10.1				
3	1/0		2/0	2/0	2/0	2/0					11.7				
4	1/0		2/0	2/0	2/0	2/0					11.7				
5	1/0		2/0	2/0	2/0	2/0					10.9				
6	1/0		2/0	2/0	2/0	2/0					10.7				
7	0/0		0/0	0/0	0/0	2/0					11.3				
8	1/0		2/0	2/0	2/0	2/0					9.9				
9	1/0		2/0	2/0	2/0	2/0					10.2				
10	1/0		2/0	2/0	2/0	2/0			< 2		8.8				
11	1/0		2/0	2/0	2/0	2/0					9.1				
12	1/0		2/0	2/0	2/0	2/0					10.1				
13	1/0		2/0	2/0	2/0	2/0					9.8				
14	1/0		2/0	2/0	2/0	2/0					9.9				
15	1/0		2/0	2/0	2/0	2/0					8.9				
16	1/0		2/0	2/0	2/0	2/0					10.6				
17	1/0		2/0	0/0	2/0	2/0					9.4				
18	1/0		1/0	0/0	1/0	2/0					9.2				
19	1/0		2/0	0/0	2/0	2/0					8.3				
20	0/0		0/0	0/0	0/0	0/0					n.s				
21	1/0		2/0	0/0	2/0	2/0					8.1				
22	1/0		2/0	0/0	2/0	2/0					7.7				
23	1/0		2/0	0/0	2/0	2/0					9.3				
24	1/0		2/0	2/0	2/0	2/0					8.7				
25	1/0	10/0	0/0	1/0	n/a	1/0			< 2		8.7				
26	1/0	12/0	0/0	1/0	n/a	1/0		> 1476	< 2		9.0				
27	1/0	12/0	0/0	1/0	n/a	1/0		142	< 2		8.8				
28	1/0	12/0	0/0	1/0	n/a	1/0		532	< 2		7.9				
29	1/0	4/0	0/0	1/0	n/a	1/0			< 2		8.5				
30	1/0	6/0	0/0	1/0	n/a	1/0		1246	< 2		10.3				
C.F.E. = Combined Filter Effluent											9.6				
											11.7				
											7.7				

n.s. = no sample collected/tested



Distribution System Monitoring

WSSN 2310

Apr-14

[illegible]

Apr-14

[illegible]



ROUTINE POSITIVE DISTRIBUTION SAMPLES

Apr-14

Total number of positive routine samples:				Total Coliform: <u>0</u>		Fecal Coliform: <u>0</u>	
Date	Monitoring Station	Total Coliform	Fecal Coliform	Date	Retest of Station, Upstream & Downstream	Total Coliform	Fecal Coliform
Total number of routine distribution samples analyzed:				114			
Total number of routine distribution samples required:				100			

MONTHLY OPERATION REPORT OF WATER TREATMENT PLANT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

Michael Glasgow
Operator-in-Charge

May 2014
Month/Year

F-1R, F-2
Certification of Operator-in-Charge

F-1
Water Plant Classification

Michael Glasgow
Signature of Operator-in-Charge

Genesee
County

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>26.9</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>101</u>	Hours
Average Head Loss:	<u>*</u>	Feet
Average Filtration Rate:	<u>2.6</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>3.8</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>2</u>	Percent of Treated Water

Chemical Data

Chlorine on hand:	<u>22000</u> lb.	Est. supply:	<u>20</u> days
Primary Coagulant (Ferric Chloride) on hand:	<u>83765</u> lb.	Est. supply:	<u>14</u> days
Cost of All Chemicals per Million Gallons:	<u>*</u> dollars		
Total Power Cost per Million Gallons:	<u>*</u> dollars		

Remarks

Number of filter confluence samples > 0.3 NTU:	<u>3</u>
Number of filter confluence samples collected:	<u>350</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0.86%</u>
Number of filter confluence samples > 1 NTU	<u>0</u>

Did any individual filter exceed:

1.0 NTU in two consecutive measurements taken 15 minutes apart?	<u>NO</u>
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?	<u>NO</u>
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?	<u>NO</u>
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?	<u>NO</u>
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? YES*
If yes, indicate date(s) and duration on a separate sheet.

Parameters			Turbidity, Units																
Date	Million Gallons Treated	Ferric as Fe ³⁺ mg/L	Number of Samples	Raw		Applied	Confluence Point, No.1 (N) North						Confluence Point, No.2 (S) South						Point of Entry
				Avg.	Max.	Applied Avg.	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	15.1	10.9	6	9.60	12.7	5.04	6	0.10	0.19	6	0	0	6	0.07	0.08	6	0	0	0.09
2	14.7	11.3	6	10.1	10.7	7.12	6	0.06	0.07	6	0	0	6	0.07	0.10	6	0	0	0.09
3	21.4	12.3	6	11.2	12.6	7.40	6	0.15	0.18	6	0	0	6	0.11	0.15	6	0	0	0.11
4	21.4	11.8	6	26.2	31.2	8.65	6	0.11	0.13	6	0	0	6	0.10	0.11	6	0	0	0.12
5	21.6	12.3	6	12.6	14.5	5.80	6	0.16	0.23	6	0	0	6	0.14	0.18	6	0	0	0.12
6	22.3	12.1	6	15.0	20.3	4.53	6	0.21	0.27	6	0	0	6	0.18	0.21	6	0	0	0.19
7	21.9	12.1	6	15.5	14.8	5.23	6	0.13	0.16	6	0	0	6	0.12	0.17	6	0	0	0.11
8	22.7	11.7	6	12.6	15.5	4.74	6	0.16	0.25	6	0	0	6	0.11	0.13	6	0	0	0.16
9	22.2	12.0	6	9.30	9.60	4.33	6	0.12	0.15	6	0	0	6	0.11	0.16	6	0	0	0.14
10	21.8	12.2	6	13.2	15.3	5.60	6	0.11	0.18	6	0	0	6	0.09	0.10	6	0	0	0.09
11	19.1	13.8	6	12.6	14.1	5.43	6	0.19	0.29	6	0	0	6	0.08	0.09	6	0	0	0.09
12	8.5	15.3	2	12.0	13.9	8.46	1	0.09	0.09	1	0	0	1	0.07	0.07	1	0	0	0.08
13	0.0	12.9	2	11.3	14.1	n/a	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a	0.10
14	22.2	12.3	6	30.8	71.7	11.8	6	0.24	0.37	6	1	1	6	0.23	0.31	6	1	1	0.16
15	16.6	20.6	6	45.2	63.0	5.68	6	0.21	0.28	6	0	0	6	0.24	0.28	6	0	0	0.22
16	20.2	18.7	6	28.2	37.3	5.21	6	0.21	0.38	6	1	1	6	0.22	0.45	6	1	1	0.22
17	21.0	20.0	6	14.3	19.3	4.90	6	0.12	0.22	6	0	0	6	0.09	0.08	6	0	0	0.11
18	20.8	18.3	6	9.50	10.7	6.03	6	0.14	0.28	6	0	0	6	0.08	0.09	6	0	0	0.09
19	22.0	18.2	6	9.20	11.3	4.59	6	0.12	0.17	6	0	0	6	0.07	0.10	6	0	0	0.09
20	22.1	18.0	6	7.20	8.40	4.63	6	0.11	0.11	6	0	0	6	0.09	0.11	6	0	0	0.09
21	21.0	19.4	6	7.80	8.90	6.27	6	0.11	0.18	6	0	0	6	0.08	0.08	6	0	0	0.09
22	21.0	18.6	6	9.40	11.3	6.50	6	0.11	0.16	6	0	0	6	0.07	0.09	6	0	0	0.08
23	21.0	18.9	6	9.10	10.4	6.24	6	0.11	0.13	6	0	0	6	0.08	0.09	6	0	0	0.08
24	20.8	17.9	6	7.10	8.30	5.38	6	0.12	0.18	6	0	0	6	0.08	0.09	6	0	0	0.09
25	21.0	18.3	6	6.00	7.30	5.62	6	0.14	0.22	6	0	0	6	0.18	0.25	6	0	0	0.10
26	22.0	18.0	6	5.20	5.60	3.23	6	0.12	0.14	6	0	0	6	0.10	0.13	6	0	0	0.11
27	20.6	19.4	6	5.70	7.30	2.78	6	0.13	0.18	6	0	0	6	0.12	0.14	6	0	0	0.10
28	20.1	20.0	6	4.20	5.30	3.52	6	0.11	0.13	6	0	0	6	0.08	0.08	6	0	0	0.08
29	19.7	20.0	6	5.20	10.3	3.72	6	0.09	0.12	6	0	0	6	0.07	0.08	6	0	0	0.06
30	19.3	16.1	6	3.50	5.30	3.54	6	0.11	0.16	6	0	0	6	0.07	0.07	6	0	0	0.06
31	18.0	17.6	6	3.50	4.40	2.23	6	0.09	0.12	6	0	0	6	0.08	0.09	6	0	0	0.08
Avg.	19.4	15.8	6	12.3		5.51	6	0.13	0.19	6	0	0	6	0.11	0.14	6	0	0	
Max.	22.7	20.6	6	45.2	71.7	11.8	6	0.24	0.38	6	1	1	6	0.24	0.45	6	1	1	0.22
Min.	0.0	10.9	2	3.50		2.23	0	0.06	0.07	0	0	0	0	0.07	0.07	0	0	0	
Total	602.1																		

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

May 2014

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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	0.14	0.19		3.4	0.0	3.4	1.4	1.6	1.4	1.6	1.2	1.5
2	0	0.15	0.34		4.0	0.0	4.0	1.2	1.3	1.6	2.0	1.3	1.6
3	0	0.14	0.18		4.0	0.0	4.0	1.8	2.2	1.7	2.0	1.5	1.7
4	0	0.15	0.24		4.4	0.0	4.4	2.2	2.6	1.5	1.7	1.8	2.2
5	0	0.14	0.13		4.7	0.0	4.7	1.9	2.2	1.8	2.1	1.2	1.4
6	0	0.14	0.13		4.9	0.0	4.9	1.9	2.3	1.7	1.9	1.2	1.5
7	0	0.15	0.14		4.9	0.0	4.9	1.8	2.2	2.0	2.3	1.9	2.2
8	0	0.15	0.14	0.17	4.7	0.0	4.7	1.8	2.3	1.8	2.2	1.7	2.1
9	0	0.15	0.13		5.1	0.0	5.1	1.5	1.9	1.7	2.0	1.5	1.9
10	0	0.15	0.14		5.2	0.0	5.2	2.0	2.5	1.7	2.1	1.5	2.0
11	0	0.16	0.14		5.6	0.0	5.6	2.1	2.6	2.0	2.6	1.7	2.1
12	0	0.15	0.13		6.9	0.0	6.9	1.8	2.4	1.7	2.2	1.4	2.0
13	0	0.15	0.25		5.0	0.0	5.0	n/a	n/a	1.7	2.0	1.5	1.8
14	0	0.15	0.13	0.23	4.9	0.0	4.9	1.9	2.3	1.5	1.9	1.5	1.8
15	0	0.14	0.14		6.2	0.0	6.2	2.0	2.4	2.0	2.5	2.2	2.6
16	0	0.14	0.13		5.3	0.0	5.3	1.9	2.3	1.6	2.0	1.4	1.7
17	0	0.15	0.14		5.1	0.6	5.7	1.7	2.1	1.6	1.9	1.6	2.0
18	0	0.16	0.15		5.1	0.6	5.7	1.5	1.9	1.6	1.9	1.4	1.7
19	0	0.15	0.14		4.7	0.2	4.9	1.6	1.8	1.9	2.3	1.5	1.7
20	0	0.15	0.15		5.0	0.5	5.5	1.9	2.3	2.1	2.6	1.6	1.9
21	0	0.15	0.16		4.9	0.4	5.3	1.8	2.3	2.0	2.4	1.8	2.3
22	0	0.15	0.14		5.0	0.2	5.2	1.7	2.1	2.1	2.5	1.5	1.8
23	0	0.14	0.13		4.9	0.4	5.3	1.5	1.8	1.8	2.3	1.6	2.1
24	0	0.15	0.15		5.0	0.9	5.9	1.5	2.0	1.5	2.0	1.3	1.7
25	0	0.15	0.14		5.0	1.0	6.0	1.4	1.8	1.6	2.0	1.5	1.9
26	0	0.15	0.16		5.0	0.9	5.9	1.5	1.8	1.7	2.3	1.7	2.0
27	0	0.16	0.17		5.3	0.9	6.2	1.5	1.7	1.8	2.2	1.5	1.7
28	0	0.15	0.16	0.19	5.7	1.0	6.7	1.6	2.0	1.9	2.3	1.6	2.0
29	0	0.16	0.16		5.1	0.8	5.9	1.5	1.8	1.8	2.1	1.2	1.4
30	0	0.16	0.17		5.1	1.1	6.2	1.4	1.7	1.6	1.8	1.4	1.7
31	0	0.15	0.16		5.4	1.4	6.8	1.4	1.7	1.6	2.0	1.2	1.6
Avg.	0	0.15	0.16	0.20	5.0	0.4	5.4	1.7	2.1	1.7	2.1	1.5	1.9
Max.	0	0.16	0.34	0.23	6.9	1.4	6.9	2.2	2.6	2.1	2.6	2.2	2.6
Min.	0	0.14	0.13	0.17	3.4	0.0	3.4	1.2	1.3	1.4	1.6	1.2	1.4

Chemical Analyses

City of Flint Water Treatment Plant
WSSN: 2310

May 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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.44	7.71	246	146	196	66	50	80	56.7	48.1	20.9	7.8	43.0	67.0
2	8.27	7.07	250	162	196	80	54	82	83.4	48.1	10.2	10.2	44.0	41.0
3	8.26	7.47	250	132	200	60	50	72	82.6	42.5	10.7	6.3	40.0	60.0
4	8.39	7.50	256	120	196	70	60	50	86.6	60.9	6.3	6.3	47.0	60.0
5	8.39	7.41	232	152	204	76	28	76	78.6	54.5	8.7	3.9	45.0	75.0
6	8.25	7.21	240	160	202	90	38	70	80.2	54.5	9.7	7.3	53.0	71.0
7	8.24	7.24	266	210	212	130	54	80	71.3	66.5	21.4	10.7	51.0	76.0
8	8.33	7.13	272	218	210	128	62	90	86.6	84.2	10.7	2.4	n/a	n/a
9	8.29	7.22	264	224	210	130	54	94	86.6	75.4	11.7	8.7	50.0	80.0
10	8.38	7.36	260	216	214	122	46	94	81.8	73.7	13.6	7.8	48.0	80.0
11	8.35	7.46	286	230	216	126	70	104	81.0	73.7	20.4	11.2	46.0	82.0
12	8.33	7.43	266	218	208	120	58	98	99.4	72.1	4.4	9.2	45.0	76.0
13	8.28	7.24	278	202	216	114	62	88	85.8	59.3	15.6	13.1	48.0	66.0
14	8.23	7.30	264	220	208	138	56	82	68.9	68.1	22.4	12.2	45.0	72.0
15	8.06	7.42	242	206	184	122	58	84	66.5	65.7	18.5	10.2	43.0	73.0
16	8.05	7.12	234	214	196	118	38	96	81.0	69.7	7.8	9.7	41.0	90.0
17	8.16	7.21	246	206	200	98	46	108	85.8	65.7	7.8	10.2	41.0	85.0
18	8.29	7.27	280	212	206	116	74	96	77.0	64.9	14.6	12.2	47.0	80.0
19	8.24	7.27	266	214	214	120	52	94	85.8	69.7	12.6	9.7	43.0	78.0
20	8.22	7.44	254	220	212	124	42	96	85.8	70.5	9.7	10.7	43.0	80.0
21	8.23	7.42	246	226	208	118	38	108	77.8	74.5	12.6	9.7	45.0	85.0
22	8.33	7.50	244	216	208	118	36	98	79.4	72.1	11.2	8.7	42.0	85.0
23	8.22	7.49	248	222	208	114	40	108	82.6	72.9	10.2	9.7	48.0	87.0
24	8.24	7.52	258	228	208	118	50	110	78.6	72.9	15.1	11.2	42.0	80.0
25	8.30	7.49	240	228	208	124	32	104	8.6	75.4	9.7	11.2	42.0	82.0
26	8.28	7.30	248	220	208	120	40	100	84.2	81.0	9.2	4.4	41.0	80.0
27	8.21	7.55	242	226	208	126	34	100	78.6	77.0	11.2	8.3	41.0	84.0
28	8.28	7.46	242	240	208	126	34	114	82.6	80.2	8.8	9.7	43.0	87.0
29	8.23	7.46	254	224	210	114	44	110	83.4	78.6	11.2	6.8	42.0	88.0
30	8.33	7.49	256	230	216	132	40	98	83.4	79.4	11.7	7.8	42.0	88.0
31	8.32	7.41	248	242	212	130	36	112	77.8	74.5	13.1	13.6	40.0	78.0
Avg.	8.27	7.37	254	206	207	113	48	93	78.3	68.6	12.3	9.1	44.4	77.2
Max.	8.44	7.71	286	242	216	138	74	114	99.4	84.2	22.4	13.6	53	90
Min.	8.05	7.07	232	120	184	60	28	50	8.6	42.5	4.4	2.4	40	41

Bacteriological &
Physical ParametersCity of Flint Water Treatment Plant
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May 2014

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Physical Parameters			WSSN: 2310												
Date	Total Coliform						Standard Plate Count		Wind Direction	Temp. C	Color		Odor		
	Raw (Coli-ert MPN)		Filter Confluence (N&S)		Plant Tap										
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap			Raw	Raw	Tap	Raw	Tap
1	1	1166	12	0	1	0	14760	<2		12.6					
2	1	864	12	0	1	0	800	<2		13.2					
3	1	930	12	0	1	0	1300	<2		12.0					
4	1	974	12	0	1	0	>14760	<2		13.6					
5	1	882	12	0	1	0	>14760	<2		12.5					
6	1	618	12	0	1	0	12460	<2		14.9					
7	1	728	12	0	1	0	>14760	<2		14.3					
8	1	426	12	0	1	0	9400	<2		13.4					
9	1	342	12	0	1	0	>14760	<2		16.6					
10	1	610	12	0	1	0	>14760	2		17.6					
11	1	220	12	0	1	0	>14760	2		18.1					
12	1	218	12	0	1	0	>14760	<2		18.3					
13	1	126	12	0	1	0	11100	<2		19.5					
14	1	2910	12	0	1	0	>14760	<2		19.6					
15	1	16328	12	0	1	0	14760	<2		17.4					
16	1	12588	12	0	1	0	5980	<2		13.2					
17	1	3720	12	1	1	0	3320	2		14.3					
18	1	1618	12	0	1	0	7840	<2		16.7					
19	1	4494	12	0	1	0	16.1	<2		16.1					
20	1	1816	12	0	1	0	860	<2		17.2					
21	1	4764	12	0	1	0	14760	<2		18.2					
22	1	2934	12	0	1	0	7440	<2		19.0					
23	1	960	12	0	1	0	7840	<2		18.0					
24	1	682	12	0	1	0	3780	<2		18.3					
25	1	398	12	0	1	0	14760	2		18.7					
26	1	482	12	0	1	0	>14760	<2		21.4					
27	1	2034	12	0	1	0	1600	<2		20.6					
28	1	2028	12	0	1	0	7440	<2		21.1					
29	1	918	12	0	1	0	5740	<2		20.6					
30	1	852	12	0	1	0	2160	<2		22.3					
31	1	1166	12	0	1	0	3320	<2		22.7					
Avg.										17.2					
Max.							> 14760	2		22.7					
Min.										12.0					

**Distribution System
Monitoring**

 City of Flint Water Treatment Plant
 WSSN: 2310

May 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	WR	
1									0.6	0.8	2
2									0.6	0.8	2
3											0
4											0
5									0.7	0.6	2
6									1.1	1.4	2
7	1.0	1.3	0.9	1.0	0.9	0.9	0.9	1.3	0.4	0.6	10
8	1.1	1.3	1.0	1.4	0.9	1.1	0.9	1.4	0.8	0.6	10
9									0.7	0.6	2
10											0
11											0
12									0.3	0.4	2
13									0.3	0.4	2
14	1.0	0.7	1.0	1.0	0.7	0.7	0.9	0.7	0.3	0.4	10
15	0.6	0.5	0.5	0.3	0.2	0.3	0.2	0.4	0.2		9
16									0.3		1
17											0
18											0
19									0.4	0.3	2
20									0.3	0.3	2
21	0.3	1.2	0.7	0.8	0.5	1.0	0.7	1.2	0.3	0.3	10
22	0.8	0.9	0.7	0.4					0.3	0.2	6
23									0.3	0.2	2
24											0
25											0
26									0.3	0.1	2
27									0.2	0.0	2
28	0.7	0.9	0.6	0.1	0.5	0.8	0.5	1.0	0.2	0.1	10
29	0.7	1.1	0.6	0.9	0.3	0.9	0.9	1.1	0.3	0.1	10
30											0
31											0

Distribution Sample Summary

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

Distribution Disinfectant Free Residual Summary

Percent samples with a detectable disinfectant residual	99
Average disinfectant residual this month	0.7

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

**Distribution System
Monitoring**

 City of Flint Water Treatment Plant
WSSN: 2310

May 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	WR	
1									0.7	1.0	2
2									0.7	0.8	2
3											0
4											0
5									1.0	0.8	2
6									1.9	0.9	2
7	1.5	1.7	1.4	1.4	1.1	1.1	1.1	1.7	0.6	0.9	10
8	1.6	1.9	1.2	1.7	1.3	1.7	1.3	1.7	0.9	1.1	10
9									0.9	0.8	2
10											0
11											0
12									0.4	0.6	2
13									0.4	0.7	2
14	1.3	1.0	1.4	1.3	1.0	1.1	1.2	0.9	0.4	0.7	10
15	0.8	0.7	1.0	0.6	0.5	0.7	0.7	0.7	0.3		9
16									0.4		1
17											0
18											0
19									0.5	0.5	2
20									0.4	0.5	2
21	0.4	1.9	1.2	1.3	1.0	1.5	1.1	1.6	0.4	0.4	10
22	1.2	1.5	1.0	1.7					0.5	0.3	6
23									0.4	0.3	2
24											0
25											0
26											0
27									0.4	0.2	2
28	1.1	1.2	1.0	0.3	0.8	1.1	0.9	1.4	0.3	0.2	10
29	1.1	1.5	1.1	1.1	0.5	1.1	1.1	1.2	0.5	0.3	10
30											0
31											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100
Average disinfectant residual this month	1.0

Cover Page Notes:

1. Filter head loss meters are not operational on our SCADA. They will be operational after our SCADA upgrades are complete. The SCADA upgrades are out for bid at the moment.
2. No cost analysis done for chemicals or power. An accurate chemical cost could not be determined due to polymer usage. We were given significant quantities (4-5 days) of polymer to use as a trial on two different occasions. No power cost was determined because I am trying to gain access to the correct monthly power cost.
3. POE continuous chlorine residual monitoring equipment has not been installed. We plan to move the continuous chlorine analyzer from the 3MG Well to the discharge side of the high service pumps. At this time we are taking residuals in the 3MG well, and using our lab tap to represent POE.

Report Notes:

1. Plant operations were shut down on 5/12 until 5/14. This was done to drain a softening clarifier and change plant set-up to test a new polymer. Storage reservoirs were utilized during this time.
-
-

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT

WSSN: 2310

Michael Glasgow

Operator-in-Charge

June 2014

Month/Year

F-1R, F-2

Certification of Operator-in-Charge

F-1

Water Plant Classification

DEQ
RESOURCE MANAGEMENT DIVISION*Michael Glasgow*

Signature of Operator-in-Charge

Genesee

County

JUL 28 2014

LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>25</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>74</u>	Hours
Average Head Loss:	<u>*</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.5</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>3.5</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>3.6%</u>	Percent of Treated Water

Chemical Data

Chlorine on hand:	<u>24000</u> lb.	Est. supply:	<u>20</u> days
Primary Coagulant (Ferric Chloride) on hand:	<u>63450</u> lb.	Est. supply:	<u>10</u> days
Lime (CaO) on hand:	<u>169</u> tons	Est. supply:	<u>18</u> days
Fluoride on Hand:	<u>9064</u> lb.	Est. supply:	<u>16</u> days
Cost of All Chemicals per Million Gallons:	<u>*</u> dollars		
Total Power Cost per Million Gallons:	<u>*</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:

180180

Percent of filter confluence samples > 0.3 NTU:

0.00%0.00%

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.

COMPLETED

[illegible]

Filter turbidity

City of Flint Water Treatment Plant
WSSN: 2310

June 2014

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Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	6	0.09	0.12	6	0	0	6	0.09	0.11	6	0	0	0.07
2	6	0.11	0.16	6	0	0	6	0.10	0.14	6	0	0	0.09
3	6	0.14	0.23	6	0	0	6	0.12	0.19	6	0	0	0.11
4	6	0.14	0.19	6	0	0	6	0.09	0.11	6	0	0	0.10
5	6	0.18	0.24	6	0	0	6	0.15	0.22	6	0	0	0.15
6	6	0.13	0.15	6	0	0	6	0.12	0.16	6	0	0	0.12
7	6	0.14	0.18	6	0	0	6	0.12	0.14	6	0	0	0.12
8	6	0.12	0.20	6	0	0	6	0.15	0.20	6	0	0	0.12
9	6	0.15	0.25	6	0	0	6	0.14	0.22	6	0	0	0.11
10	6	0.21	0.26	6	0	0	6	0.14	0.23	6	0	0	0.14
11	6	0.11	0.16	6	0	0	6	0.12	0.23	6	0	0	0.16
12	6	0.11	0.13	6	0	0	6	0.10	0.13	6	0	0	0.09
13	6	0.09	0.12	6	0	0	6	0.09	0.11	6	0	0	0.08
14	6	0.11	0.13	6	0	0	6	0.09	0.12	6	0	0	0.10
15	6	0.11	0.18	6	0	0	6	0.10	0.15	6	0	0	0.10
16	6	0.11	0.14	6	0	0	6	0.09	0.10	6	0	0	0.09
17	6	0.09	0.13	6	0	0	6	0.07	0.13	6	0	0	0.07
18	6	0.09	0.13	6	0	0	6	0.08	0.20	6	0	0	0.08
19	6	0.08	0.14	6	0	0	6	0.09	0.17	6	0	0	0.08
20	6	0.08	0.10	6	0	0	6	0.07	0.09	6	0	0	0.16
21	6	0.07	0.08	6	0	0	6	0.08	0.20	6	0	0	0.08
22	6	0.08	0.11	6	0	0	6	0.09	0.12	6	0	0	0.08
23	6	0.08	0.10	6	0	0	6	0.08	0.11	6	0	0	0.07
24	6	0.09	0.14	6	0	0	6	0.10	0.26	6	0	0	0.13
25	6	0.07	0.14	6	0	0	6	0.08	0.19	6	0	0	0.09
26	6	0.08	0.10	6	0	0	6	0.08	0.10	6	0	0	0.09
27	6	0.09	0.11	6	0	0	6	0.08	0.10	6	0	0	0.09
28	6	0.08	0.10	6	0	0	6	0.09	0.10	6	0	0	0.10
29	6	0.10	0.14	6	0	0	6	0.09	0.12	6	0	0	0.11
30	6	0.10	0.11	6	0	0	6	0.09	0.14	6	0	0	0.15
Avg.	6	0.11	0.15	6	0	0	6	0.10	0.15	6	0	0	
Max.	6	0.21	0.26	6	0	0	6	0.15	0.26	6	0	0	0.16
Min.	6	0.07	0.08	6	0	0	6	0.07	0.09	6	0	0	

**Fluoridation &
Chlorination**

City of Flint Water Treatment Plant
WSSN: 2310

June 2014

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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	0.00	0.15	0.17		4.8	1.5	6.3	1.3	1.6	1.5	2.0	1.2	1.7
2	0.00	0.16	0.17		4.7	1.7	6.4	1.1	1.5	1.6	2.0	1.3	1.5
3	0.00	0.16	0.16		5.4	1.8	7.2	1.0	1.5	1.5	2.0	1.3	1.7
4	0.50	0.18	0.20		5.3	2.0	7.3	1.4	1.8	1.8	2.1	1.7	2.0
5	0.50	0.14	0.45	0.25	4.5	2.0	6.5	0.9	1.2	1.6	1.9	1.3	1.7
6	0.00	0.15	0.16		4.7	2.4	7.1	0.7	1.0	1.6	1.9	1.4	1.7
7	0.00	0.14	0.18		5.5	2.8	8.3	0.7	1.0	1.6	2.0	1.3	1.6
8	0.00	0.17	0.19		5.2	2.7	7.9	0.7	0.9	1.5	1.9	1.3	1.7
9	0.00	0.17	0.18		5.1	2.7	7.8	0.5	0.9	1.7	2.1	1.3	1.8
10	0.00	0.16	0.18		4.8	2.5	7.3	0.3	0.6	1.4	1.8	1.2	1.6
11	0.00	0.17	0.14		4.8	3.1	7.9	0.9	1.2	1.7	2.2	1.6	1.9
12	0.00	0.14	0.13	0.18	4.2	2.9	7.1	0.8	1.2	2.0	2.4	1.9	2.3
13	0.00	0.16	0.14		4.4	3.4	7.8	0.6	0.8	2.4	2.8	2.1	2.4
14	0.00	0.16	0.14		4.2	3.5	7.7	0.7	1.0	2.4	2.8	2.0	2.4
15	0.00	0.16	0.13		4.1	3.5	7.6	0.4	0.8	2.3	2.9	1.7	2.0
16	0.00	0.16	0.13		4.2	3.5	7.7	0.8	1.0	2.6	3.1	2.1	2.5
17	0.00	0.15	0.13		4.6	3.1	7.7	1.1	1.5	2.5	2.9	2.2	2.5
18	0.00	0.16	0.13		5.0	2.6	7.6	1.3	1.5	2.5	3.0	2.0	2.5
19	0.00	0.14	0.13	0.18	5.0	2.9	7.9	1.4	1.6	2.7	3.1	2.1	2.4
20	0.00	0.16	0.13		5.0	3.1	8.1	1.3	1.5	2.3	2.8	1.7	2.1
21	0.00	0.16	0.13		5.0	4.0	9.0	1.1	1.4	2.3	2.8	2.0	2.2
22	0.00	0.17	0.13		4.9	4.0	8.9	0.8	1.0	2.4	3.0	2.1	2.4
23	0.00	0.16	0.13		4.7	2.6	7.3	1.4	1.7	2.5	2.8	2.2	2.7
24	0.00	0.16	0.13		4.8	2.9	7.7	1.3	1.5	2.5	2.9	2.7	3.0
25	0.00	0.16	0.13		4.7	2.9	7.6	1.2	1.5	2.5	2.9	2.0	2.4
26	0.00	0.17	0.12	0.15	3.9	3.0	6.9	1.0	1.4	2.2	2.6	2.5	3.0
27	0.00	0.16	0.13		4.9	2.7	7.6	1.2	1.5	2.9	3.2	2.1	2.5
28	0.00	0.16	0.14		4.6	3.0	7.6	1.5	1.8	2.3	3.0	2.4	3.0
29	0.00	0.15	0.14		3.8	3.5	7.3	0.8	1.2	2.3	2.8	1.9	2.3
30	0.00	0.15	0.13		4.1	3.2	7.3	0.6	0.9	2.5	3.3	1.8	2.1
Avg.	0.03	0.16	0.16	0.19	4.7	2.9	7.5	1.0	1.3	2.1	2.6	1.8	2.2
Max.	0.50	0.18	0.45	0.25	5.5	4.0	9.0	1.5	1.8	2.9	3.3	2.7	3.0
Min.	0.00	0.14	0.12	0.15	3.8	1.5	6.3	0.3	0.6	1.4	1.8	1.2	1.5

Chemical Analyses

City of Flint Water Treatment Plant
WSSN: 2310

June 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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.28	7.81	270	234	216	132	54	102	85.8	84.2	13.6	5.8	41	87
2	8.02	7.58	262	236	218	132	44	104	84.2	82.6	12.6	7.3	40	83
3	8.17	7.39	278	248	218	140	60	108	93.0	77.8	6.3	13.1	43	75
4	8.25	7.49	276	238	220	144	56	94	80.2	79.4	18.5	9.2	41	79
5	8.26	7.49	274	236	220	148	54	88	89.0	79.4	12.6	9.2	44	80
6	8.16	7.52	262	234	216	146	46	88	85.0	77.0	12.2	10.2	43	93
7	8.21	7.27	268	260	226	172	42	88	87.4	85.0	12.2	11.7	42	80
8	8.26	7.36	260	262	222	170	38	92	81.0	82.6	13.6	12.2	43	80
9	8.17	7.36	268	286	220	164	48	102	93.0	85.8	8.3	10.2	44	79
10	8.18	7.21	270	260	226	172	44	88	96.2	94.6	4.9	5.8	45	78
11	8.10	7.38	266	192	220	100	46	92	83.4	64.1	14.1	7.8	43	86
12	8.11	7.44	268	192	222	100	46	92	84.2	64.1	14.1	7.8	42	80
13	8.01	7.56	264	218	218	110	46	108	85.8	70.5	12.2	10.2	42	81
14	7.94	7.65	272	210	216	114	56	96	90.6	68.1	11.2	9.7	40	78
15	8.27	7.57	268	188	226	100	42	88	85.8	67.3	13.1	4.9	43	79
16	8.34	7.75	266	186	220	94	46	92	84.2	64.9	13.1	5.8	44	80
17	8.12	7.66	262	190	222	92	40	98	90.6	68.9	7.3	4.4	43	80
18	8.24	7.24	268	184	230	94	38	90	87.4	66.5	12.2	3.4	40	81
19	8.13	7.61	272	182	228	88	44	94	91.4	62.5	8.3	6.3	42	81
20	8.01	7.33	264	180	222	88	42	92	89.0	60.9	10.2	8.7	42	83
21	7.98	7.35	252	182	226	82	26	100	86.6	64.1	9.0	5.3	43	84
22	8.00	7.45	264	180	224	84	40	96	87.4	59.3	11.2	7.8	42	81
23	7.98	7.00	260	168	224	74	36	94	89.8	53.7	8.7	8.3	46	88
24	7.92	7.60	274	194	222	82	52	112	89.0	60.9	10.7	10.2	45	87
25	7.98	7.68	276	168	228	70	48	98	91.4	58.5	11.7	5.3	43	90
26	7.88	7.72	280	186	226	80	54	106	86.6	65.7	15.6	5.3	46	90
27	7.92	7.12	254	176	224	66	30	110	89.8	67.3	7.3	1.9	39	92
28	7.97	7.64	272	176	230	74	42	102	85.0	64.1	14.6	3.9	43	85
29	8.26	7.49	276	178	232	76	44	102	87.4	55.3	12.2	9.7	40	90
30	7.94	7.70	268	156	230	66	38	90	92.2	56.9	9.2	3.4	44	91
Avg.	8.10	7.48	268	205	223	108	45	97	87.7	69.7	11.4	7.5	43	83
Max.	8.34	7.81	280	266	232	172	60	112	96.2	94.6	18.5	13.1	46	93
Min.	7.88	7.00	252	156	216	66	26	88	80.2	53.7	4.9	1.94	39	75

