

From: Dempkowski, Angela (Treasury)
Sent: Monday, December 08, 2014 8:15 AM
To: Cline, Richard (Treasury)
Subject: FW: Resolutions Nos. EME6422014 and EME6432014

Angela Dempkowski
Senior Executive Management Assistant
Michigan Department of Treasury
dempkowskia@michigan.gov
(517) 373-4415

From: Maxine Murray [<mailto:mmurray@cityofflint.com>]
Sent: Friday, December 05, 2014 3:47 PM
To: Dempkowski, Angela (Treasury)
Subject: Resolutions Nos. EME6422014 and EME6432014

Good afternoon Angela,

I am submitting the following resolutions for State approval. Both resolutions are single source providers and are over \$50,000. The resolutions are:

- 1. EME6422014 - Resolution Authorizing the City of Flint to Enter into a Standard Software Maintenance Agreement with New World Systems Corporation (Police)**
- 2. EME6432014 - Resolution to Metron-Farnier for Residential and Commercial Water Meters (Utilities/Water Service Center)**

Please see attached - I look forward to hearing from you soon.

Thank you.

--

Maxine Murray
Executive Assistant to
Mayor Dayne Walling
Darnell Earley, Emergency Manager
1101 S. Saginaw Street
Flint, MI 48502
810.237.2035 Telephone
810.766.7218 Fax

EM SUBMISSION NO.: *EME6422014*

PRESENTED: *12-4-14*

ADOPTED:

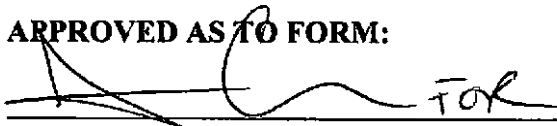
Resolution Authorizing the City of Flint to enter into a standard Software Maintenance Agreement with New World Systems Corporation

BY THE EMERGENCY MANAGER:

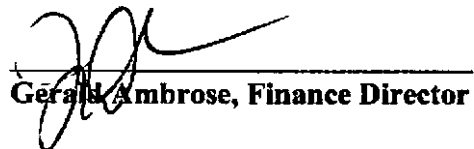
The Public Safety departments utilize New World software for Aegis CAD, Aegis Law Enforcement Records Software, Aegis Fire Records Software, Aegis Public Safety Interface Software, Aegis Photo Imaging Software, Aegis Mobile Management Server Software, Aegis Mobile Software on the RS6000, Aegis Mobile Client laptop Software, Aegis Mobile Software on the 400 or MSP Server, Aegis ESRI Embedded Applications — New, and Aegis ESRI Embedded Applications — Upgrades. The Flint Police Department is requesting a renewal of the contract due to expire July 1, 2015. Funding for this software maintenance agreement will come from account #101-325.100-930.00 and 101-305.200-930.000.

IT IS RESOLVED, That the Proper City Officials, upon the Emergency Manager approval, are hereby authorized to enter into an agreement for standard software maintenance with New World System Corporation for the period July 1, 2015 through June 30, 2020 at a rate of \$170,000.00 for FY16, \$100,000.00 for FY17, \$110,000.00 for FY18 and \$110,000.00 for FY19.

APPROVED AS TO FORM:


Peter M. Bade, City Attorney

APPROVED AS TO FINANCE:


Gerald Ambrose, Finance Director

EM DISPOSITION:

ENACT _____

FAIL _____

Darnell Earley, Emergency Manager

DATED: _____

RESOLUTION STAFF REVIEW

DATE: 12/03/14

Agenda Item Title: New World Systems Corporation – Standard Software Maintenance Agreement

Prepared By: Rick Johnson, Police Financial Coordinator

Background/Summary of Proposed Action: Resolution authorizing the Flint Police Department to enter into a 5 year agreement with New World Systems Corporation for Standard Software Maintenance Agreement. This agreement is to provide services from FY16 through FY20. Within the contract, the City has the right to terminate the contract as long as a written notice is provided 180 day prior to the anniversary date of year 3, 4 and year 5 to New World Systems Corporation.

Financial Implications: Funding in the amount of \$170,000.00 is budgeted in the FY16 budget (\$162,000.00 – 911 and 8,000.00 – Police) and the remaining will be budgeted in the Flint Police accounts in the subsequent fiscal years. \$100,000.00 for FY17, and \$110,000.00 for FY18 and FY19.