**Bacteriological &
Physical Parameters**

 City of Flint Water Treatment Plant
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June 2014

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Date	Total Coliform						Standard Plate Count (Simplate MPN)		Wind Direction	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap			Raw	Raw	Tap	Raw
1	1	320	12	1	1	0	3020	<2		21.7				
2	1	62	12	0	1	0	7840	<2		20.5				
3	1	1710	12	0	1	0	4180	<2		22.4				
4	1	3232	12	0	1	0	5980	<2		22.1				
5	1	3232	12	0	1	0	1368	<2		21.5				
6	1	4286	12	2	1	0	1540	<2		22.2				
7	1	4374	12	0	1	0	11100	<2		22.5				
8	1	3328	12	0	1	0	7840	<2		21.7				
9	1	1768	12	0	1	0	9400	<2		21.5				
10	1	6152	12	0	1	0	11100	<2		23.9				
11	1	12262	12	0	1	0	3660	<2		23.4				
12	1	8704	12	0	1	0	12460	<2		22.9				
13	1	4978	12	0	1	0	1720	<2		22.3				
14	1	4092	12	0	1	0	1240	<2		20.9				
15	1	3912	12	0	1	0	1660	<2		21.7				
16	1	3440	12	0	1	0	1940	<2		22.7				
17	1	2748	12	0	1	0	1600	<2		23.3				
18	1	2338	12	0	1	0	2080	<2		23.3				
19	1	1542	12	0	1	0	7840	<2		22.8				
20	1	1678	12	0	1	0	1180	<2		22.4				
21	1	1672	12	0	1	0	960	<2		21.8				
22	1	7308	12	0	1	0	7440	<2		22.0				
23	1	4028	12	0	1	0	3900	<2		21.6				
24	1	1234	12	0	1	0	3780	<2		22.5				
25	1	2100	12	0	1	0	2240	<2		22.5				
26	1	2396	12	0	1	0	5140	<2		22.0				
27	1	1968	12	0	1	0	2000	<2		22.9				
28	1	1976	12	0	1	0	11100	<2		22.9				
29	1	2802	12	0	1	0	6780	<2		25.8				
30	1	9572	12	0	1	0	2560	<2		24.8				
Avg.										22.5				
Max.							12460	0		25.8				
Min.										20.5				

Distribution System
MonitoringCity of Flint Water Treatment Plant
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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	WR	
1											0
2									0.5	0.0	2
3									0.2	0.0	2
4	0.5	0.9	0.5	0.5	0.2	0.5	0.4	0.9	0.2	0.0	10
5	0.4	0.2	0.5	0.4	0.1	0.6	0.3	0.9	0.1	0.0	10
6									0.1	0.0	2
7											0
8											0
9									0.1	0.0	2
10	0.6	1.1	0.4	0.6	0.2	0.6	0.3	0.7	0.3	0.0	10
11									0.0	0.0	2
12	1.2	1.8	0.9	1.3	0.6	0.9	0.5	1.8	1.4	0.0	10
13									0.1	0.0	2
14											0
15											0
16									1.2	0.0	2
17	1.3	1.5	1.0	0.5	0.7	1.5	0.9	2.0	0.2	0.3	10
18	1.4	1.1	1.2	1.1	0.3	1.2	0.9	1.4	0.6	0.1	10
19									0.2	0.1	2
20											0
21											0
22											0
23											0
24											0
25	1.3	1.3	1.1	1.0	0.3	0.8	1.0	1.5	0.9	0.4	10
26	1.1	1.4	0.9	0.0	0.0	1.4	0.8	2.1	0.9	0.6	10
27									0.7	1.1	2
28											0
29											0
30									0.6	1.3	2

Distribution Sample Summary

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

Distribution Disinfectant Free Residual Summary

Percent samples with a detectable disinfectant residual	86%
Average disinfectant residual this month	0.7

Distribution Bacteriological Summary

Total # of positive routine distribution samples	2
Percent of routine distribution samples positive	2%

Positive Distribution Samples

Date	Monitoring Station	Date	Repeat Monitoring Stations	Residual	Positive or Negative
6/10/2014	WEST SIDE	6/11/2014	WS UPSTREAM	.10/.30	ABSENT
		6/11/2014	WS DOWNSTREAM	.10/.30	ABSENT
		6/11/2014	WEST SIDE	0/.10	ABSENT
6/11/2014	CEDAR STREET	6/12/2014	CS UPSTREAM	0.2/0.4	ABSENT
		6/12/2014	CS DOWNSTREAM	0.2/0.3	ABSENT
		6/12/2014	CEDAR STREET	1.4/1.8	ABSENT

Distribution System
MonitoringCity of Flint Water Treatment Plant
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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	WR	
1											0
2									0.8	0.2	2
3									0.3	0.2	2
4	1.0	1.3	0.8	0.9	0.3	1.0	0.6	1.1	0.3	0.2	10
5	0.8	0.6	0.8	0.6	0.3	0.8	0.6	1.1	0.3	0.2	10
6									0.3	0.2	2
7											0
8											0
9									0.2	0.2	2
10	1.0	1.6	0.7	1.1	0.6	1.2	0.7	1.2	0.5	0.2	10
11									0.2	0.1	2
12	1.7	2.5	1.3	1.7	0.9	1.2	0.9	2.3	1.8	0.1	10
13									0.3	0.2	2
14											0
15											0
16									1.6	0.2	2
17	1.9	1.9	1.3	0.7	1.0	2.0	1.3	2.9	0.3	0.5	10
18	2.0	1.5	1.8	1.5	0.6	1.6	1.4	2.1	0.9	0.3	10
19									0.3	0.3	2
20											0
21											0
22											0
23											0
24											0
25	1.8	1.9	1.6	1.4	0.5	1.1	1.4	2.0	1.1	0.7	10
26	1.5	1.9	1.3	0.1	0.1	1.8	1.1	2.5	1.1	0.8	10
27									1.0	1.5	2
28											0
29											0
30									0.9	1.3	2

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.0

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

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

Operator-in-Charge

July 2014

Month/Year

F-1R, F-2

Certification of Operator-in-Charge

F-1

Water Plant Classification

Michael Glasgow

Signature of Operator-in-Charge

Genesee

County

Treatment Rate and Filter Data

DEQ
RESOURCE MANAGEMENT DIVISION

Maximum Treatment Rate:	<u>24.5</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>65</u>	Hours
Average Head Loss:	<u>*</u>	Feet * (filter head loss measured on one filter)
Average Filtration Rate:	<u>2.3</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>3.8</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>2.5%</u>	Percent of Treated Water

AUG 1 2014

RANNO DISTRICT

Chemical Data

Chlorine on hand:	<u>21000</u> lb.	Est. supply:	<u>16</u> days
Primary Coagulant (Ferric Chloride) on hand:	<u>174,603</u> lb.	Est. supply:	<u>23</u> days
Lime (CaO) on hand:	<u>219</u> tons	Est. supply:	<u>21</u> days
Fluoride on Hand:	<u>16,348</u> lb.	Est. supply:	<u>27</u> days
Cost of All Chemicals per Million Gallons:	<u> </u> dollars		
Total Power Cost per Million Gallons:	<u> </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:

186186

Percent of filter confluence samples > 0.3 NTU:

0.00%0.00%

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.

COMPLETED

[illegible]

Filter turbidity

City of Flint Water Treatment Plant
WSSN: 2310

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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	6	0.07	0.10	6	0	0	6	0.07	0.10	6	0	0	0.11
2	6	0.08	0.10	6	0	0	6	0.07	0.11	6	0	0	0.21
3	6	0.08	0.10	6	0	0	6	0.08	0.12	6	0	0	0.11
4	6	0.08	0.09	6	0	0	6	0.08	0.10	6	0	0	0.11
5	6	0.07	0.08	6	0	0	6	0.07	0.08	6	0	0	0.11
6	6	0.07	0.09	6	0	0	6	0.06	0.08	6	0	0	0.11
7	6	0.06	0.10	6	0	0	6	0.07	0.11	6	0	0	0.09
8	6	0.07	0.10	6	0	0	6	0.07	0.12	6	0	0	0.20
9	6	0.08	0.11	6	0	0	6	0.07	0.13	6	0	0	0.14
10	6	0.07	0.10	6	0	0	6	0.07	0.11	6	0	0	0.11
11	6	0.08	0.10	6	0	0	6	0.07	0.10	6	0	0	0.08
12	6	0.06	0.10	6	0	0	6	0.08	0.17	6	0	0	0.08
13	6	0.08	0.14	6	0	0	6	0.07	0.11	6	0	0	0.08
14	6	0.07	0.09	6	0	0	6	0.07	0.08	6	0	0	0.08
15	6	0.06	0.08	6	0	0	6	0.07	0.10	6	0	0	0.08
16	6	0.06	0.08	6	0	0	6	0.06	0.09	6	0	0	0.08
17	6	0.07	0.10	6	0	0	6	0.05	0.07	6	0	0	0.08
18	6	0.06	0.07	6	0	0	6	0.05	0.06	6	0	0	0.08
19	6	0.06	0.07	6	0	0	6	0.06	0.08	6	0	0	0.08
20	6	0.06	0.09	6	0	0	6	0.06	0.09	6	0	0	0.08
21	6	0.11	0.10	6	0	0	6	0.08	0.15	6	0	0	0.08
22	6	0.09	0.10	6	0	0	6	0.07	0.09	6	0	0	0.08
23	6	0.09	0.10	6	0	0	6	0.09	0.09	6	0	0	0.08
24	6	0.09	0.10	6	0	0	6	0.09	0.09	6	0	0	0.08
25	6	0.09	0.10	6	0	0	6	0.09	0.11	6	0	0	0.08
26	6	0.08	0.10	6	0	0	6	0.07	0.09	6	0	0	0.08
27	6	0.07	0.10	6	0	0	6	0.08	0.10	6	0	0	0.08
28	6	0.09	0.11	6	0	0	6	0.08	0.09	6	0	0	0.08
29	6	0.08	0.09	6	0	0	6	0.07	0.09	6	0	0	0.08
30	6	0.08	0.11	6	0	0	6	0.08	0.09	6	0	0	0.08
31	6	0.08	0.09	6	0	0	6	0.08	0.10	6	0	0	0.08
Avg.	6	0.07	0.10	6	0	0	6	0.07	0.10	6	0	0	
Max.	6	0.11	0.14	6	0	0	6	0.09	0.17	6	0	0	0.21
Min.	6	0.06	0.07	6	0	0	6	0.05	0.06	6	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

July 2014

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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	0.00	0.15	0.14		4.1	3.3	7.4	0.7	1.0	1.3	1.7	1.3	1.6
2	0.04	0.15	0.56	0.15	4.0	4.0	8.0	0.9	1.1	2.5	3.2	1.9	2.2
3	0.04	0.19	0.54		3.9	4.1	8.0	0.5	0.6	3.2	3.5	1.8	1.9
4	0.04	0.19	0.56		3.8	4.1	7.9	0.5	0.8	1.9	2.4	1.4	1.7
5	0.04	0.17	0.59		3.7	4.5	8.2	0.6	0.8	2.0	2.5	1.5	1.7
6	0.30	0.17	0.58		3.5	4.6	8.1	0.6	0.9	2.0	2.4	1.7	1.9
7	0.40	0.17	0.61		3.9	5.2	9.1	0.8	1.2	2.4	3.0	1.8	2.3
8	0.50	0.15	0.64		3.6	4.7	8.3	0.5	0.7	2.9	3.5	2.1	2.3
9	0.40	0.17	0.64		3.3	4.8	8.1	0.2	0.6	2.8	3.2	1.9	2.2
10	0.50	0.17	0.73		3.4	4.6	8.0	0.6	1.0	2.7	3.5	1.5	2.0
11	0.30	0.20	0.59	0.65	2.9	4.3	7.2	0.3	0.7	1.9	2.6	1.5	1.9
12	0.40	0.15	0.66		2.8	4.3	7.1	0.3	0.6	2.0	2.4	1.5	1.9
13	0.40	0.19	0.68		2.8	4.3	7.1	0.4	0.6	1.9	2.3	1.6	1.8
14	0.40	0.20	0.72		4.3	5.1	9.4	0.7	1.0	2.1	2.6	1.9	2.2
15	0.40	0.19	0.70		4.6	4.2	8.8	0.7	1.0	2.5	3.0	2.2	2.5
16	0.40	0.19	0.71	0.66	4.3	3.6	7.9	0.7	0.9	2.2	2.7	1.9	2.2
17	0.40	0.19	0.69		4.1	3.7	7.8	0.5	0.7	2.8	3.2	1.9	2.2
18	0.40	0.22	0.65		4.5	3.6	8.1	0.8	1.1	2.5	3.0	1.9	2.3
19	0.40	0.17	0.67		4.4	3.1	7.5	0.8	1.1	2.4	2.8	1.8	2.0
20	0.40	0.21	0.66		4.3	3.1	7.4	0.7	1.0	2.5	2.9	1.8	2.1
21	0.50	0.18	0.75		4.0	2.7	6.7	0.8	1.1	2.4	2.8	1.7	2.0
22	0.40	0.19	0.65		3.4	3.4	6.8	0.6	0.8	1.8	2.2	1.4	1.7
23	0.40	0.19	0.59	0.66	3.5	4.2	7.7	0.8	1.0	2.3	2.9	1.9	2.2
24	0.40	0.19	0.64		3.6	4.1	7.7	0.6	0.8	2.2	2.8	2.1	2.6
25	0.40	0.21	0.62		4.1	4.2	8.3	0.5	0.7	2.4	2.8	1.9	2.2
26	0.60	0.21	0.88		5.3	2.7	8.0	1.4	1.7	2.5	3.1	1.9	2.3
27	0.50	0.17	0.79		4.6	2.6	7.2	0.9	1.2	2.7	3.1	1.7	1.9
28	0.50	0.19	0.72		4.7	2.7	7.4	0.9	1.1	2.1	2.6	1.6	1.8
29	0.50	0.19	0.70		4.8	2.6	7.4	1.1	1.3	2.2	2.6	1.7	2.0
30	0.50	0.19	0.28	0.62	4.5	2.7	7.2	1.1	1.5	2.2	2.6	1.8	2.1
31	0.50	0.18	0.61		3.2	3.9	7.1	0.5	0.8	2.1	2.4	1.7	2.0
Avg.	0.37	0.18	0.63	0.55	3.9	3.8	7.8	0.7	0.9	2.3	2.8	1.8	2.1
Max.	0.60	0.22	0.88	0.66	5.3	5.2	9.4	1.4	1.7	3.2	3.5	2.2	2.6
Min.	0.00	0.15	0.14	0.15	2.8	2.6	6.7	0.2	0.6	1.3	1.7	1.3	1.6

Chemical Analyses

City of Flint Water Treatment Plant
WSSN: 2310

July 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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.04	7.81	260	158	214	58	46	100	88.2	55.4	9.7	5.3	43	88
2	8.08	7.59	258	150	24	54	234	96	89.8	50.5	8.3	5.8	45	90
3	8.25	7.51	260	176	224	54	36	122	93.0	63.3	8.6	4.4	44	87
4	8.21	7.67	273	190	222	84	51	106	81.0	64.1	15.6	5.8	45	87
5	8.23	7.66	272	193	226	75	46	118	88.2	65.7	13.1	7.3	45	91
6	8.24	7.62	273	171	225	71	48	100	85.8	57.7	14.6	4.9	45	91
7	8.17	7.43	241	173	204	43	37	130	81.8	60.9	5.8	5.1	45	89
8	8.27	7.49	247	179	209	35	38	144	95.4	68.1	5.3	4.4	45	101
9	8.11	7.49	246	164	208	64	38	100	85.0	60.1	8.3	3.4	46	96
10	7.92	7.35	232	150	187	31	45	119	69.7	48.9	13.6	7.8	41	98
11	7.96	7.63	227	160	182	52	45	108	81.8	56.9	5.8	4.4	43	85
12	7.68	7.85	248	190	198	85	50	105	77.0	60.9	11.2	8.3	41	88
13	7.89	7.69	242	180	201	81	41	99	83.4	59.3	8.3	7.8	42	87
14	8.16	7.61	262	175	225	63	37	112	85.0	65.7	12.6	5.3	46	89
15	8.14	7.56	254	172	223	60	31	112	65.7	56.9	22.8	8.3	45	88
16	8.16	7.58	253	152	211	38	42	114	93.0	52.9	5.8	3.9	44	83
17	8.17	7.41	251	169	212	59	39	110	89.0	59.3	8.3	3.4	43	84
18	8.14	7.61	251	151	204	40	47	111	88.2	57.7	7.0	2.0	40	82
19	8.30	7.74	251	157	202	44	49	113	90.6	58.5	6.3	2.4	39	82
20	8.51	7.62	254	147	195	45	59	102	88.2	49.7	8.7	2.6	41	78
21	8.28	7.60	243	154	203	59	40	95	80.2	54.5	10.7	4.4	42	81
22	8.24	7.54	246	162	198	62	48	100	89.0	58.5	6.3	3.4	42	71
23	8.00	7.78	244	162	198	80	46	82	84.2	53.7	7.8	5.3	39	68
24	7.87	7.75	241	175	199	74	42	101	90.6	61.7	3.9	4.4	40	74
25	7.92	7.88	242	169	198	68	44	101	85.8	60.9	7.3	4.9	40	71
26	8.31	7.94	241	178	199	73	42	105	89.0	63.3	4.9	6.3	42	79
27	8.25	7.60	241	183	199	80	42	103	92.2	62.5	8.3	5.8	45	83
28	8.13	7.56	237	176	200	77	37	99	57.7	57.7	7.3	7.3	82	82
29	8.09	7.55	243	181	198	80	45	101	89.8	67.3	8.7	2.0	41	79
30	8.11	7.47	236	172	200	76	36	96	89.9	67.3	2.9	1.0	42	73
31	8.19	7.68	240	166	194	68	46	98	90.6	64.1	3.9	2.4	41	76
Avg.	8.13	7.62	249	169	199	62	49	107	85.1	59.5	8.8	4.8	44	84
Max.	8.51	7.94	273	193	226	85	234	144	95.4	68.1	22.8	8.3	82	101
Min.	7.68	7.35	227	147	182	31	31	82	57.7	48.9	2.9	1	39	68

205 Ave
182 min

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

July 2014

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Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conducti- vity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap			Raw	Raw	Tap	Raw
1	1	39726	12	0	1	0	10140	< 2	0.50	25.4				
2	1	5510	12	0	1	0	1940	< 2	0.50	25.2				
3	1	4764	12	0	1	0	1600	< 2	0.60	25.4				
4	1	4564	12	0	1	0	8280	< 2	0.60	25.4				
5	1	3316	12	0	1	0	7440	< 2	0.60	24.3				
6	1	2752	12	0	1	0	3540	< 2	0.50	26.1				
7	1	14540	12	0	1	0	2080	< 2	0.60	24.6				
8	1	4962	12	0	1	0	2480	< 2	0.60	24.8				
9	1	9222	12	0	1	0	14760	< 2	0.50	24.3				
10	1	15402	12	0	1	0	14760	< 2	0.50	23.8				
11	1	3130	12	1	1	0	4460	2	0.50	24.0				
12	1	3700	12	1	1	0	4620	< 2	0.60	24.0				
13	1	6152	12	0	1	0	7440	< 2	0.60	24.4				
14	1	5446	12	0	1	0	3780	< 2	0.42	24.6				
15	1	7746	12	0	1	0	5980	< 2	0.50	24.6				
16	1	5226	12	0	1	0	14760	< 2	0.50	24.0				
17	1	6152	12	0	1	0	2160	< 2	0.50	23.7				
18	1	3578	12	0	1	0	7440	< 2	0.50	23.0				
19	1	5206	12	0	1	0	2640	< 2	0.50	23.2				
20	1	4764	12	0	1	0	7100	< 2	0.50	24.3				
21	1	4978	12	0	1	0	1180	< 2	0.42	23.9				
22	1	3316	12	0	1	0	14760	< 2	0.50	24.5				
23	1	1866	12	0	1	0	14760	< 2	0.50	25.0				
24	1	10950	12	0	1	0	10140	< 2	0.50	24.5				
25	1	48329	12	0	1	0	14760	< 2	0.50	24.8				
26	1	4620	12	0	1	0	6780	< 2	0.50	25.3				
27	1	5510	12	0	1	0	7100	< 2	0.60	24.2				
28	1	16328	12	0	1	0	4460	< 2	0.47	23.3				
29	1	15402	12	0	1	0	4180	< 2	0.50	23.6				
30	1	7746	12	0	1	0	4620	< 2	0.50	22.7				
31	1	5818	12	0	1	0	14760	< 2	0.50	22.4				
Avg.									0.52	24.3				
Max.							14760	2	0.60	26.1				
Min.									0.42	22.4				

Distribution System
MonitoringCity of Flint Water Treatment Plant
WSSN: 2310

July 2014

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

Distribution Sample Summary

Total # of routine distribution samples analyzed	128
Total # of routine distribution samples required	100

Distribution Disinfectant Free Residual Summary

Percent samples with a detectable disinfectant residual	98%
Average disinfectant residual this month	0.8

Distribution Bacteriological Summary

Total # of positive routine distribution samples	2
Percent of routine distribution samples positive	2%

Positive Distribution Samples

Date	Monitoring Station	Date	Repeat Monitoring Stations	Residual	Positive or Negative
7/22/2014	Cedar Street Reservoir	7/23/2014	Cedar Street Reservoir	0.8 / 1.2	Negative
	1100 Cedar St.	7/23/2014	1035 Ann Arbor St.	0.4 / 0.7	Negative
		7/23/2014	705 W. 12th St.	0.1 / 0.3	Negative
7/30/2014	University Market	7/31/2014	University Market	0.1 / 0.3	Negative
	2501 Flushing Rd.	7/31/2014	1117 N. Chevrolet	0.0 / 0.1	Negative
		7/31/2014	1128 N. Chevrolet	0.0 / 0.1	Negative

Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WR	
1									0.9	0.8	2
2	1.3	1.7	0.8	0.8	0.6	1.3	0.6	1.6	0.3	0.8	10
3	1.1	1.7	1.0	1.2	0.3	1.8	0.5	2.0			8
4											0
5											0
6											0
7									1.1	1.8	2
8									3.4	2.2	2
9	1.6	1.9	1.4	1.6	0.7	1.8	1.0	1.4	1.2	1.3	10
10	1.7	2.0	1.4	1.6	1.1	1.5	1.1	2.0	1.5	1.3	10
11									1.1	1.3	2
12											0
13											0
14									0.8	1.4	2
15	1.5	1.7	1.3	1.4	0.5	1.0	0.7	1.8	1.5	0.3	10
16	1.1	1.4	1.2	0.3	0.2	1.3	0.8	1.6	0.3	0.7	10
17	0.9	1.6	0.9	0.3	0.3	1.3	0.6	1.8	0.3	1.3	10
18									0.4	0.2	2
19											0
20											0
21									0.5	0.3	2
22									0.2	1.4	2
23	1.0	1.6	0.9	1.1	0.1	0.9	0.5	2.0	1.2	0.2	10
24	1.2	1.1	1.1	1.0	0.2	1.2	0.6	1.8	1.7	0.1	10
25									0.7	1.6	2
26											0
27											0
28									0.7	0.2	2
29	0.4	1.4	0.6	1.0	0.3	0.8	0.8	1.6	0.5	1.3	10
30	0.7	1.1	0.7	0.6	0.1	0.4	0.2	1.4	0.1	0.1	10
31											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.0

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
 WSSN: 2310

Michael Glasgow
 Operator-in-Charge

August 2014
 Month/Year

F-1R, F-2
 Certification of Operator-in-Charge

F-1
 Water Plant Classification

Michael Glasgow
 Signature of Operator-in-Charge

Genesee DEQ
 County RESOURCE MANAGEMENT DIVISION

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>24.4</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>78</u>	Hours
Average Head Loss:		Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.2</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>2.8%</u>	Percent of Treated Water

SEP 17 2014

LANSING DISTRICT

Chemical Data

Chlorine on hand:	<u>12000</u> lb.	Est. supply:	<u>10</u> days
Primary Coagulant (Ferric Chloride) on hand:	<u>209,000</u> lb.	Est. supply:	<u>23</u> days
Lime (CaO) on hand:	<u>78</u> tons	Est. supply:	<u>8</u> days
Fluoride on Hand:	<u>23,280</u> lb.	Est. supply:	<u>38</u> days
Cost of All Chemicals per Million Gallons:		dollars	
Total Power Cost per Million Gallons:		dollars	

Remarks

Confluence Point # 1 (N)

Confluence Point # 2 (S)

Number of filter confluence samples > 0.3 NTU:	<u>0</u>	<u>0</u>
Number of filter confluence samples collected:	<u>186</u>	<u>186</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0.00%</u>	<u>0.00%</u>
Number of filter confluence samples > 1 NTU	<u>0</u>	<u>0</u>
Did any individual filter exceed:		
1.0 NTU in two consecutive measurements taken 15 minutes apart?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		
Was minimum C*T credit achieved for the entire month?		<u>YES</u>
If no, indicate on a separate sheet the date(s) not achieved.		
Was continuous POE chlorine residual monitoring equipment off-line during the month?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		

COMPLETED

[illegible]

Filter turbidity

City of Flint Water Treatment Plant
WSSN: 2310

August 2014

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Date	Turbidity, Units													
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South							Point of Entry
	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	Plant Tap NTU	
1	6	0.07	0.11	6	0	0	6	0.07	0.08	6	0	0	0.08	
2	6	0.06	0.08	6	0	0	6	0.07	0.09	6	0	0	0.08	
3	6	0.06	0.07	6	0	0	6	0.08	0.09	6	0	0	0.08	
4	6	0.09	0.11	6	0	0	6	0.09	0.10	6	0	0	0.08	
5	6	0.11	0.13	6	0	0	6	0.10	0.11	6	0	0	0.10	
6	6	0.08	0.10	6	0	0	6	0.08	0.10	6	0	0	0.09	
7	6	0.11	0.13	6	0	0	6	0.11	0.14	6	0	0	0.10	
8	6	0.08	0.09	6	0	0	6	0.09	0.10	6	0	0	0.09	
9	6	0.09	0.12	6	0	0	6	0.09	0.12	6	0	0	0.09	
10	6	0.11	0.14	6	0	0	6	0.08	0.09	6	0	0	0.10	
11	6	0.10	0.11	6	0	0	6	0.09	0.13	6	0	0	0.10	
12	6	0.09	0.10	6	0	0	6	0.11	0.16	6	0	0	0.11	
13	6	0.13	0.16	6	0	0	6	0.12	0.15	6	0	0	0.12	
14	6	0.12	0.13	6	0	0	6	0.11	0.11	6	0	0	0.12	
15	6	0.14	0.16	6	0	0	6	0.15	0.17	6	0	0	0.14	
16	6	0.19	0.23	6	0	0	6	0.18	0.19	6	0	0	0.17	
17	6	0.16	0.21	6	0	0	6	0.13	0.15	6	0	0	0.13	
18	6	0.15	0.16	6	0	0	6	0.14	0.16	6	0	0	0.13	
19	6	0.11	0.13	6	0	0	6	0.11	0.14	6	0	0	0.13	
20	6	0.09	0.11	6	0	0	6	0.08	0.15	6	0	0	0.10	
21	6	0.07	0.08	6	0	0	6	0.08	0.19	6	0	0	0.07	
22	6	0.09	0.11	6	0	0	6	0.07	0.08	6	0	0	0.09	
23	6	0.08	0.09	6	0	0	6	0.08	0.10	6	0	0	0.09	
24	6	0.08	0.09	6	0	0	6	0.07	0.10	6	0	0	0.09	
25	6	0.09	0.12	6	0	0	6	0.07	0.08	6	0	0	0.09	
26	6	0.10	0.16	6	0	0	6	0.10	0.11	6	0	0	0.09	
27	6	0.10	0.13	6	0	0	6	0.10	0.12	6	0	0	0.11	
28	6	0.11	0.13	6	0	0	6	0.10	0.12	6	0	0	0.10	
29	6	0.12	0.14	6	0	0	6	0.12	0.14	6	0	0	0.11	
30	6	0.11	0.15	6	0	0	6	0.10	0.12	6	0	0	0.12	
31	6	0.13	0.16	6	0	0	6	0.12	0.13	6	0	0	0.15	
Avg.	6	0.10	0.13	6	0	0	6	0.10	0.12	6	0	0		
Max.	6	0.19	0.23	6	0	0	6	0.18	0.19	6	0	0	0.17	
Min.	6	0.06	0.07	6	0	0	6	0.07	0.08	6	0	0		

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

August 2014

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Date	Fluoride Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediat e Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.50	0.18	0.64		3.3	3.9	7.2	0.6	0.8	2.5	2.9	1.8	2.1
2	0.50	0.19	0.66		3.2	3.8	7.0	0.7	0.9	2.3	2.7	1.3	1.5
3	0.50	0.20	0.68		3.0	4.0	7.0	0.6	0.8	2.4	2.9	1.5	1.8
4	0.50	0.19	0.71		3.1	3.5	6.6	0.4	0.6	1.9	2.3	1.3	1.6
5	0.50	0.20	0.68		3.6	3.7	7.3	0.7	1.0	2.8	3.2	2.2	2.5
6	0.50	0.20	0.76	0.72	3.8	3.9	7.7	0.9	1.2	3.0	3.5	3.3	3.5
7	0.40	0.19	0.67		3.4	4.3	7.7	0.5	0.8	2.6	2.9	1.9	2.3
8	0.50	0.19	0.67		3.4	3.4	6.8	0.7	1.0	3.2	3.5	2.0	2.5
9	0.50	0.18	0.70		3.2	2.9	6.1	0.4	0.6	1.9	2.3	1.5	1.7
10	0.50	0.18	0.71		3.2	3.4	6.6	0.5	0.8	1.9	2.4	1.3	1.6
11	0.50	0.19	0.69		3.1	3.3	6.4	0.7	1.1	2.8	3.3	2.2	2.6
12	0.50	0.19	0.72	0.68	2.6	3.8	6.4	1.1	1.3	3.0	3.5	1.5	2.0
13	0.40	0.17	0.57		2.8	4.4	7.2	0.3	0.5	3.0	3.5	2.2	2.7
14	0.40	0.17	0.58		3.5	3.9	7.4	0.2	0.3	2.0	2.5	1.1	1.5
15	0.40	0.18	0.59		3.5	3.5	7.0	0.4	0.6	2.3	2.7	1.2	1.6
16	0.40	0.20	0.59		3.3	3.6	6.9	0.4	0.6	1.9	2.3	1.4	1.8
17	0.40	0.19	0.59		3.1	3.7	6.8	0.3	0.6	2.0	2.5	1.6	1.9
18	0.40	0.19	0.58		3.2	3.6	6.8	0.3	0.6	2.2	3.0	1.0	1.4
19	0.40	0.18	0.57	0.57	3.8	3.4	7.2	0.7	1.2	3.0	3.5	1.8	2.3
20	0.30	0.20	0.57		3.4	3.0	6.4	0.6	1.0	2.6	3.0	0.8	1.0
21	0.50	0.18	0.53		3.4	3.0	6.4	0.7	0.9	2.1	2.7	1.4	1.6
22	0.50	0.18	0.70		3.4	2.8	6.2	0.6	1.0	2.3	3.0	1.6	2.2
23	0.50	0.16	0.67		3.3	3.0	6.3	0.4	0.7	2.3	2.8	1.1	1.5
24	0.50	0.19	0.68		3.3	2.9	6.2	0.5	0.9	2.5	3.1	1.0	1.5
25	0.50	0.18	0.63		3.0	3.2	6.2	0.6	1.0	2.4	3.3	1.1	1.5
26	0.50	0.19	0.77	0.64	3.0	3.6	6.6	0.2	0.4	2.4	2.9	0.8	1.1
27	0.50	0.19	0.71		3.3	3.5	6.8	0.4	0.7	2.5	3.0	1.8	2.3
28	0.50	0.20	0.71		3.4	3.3	6.7	0.3	0.6	2.0	2.5	1.2	1.6
29	0.40	0.18	0.55		3.3	3.5	6.8	0.3	0.6	2.3	2.8	1.2	1.6
30	0.40	0.18	0.63		3.6	3.6	7.2	0.2	0.6	2.1	2.6	1.0	1.3
31	0.40	0.19	0.83		4.1	4.4	8.5	0.8	1.3	3.0	3.5	3.0	3.4
Avg.	0.46	0.19	0.66	0.65	3.3	3.5	6.9	0.5	0.8	2.4	2.9	1.6	1.9
Max.	0.50	0.20	0.83	0.72	4.1	4.4	8.5	1.1	1.3	3.2	3.5	3.3	3.5
Min.	0.30	0.16	0.53	0.57	2.6	2.8	6.1	0.2	0.3	1.9	2.3	0.8	1.0