Budgeted Expenditure? Yes ☒ No ☐ Please explain if no:

Account No.: 101-325.100-930.000 - \$162,000.00
101-305.200-930.000 - \$8,000.00

Pre-encumbered? Yes ☐ No ☒ Requisition #

Other Implications (i.e., collective bargaining): None

Staff Recommendation: Recommend Approval

Staff Person:


James W. Tolbert, Chief of Police

NEW WORLD SYSTEMS CORPORATION
STANDARD SOFTWARE MAINTENANCE AGREEMENT

This Standard Software Maintenance Agreement (SSMA) between **New World Systems Corporation** (New World) and **City of Flint, MI Police Department** (**Customer**) sets forth the standard software maintenance support services provided by New World.

1. Service Period

This SSMA shall remain in effect for a period of five (5) years from (start date) 7/1/15 to (end date) 6/30/20.

2. Services Include

The following services or features are available under this SSMA:

- (a) Upgrades, including new releases, to the Licensed Standard Software (prior releases of Licensed Standard Software application packages are supported no longer than nine (9) months after a new release is announced by New World)
- (b) Temporary fixes to Licensed Standard Software (see paragraph 6 below).
- (c) Revisions to Licensed Documentation.
- (d) Reasonable telephone support for Licensed Standard Software on Monday through Friday from 8:00 a.m. to 8:00 p.m. (Eastern Time Zone).
- (e) Invitation to and participation in user group meetings.
- (f) Emergency 24-hour per day telephone support, for Aegis CAD only, seven (7) days per week for Licensed Standard Software. Normal service is available from 8:00 a.m. to 8:00 p.m. (Eastern Time Zone). After 8:00 p.m., the Aegis CAD phone support will be provided via beeper and a New World support representative will respond to CAD service calls within 30 minutes of call initiation. The 24-hour and regular support for Aegis CAD will remain in effect through 9/30/15.
- (g) Includes ESRI Integration for the ESRI software that is part of Exhibit A Licensed Standard

Items a, b, and c above will be provided to **Customer** by electronic means.

Additional support services are available as requested by **Customer** using the then-current hourly rates or applicable fees.

3. Maintenance for Modified Licensed Standard Software and Custom Software

Customer is advised that if it requests or makes changes or modifications to the Licensed Standard Software, these changes or modifications (no matter who makes them) make the modified Licensed Standard Software more difficult to maintain. If New World agrees to provide maintenance support for Custom Software or Licensed Standard Software modified at Customer's request, then the additional New World maintenance or support services provided shall be billed at the then-current hourly fees plus reasonable expenses.

4. Billing

Maintenance costs will be billed annually as detailed on the following page. If taxes are imposed, they are the responsibility of the **Customer** and will be remitted to **New World** upon being invoiced.

5. Additions of Software to Maintenance Agreement

Additional Licensed Standard Software licensed from **New World** will be added to the SSMA per the terms of the contract adding the software. Maintenance costs for the additional software will be billed to **Customer** on a pro rata basis for the remainder of the current maintenance year and on a full year basis thereafter.

6. Requests for Software Correction on Licensed Standard Software

At any time during the SSMA period, if Customer believes that the Licensed Standard Software does not conform to the current specifications set forth in the user manuals, Customer must notify New World in writing that there is a claimed defect and specify which feature and/or report Customer believes to be defective. Before any notice is sent to New World, it must be reviewed and approved by the Customer Liaison. Documented examples of the claimed defect must accompany each notice. New World will review the documented notice and when a feature or report does not conform to the published specifications, New World will provide software correction service at no charge. A non-warranty request is handled as a billable Request for Service (RFS).

The no charge software correction service does not apply to any of the following:

- (a) situations where the Licensed Standard Software has been changed by anyone other than New World personnel;
- (b) situations where Customer's use or operations error causes incorrect information or reports to be generated; and;
- (c) requests that go beyond the scope of the specifications set forth in the current User Manuals.

7. Maintenance Costs for Licensed Standard Software Packages Covered for MSP Server

New World agrees to provide software maintenance at the costs listed below for the following New World Standard Software packages licensed by the Customer:

<u>Application Package</u>	<u>Number of Modules</u>
1. <i>Aegis</i> ® Computer Aided Dispatch (CAD)	18
2. <i>Aegis</i> ® Law Enforcement Records Software	24
3. <i>Aegis</i> ® Fire Records Software	3
4. <i>Aegis</i> ® Public Safety Interface Software	6
5. <i>Aegis</i> ® Photo Imaging Software	1
6. <i>Aegis</i> ® Mobile Management Server Software	4
7. <i>Aegis</i> ® Mobile Software on the RS6000	4
8. <i>Aegis</i> ® Mobile Client Laptop Software	7
9. <i>Aegis</i> ® Mobile Software on the 400 or MSP Server	2
10. <i>Aegis</i> ® ESRI Embedded Applications - New	1
11. <i>Aegis</i> ® ESRI Embedded Applications - Upgrade	1

<u>Period Covered</u>	<u>Annual Amount</u>	<u>Billing Date</u>
7/1/2015 to 6/30/2016	\$80,000 * Note 1	6/15/2015
7/1/2016 to 6/30/2017	\$90,000 * Note 1	6/15/2016
7/1/2017 to 6/30/2018	\$100,000 * Note 1	6/15/2017
7/1/2018 to 6/30/2019	\$110,000 * Note 1	6/15/2018
7/1/2019 to 6/30/2020	\$110,000 * Note 1	6/15/2019

1. Includes 80 hours of Support Services at \$155/Hour for the Period Covered. Any unused prepaid support hours will carryover once into the following annual PSMA period. Unused carryover hours expire the earlier of 12 months from carryover or the end of the PSMA contract period. Support Services are defined on your original Exhibit B. Travel costs are not included. The hours to be provided at schedules mutually agreeable to Customer and New World

Note: New World has substantially reduced the cost of these services to recognize that Customer has a distressed financial environment.

Note: Unless extended by New World, the above costs are available for 90 days after submission of the costs to Customer. After 90 days, New World may change the costs.

ALL INVOICES ARE DUE FIFTEEN (15) DAYS FROM BILLING DATE.

8. Non-funding Provision

In the event Customer does not appropriate funds to complete payments due for year 3, 4 or 5 under this SSMA, the amount due for the fiscal year not appropriated shall be terminated; provided, however, the Customer shall have given New World written notice one hundred eighty (180) days prior to the anniversary date of year 3, 4 or year 5, when they are exercising the non-funding provision, and further provided that any other payments due to New World are fully paid, and further provided that New World's obligations and services under this SSMA shall also be terminated. Without Customer's fulfillment of the above provisions, Customer's obligation to pay New World the annual SSMA payments remains in effect through the expiration date of this SSMA Agreement.

9. Terms and Conditions

This Agreement is covered by the Terms and Conditions specified in the Licensing Agreement(s) for the software contained herein.

ACCEPTED BY:

Customer: City of Flint, MI Police Department

Name: _____

Title: Emergency Manager

Date: _____

ACCEPTED BY:

New World Systems Corporation

Name: _____

Title: _____

Date: _____

By signing above, each of us agrees to the terms and conditions of this Agreement and as incorporated herein. Each individual signing represents that (s)he has the requisite authority to execute this Agreement on behalf of the organization for which (s)he represents and that all the necessary formalities have been met. If the individual is not so authorized then (s)he assumes personal liability for compliance under this Agreement.

(Bid No. 15000059)

EM SUBMISSION NO.: EME6432014PRESENTED: 12-5-14

ADOPTED: _____

BY THE EMERGENCY MANAGER:

RESOLUTION TO METRON-FARNIER FOR RESIDENTIAL AND COMMERCIAL WATER METERS

BY THE EMERGENCY MANAGER

RESOLUTION

The Utilities/Water Service Center has requested the immediate need to purchase 594 each residential and commercial water meters to process requests for water turn-ons and to replace non-functioning older meters; and

Metron-Farnier, LLC, 5661 Airport Blvd., Suite B, Boulder Colorado is the manufacturer for said meters supported by its current delivery system. Funding will come from the following account number 590-540.207-726.000 (\$110,811.00); and

IT IS RESOLVED, that the Department of Purchases and Supplies, upon the Emergency Manager's approval, is hereby authorized to issue a purchase order to Metron-Farnier, LLC for 594 each residential and commercial water meters in the amount of \$110,811.00 (Sewer Fund)

APPROVED-PURCHASING DEPT:


 Derrick Jones, Purchasing Manager

APPROVED AS TO FINANCE:


 Gerald Ambrose, Finance Director

APPROVED AS TO FORM:


 Peter M. Badé, City Attorney
EM DISPOSITION:

ENACT _____ REFER TO COUNCIL _____ FAIL _____

Darnell Earley, Emergency Manager

DATED: _____

2014-12-03 BDB

RESOLUTION STAFF REVIEW

DATE: 11-17-14

Agenda Item Title: Water Meters

Prepared By: Cheri Priest, WSC Administrative Manager

Background/Summary of Proposed Action: The City of Flint has nearly 35,000 water meters, in which approximately 30% of said meters are well past their expected life cycle and are overdue for replacement. The City is currently in the process of obtaining bids to determine the most feasible and cost effective solution for replacing meters. At this time, Metron-Farnier is the sole source that will still be able to meet all of our requirements. The current stock of residential water meters is at a critically low level with approximately 40 water meters on hand. The Water Service Center is requesting the purchase of 594 residential & commercial meters, 560 5/8" meters, 30 1" meters & 4 2" meters.