Chemical
AnalysesCity of Flint Water Treatment Plant
WSSN: 2310

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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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.10	7.74	237	173	196	77	41	96	88.2	64.9	4.4	3.4	41	75
2	8.14	7.62	240	173	195	77	45	96	89.8	66.5	7.3	2.0	40	77
3	8.22	7.45	239	176	199	86	40	90	70.5	57.5	15.1	7.8	41	76
4	8.36	7.43	233	172	193	84	40	88	72.1	65.7	13.1	2.9	39	74
5	8.02	8.05	229	149	194	74	35	75	70.5	44.1	11.7	11.2	40	64
6	7.96	7.74	232	144	192	50	40	94	69.7	44.1	14.1	8.3	40	65
7	7.99	7.89	231	163	195	85	36	78	67.3	48.9	14.6	8.3	41	67
8	7.96	7.94	248	153	196	70	52	83	67.3	44.9	21.4	9.2	38	65
9	8.39	7.75	242	150	195	75	47	75	64.9	56.1	19.9	2.9	42	62
10	8.20	7.97	239	152	197	72	42	80	87.4	56.1	5.3	2.4	43	62
11	8.32	7.93	236	142	197	75	39	67	70.5	48.1	14.6	6.8	39	64
12	8.19	7.87	235	143	193	79	42	64	88.1	47.3	15.6	4.4	38	58
13	7.98	7.71	221	148	185	89	36	59	60.9	44.1	15.6	7.3	39	61
14	7.59	7.64	227	159	190	92	37	67	66.5	52.1	14.6	7.8	38	61
15	8.02	7.88	235	169	193	98	42	71	87.4	62.5	6.8	3.9	40	60
16	8.09	7.99	237	174	191	101	46	73	85.0	62.5	5.8	4.9	41	59
17	8.01	8.09	231	164	192	92	39	72	88.2	60.9	6.8	3.4	39	60
18	8.07	7.72	236	153	196	92	40	61	63.3	46.5	18.9	8.7	39	60
19	7.97	7.99	236	151	197	85	39	66	87.4	52.1	4.9	3.9	39	62
20	8.04	7.65	226	147	189	87	37	60	67.3	48.1	13.6	7.3	38	61
21	8.13	7.94	233	139	192	79	41	60	71.3	48.9	13.6	3.4	41	60
22	8.33	7.64	234	149	189	84	45	65	70.5	48.1	13.1	8.3	39	59
23	6.13	7.88	229	146	195	69	34	77	68.9	49.7	14.1	5.8	40	57
24	8.26	7.60	230	149	195	88	35	61	70.5	50.5	12.2	5.3	42	60
25	8.14	7.65	235	142	194	77	41	65	71.3	48.9	13.1	3.4	40	60
26	8.15	7.61	234	155	194	87	40	68	88.2	54.4	6.3	4.4	41	58
27	8.01	7.61	242	152	200	86	42	66	76.2	52.9	12.2	3.9	40	60
28	8.06	7.73	243	157	198	87	45	70	89.8	60.1	5.8	1.0	42	60
29	7.95	8.01	241	153	197	83	44	70	86.6	56.9	5.3	1.9	44	63
30	7.85	7.75	235	160	193	86	42	74	85.8	56.9	5.3	4.9	43	60
31	8.02	7.77	239	157	200	91	39	66	77.0	50.5	11.7	5.8	45	65
Avg.	8.09	7.78	235	155	194	82	41	73	75.8	53.3	11.5	5.3	40	63
Max.	8.39	8.09	248	176	200	101	52	96	89.8	66.5	21.4	11.2	45	77
Min.	7.59	7.43	221	139	185	50	34	59	60.9	44.1	4.4	1.0	38	57

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

August 2014

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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	7380	12	0	1	0	8280	< 2	0.50	21.8				
2	1	5510	12	0	1	0	5740	< 2	0.50	22.3				
3	1	4962	12	0	1	0	1060	< 2	0.45	24.7				
4	1	4286	12	0	1	0	1940	< 2	0.44	24.9				
5	1	1976	12	0	1	0	2740	< 2	0.50	23.7				
6	1	10950	12	0	1	0	11100	< 2	0.39	23.5				
7	1	18416	12	0	1	0	8280	< 2	0.43	23.3				
8	1	22398	12	0	1	0	>14760	< 2	0.41	23.6				
9	1	4564	12	0	1	0	>14760	< 2	0.50	24.2				
10	1	2028	12	0	1	0	9400	< 2	0.50	23.9				
11	1	3214	12	0	1	0	2080	< 2	0.42	25.2				
12	1	2752	12	0	1	0	1940	< 2	0.40	23.9				
13	1	6152	12	0	1	0	>14760	< 2	0.37	22.5				
14	1	1618	12	0	1	0	>14760	< 2	0.43	22.4				
15	1	2134	12	0	1	0	5740	< 2	0.44	22.1				
16	1	1232	12	0	1	0	12460	< 2	0.44	21.9				
17	1	1424	12	0	1	0	5140	< 2	0.41	21.4				
18	1	2802	12	0	1	0	8280	< 2	0.40	22.0				
19	1	1672	12	0	1	0	5520	< 2	0.40	22.5				
20	1	6882	12	0	1	0	>14760	< 2	0.40	22.8				
21	1	7304	12	0	1	0	1360	2	0.38	22.9				
22	1	8704	12	0	1	0	3420	< 2	0.40	22.5				
23	1	4564	12	0	1	0	>14760	< 2	0.38	24.7				
24	1	3328	12	0	1	0	1300	< 2	0.39	23.2				
25	1	3446	12	0	1	0	900	< 2	0.39	24.5				
26	1	4196	12	0	1	0	2000	2	0.40	25.0				
27	1	4284	12	0	1	0	1060	< 2	0.40	23.9				
28	1	3446	12	0	1	0	1360	< 2	0.41	22.7				
29	1	1424	12	0	1	0	12460	< 2	0.43	23.4				
30	1	4028	12	0	1	0	14760	< 2	0.42	23.5				
31	1	3232	12	0	1	0	2320	< 2	0.42	23.8				
Avg.									0.42	23.3				
Max.							14760	2	0.50	25.2				
Min.									0.37	21.4				

**Distribution System
Monitoring**

 City of Flint Water Treatment Plant
 WSSN: 2310

August 2014

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

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	0.6

Positive Distribution Samples

Date	Monitoring station	Date	Repeat Monitoring Stations	Present or Absent
8/12/2014	3606 Corunna Rd	8/13/2014	3606 Corunna Rd	Present
		8/13/2014	3521 Corunna Rd	Present
		8/13/2014	3614 Corunna Rd.	Present
8/12/2014	2501 Flushing Rd	8/13/2014	2501 Flushing Rd	Present
		8/13/2014	1117 N. Chevrolet	Present
		8/13/2014	2740 Flushing Rd	Present
8/12/2014	1100 Cedar St.	8/13/2014	1100 Cedar St.	Present
		8/13/2014	1035 Ann Arbour St	Present
		8/13/2014	702 W. 12th St	Absent
8/14/2014	2501 Flushing Rd	8/15/2014	2501 Flushing Rd	Absent
		8/15/2014	1117 N. Chevrolet	Present
		8/15/2014	2740 Flushing Rd	Absent
		8/16/2014	2501 Flushing Rd	Absent
		8/16/2014	1117 N. Chevrolet	Present
		8/16/2014	2740 Flushing Rd	Absent
		8/17/2014	1117 N. Chevrolet	Absent
		8/18/2014	2501 Flushing Rd	Absent
		8/18/2014	1117 N. Chevrolet	Absent
		8/18/2014	2740 Flushing Rd	Absent
8/22/2014	5018 Clio Rd.	8/23/2014	5018 Clio Rd.	Absent
		8/23/2014	5005 Cloverlawn Dr.	Absent
		8/23/2014	4930 Clio Rd.	Absent

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
 WSSN: 2310

Michael Glasgow
 Operator-in-Charge

September 2014
 Month/Year

F-1R, F-2
 Certification of Operator-in-Charge

F-1
 Water Plant Classification

Michael Glasgow
 Signature of Operator-in-Charge

Genesee
 County

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>24.5</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>97</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.1</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>3.4</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>1.9%</u>	Percent of Treated Water

DEQ
 RESOURCE MANAGEMENT DIVISION

OCT 20 2014

LANSING DISTRICT

Chemical Data

Chlorine on hand:	<u>16000</u>	lb.	Est. supply:	<u>15</u>	days
Primary Coagulant (Ferric Chloride) on hand:	<u>234,000</u>	lb.	Est. supply:	<u>27</u>	days
Lime (CaO) on hand:	<u>223</u>	tons	Est. supply:	<u>22</u>	days
Fluoride on Hand:	<u>16,630</u>	lb.	Est. supply:	<u>45</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

Remarks	Confluence Point # 1 (N)	Confluence Point # 2 (S)
Number of filter confluence samples > 0.3 NTU:	<u>0</u>	<u>0</u>
Number of filter confluence samples collected:	<u>180</u>	<u>180</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0.0%</u>	<u>0.0%</u>
Number of filter confluence samples > 1 NTU	<u>0</u>	<u>0</u>
Did any individual filter exceed:		
1.0 NTU in two consecutive measurements taken 15 minutes apart?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		
Was minimum C*T credit achieved for the entire month?		<u>YES</u>
If no, indicate on a separate sheet the date(s) not achieved.		
Was continuous POE chlorine residual monitoring equipment off-line during the month?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		

COMPLETED

[illegible]

Filter turbidity

City of Flint Water Treatment Plant
WSSN: 2310

September 2014 Page 3

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	8	0.13	0.18	6	0	0	8	0.13	0.15	6	0	0	0.13
2	8	0.13	0.19	6	0	0	8	0.13	0.15	6	0	0	0.12
3	8	0.13	0.20	6	0	0	8	0.12	0.17	6	0	0	0.12
4	8	0.10	0.13	6	0	0	8	0.10	0.13	6	0	0	0.11
5	8	0.08	0.10	6	0	0	8	0.08	0.10	6	0	0	0.11
6	8	0.09	0.13	6	0	0	8	0.09	0.10	6	0	0	0.11
7	8	0.11	0.15	6	0	0	8	0.11	0.14	6	0	0	0.11
8	8	0.12	0.17	6	0	0	8	0.13	0.20	6	0	0	0.14
9	8	0.12	0.16	6	0	0	8	0.12	0.15	6	0	0	0.12
10	8	0.11	0.12	6	0	0	8	0.12	0.17	6	0	0	0.13
11	8	0.11	0.14	6	0	0	8	0.12	0.14	6	0	0	0.13
12	8	0.09	0.11	6	0	0	8	0.11	0.14	6	0	0	0.12
13	8	0.10	0.11	6	0	0	8	0.10	0.11	6	0	0	0.10
14	8	0.09	0.11	6	0	0	8	0.10	0.13	6	0	0	0.09
15	8	0.08	0.10	6	0	0	8	0.08	0.10	6	0	0	0.08
16	8	0.06	0.09	6	0	0	8	0.08	0.10	6	0	0	0.07
17	8	0.10	0.17	6	0	0	8	0.09	0.12	6	0	0	0.09
18	8	0.11	0.14	6	0	0	8	0.11	0.13	6	0	0	0.10
19	8	0.09	0.11	6	0	0	8	0.11	0.20	6	0	0	0.10
20	8	0.11	0.14	6	0	0	8	0.10	0.12	6	0	0	0.09
21	8	0.10	0.11	6	0	0	8	0.10	0.12	6	0	0	0.09
22	8	0.08	0.10	6	0	0	8	0.07	0.10	6	0	0	0.09
23	8	0.07	0.08	6	0	0	8	0.07	0.08	6	0	0	0.07
24	8	0.08	0.14	6	0	0	8	0.07	0.10	6	0	0	0.08
25	8	0.08	0.09	8	0	0	8	0.09	0.10	6	0	0	0.08
26	8	0.10	0.12	6	0	0	8	0.10	0.12	6	0	0	0.12
27	8	0.09	0.12	6	0	0	8	0.10	0.13	6	0	0	0.09
28	8	0.10	0.11	6	0	0	8	0.09	0.11	6	0	0	0.10
29	8	0.11	0.13	6	0	0	8	0.19	0.10	6	0	0	0.10
30	8	0.13	0.16	6	0	0	8	0.11	0.14	6	0	0	0.11
Avg.	8	0.10	0.13	8	0	0	8	0.10	0.13	6	0	0	
Max.	8	0.13	0.20	6	0	0	8	0.19	0.20	6	0	0	0.14
Min.	8	0.07	0.08	6	0	0	8	0.07	0.08	6	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
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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	0.50	0.19	0.72		3.6	3.6	7.2	0.3	0.6	2.7	3.3	1.5	1.9
2	0.50	0.18	0.70	0.63	3.7	3.5	7.2	0.4	0.8	2.5	3.2	1.2	1.8
3	0.50	0.19	0.69		3.6	3.6	7.2	0.4	0.7	1.9	2.4	1.2	1.9
4	0.50	0.19	0.69		3.6	3.6	7.2	0.5	0.9	2.6	3.2	1.7	2.2
5	0.50	0.20	0.69		3.6	3.3	6.9	0.5	0.8	2.0	2.6	1.6	1.9
6	0.50	0.21	0.65		3.6	3.6	7.2	0.3	0.7	2.2	2.7	1.4	1.8
7	0.40	0.20	0.62		3.2	3.5	6.7	0.2	0.5	2.2	2.7	1.2	1.8
8	0.50	0.19	0.57		3.6	4.1	7.7	0.5	0.8	2.5	3.0	1.7	2.2
9	0.50	0.20	0.69	0.69	3.8	4.1	7.9	0.6	0.9	3.1	3.4	3.0	3.3
10	0.50	0.19	0.69		3.8	3.9	7.7	0.6	0.9	3.2	3.5	1.8	2.1
11	0.50	0.19	0.69		3.9	4.0	7.9	0.5	0.9	2.7	3.2	3.1	3.5
12	0.50	0.18	0.70		3.7	3.8	7.5	0.5	0.8	2.9	3.5	2.1	2.7
13	0.50	0.16	0.69		3.5	3.8	7.3	0.4	0.7	2.9	3.5	2.1	2.9
14	0.40	0.20	0.69		3.6	4.2	7.8	0.6	0.9	3.0	3.5	3.0	3.5
15	0.40	0.19	0.64		3.4	3.7	7.1	0.9	1.4	3.2	3.5	3.0	3.5
16	0.40	0.20	0.64	0.65	3.0	3.6	6.6	0.8	1.1	2.6	3.2	1.9	2.4
17	0.50	0.17	0.65		2.9	3.9	6.8	0.6	1.2	2.8	3.5	2.4	3.1
18	0.40	0.18	0.65		2.4	3.5	5.9	0.6	1.0	3.2	3.5	3.0	3.3
19	0.40	0.18	0.66		2.4	3.4	5.8	0.4	0.8	2.6	3.2	2.1	2.8
20	0.50	0.24	0.65		2.5	4.2	6.7	0.4	0.7	2.7	3.3	1.9	2.3
21	0.50	0.18	0.70		2.4	4.2	6.6	0.5	0.9	3.1	3.5	3.2	3.4
22	0.40	0.19	0.66		3.0	4.8	7.8	0.9	1.3	3.2	3.5	3.3	3.5
23	0.40	0.20	0.60	0.63	2.9	3.7	6.6	0.7	1.1	3.2	3.5	2.3	2.6
24	0.40	0.20	0.64		2.9	3.6	6.5	1.0	1.5	2.9	3.5	3.1	3.3
25	0.40	0.19	0.64		2.5	3.7	6.2	0.7	1.0	3.2	3.5	2.2	2.6
26	0.40	0.21	0.65		2.5	4.2	6.7	0.6	1.0	2.7	3.2	2.2	2.6
27	0.40	0.19	0.65		2.5	4.1	6.6	0.6	0.9	3.0	3.5	2.0	2.6
28	0.40	0.23	0.71		2.6	4.0	6.6	0.9	1.3	3.1	3.5	3.1	3.5
29	0.50	0.21	0.70		2.6	4.0	6.6	0.8	1.2	3.1	3.5	3.0	3.5
30	0.50	0.21	0.67	0.65	2.5	4.3	6.8	0.7	1.0	2.9	3.5	2.4	2.7

Avg.	0.46	0.19	0.67	0.65	3.1	3.9	7.0	0.6	0.9	2.8	3.3	2.3	2.7
Max.	0.50	0.24	0.72	0.69	3.9	4.8	7.9	1.0	1.5	3.2	3.5	3.3	3.5
Min.	0.40	0.16	0.57	0.63	2.4	3.3	5.8	0.2	0.5	1.9	2.4	1.2	1.8

Chemical
AnalysesCity of Flint Water Treatment Plant
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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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.06	7.47	248	170	200	104	48	66	72.1	61.7	14.6	3.4	41	60
2	7.90	7.79	235	160	200	97	35	63	71.3	54.5	14.1	4.4	44	61
3	8.00	7.92	240	165	196	97	44	68	82.6	64.1	7.8	1.9	40	66
4	8.04	7.93	238	160	200	97	38	63	74.5	56.9	12.6	3.9	40	59
5	8.09	7.61	241	146	198	81	43	65	76.2	57.7	11.7	1.0	42	57
6	7.95	7.94	239	148	198	79	41	69	79.4	57.7	10.2	1.0	40	57
7	8.09	7.77	238	153	202	97	36	56	65.7	48.1	18.5	2.9	41	58
8	7.97	7.88	240	169	203	94	37	75	77.0	54.5	11.7	8.3	42	59
9	7.88	7.89	241	170	203	103	38	67	73.7	57.5	13.6	6.3	43	62
10	7.78	7.95	242	170	202	95	40	75	81.8	60.1	16.5	6.3	42	60
11	7.91	7.92	244	169	204	96	40	73	80.2	64.9	10.2	4.4	43	59
12	8.00	7.66	240	168	197	101	43	67	81.0	65.7	9.7	1.0	42	60
13	8.04	7.61	245	175	199	96	46	79	76.2	63.3	13.6	3.9	43	59
14	8.18	7.44	247	162	206	85	41	77	79.4	55.3	12.2	5.8	42	59
15	8.24	7.62	246	150	204	81	42	69	72.9	45.7	15.6	6.3	41	61
16	8.22	7.61	246	153	206	83	40	70	68.5	46.5	18.2	8.3	42	61
17	8.23	7.89	246	142	197	72	49	70	81.8	53.7	11.2	2.4	42	59
18	8.29	7.99	246	147	208	76	38	71	76.2	44.9	13.6	7.3	41	60
19	8.29	8.11	251	145	205	71	46	74	79.4	52.7	10.7	2.4	42	56
20	8.26	8.02	248	156	202	89	46	67	79.4	55.3	12.2	3.4	43	58
21	8.23	7.84	247	162	209	93	38	69	77.0	49.7	13.6	9.2	43	61
22	8.22	8.05	245	160	205	79	40	81	78.6	52.9	12.2	8.3	43	62
23	8.35	7.88	249	144	204	64	45	80	70.5	38.5	17.5	11.2	42	63
24	8.41	7.96	243	120	199	51	44	69	85.0	40.1	8.3	4.9	44	62
25	8.40	7.77	239	138	202	66	37	72	72.1	41.7	12.6	7.8	40	61
26	8.35	7.90	242	139	197	60	45	79	89.0	49.7	11.2	3.9	42	60
27	8.23	7.85	240	133	192	60	48	73	92.2	50.5	9.7	2.4	42	61
28	8.23	7.85	246	128	204	62	42	66	72.9	40.9	15.6	5.3	41	63
29	8.15	7.84	242	144	202	68	40	76	72.9	43.3	14.6	7.8	41	63
30	8.01	7.52	247	153	205	68	42	85	93.8	56.1	11.2	3.9	42	62

Avg.	8.13	7.82	243	153	202	82	42	71	77.8	52.8	12.8	5.0	42	60
Max.	8.41	8.11	251	175	209	104	49	85	93.8	65.7	18.5	11.2	44	66
Min.	7.78	7.44	235	120	192	51	35	56	65.7	38.5	7.8	1.0	40	56

Bacteriological &
Physical ParametersCity of Flint Water Treatment Plant
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Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colifert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	8212	12	0	1	0	3780	2	0.42	24.0				
2	1	12262	12	0	1	0	4620	< 2	0.42	24.0				
3	1	3912	12	0	1	0	1360	< 2	n.t.	23.8				
4	1	2749	12	0	1	0	1600	< 2	0.42	26.1				
5	1	1918	12	0	1	0	1720	< 2	0.39	24.1				
6	1	8212	12	0	1	0	2160	< 2	0.39	23.9				
7	1	5510	12	0	1	0	2640	< 2	0.41	23.5				
8	1	2910	12	0	1	0	2480	< 2	0.44	23.0				
9	1	2708	12	0	1	0	6980	< 2	0.44	23.4				
10	1	7308	12	0	1	0	> 14760	< 2	n.t.	23.5				
11	1	6510	12	0	1	0	8800	< 2	0.43	22.1				
12	1	8704	12	0	1	0	8800	< 2	0.43	21.4				
13	1	3570	12	0	1	0	3120	< 2	0.44	20.9				
14	1	8212	12	0	1	0	1360	< 2	0.38	20.0				
15	1	6510	12	0	1	0	3540	< 2	0.37	18.1				
16	1	12262	12	0	1	0	1660	< 2	0.37	17.7				
17	1	9222	12	0	1	0	1940	< 2	0.38	17.5				
18	1	10950	12	0	1	0	2400	< 2	0.36	17.4				
19	1	6152	12	0	1	0	6220	< 2	0.37	17.0				
20	1	5818	12	0	1	0	6780	< 2	0.37	18.0				
21	1	4028	12	0	1	0	2740	< 2	0.40	18.4				
22	1	12262	12	0	1	0	3900	< 2	0.39	18.0				
23	1	10950	12	0	1	0	4780	< 2	0.39	17.5				
24	1	10344	12	0	1	0	2560	< 2	0.36	17.6				
25	1	8704	12	0	1	0	2640	< 2	0.35	18.2				
26	1	15402	12	0	1	0	5740	< 2	0.36	18.6				
27	1	5226	12	0	1	0	7440	< 2	0.36	18.5				
28	1	7746	12	0	1	0	6780	< 2	0.35	19.4				
29	1	3578	12	0	1	0	5320	< 2	0.37	19.5				
30	1	31062	12	0	1	0	3320	< 2	0.38	19.2				

n.t.= not tested

Avg.									0.39	20.5				
Max.							8800	2	0.44	26.1				
Min.									0.35	17.0				

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2	0.1	0.4	0.1	0.2	0.0	0.1	0.1	0.8	0.4	0.9	10
3	0.1	0.3	0.1	0.2	0.0	0.1	0.1	0.7	0.5	0.5	10
4	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.8	0.2	0.8	10
5											0
6											0
7											0
8	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.7	0.6	0.7	10
9	0.3	0.6	0.1	0.1	0.1	0.1	0.2	1.5	1.5	0.5	10
10	0.3	0.8	0.1	0.1	0.2	0.1	0.2	1.5	3.5	1.2	10
11	0.3	0.9	0.1	0.4	0.2	0.1	0.1	1.3	1.4	1.6	10
12											0
13											0
14											0
15											0
16	0.2	0.6	0.1	0.4	0.1	0.2	0.1	1.3	0.9	1.3	10
17	0.3	1.2	0.1	1.0	0.2	0.0	0.1	1.7	2.7	1.5	10
18	0.2	0.7	0.1	0.4	0.2	0.2	0.2	1.7	0.8	1.4	10
19											0
20											0
21											0
22											0
23	0.3	1.6	0.1	0.8	0.2	0.2	0.3	2.3	1.1	0.9	10
24	0.5	1.5	0.2	0.7	0.6	0.1	1.0	2.1	1.7	2.1	10
25	0.3	0.1	0.1	0.7	0.2	0.1	0.2	1.7	3.5	2.3	10
26	0.5	0.1	0.1	0.9	0.5	0.1	0.4	2.2	3.5	1.7	10
27											0
28											0
29											0
30	0.5	0.1	0.1	0.7	0.1	0.1	0.6	2.4	1.8	1.7	10

Distribution Sample Summary

Total # of routine distribution samples analyzed	150
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	15
Percent of routine distribution samples positive	10%

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	97%
Average disinfectant residual this month	0.64

See page 9 for positive sample information.

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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
2	0.3	0.7	0.2	0.4	0.1	0.2	0.2	1.2	0.7	1.2	10
3	0.3	0.7	0.2	0.5	0.2	0.4	0.3	1.2	0.9	1.0	10
4	0.3	0.6	0.2	0.3	0.2	0.2	0.2	1.1	0.3	1.1	10
5											0
6											0
7											0
8	0.2	0.4	0.1	0.2	0.2	0.1	0.1	1.0	0.9	1.0	10
9	0.6	1.3	0.3	0.3	0.3	0.2	0.4	1.8	1.8	0.8	10
10	0.5	1.1	0.2	0.2	0.4	0.2	0.4	1.8	3.5	1.4	10
11	0.6	1.2	0.3	0.8	0.4	0.3	0.3	1.6	1.8	2.0	10
12											0
13											0
14											0
15											0
16	0.4	1.0	0.2	0.7	0.3	0.3	0.3	1.7	1.2	1.7	10
17	0.5	1.6	0.3	1.4	0.5	0.2	0.3	2.1	3.5	2.0	10
18	0.3	1.0	0.2	0.7	0.3	0.4	0.3	2.1	1.0	1.7	10
19											0
20											0
21											0
22											0
23	0.5	1.9	0.3	1.1	0.3	0.3	0.5	2.5	1.6	1.1	10
24	0.9	0.2	0.4	1.3	1.0	0.3	1.5	2.5	2.0	1.7	10
25	0.6	0.2	0.2	0.9	0.5	0.2	0.4	2.2	3.5	3.0	10
26	0.9	0.3	0.3	1.4	1.1	0.3	0.7	2.7	3.5	2.0	10
27											0
28											0
29											0
30	0.8	0.3	0.3	1.1	0.3	0.2	1.1	2.7	2.2	2.1	10

Distribution Disinfectant Total Residual Summary

Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	0.9

Positive Distribution Samples

Date	Monitoring station	Date	Repeat Monitoring Stations	Residual (mg/L) Free / Total	Present or Absent
9/2/2014	2501 Flushing Rd	9/3/2014	2501 Flushing Rd	0.0 / 0.2	Present
			1117 N. Chevrolet	0.0 / 0.2	Present
			2740 Flushing Rd	0.1 / 0.3	Absent
		9/4/2014	2501 Flushing Rd	0.1 / 0.2	Present
			2205 N. Chevrolet	0.1 / 0.2	Present
			2740 Flushing Rd	0.1 / 0.3	Present
		9/5/2014	2501 Flushing Rd	0.1 / 0.2	Present
			2205 N. Chevrolet	0.1 / 0.3	Absent
			2740 Flushing Rd	0.1 / 0.2	Present
		9/6/2014	2501 Flushing Rd	0.2 / 0.3	Absent
			2205 Flushing Rd.	0.2 / 0.3	Absent
			1274 Ballenger Hwy	0.1 / 0.2	Absent
		9/7/2014	2501 Flushing Rd	0.2 / 0.3	Absent
			2205 Flushing Rd.	0.2 / 0.3	Absent
			1274 Ballenger Hwy	0.0 / 0.2	Present
		9/8/2014	2501 Flushing Rd	0.1 / 0.2	Absent
			1274 Ballenger Hwy	0.1 / 0.1	Absent
9/4/2014	3216 MLK Blvd.	9/5/2014	3216 MLK Blvd.	0.2 / 0.3	Absent
			3317 MLK Blvd.	0.1 / 0.2	Present
			3110 MLK Blvd.	0.1 / 0.2	Present
		9/6/2014	104 E. Pasadena Ave.	0.1 / 0.2	Absent
			3317 MLK Blvd.	0.2 / 0.3	Absent
			3110 MLK Blvd.	0.0 / 0.1	Absent
		9/7/2014	104 E. Pasadena Ave.	0.1 / 0.3	Absent
			3317 MLK Blvd.	0.1 / 0.3	Absent
			3110 MLK Blvd.	0.2 / 0.3	Absent
9/10/2014	3606 Corunna Rd.	9/11/2014	3606 Corunna Rd.	0.4 / 0.8	Absent
			3521 Corunna Rd.	0.3 / 0.5	Absent
			3614 Corunna Rd.	0.7 / 1.0	Absent
9/16/2014	3606 Corunna Rd.	9/17/2014	3606 Corunna Rd.	1.0 / 1.4	Absent
			3521 Corunna Rd.	0.7 / 1.0	Absent
			3614 Corunna Rd.	1.5 / 2.0	Absent
9/17/2014	3302 S. Dort Hwy	9/18/2014	3302 S. Dort Hwy	0.1 / 0.2	Absent
			3124 S. Dort Hwy	0.1 / 0.2	Absent
			3316 S. Dort Hwy.	0.1 / 0.2	Absent

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

Michael Glasgow
Signature of Operator-in-ChargeGenesee

County

DEQ
RESOURCE MANAGEMENT DIVISION

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

NOV 17 2014

LANSING DISTRICT

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.

COMPLETED

Back entered
AR

[illegible]

Filter turbidity

City of Flint Water Treatment Plant

October 2014

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WSSN: 2310

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap 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	6	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	6	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	6	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	6	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	6	0	0	

Fluoridation &
Chlorination

City of Flint Water Treatment Plant

October 2014

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WSSN: 2310

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	0.66		2.5	3.9	6.4	0.7	1.0	3.2	3.5	2.5	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	0.5	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

WSSN: 2310

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	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	15.6	9.7	41	64
8	8.26	7.65	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	260	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	85.8	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

#####

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	Tap	Raw	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				

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
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	0.6	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

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Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
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

Positive Distribution Samples

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT

WSSN: 2310

Michael Glasgow

Operator-in-Charge

November 2014

Month/Year

F-1R, F-2

Certification of Operator-in-Charge

F-1

Water Plant Classification

Signature of Operator-in-Charge

Genesee

County

DEQ
RESOURCE MANAGEMENT DIVISION

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>18.7</u>	Million Gallons per Day	DEC 15 2014
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day	
Average Filter Run:	<u>76</u>	Hours	LANSING DISTRICT
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)	
Average Filtration Rate:	<u>2.1</u>	Gallons Per Square Feet per Minute	
Maximum Filtration Rate:	<u>3.2</u>	Gallons Per Square Feet per Minute	
Average Wash Water Use:	<u>3.2%</u>	Percent of Treated Water	

Chemical Data

Chlorine on hand:	<u>12,000</u>	lb.	Est. supply:	<u>15</u>	days
Primary Coagulant (Ferric Chloride) on hand:	<u>194,500</u>	lb.	Est. supply:	<u>22</u>	days
Lime (CaO) on hand:	<u>393</u>	tons	Est. supply:	<u>38</u>	days
Fluoride on Hand:	<u>15,000</u>	lb.	Est. supply:	<u>40</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:	<u>0</u>	<u>0</u>
Number of filter confluence samples collected:	<u>227</u>	<u>227</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0.0%</u>	<u>0.0%</u>
Number of filter confluence samples > 1 NTU	<u>0</u>	<u>0</u>
Did any individual filter exceed:		
1.0 NTU in two consecutive measurements taken 15 minutes apart?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		
Was minimum C*T credit achieved for the entire month?		<u>YES</u>
If no, indicate on a separate sheet the date(s) not achieved.		
Was continuous POE chlorine residual monitoring equipment off-line during the month?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		

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Date	Million Gallons Treated	Ferric as Fe3+ mg/L	Lime Dosage (mg/L)	PW-340 Cationic Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
						Raw			Plate Settler	Applied
						Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	17.9	8.1	141.8	3.0	0.88	8	7.3	8.5	0.67	1.13
2	17.7	8.7	135.0	2.9	0.89	8	12.1	33.4	1.04	1.47
3	15.9	9.8	141.5	3.0	0.90	8	7.7	11.3	0.63	1.69
4	14.1	9.1	162.2	3.4	0.94	8	7.5	9.2	0.51	1.61
5	13.7	9.1	167.6	3.6	0.98	8	7.0	8.1	0.47	1.39
6	13.7	8.7	160.9	3.5	0.98	8	8.1	9.3	0.52	1.42
7	13.6	8.7	144.6	3.7	0.98	8	7.1	7.4	0.51	1.48
8	13.6	8.7	147.9	4.0	0.98	8	7.3	8.1	0.55	1.81
9	13.5	8.8	136.8	4.0	0.99	8	7.8	11.2	0.54	1.16
10	13.3	9.0	140.0	4.0	1.00	8	7.9	12.2	0.68	1.77
11	12.6	9.3	148.5	4.0	1.03	8	6.7	7.7	0.51	7.80
12	12.5	9.4	133.0	4.2	0.87	8	7.9	18.8	0.47	4.48
13	13.3	8.9	138.5	4.0	0.81	8	5.9	6.6	0.58	2.42
14	14.3	8.0	139.0	3.8	0.77	8	5.3	5.8	0.80	2.29
15	14.4	8.4	142.4	3.9	0.77	8	4.9	5.4	1.01	1.11
16	14.5	8.8	135.2	3.7	0.75	8	6.5	14.1	1.02	1.81
17	12.0	8.6	126.8	3.2	0.65	8	7.4	16.6	0.69	3.78
18	6.0	8.4	132.8	2.9	0.52	8	9.1	36.3	0.81	5.92
19	17.8	10.0	104.7	3.3	0.61	8	4.0	4.4	1.09	2.33
20	17.8	10.7	102.7	3.4	0.61	8	4.1	6.8	1.15	1.83
21	17.6	10.9	104.7	3.6	0.69	8	2.9	3.7	0.89	1.42
22	17.7	10.7	100.9	3.6	0.86	8	2.5	2.9	0.93	2.24
23	17.7	10.9	97.8	3.0	0.59	8	4.5	6.2	1.16	3.32
24	17.7	10.7	88.8	3.0	0.55	8	8.5	27.2	1.13	2.92
25	17.1	11.0	94.1	3.5	0.49	8	4.5	5.1	0.76	3.20
26	16.8	10.0	95.9	3.4	0.39	8	3.7	5.9	0.77	2.31
27	10.9	10.4	92.1	3.7	0.78	8	4.3	9.3	0.84	7.47
28	16.8	9.9	99.7	4.1	1.03	8	3.1	3.3	0.92	1.45
29	16.8	12.2	100.4	4.0	1.03	8	3.8	4.2	0.88	1.15
30	16.7	12.3	96.5	4.3	1.03	8	5.8	16.0	1.00	2.23

[illegible]

Filter turbidity

City of Flint Water Treatment Plant
WSSN: 2310

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Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	8	0.09	0.14	6	0	0	8	0.10	0.12	6	0	0	0.11
2	8	0.10	0.13	6	0	0	8	0.09	0.11	6	0	0	0.10
3	8	0.10	0.13	6	0	0	8	0.10	0.13	6	0	0	0.11
4	8	0.10	0.11	6	0	0	8	0.11	0.13	6	0	0	0.12
5	8	0.08	0.11	6	0	0	8	0.08	0.09	6	0	0	0.09
6	8	0.09	0.11	6	0	0	8	0.09	0.11	6	0	0	0.11
7	8	0.10	0.12	6	0	0	8	0.10	0.12	6	0	0	0.12
8	8	0.10	0.17	6	0	0	8	0.09	0.12	6	0	0	0.11
9	8	0.11	0.13	6	0	0	8	0.10	0.13	6	0	0	0.11
10	8	0.11	0.15	6	0	0	8	0.10	0.15	6	0	0	0.12
11	8	0.10	0.18	6	0	0	8	0.09	0.14	6	0	0	0.11
12	8	0.10	0.14	6	0	0	8	0.08	0.10	6	0	0	0.10
13	8	0.08	0.09	6	0	0	8	0.07	0.09	6	0	0	0.09
14	8	0.07	0.09	6	0	0	8	0.07	0.09	6	0	0	0.09
15	8	0.07	0.08	6	0	0	8	0.07	0.09	6	0	0	0.08
16	8	0.07	0.09	6	0	0	8	0.08	0.13	6	0	0	0.08
17	5	0.07	0.09	5	0	0	5	0.07	0.09	5	0	0	0.07
18	2	0.10	0.12	2	0	0	2	0.08	0.10	2	0	0	0.07
19	8	0.08	0.10	6	0	0	8	0.07	0.09	6	0	0	0.07
20	8	0.08	0.10	6	0	0	8	0.06	0.07	6	0	0	0.07
21	8	0.08	0.09	6	0	0	8	0.07	0.09	6	0	0	0.08
22	8	0.08	0.12	6	0	0	8	0.07	0.09	6	0	0	0.07
23	8	0.08	0.08	6	0	0	8	0.08	0.09	6	0	0	0.07
24	8	0.08	0.12	6	0	0	8	0.08	0.09	6	0	0	0.08
25	8	0.09	0.12	6	0	0	8	0.08	0.10	6	0	0	0.07
26	8	0.09	0.10	6	0	0	8	0.08	0.10	6	0	0	0.07
27	4	0.08	0.09	4	0	0	4	0.07	0.09	4	0	0	0.07
28	8	0.08	0.09	6	0	0	8	0.08	0.11	6	0	0	0.06
29	8	0.08	0.08	6	0	0	8	0.08	0.15	6	0	0	0.06
30	8	0.09	0.11	6	0	0	8	0.09	0.11	6	0	0	0.08
Avg.	8	0.09	0.11	6	0	0	8	0.08	0.11	6	0	0	
Max.	8	0.11	0.18	6	0	0	8	0.11	0.15	6	0	0	0.12
Min.	2	0.07	0.08	2	0	0	2	0.06	0.07	2	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

November 2014

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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	0.50	0.18	0.64		2.4	3.6	6.0	0.8	1.1	3.2	3.5	2.4	2.9
2	0.50	0.21	0.73		2.2	3.3	5.4	0.9	1.3	3.2	3.5	3.0	3.5
3	0.50	0.21	0.76		2.4	3.5	5.9	0.9	1.3	3.2	3.5	3.2	3.5
4	0.45	0.22	0.72	0.69	2.5	3.5	6.0	0.8	1.1	3.2	3.5	2.9	3.3
5	0.45	0.22	0.70		2.4	3.2	5.6	0.9	1.1	3.2	3.5	2.1	2.5
6	0.45	0.22	0.72		2.3	3.6	5.9	0.7	1.0	3.2	3.5	2.4	2.8
7	0.45	0.22	0.75		2.4	4.1	6.5	0.8	1.1	2.5	3.1	1.8	2.4
8	0.40	0.23	0.69		2.3	3.9	6.2	0.9	1.1	3.0	3.5	2.5	2.9
9	0.40	0.23	0.67		2.2	3.8	6.0	0.8	1.0	3.0	3.5	3.0	3.5
10	0.40	0.22	0.63		2.2	4.1	6.3	0.7	1.0	3.0	3.5	3.0	3.5
11	0.45	0.26	0.71	0.68	1.6	4.2	5.8	0.8	1.1	3.0	3.5	3.0	3.5
12	0.40	0.21	0.63		1.7	3.6	5.3	0.8	1.0	2.6	3.0	2.1	2.5
13	0.35	0.21	0.55		2.1	3.6	5.7	0.8	1.1	3.0	3.5	2.9	3.2
14	0.40	0.22	0.58		2.0	3.7	5.7	0.8	1.1	3.2	3.5	2.3	3.0
15	0.40	0.23	0.61		1.8	3.7	5.5	0.7	0.9	3.0	3.5	2.5	3.0
16	0.35	0.21	0.54		1.8	3.7	5.5	0.5	0.8	3.2	3.5	2.7	3.0
17	0.35	0.22	0.63		1.6	3.5	5.1	0.5	0.8	3.2	3.5	2.9	3.2
18	0.35	0.22	0.61	0.59	1.9	2.9	4.8	0.2	0.3	3.0	3.2	2.8	3.3
19	0.30	0.22	0.46		1.9	2.9	4.8	0.5	0.8	2.5	3.0	2.2	2.8
20	0.40	0.22	0.60		1.9	3.0	4.9	0.5	0.7	3.0	3.4	2.1	2.4
21	0.45	0.21	0.66		1.8	2.9	4.7	0.6	0.9	2.7	3.1	2.2	2.6
22	0.40	0.20	0.61		2.0	3.0	5.0	0.5	0.8	2.5	3.0	2.0	2.5
23	0.35	0.21	0.59		2.1	2.8	4.9	0.6	0.9	3.0	3.5	2.7	3.2
24	0.40	0.21	0.62		2.0	2.7	4.7	0.8	1.1	2.8	3.2	2.7	3.2
25	0.40	0.23	0.64		2.2	2.8	5.0	0.7	1.0	2.6	3.1	2.4	3.0
26	0.40	0.22	0.63		2.0	2.7	4.7	0.7	1.0	2.9	3.4	2.5	2.9
27	0.40	0.22	0.63		1.5	2.6	4.1	0.7	1.0	3.0	3.5	2.8	3.2
28	0.40	0.20	0.61		2.0	2.9	4.9	0.7	0.9	2.7	3.3	2.1	2.6
29	0.40	0.21	0.62		2.1	3.3	5.4	0.6	0.8	2.4	3.1	2.2	2.5
30	0.40	0.21	0.69		2.1	3.8	5.9	0.6	0.9	3.0	3.5	3.0	3.5
Avg.	0.41	0.22	0.64	0.65	2.0	3.4	5.4	0.7	1.0	2.9	3.4	2.5	3.0
Max.	0.50	0.26	0.76	0.69	2.5	4.2	6.5	0.9	1.3	3.2	3.5	3.2	3.5
Min.	0.30	0.18	0.46	0.59	1.5	2.6	4.1	0.2	0.3	2.4	3.0	1.8	2.4

Chemical Analyses

City of Flint Water Treatment Plant

November 2014

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WSSN: 2310

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.32	7.75	281	168	225	91	56	77	101.8	64.1	6.8	1.0	45	67
2	8.43	8.17	286	163	238	81	48	82	89.8	47.3	15.1	10.7	44	67
3	8.41	8.11	285	175	230	84	55	91	93.0	49.7	12.6	11.7	45	70
4	8.39	7.29	285	172	233	78	52	94	93.0	54.5	13.1	9.2	46	70
5	8.41	7.61	290	162	240	81	50	81	90.6	51.3	15.6	8.7	49	72
6	8.40	7.72	288	160	235	81	53	79	89.0	46.5	15.6	9.2	46	69
7	8.41	7.71	289	167	236	82	53	85	102.6	59.9	8.3	4.9	45	68
8	8.41	7.77	291	164	232	78	59	86	102.6	60.1	8.3	3.4	47	69
9	8.46	7.80	297	160	236	78	61	82	86.6	42.5	19.4	13.1	48	71
10	8.44	7.82	294	166	241	83	53	83	93.0	43.3	14.6	14.1	47	70
11	8.52	8.09	296	168	237	84	59	84	107.4	60.1	7.3	3.4	48	70
12	8.50	7.81	297	167	244	81	53	86	96.2	50.5	13.1	9.2	45	71
13	8.51	7.39	300	163	241	78	59	85	112.2	59.3	4.9	4.4	48	70
14	8.53	7.59	301	148	241	60	60	88	115.4	59.3	3.4	1.5	46	69
15	8.54	7.77	302	146	235	64	67	82	109.0	52.1	7.8	4.9	47	68
16	8.54	8.13	301	149	247	64	54	85	100.2	41.7	11.7	10.2	49	72
17	8.57	7.57	313	152	249	64	64	88	101.8	40.9	13.6	11.2	47	71
18	8.48	7.53	307	152	254	70	53	82	95.4	44.9	17.5	8.7	47	72
19	8.51	7.59	308	183	248	90	60	93	104.2	65.7	11.7	3.9	47	68
20	8.42	7.50	313	187	248	95	65	92	104.2	64.9	12.2	5.8	47	73
21	8.31	8.14	310	191	251	100	59	91	113.8	70.5	6.8	2.9	47	72
22	8.31	7.92	308	202	249	113	59	89	103.4	68.9	12.2	6.8	48	74
23	8.38	7.97	321	213	252	122	69	91	101.0	64.1	17.0	12.6	48	76
24	8.36	8.34	312	211	246	121	66	90	85.0	56.1	23.8	18.0	50	75
25	8.25	7.85	311	209	250	111	61	98	105.0	70.1	11.2	6.8	50	75
26	8.22	8.29	311	196	251	108	60	88	107.4	71.3	10.2	4.4	47	72
27	8.40	8.24	310	189	255	100	55	89	99.4	54.5	14.6	12.6	48	72
28	8.32	8.23	304	179	248	100	56	79	116.2	64.9	3.9	1.0	48	69
29	8.16	8.45	302	192	245	102	57	90	109.8	64.1	7.3	7.3	47	72
30	8.20	8.04	309	197	149	102	160	95	102.6	61.7	12.6	10.2	46	77
Avg.	8.40	7.87	301	175	240	88	61	87	101.1	56.8	11.7	7.7	47	71
Max.	8.57	8.45	321	213	255	122	160	98	116.2	71.3	23.8	18.0	50	77
Min.	8.16	7.29	281	146	149	60	48	77	85.0	40.9	3.4	1.0	44	67

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

November 2014

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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			Tap	Raw	Raw	Tap
1	1	564	12	0	1	0	860	< 2	0.39	10.8				
2	1	654	12	0	1	0	1060	< 2	0.38	8.8				
3	1	296	12	0	1	0	190	< 2	0.39	8.9				
4	1	218	12	0	1	0	160	< 2	0.36	9.6				
5	1	486	12	0	1	0	3780	< 2	0.36	9.0				
6	1	194	12	0	1	0	3660	< 2	0.36	9.8				
7	1	268	12	0	1	0	1770	< 2	0.40	10.2				
8	1	194	12	0	1	0	4180	< 2	0.37	9.3				
9	1	296	12	0	1	0	3420	< 2	0.39	8.1				
10	1	172	12	0	1	0	4460	2	0.40	8.8				
11	1	296	12	0	1	0	1720	< 2	0.40	8.3				
12	1	218	12	0	1	0	1600	< 2	0.37	7.7				
13	1	40	12	0	1	0	1420	< 2	0.39	7.0				
14	1	126	12	0	1	0	800	< 2	0.37	6.4				
15	1	104	12	0	1	0	420	< 2	0.37	6.3				
16	1	82	12	0	1	0	560	< 2	0.36	5.5				
17	1	104	10	0	1	0	340	< 2	0.37	4.7				
18	1	104	4	0	1	0	160	< 2	0.33	4.0				
19	1	40	12	0	1	0	40	< 2	0.40	4.9				
20	1	40	12	0	1	0	520	< 2	0.41	5.3				
21	1	20	12	0	1	0	80	2	0.42	5.4				
22	1	82	12	0	1	0	80	< 2	0.44	5.9				
23	1	168	12	0	1	0	340	2	0.46	5.8				
24	1	768	12	0	1	0	660	< 2	0.46	6.4				
25	1	596	12	0	1	0	420	< 2	0.46	6.2				
26	1	1008	12	0	1	0	340	< 2	0.43	5.6				
27	1	1240	8	0	1	0	460	2	0.36	5.1				
28	1	7308	12	0	1	0	2240	< 2	0.37	5.4				
29	1	9768	12	0	1	0	3120	< 2	0.38	6.3				
30	1	19608	12	0	1	0	5140	< 2	0.37	6.5				

Avg.									0.39	7.1				
Max.							5140	2	0.46	10.8				
Min.									0.33	4.0				

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2											0
3											0
4	0.4	1.6	1.2	1.5	0.8	0.1	0.3	1.9	0.8	1.8	10
5											0
6	0.3	1.2	1.1	1.6	1.0	0.1	0.2	1.5	1.5	1.0	10
7											0
8											0
9											0
10											0
11	0.5	1.4	1.7	1.8	0.9	0.1	0.5	1.8	1.2	2.0	10
12	0.1	1.0	1.1	1.6	0.5	0.1	0.1	2.7	0.8	0.7	10
13	0.5	1.1	1.5	1.8	0.3	0.1	0.5	2.2	1.7	0.5	10
14									0.6	1.8	2
15											0
16											0
17										1.3	1
18	0.1	0.3	1.7	0.4	0.4	0.1	0.2	1.7	0.3	0.7	10
19	0.5	0.3	1.3	1.8	0.5	0.1	1.0	1.8	3.5	1.5	10
20	0.7	1.3	1.4	1.9	0.5	0.1	0.7	1.7	1.7	1.8	10
21											0
22											0
23											0
24									1.1	0.5	2
25	0.5	1.6	1.6	0.9	0.3	0.1	1.5	1.5	0.9	1.6	10
26	0.6	0.7	1.9	1.7	1.0	0.2	0.6	1.7	1.8	1.7	10
27											0
28	0.1	0.8	1.5	1.4	0.6	0.6	1.5	1.7	0.7	1.4	10
29											0
30											0

Distribution Sample Summary

Total # of routine distribution samples analyzed	115
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	97%
Average disinfectant residual this month	1.0

See page 9 for positive sample information.

WSSN: 2310

Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2											0
3											0
4	0.7	1.8	1.4	1.7	1.0	1.5	0.5	2.3	1.2	2.1	10
5											0
6	0.5	1.5	1.5	1.9	1.3	0.2	0.3	2.0	1.8	1.4	10
7											0
8											0
9											0
10											0
11	0.9	1.7	2.2	2.1	1.3	0.2	0.8	2.2	1.5	2.3	10
12	0.3	1.3	1.4	1.9	0.8	0.2	0.3	3.2	1.1	1.0	10
13	0.8	1.5	1.8	2.0	0.5	0.2	0.9	2.5	2.0	0.8	10
14									0.8	2.1	2
15											0
16											0
17										1.6	1
18	0.2	0.5	2.0	0.6	0.6	0.2	0.3	2.2	0.5	1.0	10
19	0.8	0.5	1.7	2.3	0.8	0.4	1.4	2.2	3.5	1.8	10
20	1.0	1.6	1.7	2.2	0.8	0.2	1.1	2.1	1.9	2.4	10
21											0
22											0
23											0
24									1.4	0.8	2
25	0.8	1.9	2.0	1.3	0.6	0.3	1.8	1.8	1.3	2.0	10
26	1.1	1.0	1.7	2.1	1.3	0.3	0.9	2.1	2.1	2.0	10
27											0
28	0.2	1.2	1.8	1.7	0.9	0.9	1.8	2.1	1.1	1.7	10
29											0
30											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.3

Positive Distribution Samples

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
 WSSN: 2310

Michael Glasgow
 Operator-in-Charge

December 2014
 Month/Year

F-1R, F-2
 Certification of Operator-in-Charge

F-1
 Water Plant Classification

Michael Glasgow
 Signature of Operator-in-Charge

Genesee
 County

DEQ
 RESOURCE MANAGEMENT DIVISION

FEB 06 2015

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>23.8</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>74</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.4</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>3.2</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>2.9%</u>	Percent of Treated Water

LANSING DISTRICT

Chemical Data

Chlorine on hand:	<u>20,000</u> lb.	Est. supply:	<u>30</u> days
Primary Coagulant (Ferric Chloride) on hand:	<u>54,000</u> lb.	Est. supply:	<u>18</u> days
Lime (CaO) on hand:	<u>296</u> tons	Est. supply:	<u>34</u> days
Fluoride on Hand:	<u>16,630</u> lb.	Est. supply:	<u>35</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:	<u>0</u>	<u>0</u>
Number of filter confluence samples collected:	<u>226</u>	<u>226</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0.0%</u>	<u>0.0%</u>
Number of filter confluence samples > 1 NTU	<u>0</u>	<u>0</u>
Did any individual filter exceed:		
1.0 NTU in two consecutive measurements taken 15 minutes apart?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		
Was minimum C*T credit achieved for the entire month?		<u>YES</u>
If no, indicate on a separate sheet the date(s) not achieved.		
Was continuous POE chlorine residual monitoring equipment off-line during the month?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		

Avg.	15.1	14.4	119.3	4.3	0.87	7	4.95			1.95
Max.	19.6	19.2	149.6	5.6	1.07	8	21.9	25.6	2.50	6.47
Min.	0.0	0.0	0.0	0.0	0.00	1	1.60			0.97
Total	467.3									

Filter turbidity

City of Flint Water Treatment Plant
WSSN: 2310

December 2014 Page 3

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	8	0.09	0.11	6	0	0	8	0.09	0.10	6	0	0	0.09
2	8	0.08	0.09	6	0	0	8	0.08	0.09	6	0	0	0.08
3	8	0.08	0.12	6	0	0	8	0.07	0.10	6	0	0	0.07
4	8	0.07	0.10	6	0	0	8	0.07	0.08	6	0	0	0.07
5	8	0.07	0.08	6	0	0	8	0.07	0.09	6	0	0	0.08
6	2	0.10	0.12	2	0	0	2	0.10	0.10	2	0	0	0.08
7	0	n/a	n/a	0	0	0	0	n/a	n/a	0	0	0	0.07
8	0	n/a	n/a	0	0	0	0	n/a	n/a	0	0	0	0.12
9	8	0.09	0.19	6	0	0	8	0.07	0.11	6	0	0	0.08
10	8	0.08	0.14	6	0	0	8	0.06	0.07	6	0	0	0.05
11	8	0.08	0.10	6	0	0	8	0.07	0.10	6	0	0	0.07
12	8	0.09	0.13	6	0	0	8	0.09	0.14	6	0	0	0.07
13	8	0.07	0.10	6	0	0	8	0.07	0.08	6	0	0	0.08
14	8	0.06	0.07	6	0	0	8	0.06	0.07	6	0	0	0.05
15	8	0.06	0.06	6	0	0	8	0.06	0.07	6	0	0	0.06
16	8	0.07	0.08	6	0	0	8	0.06	0.06	6	0	0	0.06
17	8	0.07	0.08	6	0	0	8	0.07	0.08	6	0	0	0.08
18	8	0.07	0.11	6	0	0	8	0.06	0.07	6	0	0	0.07
19	8	0.08	0.13	6	0	0	8	0.06	0.09	6	0	0	0.07
20	8	0.07	0.10	6	0	0	8	0.07	0.09	6	0	0	0.06
21	8	0.06	0.07	6	0	0	8	0.06	0.09	6	0	0	0.07
22	8	0.06	0.07	6	0	0	8	0.07	0.16	6	0	0	0.06
23	8	0.07	0.09	6	0	0	8	0.07	0.12	6	0	0	0.07
24	8	0.06	0.10	6	0	0	8	0.06	0.10	6	0	0	0.06
25	8	0.06	0.09	6	0	0	8	0.06	0.10	6	0	0	0.06
26	8	0.08	0.16	6	0	0	8	0.07	0.15	6	0	0	0.08
27	8	0.08	0.12	6	0	0	8	0.07	0.11	6	0	0	0.07
28	8	0.07	0.11	6	0	0	8	0.05	0.07	6	0	0	0.07
29	8	0.07	0.09	6	0	0	8	0.06	0.07	6	0	0	0.08
30	8	0.06	0.08	6	0	0	8	0.05	0.06	6	0	0	0.06
31	8	0.07	0.09	6	0	0	8	0.06	0.08	6	0	0	0.08
Avg.	7	0.07	0.10	5	0	0	7	0.07	0.09	5	0	0	
Max.	8	0.10	0.19	6	0	0	8	0.10	0.16	6	0	0	0.12
Min.	0	0.06	0.06	0	0	0	0	0.05	0.06	0	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

December 2014

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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	0.22	0.71		2.0	3.8	5.8	0.5	0.8	3.0	3.5	3.0	3.5
2	0.5	0.21	0.72		2.0	3.6	5.6	0.7	1.0	3.0	3.5	2.7	3.2
3	0.5	0.23	0.72		2.1	3.0	5.1	0.7	1.0	2.7	3.2	2.5	2.9
4	0.5	0.21	0.73	0.64	2.0	3.0	5.0	0.6	0.8	3.0	3.5	2.4	2.8
5	0.4	0.21	0.68		1.9	3.0	4.9	0.6	0.8	2.7	3.2	2.2	2.5
6	0.5	0.22	0.77		1.9	3.0	4.9	0.4	0.6	3.1	3.5	2.1	2.5
7	0.0	0.22	0.70		0.0	0.0	0.0	n/a	n/a	3.0	3.5	2.4	2.8
8	0.0	0.22	0.71		0.0	0.0	0.0	n/a	n/a	2.9	3.2	2.6	2.9
9	0.4	0.24	0.67	0.65	2.0	2.3	4.3	0.6	0.8	2.2	2.9	2.7	3.1
10	0.4	0.22	0.71		1.8	2.7	4.5	0.5	0.8	2.6	2.9	2.4	2.7
11	0.4	0.24	0.69		1.8	2.8	4.6	0.5	0.7	2.5	3.1	2.4	2.8
12	0.4	0.21	0.64		1.8	2.7	4.5	0.6	0.8	2.4	2.9	2.0	2.3
13	0.4	0.21	0.63		2.0	2.6	4.6	0.6	0.8	3.0	3.5	2.6	2.9
14	0.4	0.20	0.64		2.0	2.6	4.6	0.7	1.0	2.9	3.2	2.9	3.1
15	0.4	0.24	0.64		2.0	2.6	4.6	0.7	0.9	2.8	3.0	2.6	2.9
16	0.4	0.24	0.63	0.60	2.0	2.6	4.6	0.7	0.9	2.8	3.0	2.3	2.5
17	0.4	0.22	0.63		2.0	2.6	4.6	0.7	0.9	2.7	3.0	2.4	3.0
18	0.4	0.21	0.59		2.0	2.7	4.7	0.6	0.8	2.6	3.0	2.1	2.4
19	0.4	0.21	0.58		2.1	2.6	4.7	0.7	0.9	3.0	3.3	2.6	3.1
20	0.4	0.20	0.61		1.9	2.6	4.5	0.6	0.8	2.6	3.1	2.0	2.5
21	0.4	0.22	0.62		1.3	2.4	3.7	0.6	0.8	2.8	3.0	2.6	2.8
22	0.4	0.22	0.63		2.0	2.6	4.6	0.9	1.1	2.7	3.1	2.6	3.0
23	0.4	0.23	0.63	0.64	1.9	3.1	5.0	0.6	0.9	2.9	3.2	2.5	2.9
24	0.4	0.20	0.63		1.9	3.0	4.9	0.9	1.1	2.8	3.0	2.3	2.7
25	0.4	0.21	0.63		1.9	3.1	5.0	0.5	0.7	2.6	3.0	1.7	2.2
26	0.4	0.23	0.69		2.0	2.8	4.8	0.6	0.7	2.8	3.1	2.3	2.6
27	0.4	0.19	0.60		2.1	2.8	4.9	0.7	0.9	2.9	3.5	1.9	2.5
28	0.4	0.20	0.67		1.9	3.0	4.9	0.6	0.9	2.7	3.0	2.4	2.7
29	0.4	0.21	0.62		1.9	3.0	4.9	0.6	0.9	2.7	3.0	2.7	3.0
30	0.4	0.20	0.60	0.54	1.9	3.1	5.0	0.6	0.9	2.7	2.9	1.9	2.5
31	0.4	0.22	0.63		1.9	3.3	5.2	0.8	1.1	2.7	3.1	2.8	3.1
Avg.	0.39	0.22	0.66	0.61	1.8	2.7	4.5	0.6	0.9	2.8	3.2	2.4	2.8
Max.	0.50	0.24	0.77	0.65	2.1	3.8	5.8	0.9	1.1	3.1	3.5	3.0	3.5
Min.	0.00	0.19	0.58	0.54	0.0	0.0	0.0	0.4	0.6	2.2	2.9	1.7	2.2

Chemical Analyses

City of Flint Water Treatment Plant

December 2014

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WSSN: 2310

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	8.25	7.82	303	204	248	109	55	95	97.8	63.3	14.6	11.7	47	77
2	8.12	8.27	303	193	248	97	55	96	98.6	54.5	14.1	13.6	47	77
3	8.21	8.25	307	192	243	96	64	96	113.8	64.1	5.8	7.8	47	75
4	8.42	7.84	312	193	257	97	55	96	103.4	55.3	13.6	13.6	48	76
5	8.21	8.23	314	197	257	98	57	99	109.0	65.7	9.7	7.8	45	74
6	8.27	8.34	314	210	254	115	60	95	109.8	69.7	9.7	8.3	47	74
7	8.43	8.08	326	203	265	102	61	101	103.4	58.5	16.5	13.6	47	78
8	8.35	8.00	326	197	268	93	58	104	107.4	56.9	14.1	13.1	48	77
9	8.33	7.95	324	200	263	97	61	103	121.0	71.3	6.3	5.8	48	77
10	8.23	7.95	329	190	269	81	60	109	106.6	53.7	15.1	12.6	48	82
11	8.17	7.95	321	190	261	88	60	102	111.4	68.1	10.2	4.9	48	79
12	8.13	8.33	324	197	260	95	64	102	116.2	70.5	8.3	2.9	49	81
13	8.13	7.41	322	208	261	100	61	108	119.4	75.4	6.3	4.9	48	83
14	8.18	8.16	334	206	270	97	64	109	101.0	55.3	20.4	16.5	48	81
15	8.24	8.18	328	207	269	102	59	105	97.0	59.3	19.9	14.1	50	83
16	8.29	8.37	324	200	269	95	55	105	103.4	55.3	16.0	14.6	48	82
17	8.22	8.18	321	201	261	89	60	112	107.4	65.7	12.2	9.2	44	85
18	8.24	8.15	325	203	264	91	61	112	108.2	60.9	13.6	12.2	48	82
19	7.99	8.03	319	199	258	91	61	108	117.0	69.7	6.8	5.8	48	84
20	8.23	7.90	318	196	252	90	66	106	116.2	70.5	7.3	4.9	48	83
21	8.31	8.20	317	173	260	77	57	96	99.4	51.3	17.0	9.7	45	78
22	8.31	8.35	319	177	266	72	53	105	102.6	48.1	15.1	14.1	47	80
23	8.25	8.22	322	168	263	71	59	97	121.0	52.9	15.1	7.8	49	79
24	8.27	8.49	323	179	264	72	59	107	108.2	54.5	12.6	10.2	46	79
25	8.28	8.12	312	183	255	72	57	111	109.0	63.3	10.2	6.3	49	82
26	8.25	8.18	307	182	248	79	59	103	109.0	65.7	9.7	3.9	46	81
27	8.21	8.07	289	173	232	76	57	97	102.6	64.1	8.3	4.9	44	80
28	8.26	8.03	290	174	235	67	55	107	95.4	52.1	13.1	10.7	42	82
29	8.29	7.62	313	184	251	75	62	109	101.0	53.7	15.1	11.7	43	83
30	8.17	7.77	319	197	257	84	62	113	107.4	60.9	12.2	10.7	46	84
31	8.17	7.67	320	181	260	60	60	121	117.8	69.7	7.3	1.9	48	87

Avg.	8.24	8.07	317	192	258	88	59	104	107.8	61.3	12.1	9.3	47	80
Max.	8.43	8.49	334	210	270	115	66	121	121.0	75.4	20.4	16.5	50	87
Min.	7.99	7.41	289	168	232	60	53	95	95.4	48.1	5.8	1.9	42	74

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

December 2014

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Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colifert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	24066	12	0	1	0	> 14760	4	0.38	5.1				
2	1	18416	12	0	1	0	2320	2	0.38	6.4				
3	1	6152	12	0	1	0	1360	4	0.37	5.6				
4	1	2324	12	0	1	0	1020	< 2	0.38	5.4				
5	1	852	12	0	1	0	340	< 2	0.38	6.1				
6	1	518	4	0	1	0	40	2	0.40	7.2				
7	1	194	0	0	1	0	80	< 2	0.38	1.4				
8	1	350	0	0	1	0	240	< 2	0.38	3.3				
9	1	342	12	0	1	0	120	< 2	0.40	4.8				
10	1	346	12	0	1	0	240	< 2	0.38	6.5				
11	1	62	12	0	1	0	120	< 2	0.38	4.9				
12	1	40	12	0	1	0	< 2	< 2	0.39	6.0				
13	1	82	12	0	1	0	160	< 2	0.32	6.4				
14	1	40	12	0	1	0	80	2	0.39	5.6				
15	1	20	12	0	1	0	40	< 2	0.40	5.9				
16	1	219	12	0	1	0	> 14760	< 2	0.40	6.0				
17	1	83	12	0	1	0	166	< 2	0.39	6.3				
18	1	88	12	0	1	0	161	< 2	0.40	5.8				
19	1	56	12	0	1	0	116	2	0.39	6.4				
20	1	68	12	0	1	0	156	< 2	0.35	7.0				
21	1	248	12	0	1	0	137	< 2	0.36	3.9				
22	1	308	12	0	1	0	216	< 2	0.36	3.4				
23	1	1300	12	0	1	0	324	< 2	0.35	4.5				
24	1	1300	12	0	1	0	324	< 2	0.36	6.4				
25	1	687	12	0	1	0	470	< 2	0.37	7.4				
26	1	1986	12	0	1	0	392	< 2	0.36	5.1				
27	1	> 2419	12	0	1	0	> 738	< 2	0.37	5.6				
28	1	> 48392	12	0	1	0	9400	2	0.36	4.5				
29	1	39732	12	0	1	0	2640	< 2	0.37	4.0				
30	1	4286	12	0	1	0	560	< 2	0.37	2.2				
31	1	1976	12	0	1	0	300	< 2	0.37	2.6				

Avg.									0.38	5.2				
Max.							9400	4	0.40	7.4				
Min.									0.32	1.4				

WSSN: 2310

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1									2.8	0.7	2
2	0.2	2.0	1.9	1.8	1.2	0.1	1.2	2.1	1.6	1.8	10
3	0.9	1.7	1.9	1.6	1.0	0.1	1.5	1.8	1.8	2.0	10
4	0.6	1.1	1.6	1.7	0.9	0.1	1.4	1.8	1.3	1.7	10
5											0
6											0
7											0
8									0.4	0.4	2
9	0.9	0.1	1.4	0.2	0.1	0.2	1.7	2.5	0.3	1.2	10
10	0.7	0.2	1.8	1.7	0.2	0.2	1.5	1.9	1.6	0.8	10
11	0.6	0.5		1.4	0.8	0.1	1.5	1.8	1.5	0.9	9
12											0
13											0
14											0
15									0.8	1.6	2
16	0.7	1.7	1.5	1.6	0.7	0.2	0.8	1.8	1.3	2.1	10
17	0.6	0.8	1.4	1.5	0.7	0.1	0.8	1.8	1.1	1.4	10
18	0.8	1.5	1.5	1.5	0.5	0.2	1.5	1.8	1.2	1.3	10
19	0.5	1.7	1.7	1.3	0.8	0.1			0.9	1.0	8
20											0
21											0
22											0
23	0.7	1.5	1.3	1.5	0.8	0.3	1.5	1.8	1.8	0.3	10
24	0.6	1.1	2.1	0.6	0.5	0.5	1.0	2.0	0.7	1.2	10
25											0
26											0
27											0
28											0
29											0
30	0.6	0.4	1.7	1.5	0.8	0.3	1.2	2.0		1.4	9
31											0

Distribution Sample Summary

Total # of routine distribution samples analyzed	132
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.1

Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WS	
1									3.2	1.0	2
2	0.4	2.6	2.5	2.1	1.5	0.2	1.5	2.5	2.1	2.0	10
3	1.2	2.0	2.1	1.9	1.3	0.4	1.8	2.1	2.1	2.3	10
4	1.0	1.4	1.9	2.0	1.3	0.2	1.7	2.1	1.5	1.9	10
5											0
6											0
7											0
8									0.5	0.6	2
9	1.3	0.2	1.6	0.4	0.3	0.4	1.9	2.7	0.5	1.5	10
10	1.1	0.3	2.1	2.0	0.3	0.3	1.7	2.2	1.9	1.1	10
11	1.0	0.5	1.5	2.0	0.8	0.3	2.1	1.9	2.0	2.0	10
12	0.9	0.8		1.6	1.0	0.3	1.7	2.0	1.8	1.2	9
13											0
14											0
15									1.1	1.9	2
16	0.9	2.1	1.8	1.8	1.0	0.3	1.0	2.3	1.5	2.4	10
17	0.8	1.1	1.7	1.8	1.0	0.3	1.0	2.1	1.4	1.8	10
18	1.0	1.7	1.7	1.8	0.8	0.2	1.7	2.0	1.4	1.6	10
19	0.8	1.9	1.9	1.5	1.1	0.3			1.2	1.3	8
20											0
21											0
22											0
23	1.0	1.7	1.6	1.7	1.1	0.5	1.7	2.1	2.0	0.6	10
24	0.8	1.2	2.3	0.8	0.7	0.8	1.2	2.3	0.9	1.4	10
25											0
26											0
27											0
28											0
29											0
30	0.8	0.5	1.9	1.7	1.1	0.5	1.4	2.4		1.6	9
31											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.4