The City also faces challenges in seeking new meters that adhere to the NSF/ANSI Standard 61 (which requires no lead in meters), prevent theft of water and scrapping of meters, while maintaining compatibility of the current remote reading system. It is not feasible to change what brand/type of meter that we use every time a meter order is placed. This would cause the City to have to have separate remote reading systems for different meters. Not only would this be cost prohibitive, it would also be extremely labor intensive.

Financial Implications: Adequate funding exists in the below listed accounts

Budgeted Expenditure? Yes ☒ No ☐ Please explain if no:

Account No.: 590-540.207-726.000 \$110,811.00

Pre-encumbered? Yes ☒ No ☐ Requisition # 140001214

Other Implications (i.e., collective bargaining): None

Staff Recommendation: Recommend Approval

Staff Person: Robert Burial
(Dept Head or other authorized staff)

Byrne, Randall (Treasury)

From: Shekter Smith, Liane (DEQ)
Sent: Tuesday, December 09, 2014 10:24 AM
To: Byrne, Randall (Treasury)
Cc: Busch, Stephen (DEQ); Benzie, Richard (DEQ)
Subject: RE: Flint water update

Randy – I made a few suggested tweaks to your note. Hope this works for you:

- The DEQ met with Flint officials last month. The City prepared an operational plan to reduce the formation of disinfection by-products. They have exceeded the standard which is primarily the result of using water from a different source, namely the Flint River. This is anticipated to be mitigated once the City begins using Lake Huron water from the Karagondi pipeline. A DEQ violation notice will go out next week which will require the city to issue a public notice. The DEQ Director plans to notify legislative members from the Flint area. In conclusion, the City has seen a reduction in the numbers because of operational changes and the cooler weather. The violation is expected to continue for a while because it takes time to resolve this problem.

Liane

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

From: Byrne, Randall (Treasury)
Sent: Tuesday, December 09, 2014 9:16 AM
To: Shekter Smith, Liane (DEQ)
Subject: Flint water update

Liane:

Please review this draft on the Flint water issue and make any changes that will clarify this statement:

- The DEQ met with Flint officials last month. The City prepared an operational plan to reduce the disinfection by-product. They have exceeded the standard which is a result of using water from a different source, namely the Flint River. This will be gone once the City begins using Lake Huron water from the Karagondi pipeline. A DEQ violation notice will go out next week which will be a public notice. The DEQ Director will notify legislative members from the Flint area. In conclusion, the DEQ has seen a reduction in the numbers because of the cooler weather. The violation will continue for a while because it takes time to resolve this problem.

Thanks, once again for your assistance,
Randy,



STATE OF MICHIGAN
DEPARTMENT OF TREASURY

RICK SNYDER
GOVERNOR

R. KEVIN CLINTON
STATE TREASURER

DATE: December 9, 2014
TO: Rick Snyder, Governor
FROM: R. Kevin Clinton, Treasurer
SUBJECT: Status of Financially Stressed Local Governments

EMERGENCY MANAGER

Flint

Emergency Manager: Darnell Earley
Appointed: November 28, 2013
Anticipated Exit: April 2015

Recent Developments

- Two City Council seats will be vacant as of January 1, 2015 due to the members being elected to higher offices. A committee consisting of the Mayor and City Council is working with the Emergency Manager to review interested applicants for the vacant City Council positions.
- City officials are attempting to increase the City's income tax rate, which Treasury supports and must be approved by the legislature. State Representative Stanley is the lead on this initiative. Should the legislature approve the increase, the City will place this question on the November 2015 ballot.
- Six Charter amendments and a general Charter revision question were on the November 4, 2014 ballot. The following proposals passed:
 - o Proposal 1 – Triggers a full review of the charter. A nine-member Charter Review Commission will be elected in May 2015.
 - o Proposal 2 – Reduces the number of mayoral staff appointments from no more than ten to no more than five.
 - o Proposal 3 – Adds a Charter amendment to require budgetary best practices.
- Three finalists were selected for the City Administrator position. Background and reference checks are being conducted on the preferred candidate now, with a goal to bring the person on board in February 2015.
- City officials met last month with the DEQ, and as a result of that meeting, prepared an operational plan to reduce the formation of disinfection by-products. They have exceeded the standard which is primarily the result of using water from a different source, namely the Flint River. This is anticipated to be mitigated once the City begins using Lake Huron water from the Karagondi pipeline. A DEQ violation notice will go out next week which will require the City to issue a public notice. The violation is expected to continue for a while because it takes time to resolve this problem.