Positive Distribution Samples

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
 WSSN: 2310

Michael Glasgow
 Operator-in-Charge

January 2015
 Month/Year

F-1R, F-2

Certification of Operator-in-Charge

Michael Glasgow
 Signature of Operator-in-Charge

F-1

Water Plant Classification

Genesee
 County

DEQ
 RESOURCE MANAGEMENT DIVISION

FEB 17 2015

LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>19.3</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>76</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.1</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>3.6</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>3.2%</u>	Percent of Treated Water

Chemical Data

Chlorine on hand:	<u>12,000</u> lb.	Est. supply:	<u>18</u> days
Primary Coagulant (Ferric Chloride) on hand:	<u>110,000</u> lb.	Est. supply:	<u>10</u> days
Lime (CaO) on hand:	<u>257</u> tons	Est. supply:	<u>22</u> days
Fluoride on Hand:	<u>16,630</u> lb.	Est. supply:	<u>42</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:	<u>0</u>	<u>0</u>
Number of filter confluence samples collected:	<u>244</u>	<u>242</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0.0%</u>	<u>0.0%</u>
Number of filter confluence samples > 1 NTU	<u>0</u>	<u>0</u>
Did any individual filter exceed:		
1.0 NTU in two consecutive measurements taken 15 minutes apart?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		
Was minimum C*T credit achieved for the entire month?		<u>YES</u>
If no, indicate on a separate sheet the date(s) not achieved.		
Was continuous POE chlorine residual monitoring equipment off-line during the month?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		

[illegible]

Filter turbidity

City of Flint Water Treatment Plant

January 2015

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WSSN: 2310

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	8	0.07	0.08	6	0	0	8	0.06	0.09	6	0	0	0.08
2	7	0.07	0.09	6	0	0	7	0.06	0.07	6	0	0	0.07
3	8	0.06	0.08	6	0	0	8	0.06	0.07	6	0	0	0.08
4	8	0.07	0.09	8	0	0	8	0.07	0.11	6	0	0	0.07
5	8	0.06	0.09	6	0	0	8	0.06	0.09	6	0	0	0.07
6	8	0.08	0.09	6	0	0	8	0.07	0.10	6	0	0	0.07
7	8	0.09	0.15	6	0	0	8	0.07	0.09	6	0	0	0.08
8	8	0.08	0.10	6	0	0	8	0.07	0.11	6	0	0	0.08
9	8	0.06	0.08	6	0	0	8	0.05	0.07	6	0	0	0.07
10	8	0.06	0.08	6	0	0	8	0.07	0.09	6	0	0	0.07
11	8	0.06	0.08	6	0	0	8	0.07	0.09	6	0	0	0.07
12	8	0.07	0.09	6	0	0	8	0.07	0.10	6	0	0	0.09
13	8	0.06	0.12	6	0	0	8	0.05	0.07	6	0	0	0.06
14	8	0.07	0.09	6	0	0	8	0.06	0.09	6	0	0	0.07
15	8	0.06	0.09	6	0	0	8	0.07	0.09	6	0	0	0.07
16	8	0.07	0.09	6	0	0	8	0.07	0.10	6	0	0	0.09
17	8	0.07	0.08	6	0	0	8	0.07	0.10	6	0	0	0.07
18	8	0.08	0.11	6	0	0	8	0.07	0.08	6	0	0	0.07
19	8	0.07	0.09	6	0	0	8	0.07	0.11	6	0	0	0.07
20	8	0.07	0.08	6	0	0	8	0.07	0.10	6	0	0	0.11
21	8	0.08	0.11	6	0	0	8	0.07	0.08	6	0	0	0.09
22	8	0.09	0.11	6	0	0	8	0.08	0.09	6	0	0	0.09
23	7	0.08	0.10	6	0	0	7	0.07	0.09	6	0	0	0.08
24	8	0.07	0.09	6	0	0	8	0.06	0.10	6	0	0	0.07
25	8	0.06	0.07	6	0	0	8	0.07	0.09	6	0	0	0.07
26	8	0.07	0.09	6	0	0	6	0.08	0.10	6	0	0	0.07
27	7	0.08	0.11	6	0	0	7	0.07	0.10	6	0	0	0.08
28	7	0.07	0.09	6	0	0	7	0.07	0.10	6	0	0	0.07
29	7	0.07	0.10	6	0	0	7	0.07	0.08	6	0	0	0.07
30	8	0.07	0.09	6	0	0	8	0.07	0.08	6	0	0	0.08
31	8	0.06	0.10	6	0	0	8	0.06	0.08	6	0	0	0.07
Avg.	8	0.07	0.09	6	0	0	8	0.07	0.09	6	0	0	
Max.	8	0.09	0.15	6	0	0	8	0.08	0.11	6	0	0	0.11
Min.	7	0.06	0.07	6	0	0	6	0.05	0.07	6	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

January 2015

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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	0.4	0.24	0.70		1.3	3.5	4.8	0.6	0.9	2.7	3.0	2.1	2.4
2	0.4	0.21	0.62		1.4	3.5	4.9	0.6	0.8	2.6	3.1	2.2	2.6
3	0.3	0.22	0.55		1.8	2.6	4.4	0.5	0.7	2.7	3.3	2.8	3.2
4	0.4	0.20	0.60		1.8	2.5	4.3	0.8	1.0	2.8	3.0	2.9	3.2
5	0.4	0.19	0.23		1.9	2.5	4.4	0.7	1.0	2.8	3.0	2.7	3.0
6	0.3	0.19	0.49	0.39	1.9	2.7	4.6	0.6	0.9	2.7	3.2	2.5	3.2
7	0.3	0.23	0.61		1.9	2.6	4.5	0.7	0.9	2.7	3.0	2.2	2.7
8	0.3	0.19	0.51		1.9	2.6	4.5	0.6	0.9	2.4	3.1	2.1	2.6
9	0.0	0.19	0.51		2.0	3.2	5.2	0.4	0.7	2.8	3.1	2.3	2.8
10	0.0	0.22	0.44		1.8	3.1	4.9	0.4	0.4	2.4	2.9	1.8	2.3
11	0.0	0.20	0.22		1.8	3.0	4.8	0.8	1.1	2.7	3.1	2.5	2.9
12	0.0	0.21	0.21		1.6	3.2	4.8	0.5	0.8	2.8	3.1	2.4	2.8
13	0.0	0.19	0.19	0.35	1.7	3.1	4.8	0.8	1.2	2.8	3.1	2.2	2.6
14	0.0	0.21	0.21		1.6	3.0	4.6	0.4	0.6	2.8	3.1	2.3	2.8
15	0.0	0.22	0.24		1.6	3.0	4.6	0.5	0.9	2.7	3.1	2.0	2.3
16	0.1	0.20	0.20		1.6	3.0	4.6	0.5	0.9	2.3	3.0	2.0	2.5
17	0.3	0.22	0.23		1.7	3.0	4.7	0.4	0.6	2.5	3.0	1.8	2.3
18	0.4	0.19	0.55		1.8	3.2	5.0	0.5	0.8	2.7	3.0	2.5	2.9
19	0.4	0.20	0.64		1.9	3.2	5.1	0.4	0.6	2.8	3.2	2.2	2.6
20	0.0	0.22	0.45	0.31	2.0	3.0	5.0	0.5	0.9	2.9	3.4	2.1	2.7
21	0.2	0.21	0.31		1.9	2.8	4.7	0.5	0.8	2.6	3.0	2.2	2.5
22	0.4	0.20	0.67		1.9	2.9	4.8	0.4	0.7	2.8	3.2	1.9	2.2
23	0.4	0.22	0.41		2.0	3.1	5.1	0.4	0.8	2.6	3.0	1.5	1.8
24	0.4	0.21	0.67		2.0	3.2	5.2	0.7	0.9	2.8	3.0	2.7	3.0
25	0.4	0.23	0.59		2.1	3.1	5.2	0.5	0.8	2.9	3.4	2.4	2.7
26	0.4	0.21	0.57		2.0	3.0	5.0	0.4	0.7	2.7	3.1	2.4	2.7
27	0.4	0.23	0.54	0.55	2.1	3.1	5.2	0.4	0.6	2.7	3.0	2.2	2.5
28	0.4	0.22	0.59		2.0	2.9	4.9	0.8	1.0	2.4	2.7	1.9	2.3
29	0.4	0.25	0.62		2.0	2.9	4.9	0.7	0.9	2.8	3.2	2.2	2.5
30	0.4	0.22	0.63		2.0	3.0	5.0	0.7	0.8	2.5	2.9	2.0	2.5
31	0.3	0.19	0.52		1.9	3.0	4.9	0.6	0.8	2.8	3.2	2.8	3.2

Avg.	0.26	0.21	0.47	0.40	1.8	3.0	4.8	0.6	0.8	2.7	3.1	2.3	2.7
Max.	0.40	0.25	0.70	0.55	2.1	3.5	5.2	0.8	1.2	2.9	3.4	2.9	3.2
Min.	0.00	0.19	0.19	0.31	1.3	2.5	4.3	0.4	0.4	2.3	2.7	1.5	1.8

Chemical
AnalysesCity of Flint Water Treatment Plant
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January 2015

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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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.23	7.65	323	185	264	65	59	120	108.2	55.3	13.6	11.7	47	85
2	7.84	7.31	324	193	258	76	66	117	121.0	65.7	6.3	4.9	47	87
3	7.77	7.38	323	212	257	98	66	114	120.0	77.0	5.8	4.9	48	87
4	8.15	7.86	325	218	261	96	64	122	105.8	64.9	14.6	13.1	48	88
5	8.31	7.80	318	208	262	94	56	112	103.4	60.9	14.6	13.6	45	78
6	8.09	7.97	320	208	256	95	64	113	121.0	69.7	4.9	8.7	48	85
7	8.04	7.91	313	194	256	97	57	97	101.8	61.7	15.6	10.7	43	82
8	8.19	8.04	313	202	251	87	62	115	121.0	72.9	2.9	3.9	48	83
9	8.08	7.96	311	205	248	93	63	112	115.4	70.5	5.8	6.3	47	84
10	7.98	7.75	316	181	255	73	61	108	114.6	64.1	6.8	3.4	47	88
11	8.01	8.24	321	174	256	63	65	111	100.2	44.9	17.5	14.6	44	80
12	8.09	7.68	318	177	250	57	68	120	101.0	46.5	16.0	14.6	49	81
13	7.94	7.69	320	165	245	46	75	119	105.8	44.1	14.1	13.1	47	87
14	7.80	7.52	321	172	252	58	69	114	115.4	56.9	7.8	6.8	48	88
15	7.96	7.64	323	173	258	48	65	125	105.8	48.9	14.1	13.1	45	91
16	7.94	7.47	324	172	257	44	67	128	117.8	58.5	6.8	6.8	47	88
17	7.82	7.95	320	174	252	54	68	120	119.4	58.5	4.9	5.3	46	89
18	8.02	7.72	322	185	258	69	64	116	104.2	55.3	15.1	11.2	48	83
19	8.03	7.62	321	184	255	59	66	125	102.6	54.5	16.0	11.7	48	86
20	7.89	7.59	321	184	255	67	66	117	116.2	64.9	7.8	4.9	49	91
21	7.86	7.79	324	183	257	72	67	111	105.0	51.3	15.1	13.1	50	83
22	7.59	7.42	325	193	262	81	63	112	116.2	68.9	8.3	4.9	49	84
23	7.70	7.44	344	186	256	78	88	108	112.2	59.3	15.6	9.2	52	87
24	7.91	7.51	327	187	259	72	68	115	101.0	48.1	18.5	16.0	48	85
25	7.93	7.71	326	188	260	75	66	113	100.2	50.5	18.5	14.6	47	85
26	7.95	7.82	328	194	259	71	69	123	105.8	54.5	15.6	13.6	51	88
27	7.77	7.99	332	191	266	68	66	123	111.4	60.1	13.1	9.2	51	89
28	7.99	7.98	334	188	264	76	70	112	107.4	51.3	16.0	14.6	48	85
29	7.80	7.83	334	196	268	76	66	120	106.6	57.7	16.5	12.6	55	86
30	7.84	7.78	331	193	272	78	59	115	113.0	59.3	13.1	10.7	55	90
31	7.96	7.91	335	197	267	69	68	128	108.2	56.1	15.6	13.6	51	92

Avg.	7.95	7.74	324	189	258	73	66	116	109.9	58.5	12.2	10.2	48	86
Max.	8.31	8.24	344	218	272	98	88	128	121.0	77	18.5	16.0	55	92
Min.	7.59	7.31	311	165	245	44	56	97	100.2	44.1	2.9	3.4	43	78

Bacteriological &
Physical ParametersCity of Flint Water Treatment Plant
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January 2015

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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	Tap	Raw	Raw	Tap	Raw	Tap
1	1	2592	12	0	1	0	800	< 2	0.37	5.6				
2	1	1684	12	0	1	0	600	< 2	0.36	4.5				
3	1	960	12	0	1	0	2400	< 2	0.42	4.0				
4	1	718	12	0	1	0	200	< 2	0.44	3.8				
5	1	1732	12	0	1	0	5980	< 2	0.41	3.0				
6	1	874	12	0	1	0	200	< 2	0.41	4.5				
7	1	2086	12	0	1	0	200	< 2	0.39	4.2				
8	1	960	12	0	1	0	120	< 2	0.39	5.5				
9	1	1146	12	0	1	0	420	< 2	0.40	2.6				
10	1	2994	12	0	1	0	760	38	0.31	2.6				
11	1	978	12	0	1	0	520	10	0.36	2.1				
12	1	1042	12	0	1	0	600	< 2	0.36	1.9				
13	1	862	12	0	1	0	340	< 2	0.37	1.4				
14	1	646	12	0	1	0	200	< 2	0.36	1.9				
15	1	736	12	0	1	0	300	< 2	0.36	3.5				
16	1	2224	12	0	1	0	200	< 2	0.37	1.9				
17	1	320	12	0	1	0	200	< 2	0.36	4.9				
18	1	40	12	0	1	0	200	2	0.38	4.9				
19	1	148	12	0	1	0	120	< 2	0.40	5.2				
20	1	770	12	0	1	0	146	< 2	0.38	4.9				
21	1	148	12	0	1	0	80	< 2	0.37	5.9				
22	1	201	12	0	1	0	190	< 2	0.39	5.8				
23	1	345	12	0	1	0	120	< 2		4.9				
24	1	97	12	0	1	0	150	< 2	0.38	6.4				
25	1	146	12	0	1	0	60	< 2	0.39	4.4				
26	1	181	12	0	1	0	230	< 2	0.40	3.8				
27	1	146	12	0	1	0	120	< 2	0.38	4.9				
28	1	172	12	0	1	0	128	< 2	0.38	4.3				
29	1	261	12	0	1	0	137	< 2	0.49	4.2				
30	1	155	12	0	1	0	93	< 2	0.43	4.0				
31	1	41	12	0	1	0	60	< 2	0.53	4.0				

Avg.									0.39	4.0				
Max.							5980	38	0.53	6.4				
Min.									0.31	1.4				

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

Distribution Sample Summary

Total # of routine distribution samples analyzed	101
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.15

WSSN: 2310

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

Distribution Disinfectant Total Residual Summary

Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.4

Positive Distribution Samples

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT

WSSN: 2310

Michael Glasgow

Operator-in-Charge

February 2015

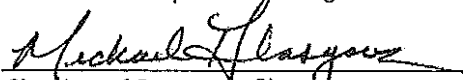
Month/Year

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>26.3</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>86</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.4</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>2.4%</u>	Percent of Treated Water

Chemical Data

Chlorine on hand:	<u>8,000</u>	lb.	Est. supply:	<u>8</u>	days
Primary Coagulant (Ferric Chloride) on hand:	<u>125,000</u>	lb.	Est. supply:	<u>3</u>	days
Lime (CaO) on hand:	<u>397</u>	tons	Est. supply:	<u>31</u>	days
Fluoride on Hand:	<u>26,600</u>	lb.	Est. supply:	<u>40</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:	<u>1</u>	<u>0</u>
Number of filter confluence samples collected:	<u>218</u>	<u>218</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0.5%</u>	<u>0.0%</u>
Number of filter confluence samples > 1 NTU	<u>0</u>	<u>0</u>
Did any individual filter exceed:		
1.0 NTU in two consecutive measurements taken 15 minutes apart?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
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?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		
Was minimum C*T credit achieved for the entire month?		<u>YES</u>
If no, indicate on a separate sheet the date(s) not achieved.		
Was continuous POE chlorine residual monitoring equipment off-line during the month?		<u>NO</u>
If yes, indicate date(s) and duration on a separate sheet.		

Filter turbidity

City of Flint Water Treatment Plant

February 2015

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WSSN: 2310

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	8	0.07	0.09	6	0	0	8	0.08	0.09	6	0	0	0.07
2	7	0.06	0.10	6	0	0	7	0.06	0.07	6	0	0	0.07
3	8	0.07	0.15	6	0	0	8	0.06	0.07	6	0	0	0.08
4	8	0.05	0.08	6	0	0	8	0.05	0.07	6	0	0	0.07
5	8	0.07	0.10	6	0	0	8	0.06	0.07	6	0	0	0.07
6	7	0.06	0.08	6	0	0	7	0.06	0.08	6	0	0	0.07
7	8	0.06	0.07	6	0	0	8	0.06	0.06	6	0	0	0.07
8	8	0.06	0.07	6	0	0	8	0.06	0.07	6	0	0	0.06
9	8	0.07	0.09	6	0	0	8	0.05	0.06	6	0	0	0.09
10	7	0.06	0.07	6	0	0	7	0.05	0.06	6	0	0	0.08
11	8	0.06	0.07	6	0	0	8	0.05	0.07	6	0	0	0.07
12	8	0.06	0.08	6	0	0	8	0.06	0.08	6	0	0	0.06
13	8	0.06	0.09	6	0	0	8	0.09	0.18	6	0	0	0.08
14	8	0.06	0.09	6	0	0	8	0.06	0.10	6	0	0	0.05
15	8	0.06	0.08	6	0	0	8	0.07	0.09	6	0	0	0.07
16	8	0.06	0.08	6	0	0	8	0.05	0.07	6	0	0	0.06
17	8	0.06	0.08	6	0	0	8	0.07	0.09	6	0	0	0.07
18	8	0.07	0.09	6	0	0	8	0.07	0.09	6	0	0	0.07
19	8	0.07	0.09	6	0	0	8	0.06	0.08	6	0	0	0.07
20	8	0.07	0.08	6	0	0	8	0.07	0.10	6	0	0	0.07
21	8	0.08	0.14	6	0	0	8	0.08	0.10	6	0	0	0.08
22	8	0.09	0.12	6	0	0	8	0.10	0.13	6	0	0	0.08
23	8	0.13	0.16	6	0	0	8	0.07	0.10	6	0	0	0.10
24	7	0.19	0.36	6	1	1	7	0.14	0.18	6	0	0	0.17
25	8	0.08	0.10	6	0	0	8	0.10	0.12	6	0	0	0.11
26	8	0.13	0.17	6	0	0	8	0.13	0.18	6	0	0	0.14
27	8	0.19	0.29	6	0	0	8	0.15	0.18	6	0	0	0.15
28	8	0.20	0.27	6	0	0	6	0.13	0.18	6	0	0	0.15
Avg.	8	0.08	0.12	6	0	0	8	0.07	0.10	6	0	0	
Max.	8	0.20	0.36	6	1	1	8	0.15	0.18	6	0	0	0.17
Min.	7	0.05	0.07	6	0	0	7	0.05	0.06	6	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	0.3	0.23	0.53		1.6	3.1	4.7	0.3	0.6	2.6	3.0	2.5	2.9
2	0.3	0.22	0.48		1.8	2.9	4.7	0.3	0.5	2.4	2.7	2.2	2.5
3	0.3	0.23	0.51	0.52	1.9	3.0	4.9	0.8	1.2	2.6	2.9	2.4	2.7
4	0.4	0.22	0.53		1.9	3.0	4.9	0.6	0.8	2.8	3.0	2.7	3.0
5	0.3	0.22	0.53		1.9	2.9	4.8	0.5	0.7	2.6	3.0	2.2	2.5
6	0.4	0.22	0.57		2.0	3.0	5.0	0.8	1.0	2.7	3.0	2.3	2.8
7	0.3	0.22	0.58		2.1	2.7	4.8	0.3	0.6	2.6	2.9	2.1	2.4
8	0.4	0.23	0.56		2.1	2.7	4.8	0.6	0.8	2.7	3.0	2.2	2.5
9	0.4	0.22	0.64		1.9	2.8	4.7	0.4	0.6	2.7	3.0	2.3	2.6
10	0.4	0.24	0.63	0.56	2.2	2.9	5.1	0.5	0.7	2.8	3.1	2.1	2.4
11	0.4	0.21	0.55		2.2	2.8	5.0	0.7	0.9	2.6	2.8	1.9	2.4
12	0.4	0.21	0.58		2.2	2.7	4.9	0.6	0.8	2.5	2.8	2.1	2.5
13	0.4	0.23	0.59		2.2	2.4	4.6	0.4	0.6	2.0	2.5	1.7	2.2
14	0.4	0.22	0.55		2.2	2.2	4.4	0.6	0.8	2.3	2.6	1.5	2.1
15	0.4	0.21	0.60		2.1	2.2	4.3	0.4	0.6	2.0	2.4	1.9	2.2
16	0.4	0.23	0.59		2.1	2.2	4.3	0.4	0.6	2.1	2.4	1.8	2.1
17	0.4	0.21	0.61	0.54	2.1	2.3	4.4	0.8	1.0	2.0	2.4	1.3	1.7
18	0.3	0.23	0.58		2.0	2.2	4.2	0.3	0.6	1.9	2.4	1.5	2.0
19	0.3	0.24	0.64		2.2	2.1	4.3	0.6	0.8	2.0	2.4	1.7	2.2
20	0.4	0.23	0.56		2.2	2.1	4.3	0.7	1.0	2.0	2.5	1.5	1.9
21	0.4	0.24	0.61		2.2	2.1	4.3	0.5	0.7	1.7	2.2	1.5	2.0
22	0.4	0.23	0.55		2.2	2.1	4.3	0.4	0.6	2.0	2.3	1.7	1.9
23	0.3	0.24	0.64		2.2	2.2	4.4	0.5	0.6	2.0	2.1	1.5	1.6
24	0.3	0.24	0.56	0.54	2.3	2.6	4.9	0.4	0.6	2.5	3.3	2.1	2.5
25	0.3	0.23	0.62		2.3	2.6	4.9	0.5	0.7	2.5	2.9	2.4	2.7
26	0.3	0.23	0.54		2.3	2.7	5.0	0.5	0.7	2.7	3.1	2.5	3.0
27	0.3	0.24	0.56		2.3	2.5	4.8	0.6	0.8	2.3	2.9	2.1	2.5
28	0.3	0.24	0.56		2.3	2.5	4.8	0.6	0.8	2.3	2.8	1.9	2.5
Avg.	0.35	0.23	0.57	0.54	2.1	2.6	4.7	0.5	0.7	2.4	2.7	2.0	2.4
Max.	0.40	0.24	0.64	0.56	2.3	3.1	5.1	0.8	1.2	2.8	3.3	2.7	3.0
Min.	0.30	0.21	0.48	0.52	1.6	2.1	4.2	0.3	0.5	1.7	2.1	1.3	1.6

Chemical Analyses

City of Flint Water Treatment Plant

February 2015

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WSSN: 2310

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	7.78	7.91	339	198	273	60	66	138	109.0	56.9	17.5	14.1	51	98
2	7.92	7.64	343	203	274	77	69	126	110.6	60.1	15.6	12.6	52	91
3	7.75	8.69	344	176	276	62	68	114	113.8	54.5	13.6	10.2	57	90
4	8.04	7.88	346	176	277	62	69	114	114.6	54.5	14.6	10.2	49	88
5	7.77	7.56	349	183	284	63	65	120	118.6	60.9	12.6	7.3	55	89
6	7.92	7.63	350	180	276	52	74	128	117.8	52.9	13.6	11.7	54	95
7	8.07	7.76	348	185	282	68	66	117	113.8	54.5	15.6	11.7	52	92
8	8.05	7.57	347	181	278	50	69	131	111.4	51.3	16.5	12.6	51	91
9	8.11	7.66	349	183	280	62	69	121	112.2	52.9	16.5	12.2	53	94
10	7.96	7.65	350	168	284	47	66	121	113.0	57.7	16.5	6.8	56	95
11	7.97	7.76	345	173	274	54	71	119	109.0	49.7	17.9	12.6	51	92
12	7.85	7.66	342	169	274	51	68	118	117.8	59.3	12.2	5.3	55	92
13	7.77	7.70	345	170	267	53	78	117	121.0	57.7	11.2	4.9	54	90
14	7.86	7.54	344	173	269	52	75	121	125.0	63.3	7.3	3.9	56	93
15	8.00	7.73	349	176	280	53	69	123	113.0	50.5	16.0	12.2	50	94
16	7.89	7.68	353	169	285	47	68	122	123.4	53.7	10.7	8.7	55	95
17	8.05	7.92	360	172	281	49	79	123	118.6	48.9	15.6	11.7	53	92
18	7.96	7.97	352	218	282	102	70	116	125.9	78.6	8.7	5.3	54	91
19	8.11	7.82	358	208	291	91	67	117	120.2	59.3	14.6	13.1	53	92
20	7.93	7.90	362	207	286	94	76	113	133.1	76.2	7.3	4.4	55	87
21	8.00	8.06	362	214	284	98	78	116	133.9	76.2	6.8	4.4	54	86
22	7.98	8.03	366	227	294	113	72	114	116.2	67.3	18.5	14.1	52	88
23	8.07	8.31	361	225	293	112	68	113	121.8	68.9	14.1	12.6	52	86
24	7.95	7.85	361	227	289	101	72	126	133.9	78.6	5.8	6.8	54	88
25	8.03	8.14	365	244	295	127	70	117	118.6	77.8	16.5	11.7	55	89
26	7.91	7.88	365	235	288	108	77	127	132.3	86.6	8.3	4.9	55	89
27	7.96	7.85	354	241	291	117	63	124	131.5	91.4	6.3	2.9	57	89
28	7.90	7.72	358	228	228	115	130	113	127.5	84.2	9.7	3.9	54	87

Avg.	7.95	7.84	352	197	280	76	73	120	119.9	63.7	12.9	9.0	54	91
Max.	8.11	8.69	368	244	295	127	130	138	133.9	91.4	18.5	14.1	57	98
Mln.	7.75	7.54	339	168	228	47	63	113	109.0	48.9	5.8	2.9	49	86

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

February 2015

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Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colliert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	41	12	0	1	0	150	< 2	0.53	4.0				
2	1	117	12	0	1	0	132	< 2	0.55	4.2				
3	1	96	12	0	1	0	146	< 2	0.49	4.3				
4	1	86	12	0	1	0	90	< 2	0.51	4.1				
5	1	105	12	0	1	0	183	< 2	0.51	3.5				
6	1	276	12	0	1	0	128	< 2	0.50	2.4				
7	1	124	12	0	1	0	97	< 2	0.50	3.8				
8	1	120	12	0	1	0	80	< 2	0.48	3.8				
9	1	104	12	0	1	0	90	< 2	0.51	4.2				
10	1	93	12	0	1	0	132	< 2	0.50	4.0				
11	1	115	12	0	1	0	83	< 2	0.47	4.3				
12	1	115	12	0	1	0	93	< 2	0.46	3.8				
13	1	153	12	0	1	0	80	< 2	0.50	4.5				
14	1	154	12	0	1	0	93	< 2	0.48	3.6				
15	1	138	12	0	1	0	83	< 2	0.52	0.5				
16	1	179	12	0	1	0	137	< 2	0.50	0.7				
17	1	365	12	0	1	0	166	< 2	0.50	1.2				
18	1	219	12	0	1	0	177	< 2	0.51	1.7				
19	1	153	12	0	1	0	112	< 2	0.45	2.2				
20	1	192	12	0	1	0	62	< 2	0.56	1.9				
21	1	142	12	0	1	0	116	< 2	0.51	4.1				
22	1	160	12	0	1	0	146	< 2	0.55	2.1				
23	1	129	12	0	1	0	112	< 2	0.58	1.0				
24	1	135	12	0	1	0	100	< 2	0.61	3.4				
25	1	145	12	0	1	0	156	< 2	0.61	2.0				
26	1	115	12	0	1	0	108	< 2	0.61	1.2				
27	1	86	12	0	1	0	74	< 2	0.61	3.3				
28	1	84	12	0	1	0	65	< 2	0.56	3.3				

Avg.									0.52	3.0				
Max.		365					183	0	0.61	4.5				
Min.									0.46	0.5				

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

Distribution Sample Summary

Total # of routine distribution samples analyzed	104
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.22

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
2											0
3	1.0	1.8	1.8	1.9	1.8	0.3	2.0	1.9	1.7	2.4	10
4											0
5	1.3	2.1	2.0	2.0	1.3	0.4	2.1	2.3	1.0	1.6	10
6											0
7											0
8											0
9											0
10	1.3	1.5	1.9	1.6	1.3	0.4	2.4	2.2	1.0	1.3	10
11	1.2	1.5	1.8	1.9	1.1	0.4	1.9	2.6	0.7	1.2	10
12	0.5	1.6	2.4	2.0	0.9	0.4	2.1	2.4	0.6	1.4	10
13											0
14											0
15											0
16											0
17	1.3	1.0	1.4	1.8	0.9	0.3	1.5	1.8		1.7	9
18	1.5	1.0	1.9	1.5	1.0	0.3	2.1	2.0		1.7	9
19	1.3	1.1	1.6	1.5	1.0	0.3	1.0	1.7		1.3	9
20											0
21											0
22											0
23	1.5	1.0	1.6	1.3	0.8	0.3	0.8	1.8		1.2	9
24	1.7	1.3	1.9	1.4	1.2	0.4	2.8	2.4		2.5	9
25											0
26	1.9	1.6	2.4	1.7	1.4	0.5	2.1	2.0		2.5	9
27											0
28											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.5

Positive Distribution Samples

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
 WSSN: 2310

Michael Glasgow
 Operator-in-Charge

March 2015
 Month/Year

F-1R, F-2
 Certification of Operator-in-Charge

F-1
 Water Plant Classification

Signature of Operator-in-Charge

Genesee
 County

DEQ
 RESOURCE MANAGEMENT DIVISION

APR 24 2015

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>25.4</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>96</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.3</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>1.3%</u>	Percent of Treated Water

LANSING DISTRICT

Chemical Data

Chlorine on hand:	<u>20,000</u>	lb.	Est. supply:	<u>19</u>	days
Primary Coagulant (Ferric Chloride) on hand:	<u>157,700</u>	lb.	Est. supply:	<u>9</u>	days
Lime (CaO) on hand:	<u>348</u>	tons	Est. supply:	<u>29</u>	days
Fluoride on Hand:	<u>23,300</u>	lb.	Est. supply:	<u>48</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:
 Number of filter confluence samples collected:
 Percent of filter confluence samples > 0.3 NTU:
 Number of filter confluence samples > 1 NTU

2

242

0.8%

0

4

242

1.7%

0

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.