Koryzno, Edward (Treasury)

From: Maxine Murray <mmurray@cityofflint.com>
Sent: Tuesday, December 09, 2014 3:44 PM
To: Carter, Jerry (MSP); Kapp, Gene (MSP); Muchmore, Dennis (GOV); Roberts, John (DTMB); Dempkowski, Angela (Treasury); Baird, Richard (GOV); Darnell Earley; Deasy, Thomas (MSP); Koryzno, Edward (Treasury); Clement, Elizabeth (GOV); Elizabeth Murphy; Etue, Kriste (MSP); Hollins, Harvey (GOV); Hill, Darryl (MSP); James Tolbert; Jerry Ambrose; Klotz, Josephine (MSP); Lee, Nichole (MSP); McGowan, Emmitt (MSP); Smith, Paul (GOV); Byrne, Randall (Treasury); Sands, Thomas (MSP); Sipes, Stephen (MSP); O'Neill, Stephen (MSP); Saxton, Thomas (Treasury); Workman, Wayne (TREASURY); West, Samantha (GOV)
Subject: Bi-Weekly Conference Call Agenda
Attachments: Agenda 121014 Conference Call with Treasury.pdf

Good afternoon,

Please find attached the agenda for the conference call scheduled for **Wednesday, December 10th, 9:00 am.**

Thank you.

--

Maxine Murray
Executive Assistant to
Mayor Dayne Walling
Darnell Earley, Emergency Manager
1101 S. Saginaw Street
Flint, MI 48502
810.237.2035 Telephone
810.766.7218 Fax

**City of Flint Wednesday 9:00am Phone Conference Agenda
December 10, 2014**

1) Public Safety Update – FPD, MSP, (FFD, if needed)

- a) FPD –
 - i. The final draft reports for the evaluation of both the Police and the Fire Departments have been received.
 - ii. Completing revisions to SRMS MOA. (Atty's Office prepping for signatures)
 - iii. The ICMA Public Safety Study will be presented to City Council at the Public Safety Committee on January 22, 2015.
- b) FFD
 - i. City applied for \$999,103 grant from the FEMA Assistance to Firefighters Grant Program to purchase a new aerial truck.
- c) Other update from Chief Tolbert and MSP

2) Governor's Office Update – R. Baird, H. Hollins, B. Clement

- a) Court Consolidation Status
- b) The legislative initiative to allow a vote on a local income tax increase will be handled by Mayor Walling who will be working through the Governor's Office and H. Hollins. A letter was sent to Treasurer Clinton on Nov. 17 from EM Earley. Chamber of Commerce sent Rep. Stanley a letter of support.
- c) Other

3) Lawsuits – Status, Issues

- a) Retiree Lawsuit – No updates

4) Financial and Administrative Update

- a) Fire Contract has been sent to City Council per PA 436. A special Finance Cmte. Meeting was held on Monday, December 8. The Committee voted to meet again Thursday, Dec. 11, giving the Flint Firefighters Union a chance to propose an alternative contract which would save substantially the same amount of money.
- b) Fund balance ordinances including Fund Balance Policy, OPEB, BSF and strategic planning processes have been referred by Council Finance Committee to its Legislative Affairs Committee. Council consideration to be scheduled for Council's December 15 meeting.

- c) Hardest Hits Funds: Need to get clarity for Flint's eligibility status. (See attached). (UPDATE?)
- d) The New World contract has been sent to Treasury for review per PA 436. We do have some timing pressure here. We need to sign this contract prior to signing the SRMS agreement. SRMS is a priority one project and needs to move along too.

5) City Council Update

- a) Two Council seats will become vacant on January 1, 2015. An appointment process is under consideration by the EM. P.A. 436 will guide the process which could involve direct EM appointment or collaborative effort with City Council. Self-nominations have been requested from residents of Wards 3 & 6. Nominating period has been extended to December 19.
- b) EM Earley plans to hold a special Council meeting after the first of the year and after the seating of the two new Council members. At this meeting he will lay out the plan for moving into Transition.

6) Charter Review Commission

- a) Notice has been sent out on new timing for the election of commissioners. Election will be held in May 2015.