Date	Million Gallons Treated	Ozone Dosage (mg/L)	Ferric as Fe ³⁺ mg/L	Lime Dosage (mg/L)	PW-340 Cationic Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
							Raw			Plate Settler	Applied
							Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	24.3	4.9	15.0	121.0	3.8	0.40	8	12.4	47.2	5.63	1.69
2	24.3	4.9	14.6	121.0	4.0	0.41	8	4.4	15.6	5.73	1.61
3	24.3	4.9	14.0	132.1	3.8	0.41	8	4.1	13.3	5.42	1.45
4	24.4	4.9	14.1	123.0	3.9	0.41	8	2.5	3.9	5.54	1.32
5	24.6	4.9	13.7	120.0	3.8	0.43	8	3.2	6.1	5.43	1.47
6	24.9	4.9	14.0	120.4	3.8	0.46	8	2.4	3.0	5.95	1.54
7	24.8	4.9	13.9	117.7	3.7	0.43	8	2.4	3.0	5.89	1.57
8	24.7	4.9	14.4	117.5	3.8	0.40	8	4.6	15.3	5.75	1.62
9	24.8	4.0	14.3	119.3	3.7	0.43	8	4.4	7.5	5.52	1.62
10	24.8	4.7	14.1	116.0	3.7	0.44	8	6.0	8.1	5.31	1.66
11	24.9	4.7	13.6	113.1	3.7	0.44	8	8.9	15.4	4.79	1.87
12	25.1	4.6	14.0	119.2	3.7	0.43	8	4.6	5.5	4.79	1.73
13	25.4	4.9	14.0	108.8	3.7	0.39	8	3.5	4.1	4.79	1.52
14	25.4	4.8	13.2	108.9	3.8	0.39	8	4.6	5.7	6.77	1.52
15	25.4	4.9	13.6	106.0	3.8	0.40	8	15.2	38.1	1.91	2.45
16	24.0	5.0	13.4	104.2	4.0	0.44	8	15.9	21.0	2.87	2.21
17	24.0	4.5	14.2	108.5	4.0	0.43	8	12.5	28.5	2.02	1.60
18	21.9	4.5	14.6	135.0	4.5	0.57	8	10.8	16.0	1.48	1.28
19	21.7	4.6	13.2	104.6	2.1	0.46	8	20.5	35.8	1.96	33.9
20	23.6	4.4	14.8	116.9	1.6	0.35	8	11.6	13.5	2.63	4.11
21	24.0	4.5	16.7	38.4	1.8	0.41	8	11.1	12.3	1.96	2.15
22	24.2	3.8	17.3	41.4	1.5	0.41	8	13.4	19.6	1.98	1.97
23	24.6	3.6	17.5	58.1	1.7	0.34	8	11.8	21.6	1.95	1.65
24	23.9	3.8	16.6	62.6	2.2	0.37	8	9.8	10.7	2.20	1.94
25	24.3	3.5	16.8	64.2	2.2	0.37	8	11.7	17.3	1.79	1.45
26	23.8	3.8	16.6	66.7	2.4	0.34	8	8.2	9.8	1.75	1.40
27	23.3	1.5	17.8	69.3	2.9	0.38	8	8.3	10.8	1.50	1.24
28	22.0	3.0	16.4	74.1	2.6	0.47	8	6.9	8.0	1.52	1.28
29	19.6	4.6	16.1	87.3	4.0	0.53	8	11.0	30.7	1.26	1.08
30	18.1	5.0	16.3	99.2	4.4	0.56	8	9.4	13.6	1.19	1.19
31	18.1	3.0	16.8	106.0	4.4	0.58	8	15.0	42.7	1.14	0.95

[illegible]

Filter turbidity

City of Flint Water Treatment Plant

March 2015

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WSSN: 2310

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	8	0.15	0.18	6	0	0	8	0.11	0.15	6	0	0	0.16
2	8	0.10	0.15	6	0	0	8	0.09	0.14	6	0	0	0.11
3	8	0.11	0.16	6	0	0	8	0.11	0.18	6	0	0	0.11
4	8	0.14	0.20	6	0	0	8	0.12	0.18	6	0	0	0.14
5	8	0.16	0.20	6	0	0	8	0.11	0.17	6	0	0	0.12
6	8	0.11	0.20	6	0	0	8	0.15	0.29	6	0	0	0.16
7	8	0.09	0.13	6	0	0	8	0.07	0.09	6	0	0	0.12
8	8	0.14	0.19	6	0	0	8	0.11	0.18	6	0	0	0.13
9	8	0.12	0.20	6	0	0	8	0.10	0.14	6	0	0	0.13
10	8	0.10	0.13	6	0	0	8	0.13	0.17	6	0	0	0.12
11	8	0.12	0.18	6	0	0	8	0.09	0.11	6	0	0	0.11
12	8	0.12	0.16	6	0	0	8	0.10	0.13	6	0	0	0.11
13	8	0.10	0.12	6	0	0	8	0.12	0.15	6	0	0	0.11
14	8	0.11	0.15	6	0	0	8	0.08	0.09	6	0	0	0.10
15	8	0.12	0.17	6	0	0	8	0.14	0.20	6	0	0	0.14
16	8	0.15	0.17	6	0	0	8	0.14	0.17	6	0	0	0.17
17	8	0.11	0.18	6	0	0	8	0.09	0.12	6	0	0	0.16
18	2	0.07	0.07	1	0	0	2	0.07	0.07	1	0	0	0.08
19	8	0.14	0.22	6	0	0	8	0.14	0.22	6	0	0	0.19
20	8	0.27	0.35	6	1	2	8	0.29	0.36	6	3	4	0.42
21	8	0.15	0.16	6	0	0	8	0.15	0.20	6	0	0	0.33
22	8	0.20	0.23	6	0	0	8	0.18	0.20	6	0	0	0.35
23	8	0.19	0.23	6	0	0	8	0.17	0.23	6	0	0	0.37
24	8	0.19	0.20	6	0	0	8	0.16	0.18	6	0	0	0.23
25	8	0.16	0.21	6	0	0	8	0.12	0.15	6	0	0	0.14
26	8	0.17	0.22	6	0	0	8	0.10	0.12	6	0	0	0.15
27	8	0.13	0.16	6	0	0	8	0.14	0.24	6	0	0	0.13
28	8	0.11	0.17	6	0	0	8	0.10	0.12	6	0	0	0.09
29	8	0.09	0.13	6	0	0	8	0.09	0.12	6	0	0	0.07
30	8	0.09	0.12	6	0	0	8	0.08	0.09	6	0	0	0.10
31	8	0.07	0.09	6	0	0	8	0.08	0.12	6	0	0	0.11
Avg.	8	0.13	0.17	6	0	0	8	0.12	0.16	6	0	0	
Max.	8	0.27	0.35	6	1	2	8	0.29	0.36	6	3	4	0.42
Min.	2	0.07	0.07	1	0	0	2	0.07	0.07	1	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

March 2015

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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	0.3	0.24	0.60		2.3	2.5	4.8	0.6	0.7	2.4	2.7	1.9	2.1
2	0.3	0.25	0.62		2.2	2.6	4.8	0.4	0.6	2.5	2.8	2.0	2.4
3	0.3	0.23	0.57	0.55	2.2	2.8	5.0	0.6	0.7	2.5	2.9	2.0	2.5
4	0.3	0.24	0.59		2.3	2.6	4.9	0.5	0.7	2.3	2.9	2.1	2.3
5	0.3	0.22	0.57		2.2	2.5	4.7	0.5	0.7	2.7	3.1	2.3	2.8
6	0.3	0.25	0.58		2.2	2.3	4.5	0.4	0.6	2.5	3.0	1.9	2.5
7	0.3	0.23	0.56		2.2	2.8	5.0	0.4	0.7	2.3	2.7	1.8	2.3
8	0.3	0.23	0.61		2.2	2.8	5.0	0.6	0.8	2.5	2.8	2.5	2.8
9	0.3	0.26	0.64		2.2	2.8	5.0	0.5	0.7	2.5	2.8	2.5	2.8
10	0.3	0.23	0.56		2.7	2.9	5.6	0.4	0.6	2.6	3.2	2.2	2.7
11	0.3	0.23	0.52		2.2	3.0	5.2	0.6	0.8	2.4	2.7	2.2	2.6
12	0.3	0.23	0.53	0.50	2.3	2.9	5.2	0.4	0.6	2.8	3.1	2.3	2.7
13	0.3	0.24	0.54		2.3	2.9	5.2	0.4	0.7	2.6	3.3	2.0	2.5
14	0.3	0.24	0.52		2.3	2.7	5.0	0.6	0.8	3.2	3.5	2.0	2.4
15	0.3	0.21	0.49		2.3	3.4	5.7	1.0	1.4	1.7	2.0	1.8	2.0
16	0.3	0.19	0.52		2.5	4.9	7.4	1.6	1.9	2.0	2.3	2.0	2.2
17	0.3	0.21	0.54		2.4	4.3	6.7	0.6	1.0	2.8	3.1	2.5	3.1
18	0.3	0.21	0.51	0.52	2.3	3.4	5.7	0.3	0.5	3.0	3.5	3.0	3.5
19	0.3	0.20	0.52		2.4	3.2	5.6	0.6	1.1	3.0	3.3	2.5	2.8
20	0.3	0.17	0.55		2.2	3.9	6.1	0.3	1.0	2.9	3.3	1.3	1.6
21	0.3	0.17	0.48		2.5	4.1	6.6	0.6	1.3	2.6	3.3	1.7	2.3
22	0.3	0.14	0.51		2.7	3.7	6.4	0.5	1.4	2.6	2.9	2.5	2.8
23	0.3	0.16	0.55		2.7	3.6	6.3	0.5	1.3	2.6	3.0	2.6	2.9
24	0.4	0.16	0.58		2.9	3.5	6.4	0.3	0.8	2.7	3.2	2.5	2.9
25	0.4	0.17	0.62	0.53	2.8	3.4	6.2	0.3	0.7	2.5	2.9	2.3	3.0
26	0.4	0.15	0.56		2.8	3.3	6.1	0.3	0.5	2.8	3.3	2.4	2.8
27	0.5	0.19	0.64		2.9	3.1	6.0	0.3	0.5	2.5	3.1	2.0	2.6
28	0.5	0.16	0.66		2.9	2.8	5.7	0.6	0.8	3.0	3.5	2.3	3.0
29	0.5	0.14	0.59		2.9	2.8	5.7	0.5	0.7	2.7	3.1	2.5	3.0
30	0.4	0.18	0.66		2.5	2.5	5.0	0.8	1.0	2.6	3.0	2.6	3.0
31	0.5	0.17	0.65		2.1	2.6	4.7	0.5	0.7	2.4	2.7	2.0	2.3

Avg.	0.34	0.20	0.57	0.53	2.4	3.1	5.6	0.5	0.8	2.6	3.0	2.2	2.6
Max.	0.50	0.26	0.66	0.55	2.9	4.9	7.4	1.6	1.9	3.2	3.5	3.0	3.5
Min.	0.30	0.14	0.48	0.50	2.1	2.3	4.5	0.3	0.5	1.7	2.0	1.3	1.6

WSSN: 2310

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	8.27	8.09	366	229	297	122	69	107	113.0	72.1	20.4	11.2	51	89
2	7.95	8.06	358	243	295	111	63	132	110.6	68.9	20.4	18.5	52	88
3	7.95	7.74	360	234	297	122	63	112	116.2	71.3	16.5	14.1	52	87
4	7.81	7.82	354	243	285	129	69	114	129.1	89.8	8.3	4.4	54	85
5	7.97	7.77	360	235	290	126	70	109	117.0	71.3	16.5	13.6	54	95
6	7.55	7.69	362	239	288	124	74	115	133.1	89.0	7.3	2.9	55	89
7	7.90	7.94	351	234	288	124	63	110	126.7	87.4	18.0	13.6	54	87
8	7.93	8.26	363	235	288	123	75	112	120.2	74.5	15.6	11.7	48	87
9	7.96	7.84	357	237	286	125	71	112	116.2	74.5	16.5	12.2	57	95
10	8.01	8.08	349	233	273	129	76	104	122.6	81.0	10.7	7.3	64	98
11	7.92	8.29	347	233	281	117	66	116	115.4	72.1	13.6	11.2	61	95
12	8.00	7.94	345	233	279	127	66	106	125.0	84.2	8.7	5.3	54	91
13	8.07	7.92	348	235	282	127	66	108	126.7	84.2	7.8	5.3	54	88
14	7.99	8.11	343	226	273	112	70	114	123.4	81.8	8.7	3.9	54	85
15	8.00	8.15	309	210	236	99	73	111	97.0	65.7	17.5	12.6	51	87
16	8.00	7.97	251	176	198	78	53	98	79.4	50.5	15.1	12.2	42	76
17	7.99	7.66	305	191	242	92	63	99	97.8	55.3	14.1	11.7	46	76
18	8.00	7.95	270	203	223	104	47	99	89.0	72.1	12.6	4.4	46	84
19	7.90	9.90	256	151	204	58	52	93	79.4	38.5	15.6	12.2	41	78
20	7.85	7.30	240	240	189	135	51	105	81.8	87.4	8.7	5.3	38	70
21	7.97	7.34	214	210	175	119	39	91	78.6	81.8	5.3	1.5	34	73
22	7.95	7.37	219	211	173	104	46	107	63.3	60.9	15.6	14.1	33	69
23	8.01	7.53	212	187	173	92	39	95	64.9	59.3	12.6	9.7	34	69
24	7.94	7.45	211	170	171	77	40	93	74.5	59.3	6.3	5.3	33	69
25	8.01	7.80	218	173	172	77	46	96	67.3	56.1	11.7	9.2	32	72
26	8.03	7.72	214	171	173	78	41	93	71.3	59.3	9.7	5.3	31	69
27	8.02	7.67	215	168	174	77	41	91	75.4	60.1	6.8	4.4	31	68
28	8.05	7.73	218	169	174	77	44	92	78.6	63.3	5.8	1.5	30	72
29	8.12	7.95	229	177	182	80	47	97	71.3	53.7	12.6	9.7	31	73
30	8.18	7.85	229	171	182	79	47	92	73.7	53.7	11.7	8.7	34	71
31	8.08	7.80	228	168	183	70	45	98	68.9	52.1	13.6	10.7	33	72

Avg.	7.98	7.89	290	208	233	104	57	104	97.0	68.7	12.4	8.8	45	81
Max.	8.27	9.90	366	243	297	135	76	132	133.1	89.8	20.4	18.5	64	98
Min.	7.55	7.30	211	151	171	58	39	91	63.3	38.5	5.3	1.5	30	68

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

March 2015

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Date	Total Coliform						Standard Plate Count (Simplaite MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	155	12	0	1	0	120	< 2	0.60	2.2				
2	1	135	12	0	1	0	146	< 2	0.60	2.8				
3	1	214	12	0	1	0	83	< 2	0.58	1.0				
4	1	84	12	0	1	0	100	< 2	0.61	2.5				
5	1	118	12	0	1	0	120	< 2	0.64	1.2				
6	1	79	12	0	1	0	43	< 2	0.62	1.5				
7	1	162	12	0	1	0	51	< 2	0.60	1.7				
8	1	86	12	0	1	0	100	< 2	0.62	2.6				
9	1	225	12	0	1	0	189	< 2	0.64	2.0				
10	1	205	12	0	1	0	248	< 2	0.64	2.6				
11	1	387	12	0	1	0	339	< 2	0.61	3.2				
12	1	770	12	0	1	0	440	< 2	0.31	3.7				
13	1	442	12	0	1	0	340	< 2	0.43	4.7				
14	1	4196	12	0	1	0	1120	< 2	0.58	5.7				
15	1	48392	12	0	1	0	> 14760	< 2	0.56	5.7				
16	1	> 48392	12	0	1	0	> 14760	< 2	0.43	4.2				
17	1	39726	12	0	1	0	12460	< 2	0.45	2.8				
18	1	24066	12	0	1	0	> 14760	< 2	0.55	3.6				
19	1	> 48392	12	0	1	0	11100	< 2	0.38	6.5				
20	1	34658	12	0	1	0	7100	< 2	0.56	4.8				
21	1	12262	12	0	1	0	9400	< 2	0.49	6.3				
22	1	4764	12	0	1	0	2920	< 2	0.49	4.5				
23	1	1596	12	0	1	0	1940	< 2	0.45	4.1				
24	1	1182	12	0	1	0	960	< 2	0.41	4.0				
25	1	550	12	0	1	0	1060	< 2	0.41	4.5				
26	1	399	12	0	1	0	560	< 2	0.41	5.6				
27	1	195	12	0	1	0	450	< 2	0.40	6.0				
28	1	122	12	0	1	0	400	< 2	0.41	5.9				
29	1	98	12	0	1	0	480	< 2	0.42	4.9				
30	1	201	12	0	1	0	> 738	< 2	0.40	5.9				
31	1	187	12	0	1	0	507	< 2	0.42	5.2				

Avg.									0.51	3.9				
Max.		48392					12460	< 2	0.64	6.5				
Min.									0.31	1.0				

WSSN: 2310

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2											0
3	1.5	1.3	1.8	1.4	1.5	0.3	1.1	1.8		2.6	9
4	1.5	1.3	1.9	1.5	1.5	0.4	1.7	2.1		1.3	9
5	1.0	0.9	1.7	0.9	1.5	0.4	1.0	2.1		1.3	9
6											0
7											0
8											0
9											0
10	1.8	1.2	1.5	1.2	1.4	0.4	1.4	1.9		2.1	9
11	1.4	0.5	1.7	1.3	1.1	0.6	1.5	1.8	1.5	1.1	10
12	1.7	1.0	1.6	1.7	1.6	0.5	1.5	2.0		2.1	9
13											0
14											0
15											0
16											0
17	1.2	1.2	1.6	1.7	1.1	0.6	1.0	2.2	0.7	2.2	10
18	2.0	1.2	2.0	1.9	1.3	0.5	1.7	2.8		0.9	9
19	1.1	1.7	2.2	1.5	0.7	0.5	1.1	0.9		0.9	9
20											0
21											0
22											0
23											0
24	1.9	1.1	2.0	1.9	0.8	0.5	1.7	1.9		2.0	9
25	1.4	1.7	2.1	1.9	1.7	0.6	1.4	1.7		2.0	9
26	1.9	1.4	1.4	1.8	1.3	0.5	1.4	1.9		1.9	9
27											0
28											0
29											0
30											0
31	1.7	0.9	1.6	1.9	1.7	0.7	0.9	1.5		1.0	9

Distribution Sample Summary

Total # of routine distribution samples analyzed	119
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.42

WSSN: 2310

Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2											0
3	1.7	1.6	2.2	1.6	1.6	0.4	1.5	2.0		2.8	9
4	1.8	1.6	2.2	1.7	1.8	0.6	2.0	2.3		1.6	9
5	1.7	1.3	2.2	1.2	1.8	0.5	1.7	2.5		1.5	9
6											0
7											0
8											0
9											0
10	2.1	1.5	1.7	1.5	1.6	0.5	1.7	2.2		2.4	9
11	1.7	0.7	2.0	1.6	1.5	0.7	1.7	2.4	1.7	1.4	10
12	2.0	1.2	1.9	2.0	1.9	0.6	1.7	2.3		2.3	9
13											0
14											0
15											0
16											0
17	1.7	1.5	2.0	1.9	1.4	0.7	1.5	2.7	0.9	2.6	10
18	2.3	1.4	2.3	2.2	1.5	0.6	1.9	3.0		1.1	9
19	1.4	1.9	2.7	1.8	1.0	0.7	1.4	1.5		1.1	9
20											0
21											0
22											0
23											0
24	2.4	1.4	2.3	2.3	1.1	0.7	2.0	2.4		2.5	9
25	1.6	2.3	2.7	2.5	1.9	0.8	1.7	1.9		2.5	9
26	2.4	1.8	1.9	2.1	1.6	0.7	1.8	2.2		2.3	9
27											0
28											0
29											0
30											0
31	2.2	1.2	1.9	2.6	1.9	0.9	1.3	1.8		1.3	9

Distribution Disinfectant Total Residual Summary

Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.7

Positive Distribution Samples

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

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

Operator-in-Charge

April 2015

Month/Year

F-1R, F-2

Certification of Operator-in-Charge

F-1

Water Plant Classification

Michael Glasgow

Signature of Operator-in-Charge

Genesee

County

DEQ
RESOURCE MANAGEMENT DIVISIONMAY 18 2015
LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>21.1</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>126</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.4</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>3.0</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>1.1%</u>	Percent of Treated Water

Chemical Data

Chlorine on hand:	<u>24,000</u>	lb.	Est. supply:	<u>35</u>	days
Primary Coagulant (Ferric Chloride) on hand:	<u>221,000</u>	lb.	Est. supply:	<u>12</u>	days
Lime (CaO) on hand:	<u>383</u>	tons	Est. supply:	<u>31</u>	days
Fluoride on Hand:	<u>13,300</u>	lb.	Est. supply:	<u>36</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:

232232

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.

Filter turbidity

City of Flint Water Treatment Plant

April 2015

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WSSN: 2310

Date	Turbidity, Units												Plant Tap NTU
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	0.09	0.12	6	0	0	8	0.07	0.09	6	0	0	0.10
2	8	0.09	0.12	6	0	0	8	0.07	0.08	6	0	0	0.09
3	8	0.08	0.10	6	0	0	8	0.08	0.11	6	0	0	0.09
4	8	0.08	0.09	6	0	0	8	0.09	0.10	6	0	0	0.08
5	8	0.08	0.10	6	0	0	8	0.07	0.08	6	0	0	0.08
6	8	0.08	0.10	6	0	0	8	0.08	0.10	6	0	0	0.08
7	8	0.10	0.19	6	0	0	8	0.07	0.09	6	0	0	0.07
8	8	0.10	0.15	6	0	0	8	0.07	0.08	6	0	0	0.07
9	8	0.10	0.14	6	0	0	8	0.07	0.08	6	0	0	0.07
10	8	0.10	0.17	6	0	0	8	0.07	0.10	6	0	0	0.07
11	8	0.08	0.10	6	0	0	8	0.07	0.08	6	0	0	0.08
12	8	0.07	0.11	6	0	0	8	0.07	0.11	6	0	0	0.08
13	8	0.07	0.11	6	0	0	7	0.07	0.11	6	0	0	0.07
14	7	0.07	0.09	6	0	0	7	0.07	0.09	6	0	0	0.07
15	7	0.08	0.11	6	0	0	8	0.08	0.10	6	0	0	0.07
16	8	0.09	0.15	6	0	0	7	0.08	0.11	6	0	0	0.07
17	7	0.09	0.13	6	0	0	8	0.08	0.10	6	0	0	0.08
18	8	0.08	0.10	6	0	0	8	0.07	0.08	6	0	0	0.08
19	8	0.09	0.11	6	0	0	8	0.08	0.10	6	0	0	0.08
20	8	0.09	0.14	6	0	0	8	0.09	0.14	6	0	0	0.08
21	7	0.10	0.13	6	0	0	7	0.08	0.09	6	0	0	0.09
22	7	0.10	0.11	6	0	0	7	0.08	0.10	6	0	0	0.10
23	8	0.08	0.10	6	0	0	8	0.07	0.09	6	0	0	0.07
24	8	0.07	0.09	6	0	0	8	0.07	0.10	6	0	0	0.07
25	8	0.08	0.09	6	0	0	8	0.08	0.09	6	0	0	0.07
26	8	0.07	0.09	6	0	0	8	0.07	0.11	6	0	0	0.08
27	8	0.07	0.10	6	0	0	8	0.07	0.09	6	0	0	0.07
28	8	0.07	0.11	6	0	0	8	0.07	0.08	6	0	0	0.08
29	7	0.09	0.14	6	0	0	7	0.07	0.09	6	0	0	0.07
30	7	0.08	0.09	6	0	0	7	0.07	0.08	6	0	0	0.07
Avg.	8	0.08	0.12	6	0	0	8	0.07	0.09	6	0	0	
Max.	8	0.10	0.19	6	0	0	8	0.09	0.14	6	0	0	0.10
Min.	7	0.07	0.09	6	0	0	7	0.07	0.08	6	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

April 2015

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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	0.4	0.17	0.62	0.61	2.1	2.6	4.7	0.6	0.9	2.5	3.1	2.0	2.7
2	0.5	0.16	0.68		1.9	2.5	4.4	0.5	0.7	2.5	2.9	2.0	2.2
3	0.5	0.15	0.66		1.9	2.7	4.6	0.6	0.7	2.5	3.1	2.0	2.6
4	0.5	0.16	0.64		1.9	2.7	4.6	0.6	0.8	2.5	3.1	2.1	2.6
5	0.5	0.15	0.65		1.9	2.7	4.6	0.5	0.7	2.5	2.7	2.4	2.7
6	0.5	0.16	0.65		1.9	2.6	4.5	0.5	0.8	2.8	3.1	2.0	2.5
7	0.5	0.15	0.65		1.9	2.7	4.6	0.4	0.5	2.6	3.0	2.3	2.7
8	0.5	0.17	0.68	0.63	1.9	2.8	4.7	0.5	0.8	2.2	2.5	1.8	2.2
9	0.5	0.15	0.64		1.8	2.6	4.4	0.5	0.7	2.2	2.6	2.1	2.4
10	0.5	0.16	0.65		1.9	2.4	4.3	0.5	0.6	2.3	2.7	1.5	1.8
11	0.5	0.16	0.71		1.9	2.4	4.3	0.5	0.6	2.3	2.7	2.2	2.4
12	0.5	0.15	0.71		1.9	2.0	3.9	0.5	0.7	1.7	1.9	1.8	2.0
13	0.5	0.15	0.67		1.9	2.4	4.3	0.2	0.4	1.8	2.0	1.6	1.9
14	0.5	0.17	0.74		2.0	2.3	4.3	0.6	0.8	2.1	2.3	2.1	2.3
15	0.5	0.16	0.68	0.66	1.9	2.1	4.0	0.5	0.7	1.9	2.2	1.7	2.0
16	0.5	0.19	0.67		1.8	2.3	4.1	0.3	0.5	1.9	2.2	1.7	1.8
17	0.5	0.18	0.69		1.9	2.4	4.3	0.6	0.7	2.1	2.4	1.4	1.7
18	0.5	0.16	0.73		2.0	2.3	4.3	0.3	0.4	1.8	2.1	1.9	2.1
19	0.5	0.18	0.74		2.1	2.3	4.4	0.3	0.5	1.8	2.2	1.9	2.3
20	0.5	0.17	0.65		2.2	2.4	4.6	0.4	0.6	1.9	2.2	1.9	2.2
21	0.5	0.19	0.67		2.2	2.5	4.7	0.4	0.6	2.0	2.4	1.9	2.2
22	0.5	0.18	0.67	0.65	2.2	2.3	4.5	0.4	0.6	2.0	2.2	1.9	2.2
23	0.5	0.19	0.72		2.3	2.4	4.7	0.5	0.8	2.1	2.4	2.0	2.4
24	0.5	0.19	0.67		2.2	2.1	4.3	0.8	1.0	2.0	2.4	1.6	1.8
25	0.5	0.19	0.72		2.2	2.3	4.5	0.5	0.7	2.0	2.3	1.9	2.2
26	0.5	0.17	0.65		2.2	2.3	4.5	0.7	0.9	2.1	2.4	2.1	2.3
27	0.5	0.17	0.72		2.1	2.3	4.4	0.6	0.8	2.0	2.2	1.8	2.1
28	0.5	0.18	0.73		2.1	2.4	4.5	0.6	0.8	2.0	2.2	1.9	2.2
29	0.5	0.19	0.72		2.1	2.4	4.5	0.4	0.7	2.0	2.3	2.0	2.3
30	0.5	0.17	0.70	0.65	2.2	2.3	4.5	0.4	0.6	1.9	2.1	1.8	2.0

Avg.	0.50	0.17	0.68	0.64	2.0	2.4	4.4	0.5	0.7	2.1	2.5	1.9	2.2
Max.	0.50	0.19	0.74	0.66	2.3	2.8	4.7	0.8	1.0	2.8	3.1	2.4	2.7
Min.	0.40	0.15	0.62	0.61	1.8	2.0	3.9	0.2	0.4	1.7	1.9	1.4	1.7

Chemical
AnalysesCity of Flint Water Treatment Plant
WSSN: 2310

April 2015

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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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.07	7.73	227	158	178	64	51	94	80.2	55.3	6.6	4.9	32	69
2	8.16	7.76	232	159	183	61	49	98	72.9	49.7	12.2	8.7	32	71
3	8.17	7.73	228	155	182	59	46	96	79.4	56.1	7.8	3.4	32	70
4	8.12	7.81	228	153	180	60	48	93	81.8	55.3	6.3	2.9	33	70
5	7.98	7.89	230	153	179	68	51	85	75.4	48.9	10.2	7.8	34	76
6	8.05	7.99	228	159	183	60	45	99	85.0	56.1	4.4	4.9	31	71
7	8.05	7.54	229	165	186	59	43	106	80.2	54.5	6.8	8.3	33	76
8	7.96	7.81	231	151	188	57	43	94	72.9	45.7	12.6	9.2	33	68
9	7.94	7.78	229	155	185	60	44	95	77.4	56.9	7.8	3.4	33	67
10	8.04	7.86	230	142	184	69	46	73	80.2	51.3	7.8	3.9	33	67
11	7.99	7.79	231	157	188	64	43	93	71.3	49.7	12.6	9.2	33	69
12	8.03	7.82	237	150	189	55	48	95	77.0	44.9	10.2	9.2	36	71
13	8.02	7.83	242	160	197	66	45	94	77.8	46.5	11.2	9.7	33	69
14	7.95	8.00	242	156	198	64	44	92	81.8	48.9	9.2	8.3	38	74
15	7.95	7.99	252	154	196	68	56	86	78.6	50.5	13.6	8.8	39	70
16	8.36	7.88	271	170	217	81	54	89	92.2	53.7	10.2	7.3	41	67
17	8.35	8.00	270	186	220	90	50	96	85.8	60.9	13.6	8.3	41	77
18	8.36	7.99	274	184	219	84	55	100	90.6	57.7	12.2	9.2	40	76
19	8.34	8.02	272	185	223	78	49	107	81.8	55.3	15.6	10.7	38	75
20	8.30	7.98	268	197	224	92	44	105	90.6	68.1	9.7	5.8	38	80
21	8.26	7.63	264	194	220	94	44	100	91.4	69.7	8.7	4.9	42	82
22	8.32	7.88	274	196	216	90	58	106	95.4	72.1	8.7	3.9	44	85
23	8.39	7.69	267	173	221	68	46	105	91.4	58.5	9.2	5.8	45	85
24	8.36	7.78	274	173	220	75	54	98	90.6	62.5	11.7	4.9	44	83
25	8.25	7.65	267	180	216	61	51	119	89.0	60.1	10.7	9.2	41	82
26	8.14	7.79	268	153	214	52	54	101	93.0	49.7	9.2	6.8	43	77
27	8.03	7.99	272	161	213	64	59	97	89.8	50.5	11.2	7.8	44	76
28	7.95	7.72	266	172	215	64	51	108	90.6	57.7	9.7	6.3	44	86
29	8.08	7.87	268	176	216	74	52	102	88.2	58.5	11.7	7.3	46	84
30	7.93	7.83	268	182	208	64	60	118	89.8	60.9	10.7	7.3	45	92

Avg.	8.13	7.83	251	167	202	69	49	98	84.1	55.5	10.1	6.9	38	76
Max.	8.39	8.02	274	197	224	94	60	119	95.4	72.1	15.6	10.7	46	92
Min.	7.93	7.54	227	142	176	52	43	73	71.3	44.9	4.4	2.9	31	67

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

April 2015

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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	Tap	Raw	Raw	Tap	Raw	Tap
1	1	140	12	0	1	0	372	< 2	0.43	8.5				
2	1	127	12	0	1	0	189	< 2	0.43	6.5				
3	1	79	12	0	1	0	276	< 2	0.38	8.2				
4	1	96	12	0	1	0	299	< 2	0.38	7.3				
5	1	61	12	0	1	0	470	< 2	0.39	7.8				
6	1	59	12	0	1	0	276	< 2	0.39	8.2				
7	1	64	12	0	1	0	339	< 2	0.39	8.2				
8	1	54	12	0	1	0	239	< 2	0.38	8.1				
9	1	201	12	0	1	0	161	< 2	0.39	8.2				
10	1	133	12	0	1	0	137	< 2	0.37	9.1				
11	1	261	12	0	1	0	339	< 2	0.37	8.5				
12	1	613	12	0	1	0	202	< 2	0.39	8.1				
13	1	172	12	0	1	0	507	< 2	0.38	8.9				
14	1	124	12	0	1	0	248	< 2	0.39	9.0				
15	1	67	12	0	1	0	555	< 2	0.42	9.9				
16	1	127	12	0	1	0	470	< 2	0.42	13.1				
17	1	108	12	0	1	0	1020	< 2	0.46	11.7				
18	1	80	12	0	1	0	200	< 2	0.45	12.9				
19	1	210	12	0	1	0	507	< 2	0.43	13.4				
20	1	345	12	0	1	0	555	< 2	0.46	14.2				
21	1	162	12	0	1	0	623	< 2	0.48	12.9				
22	1	73	12	0	1	0	105	< 2	0.49	12.9				
23	1	43	12	0	1	0	60	< 2	0.44	9.9				
24	1	52	12	0	1	0	190	< 2	0.48	10.1				
25	1	46	12	0	1	0	266	< 2	0.44	10.3				
26	1	51	12	0	1	0	287	< 2	0.41	10.4				
27	1	44	12	0	1	0	355	< 2	0.40	10.9				
28	1	50	12	0	1	0	146	< 2	0.41	10.9				
29	1	32	12	0	1	0	171	< 2	0.42	11.3				
30	1	113	12	0	1	0	77	< 2	0.47	11.2				

Avg.									0.42	10.0				
Max.		613					1020	< 2	0.49	14.2				
Min.									0.37	6.5				

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

Distribution Sample Summary

Total # of routine distribution samples analyzed	105
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.21

Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1	2.4	2.3	2.2	2.2	1.6	0.9	1.8	2.8		2.3	9
2	1.3	1.6	2.5	1.8	1.3	0.8	1.2	2.6		2.7	9
3											0
4											0
5											0
6											0
7	1.4	2.1	2.1	2.3	1.4	0.8	1.8	2.4		1.5	9
8	1.1	0.9	2.2	2.5	1.5	0.8	0.9	2.4		2.2	9
9	1.0	2.7	2.1	2.2	1.6	0.8	1.4	2.3		2.2	9
10											0
11											0
12											0
13											0
14	0.7	1.5	1.5	1.5	0.8	0.8	1.3	2.0		1.9	9
15	0.7	0.8	1.5	1.6	1.1	0.6	1.3	1.9		1.3	9
16											0
17											0
18											0
19											0
20											0
21	0.6	0.5	1.5	1.6	1.2	0.5	1.2	1.7	2.1	1.6	10
22	0.6	0.8	1.3	1.4	1.1	0.4	0.4	1.9	1.1	1.8	10
23											0
24											0
25											0
26											0
27									1.3	1.9	2
28											0
29	0.6	0.7	1.6	1.6	1.0	0.8	1.3	2.2	1.2	1.8	10
30	0.8	1.8	1.8	1.7	1.1	1.2	1.4	2.1	0.8	1.8	10
31											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.5

Positive Distribution Samples

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

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

Operator-in-Charge

May 2015

Month/Year

F-1R, F-2

Certification of Operator-in-Charge

F-1

Water Plant Classification

Signature of Operator-in-Charge

Genesee

County

DEQ
RESOURCE MANAGEMENT DIVISION

JUN 17 2015

LANDING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>20.3</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>69</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>3.1</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>2.3</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>3.5%</u>	Percent of Treated Water

Chemical Data

Chlorine on hand:	<u>24,000</u> lb.	Est. supply:	<u>33</u> days
Primary Coagulant (Ferric Chloride) on hand:	<u>126,000</u> lb.	Est. supply:	<u>7</u> days
Lime (CaO) on hand:	<u>289</u> tons	Est. supply:	<u>24</u> days
Fluoride on Hand:	<u>15,000</u> lb.	Est. supply:	<u>40</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:

229229

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

May 2015

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WSSN: 2310

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	8	0.07	0.09	6	0	0	8	0.07	0.08	6	0	0	0.07
2	8	0.06	0.09	6	0	0	8	0.06	0.08	6	0	0	0.06
3	8	0.07	0.11	6	0	0	8	0.07	0.08	6	0	0	0.07
4	8	0.08	0.09	6	0	0	8	0.07	0.09	6	0	0	0.07
5	7	0.08	0.09	6	0	0	7	0.07	0.08	6	0	0	0.07
6	7	0.08	0.11	6	0	0	7	0.08	0.12	6	0	0	0.08
7	6	0.08	0.11	6	0	0	6	0.07	0.09	6	0	0	0.07
8	7	0.07	0.08	6	0	0	7	0.08	0.09	6	0	0	0.07
9	8	0.08	0.09	6	0	0	8	0.07	0.08	6	0	0	0.07
10	8	0.06	0.08	6	0	0	8	0.06	0.07	6	0	0	0.06
11	7	0.06	0.06	8	0	0	7	0.06	0.09	6	0	0	0.06
12	7	0.08	0.12	6	0	0	7	0.07	0.09	6	0	0	0.08
13	7	0.07	0.09	8	0	0	7	0.07	0.09	8	0	0	0.08
14	7	0.06	0.08	6	0	0	7	0.07	0.12	6	0	0	0.06
15	6	0.06	0.07	6	0	0	8	0.06	0.11	6	0	0	0.07
16	7	0.07	0.09	6	0	0	7	0.07	0.08	6	0	0	0.07
17	7	0.07	0.09	6	0	0	7	0.06	0.07	6	0	0	0.07
18	4	0.07	0.09	5	0	0	4	0.06	0.07	5	0	0	0.07
19	8	0.07	0.09	5	0	0	8	0.07	0.09	5	0	0	0.08
20	8	0.07	0.08	4	0	0	8	0.07	0.08	4	0	0	0.08
21	7	0.06	0.07	6	0	0	7	0.06	0.07	6	0	0	0.08
22	7	0.07	0.12	8	0	0	7	0.07	0.08	6	0	0	0.07
23	8	0.08	0.18	6	0	0	8	0.07	0.08	6	0	0	0.08
24	8	0.08	0.10	6	0	0	8	0.08	0.11	6	0	0	0.08
25	8	0.07	0.09	6	0	0	8	0.08	0.08	6	0	0	0.07
26	8	0.08	0.10	6	0	0	8	0.08	0.10	6	0	0	0.08
27	8	0.08	0.11	6	0	0	8	0.08	0.09	6	0	0	0.08
28	8	0.09	0.11	6	0	0	8	0.08	0.09	6	0	0	0.11
29	8	0.10	0.18	6	0	0	8	0.08	0.10	6	0	0	0.09
30	7	0.09	0.12	6	0	0	7	0.09	0.13	6	0	0	0.11
31	7	0.08	0.11	6	0	0	7	0.08	0.10	6	0	0	0.10
Avg.	7	0.07	0.10	6	0	0	7	0.07	0.09	6	0	0	
Max.	8	0.10	0.18	6	0	0	8	0.09	0.13	6	0	0	0.11
Min.	4	0.06	0.06	4	0	0	4	0.06	0.07	4	0	0	

Fluoridation &
ChlorinationCity of Flint Water Treatment Plant
WSSN: 2310

May 2015

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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	0.19	0.69		1.9	2.5	4.4	0.6	0.8	2.0	2.4	1.7	2.0
2	0.6	0.19	0.74		1.4	2.9	4.3	0.2	0.5	1.8	2.0	1.6	1.8
3	0.6	0.20	0.75		1.4	3.1	4.5	0.2	0.4	1.8	2.0	1.8	2.0
4	0.5	0.19	0.74		1.4	3.2	4.6	0.2	0.4	2.1	2.3	2.0	2.3
5	0.5	0.20	0.73		1.4	3.0	4.4	0.3	0.5	2.0	2.2	2.0	2.2
6	0.5	0.21	0.69	0.69	1.2	2.9	4.1	0.4	0.6	1.8	2.1	1.6	1.8
7	0.5	0.19	0.70		1.2	3.1	4.3	0.3	0.5	1.8	2.1	1.7	1.9
8	0.5	0.20	0.68		1.1	3.3	4.4	0.6	0.8	1.7	2.1	1.4	1.7
9	0.6	0.20	0.75		1.1	3.5	4.6	0.5	0.6	1.7	1.9	1.7	1.9
10	0.6	0.18	0.74		1.1	3.2	4.3	0.4	0.7	1.8	2.2	1.3	1.6
11	0.6	0.19	0.78		1.0	3.5	4.5	0.4	0.6	1.5	1.8	1.1	1.4
12	0.6	0.19	0.79		0.7	3.9	4.6	0.4	0.5	1.7	2.1	1.6	2.0
13	0.6	0.19	0.79	0.74	0.7	4.1	4.8	0.4	0.6	2.1	2.4	1.8	2.0
14	0.6	0.20	0.79		0.7	3.4	4.1	0.3	0.4	1.9	2.3	1.8	2.2
15	0.6	0.20	0.82		0.7	3.4	4.1	0.4	0.5	1.6	2.0	1.5	1.9
18	0.6	0.20	0.82		0.7	3.4	4.1	0.4	0.6	1.8	2.1	1.7	2.1
17	0.5	0.17	0.76		0.7	3.2	3.9	0.3	0.5	1.5	1.8	1.5	1.8
18	0.6	0.20	0.76		0.7	3.6	4.3	0.3	0.5	1.8	2.1	1.3	1.5
19	0.6	0.18	0.73		0.7	3.5	4.2	0.5	0.6	1.8	2.0	1.7	1.9
20	0.5	0.18	0.75	0.73	0.9	2.4	3.3	0.4	0.5	1.9	2.2	0.6	0.8
21	0.6	0.19	0.78		1.6	3.2	4.8	0.5	0.7	1.9	2.2	1.8	2.1
22	0.5	0.20	0.78		1.6	3.0	4.6	0.2	0.8	2.0	2.4	0.9	1.1
23	0.5	0.19	0.72		1.7	4.0	5.7	0.5	0.6	1.6	1.9	1.6	1.7
24	0.6	0.19	0.78		2.0	2.8	4.8	0.4	0.6	1.6	1.7	1.6	1.8
25	0.6	0.21	0.79		2.0	2.5	4.5	0.5	0.7	1.9	2.2	1.7	2.0
26	0.6	0.20	0.79		2.2	2.9	5.1	0.3	0.5	1.4	1.6	1.4	1.6
27	0.5	0.18	0.74	0.73	2.1	3.2	5.3	0.6	0.9	1.6	1.8	1.5	1.9
28	0.5	0.20	0.70		2.5	3.1	5.6	0.5	0.6	1.9	2.2	1.8	2.2
29	0.5	0.22	0.75		2.7	2.8	5.5	0.6	0.8	1.8	2.2	1.8	2.2
30	0.6	0.18	0.78		2.9	3.2	6.1	0.4	0.5	1.6	1.8	1.6	1.8
31	0.6	0.18	0.77		2.8	2.8	5.6	0.3	0.5	2.2	2.5	2.3	2.5

Avg.	0.56	0.19	0.75	0.72	1.4	3.2	4.6	0.4	0.6	1.8	2.1	1.8	1.9
Max.	0.60	0.22	0.82	0.74	2.9	4.1	6.1	0.6	0.9	2.2	2.5	2.3	2.5
Min.	0.50	0.17	0.68	0.69	0.7	2.4	3.3	0.2	0.4	1.4	1.6	0.6	0.8

Chemical
AnalysesCity of Flint Water Treatment Plant
WSSN: 2310

May 2015

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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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	7.91	7.88	265	163	214	61	51	102	84.2	48.9	14.1	8.3	47	92
2	7.88	7.82	267	163	214	60	53	103	89.8	54.5	10.7	6.3	45	92
3	7.91	7.75	278	178	219	73	59	105	96.2	64.9	8.3	4.9	50	96
4	7.88	7.75	270	171	218	66	52	105	90.6	55.3	10.2	7.8	50	90
5	7.80	7.68	270	166	218	66	52	100	81.0	60.9	16.5	3.3	51	92
6	7.81	7.70	266	161	216	64	50	97	88.2	57.7	11.2	4.1	48	84
7	7.74	7.67	266	172	216	70	50	102	88.2	60.9	11.2	4.9	50	88
8	7.82	7.68	268	164	218	60	50	104	81.8	54.5	15.6	6.8	49	88
9	7.79	7.51	265	168	214	65	51	103	94.6	59.3	8.7	4.9	45	93
10	7.83	7.58	267	172	216	66	51	106	92.2	64.9	8.7	2.4	47	90
11	7.78	7.48	260	170	217	65	43	105	81.8	59.3	15.6	4.4	49	91
12	7.80	7.53	268	162	216	56	52	108	97.0	63.3	6.3	1.0	48	90
13	7.88	7.35	266	174	216	70	50	104	95.4	60.1	6.8	4.4	46	92
14	7.77	7.56	274	158	216	50	58	108	95.4	60.1	8.7	1.9	44	90
15	7.92	7.57	270	167	220	64	50	103	90.6	64.1	10.7	2.4	46	90
16	7.85	7.56	270	185	220	80	50	105	80.2	72.1	17.0	2.4	46	91
17	7.88	7.55	266	163	220	54	46	109	94.6	56.9	7.3	2.4	44	87
18	7.85	7.43	272	156	222	44	50	112	81.8	56.9	16.5	3.4	47	91
19	7.89	7.54	278	175	219	64	59	111	94.6	63.3	10.7	3.0	46	88
20	7.87	7.63	275	176	218	74	57	102	82.6	69.7	17.5	1.9	45	90
21	7.85	7.53	276	159	220	52	56	107	78.6	56.9	18.9	4.9	46	92
22	7.94	7.45	272	148	218	40	54	108	90.6	54.5	11.2	2.9	47	93
23	7.86	7.44	276	168	217	54	59	114	94.6	60.9	9.7	3.9	46	93
24	7.92	7.51	275	175	215	63	60	112	96.2	65.7	8.7	2.4	46	89
25	7.94	7.65	275	170	221	58	54	112	94.6	64.9	9.7	2.9	46	91
26	7.90	7.57	276	177	224	68	52	109	85.8	61.7	15.1	5.3	47	93
27	7.87	7.61	278	161	224	54	54	107	81.0	57.7	18.4	4.4	47	91
28	8.20	7.60	279	175	233	71	46	104	97.0	60.1	8.3	5.8	46	86
29	8.25	7.60	274	164	220	64	54	100	80.2	56.9	18.0	5.3	51	90
30	8.21	7.68	278	192	222	86	56	106	94.6	64.9	10.2	6.8	47	85
31	8.17	7.69	275	182	220	68	55	114	93.0	60.1	11.2	8.3	45	84

Avg.	7.90	7.60	271	169	219	63	53	106	89.3	60.4	12.0	4.3	47	90
Max.	8.25	7.88	279	192	233	86	60	114	97.0	72.1	18.9	8.3	51	96
Min.	7.74	7.35	260	148	214	40	43	97	78.6	48.9	6.3	1.0	44	84

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

May 2015

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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	Tap	Raw	Raw	Tap	Raw	Tap
1	1	70	12	0	1	0	195	< 2	0.46	11.1				
2	1	61	12	0	1	0	239	< 2	0.45	11.9				
3	1	79	12	0	1	0	248	< 2	0.48	12.7				
4	1	88	12	0	1	0	202	< 2	0.46	14.3				
5	1	67	12	0	1	0	202	< 2	0.46	14.3				
6	1	86	12	0	1	0	231	< 2	0.46	13.9				
7	1	88	12	0	1	0	372	< 2	0.48	14.5				
8	1	142	12	1	1	0	392	< 2	0.46	14.4				
9	1	199	12	0	1	0	555	< 2	0.50	15.7				
10	1	138	12	1	1	0	440	< 2	0.47	15.7				
11	1	548	12	0	1	0	299	< 2	0.46	15.9				
12	1	921	12	3	1	0	738	< 2	0.46	15.4				
13	1	253	12	1	1	0	260	< 2	0.50	14.9				
14	1	225	12	6	1	0	738	< 2	0.44	14.7				
15	1	365	12	6	1	0	> 738	< 2	0.48	14.9				
16	1	722	12	4	1	0	> 738	< 2	0.47	15.1				
17	1	225	12	6	1	0	> 738	< 2	0.41	16.6				
18	1	262	12	2	1	0	2400	< 2	0.44	16.5				
19	1	292	12	2	1	0	1940	< 2	0.46	18.4				
20	1	134	12	0	1	0	830	< 2	0.46	16.2				
21	1	185	12	0	1	0	1160	< 2	0.47	15.8				
22	1	328	12	0	1	0	324	< 2	0.44	15.7				
23	1	199	12	0	1	0	150	< 2	0.48	16.7				
24	1	199	12	0	1	0	400	< 2	0.47	17.6				
25	1	272	12	0	1	0	590	< 2	0.46	17.0				
26	1	218	12	0	1	0	510	< 2	0.46	17.8				
27	1	365	12	0	1	0	470	< 2	0.43	18.3				
28	1	980	12	0	1	0	555	< 2	0.47	20.9				
29	1	909	12	0	1	0	1120	< 2	0.47	21.4				
30	1	5794	12	0	1	0	1040	< 2	0.49	22.7				
31	1	4884	12	0	1	0	1000	< 2	0.49	20.1				

Avg.									0.46	16.1				
Max.		5794					2400	< 2	0.50	22.7				
Min.									0.41	11.1				

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

Distribution Sample Summary

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

Distribution Bacteriological Summary

Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	0.76

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

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.0

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
 WSSN: 2310

Michael Glasgow
 Operator-in-Charge

June 2015
 Month/Year

F-1R, F-2
 Certification of Operator-in-Charge

F-1
 Water Plant Classification

Michael Glasgow
 Signature of Operator-in-Charge

Genesee
 County

DEQ
 RESOURCE MANAGEMENT DIVISION

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>18.5</u>	Million Gallons per Day
Rated Plant Capacity:	<u>36</u>	Million Gallons per Day
Average Filter Run:	<u>90</u>	Hours
Average Head Loss:	<u>n/a</u>	Feet *(filter head loss meters not operational)
Average Filtration Rate:	<u>2.3</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>2.0%</u>	Percent of Treated Water

JUL 14 2015

LANSING DISTRICT

Chemical Data

Chlorine on hand:	<u>12,000</u>	lb.	Est. supply:	<u>13</u>	days
Primary Coagulant (Ferric Chloride) on hand:	<u>220,000</u>	lb.	Est. supply:	<u>13</u>	days
Lime (CaO) on hand:	<u>259</u>	tons	Est. supply:	<u>32</u>	days
Fluoride on Hand:	<u>18,000</u>	lb.	Est. supply:	<u>45</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:	<u>0</u>	<u>0</u>
Number of filter confluence samples collected:	<u>211</u>	<u>211</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0.0%</u>	<u>0.0%</u>
Number of filter confluence samples > 1 NTU	<u>0</u>	<u>0</u>

Did any individual filter exceed:

1.0 NTU in two consecutive measurements taken 15 minutes apart?	<u>NO</u>
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?	<u>NO</u>
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?	<u>NO</u>
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?	<u>NO</u>
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.

Date	Million Gallons Treated	Ozone Dosage (mg/L)	Ferric as Fe3+ mg/L	Lime Dosage (mg/L)	PW-340 Cationic Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
							Raw			Plate Settler	Applied
							Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	17.3	2.2	19.7	148.3	4.2	0.66	7	2.3	4.4	1.29	1.35
2	16.5	2.5	20.7	176.0	4.4	0.60	8	6.8	22.8	1.11	2.50
3	16.9	2.4	20.1	155.0	4.3	0.68	7	4.3	20.6	1.13	3.53
4	16.5	2.4	20.8	162.2	4.4	0.58	7	3.4	15.6	0.96	3.24
5	17.5	2.9	20.2	168.8	3.6	0.56	7	1.5	2.4	1.01	2.57
6	18.1	3.5	20.2	157.9	3.6	0.53	8	2.9	8.2	0.88	4.26
7	17.9	3.5	17.8	137.8	3.6	0.58	8	3.3	10.2	0.88	3.15
8	17.6	3.6	18.2	145.0	4.2	0.68	8	6.4	24.9	1.44	2.26
9	17.7	3.6	20.4	178.1	4.4	0.68	7	2.1	7.3	1.36	2.96
10	17.6	3.2	20.4	176.1	4.4	0.69	7	2.5	6.9	1.38	5.40
11	18.0	3.6	20.2	173.1	4.3	0.57	7	5.4	12.3	1.20	3.84
12	18.3	3.6	19.7	168.3	4.0	0.56	7	3.6	7.1	1.34	3.51
13	17.8	3.5	20.2	164.3	4.1	0.60	8	6.5	13.9	1.55	2.88
14	18.3	3.5	20.1	182.3	4.0	0.63	8	6.7	19.6	2.50	2.89
15	16.7	3.5	22.5	206.7	4.4	0.78	7	4.8	18.3	2.50	2.16
16	16.1	3.4	19.8	184.1	3.8	0.82	7	8.1	16.9	2.46	4.04
17	16.2	3.6	21.5	183.5	4.5	0.86	7	8.7	31.5	1.88	4.22
18	15.6	3.6	25.7	219.3	4.9	0.85	7	7.8	22.7	2.75	2.04
19	15.1	3.6	16.2	203.6	5.0	0.87	7	4.9	12.5	1.88	3.7
20	15.4	3.6	15.5	194.9	4.8	0.90	8	11.0	30.4	1.11	2.46
21	14.6	3.6	17.2	223.1	5.0	0.83	7	4.1	15.8	0.93	2.71
22	12.0	3.5	19.5	238.7	5.2	0.93	7	11.0	65.7	1.27	7.41
23	11.6	3.8	22.5	223.9	5.3	0.94	7	12.5	56.3	2.06	7.06
24	12.6	3.8	20.7	177.2	4.7	0.83	7	21.0	103.0	2.67	2.39
25	13.2	3.7	18.7	191.5	5.0	0.73	7	11.7	49.7	2.33	3.89
26	13.5	3.3	19.9	143.1	5.1	0.71	7	4.1	11.4	3.94	5.27
27	13.8	3.7	20.5	123.6	5.0	0.68	7	11.6	63.9	4.51	1.33
28	14.2	3.7	19.8	125.6	4.6	0.68	7	2.0	3.6	5.62	2.24
29	13.9	3.7	17.5	115.2	4.7	0.73	7	3.0	4.4	5.19	2.12
30	14.4	4.3	15.8	122.1	5.2	0.69	7	11.1	21.7	4.84	1.32

Avg.	15.8	3.4	19.7	172.3	4.5	0.71	7	6.5			3.29
Max.	18.3	4.3	25.7	238.7	5.3	0.94	8	21.0	103	5.62	7.41
Min.	11.6	2.2	15.5	115.2	3.6	0.53	7	1.5			1.32
Total	474.9										

Filter turbidity

City of Flint Water Treatment Plant

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Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	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	Plant Tap NTU
1	7	0.10	0.13	6	0	0	7	0.09	0.09	6	0	0	0.09
2	8	0.07	0.09	6	0	0	8	0.07	0.08	6	0	0	0.07
3	7	0.09	0.11	6	0	0	7	0.08	0.12	6	0	0	0.09
4	6	0.09	0.11	6	0	0	6	0.08	0.09	6	0	0	0.09
5	7	0.09	0.10	6	0	0	7	0.08	0.09	6	0	0	0.09
6	8	0.08	0.10	6	0	0	8	0.07	0.08	6	0	0	0.08
7	7	0.07	0.08	6	0	0	7	0.07	0.10	6	0	0	0.09
8	8	0.09	0.13	6	0	0	8	0.06	0.08	6	0	0	0.08
9	6	0.09	0.15	6	0	0	7	0.08	0.09	6	0	0	0.07
10	7	0.13	0.23	6	0	0	7	0.07	0.11	6	0	0	0.09
11	7	0.08	0.14	6	0	0	7	0.07	0.10	6	0	0	0.12
12	7	0.08	0.10	6	0	0	7	0.08	0.09	6	0	0	0.08
13	7	0.08	0.11	6	0	0	7	0.08	0.10	6	0	0	0.09
14	8	0.09	0.16	6	0	0	8	0.08	0.10	6	0	0	0.09
15	7	0.08	0.09	6	0	0	7	0.07	0.08	6	0	0	0.08
16	7	0.07	0.11	6	0	0	7	0.08	0.13	6	0	0	0.08
17	7	0.07	0.10	6	0	0	7	0.06	0.07	6	0	0	0.07
18	6	0.08	0.10	6	0	0	6	0.08	0.09	6	0	0	0.07
19	6	0.07	0.08	5	0	0	6	0.06	0.07	5	0	0	0.09
20	8	0.08	0.09	6	0	0	8	0.08	0.11	6	0	0	0.09
21	7	0.09	0.10	6	0	0	7	0.09	0.11	6	0	0	0.10
22	7	0.07	0.09	6	0	0	7	0.08	0.11	6	0	0	0.09
23	7	0.07	0.10	6	0	0	7	0.06	0.08	6	0	0	0.08
24	7	0.09	0.11	6	0	0	7	0.08	0.12	6	0	0	0.08
25	7	0.09	0.10	6	0	0	7	0.08	0.09	6	0	0	0.09
26	6	0.11	0.15	5	0	0	6	0.08	0.10	5	0	0	0.09
27	7	0.10	0.14	6	0	0	7	0.09	0.12	6	0	0	0.10
28	7	0.13	0.17	6	0	0	7	0.09	0.11	6	0	0	0.12
29	7	0.10	0.12	6	0	0	7	0.09	0.10	6	0	0	0.10
30	7	0.12	0.15	6	0	0	7	0.10	0.13	6	0	0	0.09
Avg.	7	0.09	0.12	6	0	0	7	0.08	0.10	6	0	0	
Max.	8	0.13	0.23	6	0	0	8	0.10	0.13	6	0	0	0.12
Min.	6	0.07	0.08	5	0	0	6	0.06	0.07	5	0	0	

Fluoridation &
Chlorination

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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	0.6	0.20	0.73		2.8	2.6	5.4	0.4	0.7	1.6	1.9	1.4	1.8
2	0.6	0.19	0.81		2.7	2.3	5.0	0.5	0.8	1.7	2.0	1.7	1.9
3	0.6	0.20	0.79		2.7	2.5	5.2	0.4	0.5	1.7	2.0	1.7	2.0
4	0.6	0.20	0.82	0.76	2.8	2.1	4.9	0.5	0.7	1.8	2.0	1.7	1.9
5	0.6	0.20	0.82		2.6	2.2	4.8	0.6	0.8	1.9	2.2	1.4	1.7
6	0.6	0.20	0.74		2.5	2.2	4.7	0.4	0.6	1.9	2.2	1.8	2.1
7	0.6	0.20	0.76		2.1	2.1	4.2	0.3	0.6	1.8	2.1	1.7	1.9
8	0.6	0.19	0.78		2.2	2.3	4.5	0.4	0.5	1.9	2.1	1.8	2.1
9	0.6	0.20	0.70		2.7	2.7	5.4	0.5	0.7	1.6	1.8	1.6	1.8
10	0.6	0.20	0.74	0.70	2.6	2.6	5.2	0.4	0.5	1.9	2.1	1.5	1.8
11	0.6	0.20	0.75		2.6	2.7	5.3	0.3	0.5	1.5	1.7	1.5	1.7
12	0.6	0.20	0.72		2.6	2.6	5.2	0.5	0.8	1.7	2.1	1.6	1.9
13	0.6	0.20	0.70		2.7	2.4	5.1	0.3	0.5	1.7	2.0	1.7	2.0
14	0.6	0.19	0.69		2.8	2.7	5.5	0.3	0.4	1.7	1.9	1.7	1.9
15	0.6	0.20	0.72		2.9	2.8	5.7	0.3	0.5	1.8	2.1	1.7	1.9
16	0.6	0.20	0.80		2.5	2.2	4.7	0.3	0.5	1.8	2.0	1.8	2.0
17	0.5	0.19	0.70		2.9	2.3	5.2	0.5	0.7	1.8	2.0	1.7	2.0
18	0.5	0.20	0.70	0.72	2.8	2.8	5.6	0.4	0.5	1.9	2.3	1.9	2.3
19	0.6	0.20	0.74		2.6	2.5	5.1	0.5	0.7	1.8	2.2	0.7	0.9
20	0.5	0.19	0.71		3.0	2.6	5.6	0.3	0.5	1.7	1.9	1.7	1.9
21	0.6	0.19	0.72		3.1	2.9	6.0	0.3	0.5	1.8	2.1	1.7	2.0
22	0.6	0.19	0.70		3.4	2.6	6.0	0.4	0.7	1.9	2.2	0.7	0.9
23	0.6	0.19	0.81		3.6	2.9	6.5	0.4	0.7	1.7	1.9	1.7	1.9
24	0.6	0.20	0.82		3.4	2.6	6.0	0.5	0.7	1.7	2.0	1.5	1.8
25	0.6	0.19	0.73		3.3	2.5	5.8	0.3	0.5	1.5	1.7	0.5	0.8
26	0.6	0.19	0.72		3.2	3.5	6.7	0.6	0.8	2.5	2.8	2.0	2.2
27	0.5	0.18	0.71		3.1	3.2	6.3	0.5	0.7	2.7	3.0	0.6	0.9
28	0.5	0.18	0.65		3.2	3.6	6.8	0.3	0.5	1.8	2.1	1.7	2.0
29	0.5	0.19	0.70		3.3	3.2	6.5	0.4	0.7	2.4	2.8	2.3	2.6
30	0.5	0.19	0.71		3.2	3.5	6.7	0.3	0.6	1.8	2.1	1.8	2.1

Avg.	0.58	0.19	0.74	0.73	2.9	2.7	5.5	0.4	0.6	1.8	2.1	1.6	1.8
Max.	0.60	0.20	0.82	0.76	3.6	3.6	6.8	0.6	0.8	2.7	3.0	2.3	2.6
Min.	0.50	0.18	0.65	0.70	2.1	2.1	4.2	0.3	0.4	1.5	1.7	0.5	0.8

Chemical Analyses

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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)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.18	7.64	272	180	226	76	46	104	86.6	63.3	13.6	5.3	48	88
2	7.97	7.56	271	177	216	61	55	116	93.0	60.9	10.2	7.8	46	92
3	7.97	7.60	274	178	222	74	52	104	82.6	61.7	16.5	5.8	49	90
4	7.89	7.70	274	160	222	54	52	106	84.2	57.7	15.6	3.9	47	93
5	7.88	7.55	274	190	222	76	52	114	81.0	64.1	17.5	7.3	49	94
6	7.89	7.69	277	176	221	66	56	110	94.6	60.9	10.2	5.8	44	89
7	7.96	7.75	275	185	224	72	51	113	93.8	64.9	9.7	6.3	48	92
8	7.90	7.67	280	185	224	73	56	112	96.2	68.9	9.7	4.4	46	92
9	7.94	7.67	272	164	224	54	48	110	76.2	56.9	19.9	5.3	50	95
10	7.94	7.60	278	148	226	40	52	108	78.6	52.1	19.4	4.4	50	94
11	7.94	7.55	276	172	228	66	48	106	80.2	63.3	18.5	3.4	49	94
12	8.11	7.75	278	190	228	86	50	104	82.6	68.1	17.5	4.9	49	93
13	8.01	7.75	278	197	225	89	53	108	97.8	75.4	8.7	2.9	46	92
14	7.88	7.67	277	196	225	89	52	107	93.0	68.9	11.2	6.3	48	89
15	7.99	7.76	276	206	226	94	50	112	94.6	74.5	9.7	4.9	48	95
16	8.02	7.65	272	194	224	76	48	118	92.2	68.1	12.6	5.3	46	100
17	7.95	7.72	264	202	224	90	40	112	91.4	77.0	8.7	2.4	48	93
18	7.90	7.58	270	174	222	62	48	112	80.2	59.3	17.9	6.3	49	96
19	7.92	7.49	276	182	226	72	50	110	80.2	67.3	18.5	3.4	48	97
20	7.95	7.71	279	193	229	101	50	92	94.6	71.3	11.7	2.9	46	82
21	7.92	7.51	280	173	228	75	52	98	92.2	67.3	12.6	2.9	47	84
22	8.03	7.57	274	176	236	74	38	102	94.6	64.9	9.2	3.4	45	86
23	7.98	7.40	274	210	236	112	38	98	89.0	82.6	12.6	0.9	48	93
24	7.98	7.43	278	214	236	128	42	86	81.8	72.1	17.9	8.3	50	97
25	7.97	7.48	274	194	226	94	48	100	83.4	74.5	15.4	1.9	48	91
26	7.90	7.55	278	200	228	100	50	100	79.4	75.4	21.9	2.9	48	93
27	7.96	7.56	282	186	238	78	44	108	92.2	76.2	12.6	2.9	46	89
28	7.97	7.56	276	164	230	62	46	102	85.0	56.9	15.6	5.3	46	89
29	7.97	7.70	276	167	228	59	48	108	86.6	57.7	14.6	7.3	45	89
30	8.32	7.56	258	160	212	60	46	100	83.4	44.9	12.2	11.7	47	86

Avg.	7.97	7.61	275	183	226	77	49	106	87.4	65.9	14.1	4.9	47	92
Max.	8.32	7.76	282	214	238	128	56	118	97.8	82.6	21.9	11.7	50	100
Min.	7.88	7.40	258	148	212	40	38	86	76.2	44.9	8.7	0.9	44	82

Bacteriological &
Physical ParametersCity of Flint Water Treatment Plant
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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	Tap	Raw	Raw	Tap	Raw	Tap
1	1	2098	12	0	1	0	970	< 2	0.50	18.8				
2	1	295	12	0	1	0	280	< 2	0.50	18.5				
3	1	171	12	0	1	0	230	< 2	0.50	18.8				
4	1	262	12	0	1	0	230	< 2	0.47	18.8				
5	1	768	12	0	1	0	450	< 2	0.51	19.1				
6	1	262	12	0	1	0	300	< 2	0.48	18.7				
7	1	134	12	0	1	0	480	< 2	0.50	18.7				
8	1	98	12	0	1	0	350	< 2	0.50	19.4				
9	1	1733	12	0	1	0	623	< 2	0.47	19.5				
10	1	195	12	0	1	0	280	< 2	0.45	19.9				
11	1	175	12	0	1	0	230	< 2	0.49	20.0				
12	1	546	12	0	1	0	770	< 2	0.52	21.5				
13	1	426	12	0	1	0	260	< 2	0.54	20.5				
14	1	5172	12	0	1	0	800	2	0.52	20.3				
15	1	733	12	0	1	0	260	< 2	0.54	20.5				
16	1	512	12	0	1	0	260	< 2	0.52	21.0				
17	1	404	12	0	1	0	300	< 2	0.54	22.2				
18	1	228	12	0	1	0	1120	< 2	0.50	20.5				
19	1	2247	10	0	1	0	4400	< 2	0.52	21.2				
20	1	326	12	0	1	0	> 738	< 2	0.51	20.9				
21	1	265	12	0	1	0	2160	< 2	0.50	20.6				
22	1	683	12	0	1	0	1770	< 2	0.50	20.9				
23	1	2098	12	0	1	0	1660	< 2	0.56	20.9				
24	1	960	12	0	1	0	1120	< 2	0.60	20.8				
25	1	455	12	0	1	0	1120	< 2	0.54	21.1				
26	1	1246	10	0	1	0	3550	< 2	0.53	20.9				
27	1	395	12	0	1	0	450	< 2	0.49	20.3				
28	1	495	12	0	1	0	450	< 2	0.47	20.5				
29	1	428	12	0	1	0	450	< 2	0.46	20.8				
30	1	4884	12	0	1	0	2760	< 2	0.48	21.9				

Avg.									0.51	20.3				
Max.		5172					4400	< 2	0.60	22.2				
Min.									0.45	18.5				

WSSN: 2310

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

Distribution Sample Summary

Total # of routine distribution samples analyzed	101
Total # of routine distribution samples required	100

Distribution Bacteriological Summary

Total # of positive routine distribution samples	1
Percent of routine distribution samples positive	1%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary

Percentage of samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	0.60

WSSN: 2310

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

Distribution Disinfectant Total Residual Summary

Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	0.8

Positive Distribution Samples

[illegible]



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE
**CONSUMER CONFIDENCE REPORT FOR COMMUNITY WATER SUPPLY
CERTIFICATE OF DISTRIBUTION**

Issued under authority of 1976 PA 399 and Administrative Rules, as amended.

Failure to submit certification is a violation of the Act and may subject the water supply to enforcement penalties.

Supply Name: City of Flint	County: Genesee	WSSN: 2310
Population: ☐ 500 or fewer people	☐ 501 -- 9,999 people	☒ 10,000 or more people

Community water supplies must confirm that the Consumer Confidence Report (CCR) and any enclosed Public Notices (PN) or notices of CCR availability, have been distributed to customers by July 1 as required under administrative rules R 325.10415 and R 325.10404(4)(c). Supplies must also certify that the information contained in the CCR is correct and consistent with the compliance monitoring data previously submitted to the Michigan Department of Environmental Quality (DEQ). **Return the certification to the appropriate DEQ district office by October 1.** For addresses, visit www.michigan.gov/deq, click on Locations.