7) Water Issues

- a) General Motors Water Issues – Installation of new valves is underway.
- b) A meeting with the Department of Environmental Quality was held on October 29. A number of steps for continued support were discussed. More follow-up is planned. We are awaiting action from the DEQ on getting a message of support out to the public.

8) Messaging

- a) A plan is being developed to present to the community at-large and to the various interest groups (i.e. business, investors, foundations) the background of the financial emergency, the actions taken and next steps to emerge from receivership. This will be an on-going item for discussion.
- b) Starting a new communication strategy with an EM press briefing the afternoon of a Council meeting or important Committee meeting.
- c) Hurley Hospital Valuation City - beginning regular meetings with the Hurley leadership to identify strategy beneficial both Hurley and the City of Flint.

- d) Deputy Finance Director and HR Director have resigned. Internal candidates for Deputy Finance Director are being interviewed; recruiting firms are being solicited to identify candidates for HR Director and eventually Finance Director.

9) 9-1-1 Reconsolidation Plan

- a) The Genesee County 9-1-1 Consortium has voted to accept Flint's request to join. Consolidation is expected to be complete by July 1, 2015. Mayor Walling has been appointed the City's representative on the Membership Board. Work is progressing to complete merger before July 1, 2015.
- b) C-GAP award for 9-1-1 Tower will have ~\$400,000 balance. Would like to use for 9-1-1 consolidation expenses.

10) Recruitment and Selection of City Administrator/Manager

- a) Provide guidance on several considerations: duration of appointment, contract, consistent with TAB, working with TAB, etc. – Finalize timeline after January 1, 2015.
- b) An offer has been extended and accepted. The contract is being finalized now. Expect to make a formal announcement this week.

11) Other Items

1-~~XXXXXXXXXX~~, access code ~~XXXXXXXXXX~~

Created on: 11/19/14

Widigan, Robert (TREASURY)

From: Maxine Murray <mmurray@cityofflint.com>
Sent: Wednesday, December 10, 2014 8:38 AM
To: Widigan, Robert (TREASURY)
Cc: Dempkowski, Angela (Treasury); Cline, Richard (Treasury)
Subject: Fwd: EME6432014 – Water Meters

Good morning Mr. Widigan:

Below are the responses to your concerns from the Purchasing Manager, Derrick Jones.

Have a productive day,

Maxine

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

From: Derrick Jones <djones@cityofflint.com>
Date: Wed, Dec 10, 2014 at 8:18 AM
Subject: Re: EME6432014 – Water Meters
To: Maxine Murray <mmurray@cityofflint.com>

Good Morning Maxine;

Here are the responses to the questions that were received from the State concerning the sole source purchase for meters.

- Why was only one bid actually acquired?
 - Did the City seek and receive multiple bids, if so how many, or did the City obtain a sole source bid from Metron-Farnier?
 - If this is a sole source bid request, that must be identified for State Treasurer approval.

Currently, the City has a bid out entitled "Automated Meter Reading (AMR) System and Water Meters" that is due on December 18, 2014. The City is awaiting responses for said solicitation in order to review the viability of replacing the current AMR system. The resolution that is before the State is seeking to purchase water meters that are compatible to the City's current AMR system.

This is a sole source purchase for meters from Metron-Farneir for compatibility to the current AMR system that need to be replaced.

- The resolution states: the City is currently in the process of obtaining bids to determine the most feasible and cost effective solution for replacing meters.

- Is this a separate bid process from Metron-Farnier?
- What is the purpose of obtaining these bids, and what is the status of this process?

As stated in the previous response, the City is requesting to purchase water meters that are currently compatible to the City's current AMR system. Metron Farnier is the sole source provider for these meters. The City's has a current bid out that is due on December 18, 2014 for the possibility of replacing the current AMR system.

- Is the City in compliance with NSF/ANSI Standard 61?
 - The resolution states: The City also faces challenges in seeking new meters that adhere to the NSF/ANSI Standard 61. Can you please clarify this.

The water meters that are being requested in the resolution are in compliance with NSF/ANSI Standard 61.

Maxine, if you have any questions, please feel free to contact me. Thanks.

On Tue, Dec 9, 2014 at 11:58 AM, Maxine Murray <mmurray@cityofflint.com> wrote:
Hi Derrick,

I received the email below at 10:23 am this morning. Please prepare a response for Treasury.

Thank you.

Maxine

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

From: **Widigan, Robert (TREASURY)** <WidiganR@michigan.gov>

Date: Tue, Dec 9, 2014 at 10:23 AM

Subject: EME6432014 – Water Meters

To: "mmurray@cityofflint.com" <mmurray@cityofflint.com>

Cc: "Dempkowski, Angela (Treasury)" <DempkowskiA@michigan.gov>, "Cline, Richard (Treasury)" <cliner1@michigan.gov>

Good morning, Maxine:

Below are the questions that we have after review of the updated information sent to us regarding water meters.