Method of delivery to DEQ	
☒ Mail ☐ Email ☐ Hand Delivery ☐ Other _____	Date delivered: September 8, 2015
Method of delivery to Local Health Department	
☐ Mail ☐ Email ☒ Hand Delivery ☐ Other _____	Date delivered: July 20, 2015
Method or combination of methods to directly deliver CCR to each bill paying customer. Check <u>all</u> that apply.	
☒ Mail or hand deliver a paper copy of CCR. Date(s) mailed or hand delivered: July 17, 2015	
☐ Mail or hand deliver notification that the CCR is available at a direct URL. Date(s) delivered to customers: _____	
☐ Email notification that CCR is available at direct URL. Date(s) emailed: _____	
☐ Email notification that CCR is attached to the email. Date(s) emailed: _____	
☐ Email notification that CCR is embedded in the email. Date(s) emailed: _____	
If using notification of CCR availability:	
1. Mail a paper CCR to customers who request it and to customers known to be incapable of receiving electronically. 2. Include a copy of the notification to the DEQ district office with this certification form. 3. Explain the nature of the notification, prominently display the direct URL, include statement how to request a paper copy.	
Example of Notification of CCR Availability Subject Line: 2012 Drinking Water Quality Report Available. Message: Your annual report on the source and quality of your drinking water is available on the Web at www.anytown.gov/waterqualityreport. To have a copy mailed to you, contact Anytown at 555-111-1111 or water@anytown.gov.	
☐ Option for supplies serving fewer than 10,000 persons: Publish entire report in newspaper, <u>and</u> notify customers via newspaper(s) in which CCR published, mail, email or hand delivery that individual copies will not be mailed, <u>and</u> include statement how to request a paper copy. Date(s) of publication: _____	
☐ Option for supplies serving 500 or fewer persons: Notify customers via mail, email, hand delivery or, with DEQ approval, posting in public places, that a copy of the report is available from the water supply on request. Date(s) of notification: _____	

Post on Internet (required for supplies serving $\geq 100,000$, optional for others)	
☒ Internet address: https://www.cityofflint.com/wp-content/uploads/CCR-2014.pdf	Date accessible: July 1, 2015
"Good Faith" efforts to reach non-bill-paying consumers (in <u>addition</u> to the method(s) above). Check <u>all</u> that apply.	
☐ Mail the report to all postal patrons. Zip codes and dates mailed: _____	
☒ Mail to each service connection physical address. Date(s) mailed: July 17, 2015	
☐ Advertise the availability of the report in the newspapers, on TV, and on the radio.	
☐ Publish the report in a local newspaper.	
☐ Post the report in public places such as cafeterias in public buildings, libraries, churches, and schools.	
☐ Deliver multiple copies for distribution by single-bill customers, e.g., apartments or private employers.	
☐ Deliver the report to community organizations.	
☐ Other: _____	
Send to the DEQ a copy of the news articles, a list of channels broadcast and dates, and a list of locations/organizations reports delivered to and dates.	

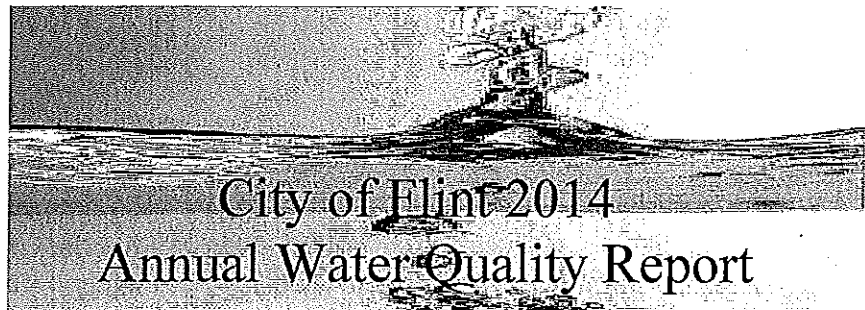
A Tier 3 Public Notice is Distributed with this CCR	
☒ This CCR is being used to deliver a Tier 3 Public Notice for one or more violations. To use this Tier 3 delivery option, the CCR must be directly delivered to each bill paying customer or, with DEQ approval, continuously posted, and must be issued within 12 months of learning of the violation. A copy of this form must be delivered to the DEQ within 10 days of delivering the CCR to customers to meet the public notification requirements.	

Name/Title: Brent Wright	Supervisor
Signature:	Date: September 8, 2015

See reverse side for U.S. EPA Expectations for Electronic Delivery of CCR

Flint River

ENTERED



The Consumers Annual Water Quality Report provides important information about your drinking water. This report includes information about the source of the water, health information, a chart summarizing regulatory required testing results, and a table giving explanations of important terms to understand when viewing the test results. The City of Flint Department of Utilities is dedicated to providing quality drinking water to the residents of the community. The Flint Water Plant operates and maintains a certified drinking water laboratory to assure compliance with all state and federal regulations, and is committed to prompt and thorough notification to the consumers if there is any reason for concern about the quality of the drinking water. Information about your drinking water is available on the City of Flint web page at www.cityofflint.com or by calling the City of Flint Water Plant at (810) 787-6537. The Safe Drinking Water Hotline at (800) 426-4791 is a resource for health related questions and water quality issues. General drinking water information can also be found on the USEPA web site at www.epa.gov/safewater/.

General Information (cont.)

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that the lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Flint Department of Utilities is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. If you are concerned about elevated lead levels in your home's water, you can minimize your potential exposure to lead in your water by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

2014 & Current Drinking Water Issues

The City of Flint did experience drinking water issues in the summer of 2014. Issues began with areas of the city experiencing "rusty" water. This was largely due to the fact that the city distribution system contains hundreds of miles of cast iron pipe. As these pipes age and degrade, iron is released, causing the water to exhibit color. The change in source water, water main breaks, and routine maintenance to the system also contributed to this problem.

The City of Flint received violations from the Michigan Department of Environmental Quality (MDEQ). The violations included a total coliform and *E. coli* in August and September of 2014, and a corresponding total trihalomethanes (TTHM) violation in December of the same year. As the city distribution system testing began to detect bacteria, system flushing increased, and chlorine addition to the water at the treatment plant also increased. The resulting increased chlorine addition then resulted in the higher formation of trihalomethanes.

While facing these issues, the City of Flint took steps to confer with industry professionals and state regulators in regards to treatment plant operation and distribution system operation. In November, TTHM levels were below the Maximum contaminant level set forth in the Michigan Safe Drinking Water Act.

Moving Forward

The City of Flint has taken many steps to correct the underlying issues that resulted in the drinking water violations. Water Treatment Plant corrective actions that were taken immediately after the issues occurred included:

- Limiting the use of storage reservoirs during the warm weather months.
 - Warm water temperatures and water age are large contributors to the formation of THM's.
- Optimizing ozone pretreatment by updating control programming along with cleaning and inspection of the ozone generators.
 - Ozone is a powerful oxidant that provides a level of disinfection along with taste and odor control.
- Currently finalizing the installation of granular activated carbon (GAC) to the filtration process, which should be complete by the end of July 2015.
 - GAC will reduce THM's by removing the chemical precursors that react with chlorine to form the THM's.

2014 Regulated Detected Contaminants Monitored at Treatment Plant

Regulated Contaminant	Unit of Measure	MCLG	MCL	Highest Level Detected	Range of Detection	Violation
Inorganic Chemicals						
Fluoride	mg/L	4	4			No
Nitrate	mg/L	10	10	0.5	0 – 0.5	No
Metals						
Barium	mg/L	2	2	0.03	0.02 – 0.03	No
Selenium	mg/L	0.05	0.05	0.001	0 – 0.001	No
Pesticides						
Atrazine	mg/L	0.03	0.03	0.0003	0 – 0.0003	No
Organics						
Total Xylenes	mg/L	10	10	0.0005	0 – 0.0005	No

More than 100 other chemicals were monitored throughout the year that were not detected. The list of various classifications these chemicals are associated with include metals, carbamates, herbicides, pesticides, organics, and radiological.

Total Organic Carbon, TOC			
Regulated Contaminant	Required Monthly % Removal	Minimum Monthly % Removal	Monthly % Removal Ranges
Total Organic Carbon	50	53	53 - 68

Finished water and Source water samples are collected and analyzed monthly to calculate percent removal. Total organic carbon includes numerous chemicals that are found naturally in surface waters. Certain chemicals found in this group are precursors to the disinfection byproducts trihalomethanes and haloacetic acids.

Turbidity		
Highest Single Measurement (Cannot exceed 1NTU)	Lowest Monthly % of Samples Meeting Turbidity Limit (< 0.3 NTU in 95% of samples)	Violation
0.22	99.1	No

Turbidity is a measure of the apparent cloudiness of water, usually attributed to particulate matter. The turbidity data in the chart above is measured from the water plant tap every 4 hours. Turbidity is monitored throughout each stage of the treatment process in 4 hour intervals, and in one of the final stages of treatment, filtration, turbidity is monitored continuously with in line meters, and verified every 4 hours in the laboratory.

In 2014, the EPA required the City of Flint and other communities to conduct further testing on unregulated contaminants at the treatment plant and the maximum residence time in the distribution system. The monitoring results will be utilized by the EPA to determine if these chemicals should be regulated. The unregulated contaminant monitoring that yielded results are presented in the chart below

Unregulated Contaminant Monitoring			
Regulated Contaminant	Unit of Measure	Highest Level Detected	Range of Detection
Chromium	ug/L	0.40	0 – 0.4
Hexavalent Chromium	ug/L	0.40	0.34 – 0.40
Strontium	ug/L	130	120 – 130
Vanadium	ug/L	0.20	0 – 0.20

Key to the Detected Contaminant Tables		
Symbol	Abbreviation for	Definition/Explanation
>	Greater than	
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
HAA5	Haloacetic Acids	HAA5 is the total of bromoacetic, chloroacetic, dibromoacetic, dichloroacetic, and trichloroacetic acids. Compliance is based on the total.
LRAA	Locational Running Annual Average	
MCL	Maximum Contaminant Level	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health.
mg/L	Milligrams per Liter	A milligram = 1/1000 gram 1 milligram per liter is equal to 1ppm
MRDL	Maximum Residual Disinfectant Level	The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
n/a	Not Applicable	
ND	Not Detected	
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
pCi/L	Picocuries per Liter	A measure of radioactivity. Picocurie (pCi) means the quantity of radioactive material producing 2.22 nuclear transformations per minute.
ppb	Parts Per Billion (one in one billion)	The ppb is equivalent to micrograms per liter. A microgram = 1/1000 milligram.
ppm	Parts Per Million (one in one million)	The ppm is equivalent to milligrams per liter. A milligram = 1/1000 gram.
RAA	Running Annual Average	
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane and bromoform. Compliance is based on total.
ug/L	Micrograms per Liter	A microgram = 1/1,000,000 gram 1 microgram per liter is equal to 1ppb



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE
**CONSUMER CONFIDENCE REPORT FOR COMMUNITY WATER SUPPLY
CERTIFICATE OF DISTRIBUTION**

Issued under authority of 1976 PA 399 and Administrative Rules, as amended.

Failure to submit certification is a violation of the Act and may subject the water supply to enforcement penalties.

Supply Name: City of Flint	County: Genesee	WSSN: 2310
Population: ☐ 500 or fewer people	☐ 501 – 9,999 people	☒ 10,000 or more people

Community water supplies must confirm that the Consumer Confidence Report (CCR) and any enclosed Public Notices (PN) or notices of CCR availability, have been distributed to customers by July 1 as required under administrative rules R 325.10415 and R 325.10404(4)(c). Supplies must also certify that the information contained in the CCR is correct and consistent with the compliance monitoring data previously submitted to the Michigan Department of Environmental Quality (DEQ). **Return the certification to the appropriate DEQ district office by October 1.** For addresses, visit www.michigan.gov/deq, click on Locations.

Method of delivery to DEQ	
☒ Mail ☐ Email ☐ Hand Delivery ☐ Other _____	Date delivered: September 8, 2015
Method of delivery to Local Health Department	
☐ Mail ☐ Email ☒ Hand Delivery ☐ Other _____	Date delivered: June 30, 2015
Method or combination of methods to directly deliver CCR to each bill paying customer. Check <u>all</u> that apply.	
☒ Mail or hand deliver a paper copy of CCR. Date(s) mailed or hand delivered: June 29, 2015	
☐ Mail or hand deliver notification that the CCR is available at a direct URL. Date(s) delivered to customers: _____	
☐ Email notification that CCR is available at direct URL. Date(s) emailed: _____	
☐ Email notification that CCR is attached to the email. Date(s) emailed: _____	
☐ Email notification that CCR is embedded in the email. Date(s) emailed: _____	
If using notification of CCR availability:	
1. Mail a paper CCR to customers who request it and to customers known to be incapable of receiving electronically.	
2. Include a copy of the notification to the DEQ district office with this certification form.	
3. Explain the nature of the notification, prominently display the direct URL, include statement how to request a paper copy.	
Example of Notification of CCR Availability Subject Line: 2012 Drinking Water Quality Report Available. Message: Your annual report on the source and quality of your drinking water is available on the Web at www.anytown.gov/waterqualityreport. To have a copy mailed to you, contact Anytown at 555-111-1111 or water@anytown.gov.	
☐ Option for supplies serving fewer than 10,000 persons: Publish entire report in newspaper, <u>and</u> notify customers via newspaper(s) in which CCR published, mail, email or hand delivery that individual copies will not be mailed, <u>and</u> include statement how to request a paper copy. Date(s) of publication: _____	
☐ Option for supplies serving 500 or fewer persons: Notify customers via mail, email, hand delivery or, with DEQ approval, posting in public places, that a copy of the report is available from the water supply on request. Date(s) of notification: _____	

Post on Internet (required for supplies serving $\geq 100,000$, optional for others)	
☐ Internet address: _____	Date accessible: _____
"Good Faith" efforts to reach non-bill-paying consumers (In <u>addition</u> to the method(s) above). Check <u>all</u> that apply.	
☐ Mail the report to all postal patrons. Zip codes and dates mailed: _____	
☒ Mail to each service connection physical address. Date(s) mailed: June 29, 2015	
☐ Advertise the availability of the report in the newspapers, on TV, and on the radio.	
☐ Publish the report in a local newspaper.	
☐ Post the report in public places such as cafeterias in public buildings, libraries, churches, and schools.	
☐ Deliver multiple copies for distribution by single-bill customers, e.g., apartments or private employers.	
☐ Deliver the report to community organizations.	
☐ Other: _____	

Send to the DEQ a copy of the news articles, a list of channels broadcast and dates, and a list of locations/organizations reports delivered to and dates.

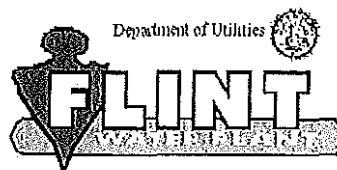
A Tier 3 Public Notice is Distributed with this CCR

☐ This CCR is being used to deliver a Tier 3 Public Notice for one or more violations. To use this Tier 3 delivery option, the CCR must be directly delivered to each bill paying customer or, with DEQ approval, continuously posted, and must be issued within 12 months of learning of the violation. A copy of this form must be delivered to the DEQ within 10 days of delivering the CCR to customers to meet the public notification requirements.

Name/Title: Brent Wright	Supervisor
Signature:	Date: September 8, 2015

See reverse side for U.S. EPA Expectations for Electronic Delivery of CCR

Detroit



**City of Flint
Water Plant & Facilities**

2014 Consumers Annual Report on Water Quality

The City of Flint Department of Utilities is dedicated to providing high quality drinking water to the residents of the community. The Consumers Annual Report on Water Quality provides important information about your drinking water. This report includes information about the source of the water, health information, a chart summarizing United States Environmental Protection Agency (USEPA) required testing results, and a table giving explanations of important terms to understand when viewing the test results. The Flint Water Plant & Facilities operates and maintains a certified drinking water laboratory to assure compliance with all state and federal regulations and is committed to prompt and thorough notification to the consumers if there is any reason for concern about the quality of the drinking water.

Information about your drinking water is available at the City of Flint web page on the Internet at www.cityofflint.com or by calling the Flint Water Plant & Facilities at (810) 787-6537. The Safe Drinking Water Hotline at (800) 426-4791 is a resource for health related questions and water quality issues. General drinking water information can be found on the USEPA web site at www.epa.gov/safewater/.

Water Source

From January 1st through April 30th 2014, The City of Flint purchased drinking water from the Detroit Water & Sewerage Department (DWSD) which operates several drinking water facilities. Following treatment to remove impurities, the water is pumped by DWSD to the Flint Water Plant, where the water is then monitored and distributed throughout the City.

The source water comes from the lower Lake Huron watershed. The watershed includes numerous short, seasonal streams that drain to Lake Huron. The Michigan Department of Environmental Quality in partnership with the U.S. Geological Survey, the Detroit Water & Sewerage Department, and the Michigan Public Health Institute performed a source water assessment in 2004 to determine the susceptibility of potential contamination. The susceptibility rating is a seven-tiered scale ranging from "very low" to "very high" based primarily on geologic sensitivity, water chemistry, and contaminant sources. The Lake Huron source water intake is categorized as having a moderately low susceptibility to potential contaminant sources. The Lake Huron water treatment plant has historically provided satisfactory treatment of this source water to meet drinking water standards. If you would like to know more information or a complete copy of the report, contact the City of Flint Water Plant at (810) 787-6537.

General Information

In order to ensure that tap water is safe to drink, the EPA prescribes regulations, which limit the amount of certain contaminants in water provided by the public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- ♦ **Microbial contaminants;** such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ♦ **Inorganic contaminants;** such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ♦ **Pesticides and herbicides;** which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- ♦ **Organic chemical contaminants;** including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- ♦ **Radioactive contaminants;** which can be naturally occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that the lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Flint Department of Utilities is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. If you are concerned about elevated lead levels in your home's water, you can minimize your potential exposure to lead in your water by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Lake Huron Water Treatment Plant 2014 Regulated Detected Contaminants Tables

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Inorganic Chemicals – Monitoring at the Plant Finished Water Tap								
Fluoride	5/13/14	ppm	4	4	0.59	n/a	No	Erosion of natural deposits; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	5/13/14	ppm	10	10	0.31	n/a	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Disinfection By-Products – Monitoring in Distribution System Stage 2 Disinfection By-Products								
Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest LRAA	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Total Trihalomethanes (TTHM)	2014	ppb	n/a	80	33.0	10.0 - 48.5	No	By-product of drinking water chlorination
Haloacetic Acids (HAA5)	2014	ppb	n/a	60	15.8	8.0 - 19.0	No	By-product of drinking water disinfection
Disinfectant Residuals Monitoring in DWSD Distribution System								
Regulated Contaminant	Test Date	Unit	Health Goal MRDGL	Allowed Level MRDL	Highest RAA	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Total Chlorine Residual	Jan-Dec 2014	ppm	4	4	0.82	0.64-0.94	No	Water additive used to control microbes
Regulated Contaminant	Treatment Technique							Typical Source of Contaminant
Total Organic Carbon (ppm)	The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC removal and the TOC removal requirements. The TOC was measured each month and because the level was low, there is no requirement for TOC removal.							Erosion of natural deposits

2014 Turbidity – Monitored every 4 hours at Plant Finished Water Tap

Highest Single Measurement Cannot exceed 1 NTU	Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (minimum 95%)	Violation yes/no	Major Sources in Drinking Water
0.19 NTU	100%	No	Soil Runoff

Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

2014 Microbiological Contaminants – Monthly Monitoring in Distribution System

Regulated Contaminant	MCLG	MCL	Highest Number Detected	Violation yes/no	Major Sources in Drinking Water
Total Coliform Bacteria	0	Presence of Coliform bacteria > 5% of monthly samples	0	No	Naturally present in the environment.
E.coli Bacteria	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal or E. coli positive.	0	No	Human waste and animal fecal waste.

2011 Lead and Copper Monitoring at Customers' Tap

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Action Level AL	90 th Percentile Value*	Number of Samples Over AL	Violation yes/no	Major Sources in Drinking Water
Lead	2011	ppb	0	15	< 2.0	0	No	Corrosion of household plumbing system; Erosion of natural deposits.
Copper	2011	ppm	1.3	1.3	0.10	0	No	Corrosion of household plumbing system; Erosion of natural deposits; Leaching from wood preservatives.

*The 90th percentile value means 90 percent of the homes tested have lead and copper levels below the given 90th percentile value. If the 90th percentile value is above the AL additional requirements must be met.

2014 Radionuclides

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Level Detected	Violation yes/no	Major Sources in Drinking Water
Combined Radium Radium 226 & 228	5/13/14	pCi/L	0	5	0.86 + or - 0.55	No	Erosion of natural deposits

014 Special Monitoring

Contaminant	MCLG	MCL	Level Detected	Source of Contamination
Sodium (ppm)	n/a	n/a	4.78	Erosion of natural deposits

Collection, sampling result information and table provided by Detroit Water and Sewerage Department (DWSD) Water Quality Division, ML Semegen

City of Flint sample result information provided by the City of Flint Water Plant, M. Glasgow.

2014 Key to the Detected Contaminant Tables		
Symbol	Abbreviation for	Definition/Explanation
>	Greater than	
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
HAA5	Haloacetic Acids	HAA5 is the total of bromoacetic, chloroacetic, dibromoacetic, dichloroacetic, and trichloroacetic acids. Compliance is based on the total.
LRAA	Locational Running Annual Average	
MCL	Maximum Contaminant Level	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health.
mg/L	Milligrams per Liter	A milligram = 1/1000 gram 1 milligram per liter is equal to 1ppm
MRDL	Maximum Residual Disinfectant Level	The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
n/a	Not Applicable	
ND	Not Detected	
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
pCi/L	Picocuries per Liter	A measure of radioactivity. Picocurie (pCi) means the quantity of radioactive material producing 2.22 nuclear transformations per minute.
ppb	Parts Per Billion (one in one billion)	The ppb is equivalent to micrograms per liter. A microgram = 1/1000 milligram.
ppm	Parts Per Million (one in one million)	The ppm is equivalent to milligrams per liter. A milligram = 1/1000 gram.
RAA	Running Annual Average	
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane and bromoform. Compliance is based on total.

Busch, Stephen (DEQ)

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

Dear Ms. Walters,

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

Lead and Copper Monitoring

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

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

Samples collected at your residence of 212 Browning Avenue were not included this compliance determination as you utilize a whole home filter. As stated in the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 710a, Lead and Copper in tap water; monitoring requirements) "Sampling sites may not include faucets that have point of use or point of entry treatment devices designed to remove inorganic contaminants." Such treatment alters the water chemistry and water quality such that it is no longer representative of public water from the City's distribution system. Therefore, the City cannot use samples collected at your residence as part of its determination for public water system compliance with the lead or copper action level standard.

Sample Summary (samples taken at your residence)

For your information, we are providing the information that we've gathered regarding samples collected at your home. Our records indicate between February and June of this year there were six samples collected by either you or Mr. Mike Glasgow with the City of Flint, and submitted to the State Laboratory for analysis as follows:

February 11, Bathroom tap, collected at 10:20 AM by Mike Glasgow. This sample was analyzed for aesthetic metals (copper, iron, manganese, and zinc) which does not include lead analysis.

February 18, Kitchen tap, collected at 7:15 AM by you. This sample was analyzed for lead (104 parts per billion) and copper (non-detect).

February 25, Kitchen tap, collected at 10:26 AM by Mike Glasgow. This sample was analyzed for metals including lead. All results (including lead) were non-detect except for Barium 0.01 parts per million. The result for Barium was well below its maximum contaminant level of 2 parts per million.

March 3, Kitchen tap, collected at 6:00 AM by you. This sample was analyzed for lead (397 parts per billion) and copper (non-detect).

March 18, Kitchen tap, collected at 11:10 AM by Mike Glasgow. This sample was analyzed for lead (4 parts per billion) and copper (non-detect).

April 2, Pre-point of service, collected at 8:00 AM by you. This sample was analyzed for lead (707 parts per billion) and copper (110 parts per billion).

Lead Education/Outreach

As we discussed during the meeting, we support efforts to educate homeowners about the sources of lead in their private residence, provide guidance measures to reduce the potential for lead exposure, and provide information on resources for lead abatement. Along those lines, our Office has been in contact with the Department of Health and Human Services, Environmental Health Division, Healthy Homes Section and had some preliminary discussions about a public education and assistance campaign regarding household lead issues, guidance and abatement.

Lead monitoring by public water systems serves a dual purpose. The first purpose is to ensure the public water supply is adequately treating its water to address corrosion potential and help limit lead exposure. The second purpose is to inform homeowners about lead levels within their individual residence so that they can make educated choices regarding their own exposure risk.

pH Results

During the meeting concerns were also expressed regarding pH levels within customer plumbing systems. As you may know, pH has no associated contaminant level as it is simply a numeric scale used to specify the acidity or alkalinity of a solution. The City of Flint conducts daily monitoring of pH values on both its raw and finished (treated) water at the City's water treatment plant as part of its operations. The City is also required to conduct water quality parameter monitoring in the distribution system, which includes pH. Samples are analyzed in accordance with Standard Methods using properly calibrated analytical equipment. Results for pH from these samples are summarized below.

Since late April 2014 – June 2015, the following pH conditions were reported:

Water Treatment Plant – Finished Water plant tap pH range = 7.07 minimum to 9.9 maximum, overall average 7.7, measured daily. We believe the 9.9 is a one- time anomaly from softening treatment.

Distribution System – Water Quality Parameters taken from 25 sample sites located throughout and monitored quarterly

July – Sept. 2014: pH 7.71 average, range 7.56 – 7.86

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April – June 2015: pH 7.63 Average, range 7.48 – 7.80

In addition, the City's treated water contains alkalinity, which is a measurement of the buffering capacity of water to resist a change in pH. As you can see from the water quality parameter monitoring results above there has been very little change in pH within the City's distribution system. The pH levels described within customer site piping or premise plumbing systems are believed to be the result of onsite treatment and not representative of water quality shown to be occurring in the public water supply system.

Consumer Confidence Report

Finally, there was confusion during the meeting regarding the City's annual water quality report, the Consumer Confidence Report which we have since been able to clarify.

The City of Flint issued two separate Consumer Confidence Reports (CCR's) in 2015 covering the water quality data from 2014. One report was for the period of January – April 2014 when the City was obtaining water from Detroit (DWSD). And a second report was for the period April – December 2014 when the City was using the Flint River and its own Water Treatment Plant.

The CCR for DWSD water was mailed to customers in June. The Flint River based CCR was mailed to customers in mid-July, delayed due to issues with the printing contractor. We agree that having two separate reports caused confusion. We are working with the City to ensure both reports are posted to the City's website and both are made available when requested by customers. Should the City choose to create separate CCR's during the year that the City of Flint connects to the Karegnondi Water Authority we will work with the City to provide more clarity and try to have all material included in a single mailing.

The DWSD based CCR is the one community members had at the meeting, while the DEQ brought a copy of the Flint River based CCR. As separate and distinct sampling was done under each source, this explains the discrepancy in the values and monitoring periods being reported in the respective CCR's.

We appreciate your interest in these matters and hope this has addressed many of the questions brought up during our meeting. I would like to provide this information to both Dr. Sullivan and Ms. Mayes, but I do not have their contact information. I'm hoping you can share this with them and any others that may be interested.

Sincerely,

Liane J. Shekter Smith, P.E., Chief
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
517-284-6543

Rennaker, Joanne (DEQ)

From: Shekter Smith, Liane (DEQ)
Sent: Friday, September 11, 2015 3:42 PM
To: Benzie, Richard (DEQ); Busch, Stephen (DEQ)
Subject: FW: Flint Pb Conversation

FYI

Liane J. Shekter Smith, P.E., Chief
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
517-284-6543

From: Groetsch, Kory J. (DCH)
Sent: Friday, September 11, 2015 3:38 PM
To: Dawn Hallwood (dhallwood@gchd.us)
Cc: Shekter Smith, Liane (DEQ); Dykema, Linda D. (DCH)
Subject: Flint Pb Conversation

Hi Dawn,

Thank you for taking a few minutes to talk with me today. As discussed, MDEQ and MDHHS are talking about communication options to conduct health education to Flint residents about sources of lead (Pb) exposure.

We would like to have an idea-generating discussion with Genesee Co. Health Department about this topic.

Thank you for considering my request, and please let me know if you would like me to set up a conference call to discuss ideas.

Best Regards,

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

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Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Wednesday, August 26, 2015 3:29 PM
To: prysbym@michigan.gov; Adam Rosenthal (rosenthala@michigan.gov)
Subject: FW: Follow Up from our Aug. 4th meeting

FYI. In case you get any calls from Ms. Walters.

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

From: Shekter Smith, Liane (DEQ)
Sent: Tuesday, August 25, 2015 1:56 PM
To: lwalters313@gmail.com
Cc: Busch, Stephen (DEQ); Devereaux, Tracy Jo (DEQ)
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The DWSD based CCR is the one community members had at the meeting, while the DEQ brought a copy of the Flint River based CCR. As separate and distinct sampling was done under each source, this explains the discrepancy in the values and monitoring periods being reported in the respective CCR's.

We appreciate your interest in these matters and hope this has addressed many of the questions brought up during our meeting. I would like to provide this information to both Dr. Sullivan and Ms. Mayes, but I do not have their contact information. I'm hoping you can share this with them and any others that may be interested.

Sincerely,

Liane J. Shekter Smith, P.E., Chief
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
517-284-6543

Rennaker, Joanne (DEQ)

From: Busch, Stephen (DEQ)
Sent: Monday, August 10, 2015 1:27 PM
To: 'Wurfel, Brad (DEQ) (WurfelB@michigan.gov)'
Cc: Shekter Smith, Liane (DEQ) (SHEKTERL@michigan.gov)
Subject: RE: Response to Questions from 8/4 Meeting on Flint

Sorry, last quarter WQP pH monitoring numbers are now added in.

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

From: Busch, Stephen (DEQ)
Sent: Monday, August 10, 2015 1:24 PM
To: 'Wurfel, Brad (DEQ) (WurfelB@michigan.gov)'
Cc: Shekter Smith, Liane (DEQ) (SHEKTERL@michigan.gov)
Subject: Response to Questions from 8/4 Meeting on Flint

Brad,

Here is what I have been able to gather in response to the questions from our meeting with members of the Flint community at the Governor's Office on Tuesday August 4th.

Why Are There Different 2014 Consumer Confidence Reports for City of Flint Water System?

The City of Flint issued two separate Consumer Confidence Reports (CCR's) in 2015 covering the water quality data from 2014.

One report for the period of January – April 2014 when the City was obtaining water from Detroit (DWSD).
 A second report for the period April – December 2014 when the City was using the Flint River and its own Water Treatment Plant.

The CCR for DWSD water was mailed to customers in June. The Flint River based CCR was mailed to customers in mid-July, delayed due to issues with the printing contractor. We will work with the City to ensure both reports are posted to the City's website and both are made available when requested by customers. Should the City choose to create separate CCR's during the year that the City of Flint connects to the Karegnondi Water Authority we will work with the City to provide more clarity and try to have all material included in a single mailing.

The DWSD based CCR is the one community members had at the meeting, while the DEQ had brought a copy of the Flint River based CCR. As separate sampling was done under each source, this explains the discrepancy in the values and monitoring periods being reported in the respective CCR's.

Why Were Some Samples Not Included In The Flint Lead and Copper Monitoring January – June 2015 Period, and Are Sampled Customers Being Provided Their Results?

The City has confirmed that all lead and copper samples collected through the City, whether routine sites or customer requests, were sent to the State of Michigan lab for analysis. Individual sample results are provided to the property owner within 30 days of receiving the lab results in accordance with the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 410(5)).

Results of any lead and copper samples collected by EPA staff were not provided to the City of Flint or Michigan Department of Environmental Quality. It is also unclear whether any such samples would meet the sample site and collection protocol requirements of the Safe Drinking Water Act to be used for compliance determination during this monitoring period.

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

Why Was Sampling From 212 Browning Avenue For Lead and Copper Not Included For Compliance?

The residence at 212 Browning Avenue utilizes a whole home filter. As stated in the Michigan Safe Drinking Water Act (Public Act 399, 1976 Administrative Rule 710a, Lead and Copper in tap water; monitoring requirements) "Sampling sites may not include faucets that have point of use or point of entry treatment devices designed to remove inorganic contaminants." Such treatment alters the water chemistry and water quality such that it is no longer representative of public water from the City's distribution system. Therefore, it cannot be used to determine public water system compliance with the action level standard.

An additional concern regarding water quality conditions at this residence is that the City of Flint has no record of a plumbing permit being obtained when the home was fully re-plumbed. Thus any plumbing work completed was not inspected and cannot be determined to comply with requirements of the Michigan Plumbing Code and Michigan Residential Code. As a result there may be conditions within the household that are contributing to some of the water quality issues experienced by the owner.

What Are The pH Conditions In The City's Water? Concerns over low, 4-5 pH values

Since late April 2014 – June 2015, the following pH conditions have been reported by the City.

Water Treatment Plant – Finished Water plant tap pH range = 7.07 minimum to 9.9 maximum, overall average 7.7, measured daily. The 9.9 is a one- time anomaly from softening treatment.

Distribution System – Water Quality Parameters 25 sample sites location throughout monitored quarterly

July – Sept. 2014 pH 7.71 average, range 7.56 – 7.86

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Jan. – March 2015 pH 7.81 average, range 7.60 – 7.99

April – June 2015 pH 7.63 Average, range 7.48 – 7.80

I believe this addresses questions from the meeting directed to the MDEQ.

I did want to add that the DEQ Office of Drinking Water and Municipal Assistance has been in contact with the Department of Health and Human Services, Environmental Health Division, Healthy Homes Section and had some preliminary discussions about a public education and assistance campaign regarding household lead issues, guidance and abatement.

Please let me know if I missed something or if any additional information is needed.

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

Flint Mtg @

- Wayne Workman
- Dave Murray

- Al Harris

- Ruston Austin

- Claire Deaneby Defense Task Force

(walters313@gmail.com)

- Samples from city collected in accordance
w/ Rule check w/ city

- Lead exposure is immediate

- Water Rate Restructure

- Rule 710a(1)

to DEO Notification 3 months from the end of
the monitoring period to consume

30 days to customer

Sample History 212

Rusty Water - Complaint

①

Collection Date 2/11/2015 Cu, Fe, Mn, Zn (no lead analysis)
only
by city 10:20 AM

②

2/18/2015 Pb 104 ppb
Cu ND

But Filtered

by Walters 7:15 AM Form? ✓

③

3/25/2015 Metals (lead ND)
by city 10:26 AM

④

3/3/2015 Pb 397 ppb
by Walters 6:00 AM Form? Cu ND

⑤

3/18/2015 Pb 4 ppb
by city 11:10 AM Cu ND

⑥

4/2/2015 Service Line Improper Tap
by Walters

CCR1

Mailed out on own w/ VN
7/15 of July

212 Browning

Didn't Pay for several months

Charge for - Service Replacement? City Pays

- Analysis? City Pays

- other water use? No major use

- Plumbing Permit? Check w/ inspector

EPA did not provide copies of results

Not certified