Our goal is to fully understand your request, how it was arrived at and to be able to clearly justify our recommendations regarding your request.

Our questions with the request are as follows:

- Why was only one bid actually acquired?
 - Did the City seek and receive multiple bids, if so how many, or did the City obtain a sole source bid from Metron-Farnier?
 - If this is a sole source bid request, that must be identified for State Treasurer approval.
- The resolution states: the City is currently in the process of obtaining bids to determine the most feasible and cost effective solution for replacing meters.
 - Is this a separate bid process from Metron-Farnier?
 - What is the purpose of obtaining these bids, and what is the status of this process?
- Is the City in compliance with NSF/ANSI Standard 61?
 - The resolution states: The City also faces challenges in seeking new meters that adhere to the NSF/ANSI Standard 61. Can you please clarify this.

Your clarifications will be very helpful in moving this request forward. If you have questions, please let me know.

Regards,

Robert Widigan | Departmental Analyst | Office of Fiscal Responsibility

State of Michigan | Department of Treasury

430 W. Allegan Street, 3rd Floor | Lansing, MI 48922

(517) 335-2130 | WidiganR@michigan.gov

Widigan, Robert (TREASURY)

From: Widigan, Robert (TREASURY)
Sent: Wednesday, December 10, 2014 3:05 PM
To: Dempkowski, Angela (Treasury)
Cc: Cline, Richard (Treasury)
Subject: RE: EME6432014 – Water Meters
Attachments: Flint Water Meter Purchase TA-EM Letter.docx; EME6432014 – Water Meters Memo to State Treasurer DRAFT II.docx

Tracking:	Recipient	Read
	Dempkowski, Angela (Treasury)	Read: 12/10/2014 3:31 PM
	Cline, Richard (Treasury)	Read: 12/10/2014 3:21 PM

Angela,

Eric and I have reviewed the documents and approve the changes.

If anything further is required, please let me know.

Thank you,

Robert Widigan | Departmental Analyst | Office of Fiscal Responsibility
State of Michigan | Department of Treasury
430 W. Allegan Street, 3rd Floor | Lansing, MI 48922
(517) 335-2130 | WidiganR@michigan.gov

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14-5400

(Bid No. 15000059)

EM SUBMISSION NO.: EME6432014

PRESENTED: 12-5-14

ADOPTED: _____

BY THE EMERGENCY MANAGER:

RESOLUTION TO METRON-FARNIER FOR RESIDENTIAL AND COMMERCIAL WATER METERS

BY THE EMERGENCY MANAGER

RESOLUTION

The Utilities/Water Service Center has requested the immediate need to purchase 594 each residential and commercial water meters to process requests for water turn-ons and to replace non-functioning older meters; and

Metron-Farnier, LLC, 5661 Airport Blvd., Suite B, Boulder Colorado is the manufacturer for said meters supported by its current delivery system. Funding will come from the following account number 590-540.207-726.000 (\$110,811.00); and

IT IS RESOLVED, that the Department of Purchases and Supplies, upon the Emergency Manager's approval, is hereby authorized to issue a purchase order to Metron-Farnier, LLC for 594 each residential and commercial water meters in the amount of \$110,811.00 (Sewer Fund)

APPROVED-PURCHASING DEPT:


Derrick Jones, Purchasing Manager

APPROVED AS TO FINANCE:


Gerald Ambrose, Finance Director

APPROVED AS TO FORM:


Peter M. Bade, City Attorney

EM DISPOSITION:

ENACT _____ REFER TO COUNCIL _____ FAIL _____

Darnell Earley, Emergency Manager

DATED: _____

2014-12-03 BDB

RESOLUTION STAFF REVIEW

DATE: 11-17-14

Agenda Item Title: Water Meters

Prepared By: Cheri Priest, WSC Administrative Manager

Background/Summary of Proposed Action: The City of Flint has nearly 35,000 water meters, in which approximately 30% of said meters are well past their expected life cycle and are overdue for replacement. The City is currently in the process of obtaining bids to determine the most feasible and cost effective solution for replacing meters. At this time, Metron-Farnier is the sole source that will still be able to meet all of our requirements. The current stock of residential water meters is at a critically low level with approximately 40 water meters on hand. The Water Service Center is requesting the purchase of 594 residential & commercial meters, 560 5/8" meters, 30 1" meters & 4 2" meters.

The City also faces challenges in seeking new meters that adhere to the NSF/ANSI Standard 61 (which requires no lead in meters), prevent theft of water and scrapping of meters, while maintaining compatibility of the current remote reading system. It is not feasible to change what brand/type of meter that we use every time a meter order is placed. This would cause the City to have to have separate remote reading systems for different meters. Not only would this be cost prohibitive, it would also be extremely labor intensive.

Financial Implications: Adequate funding exists in the below listed accounts

Budgeted Expenditure? Yes ☒ No ☐ Please explain if no:

Account No.: 590-540.207-726.000 \$110,811.00

Pre-encumbered? Yes ☒ No ☐ Requisition # 140001214

Other Implications (i.e., collective bargaining): None

Staff Recommendation: Recommend Approval

Staff Person: Robert Burish
(Dept Head or other authorized staff)



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TREASURY
LANSING

R. KEVIN CLINTON
STATE TREASURER

DATE: December 11, 2014
TO: Kevin Clinton, State Treasurer
FROM: Wayne Workman, Deputy State Treasurer *ww/ad*
SUBJECT: City of Flint Sole Source Contract Approval – Water Meters

On December 04, 2014 the City of Flint requested approval to purchase 594 residential and commercial water meters in the amount of \$110,811 from Metron-Farnier, LLC. Public Act 436 of 2012 requires that any no-bid contract with a value exceeding \$50,000 must receive approval from the State Treasurer.

Justification by the City

Follow-up from the City indicates that the residential and commercial water meters from Metron-Farnier, LLC are compatible with the City's current Automatic Meter Reading (AMR) system. These new water meters are required to process requests for water turn-ons and to replace nonfunctioning older meters. The City's current stock of residential water meters is at a critically low level with approximately 40 water meters on hand.

Recommended Action

Approval of this EM Resolution is being requested. The City has indicated funding for this purchase is available. No adverse impacts resulting from this purchase have been identified.

Attached for review is a copy of the Emergency Manager Resolution that authorizes this purchase.

If additional information is desired, please let me know.



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TREASURY
LANSING

R. KEVIN CLINTON
STATE TREASURER

December 11, 2014

Darnell Earley, Emergency Manager
City of Flint
1101 South Saginaw Street
Flint, MI 48502

Mr. Earley:

I am in receipt of your request received December 04, 2014 in which you are requesting approval to purchase 594 residential and commercial water meters in the amount of \$110,811 from Metron-Farnier, LLC to replace older, nonfunctioning models.

Pursuant to PA 436 of 2012, any no-bid contract with a value exceeding \$50,000 must receive approval from the State Treasurer. I am approving this request based on the City's need for meters to provide basic services to the community.

State Treasurer Approval:

I, R. Kevin Clinton, State Treasurer for the State of Michigan, pursuant to the authority assigned by Public Act 436 of 2012, do hereby:

✓ Approve Submitted Recommendation

 Deny Submitted Recommendation

Sincerely,

R. Kevin Clinton, State Treasurer
Michigan Department of Treasury

12/16/14
Date



Darnell Earley
ICMA-CM, MPA
Emergency Manager

Dayne Walling
Mayor

Jason Lorenz
Public Information Officer
(810) 237-2039
jlorenz@cityofflint.com

For Immediate Release

City of Flint Takes a Step Closer to KWA Preparedness with a Crucial Upgrade to the Water Treatment Plant

Flint, Michigan – December 15, 2014 — The City of Flint has this week taken a big step toward the eventual transition to use of the Karegnondi Water Authority Pipeline with a much needed upgrade to the City's Water Treatment Plant. A large 36" connection line which will serve as the main feed to the plant from the new pipeline was installed over the weekend of December 6, 2014. "This massive undertaking was done without interruption of service to customers and ahead of its scheduled completion," said Department of Public Works Director Howard Croft.

"The installation of the intake section to the water treatment plant represents a key portion of the City of Flint's transition to using the KWA for our water needs," said Utilities Administrator Daugherty Johnson. "Once construction on the KWA pipeline reaches Flint, the City will have the necessary connection in place to begin receiving and treating Lake Huron water." Along with other critical upgrades to the plant in the past two years, the intake installation brings Flint one step closer to having direct control over all of its water system needs. The KWA pipeline is expected to reach Flint by summer of 2016.

—END—

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

City of Flint Did Not Meet Treatment Requirements

Our water system recently violated a drinking water standard. Although this incident was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Samples were collected for total trihalomethanes (TTHM) analysis from eight locations on a quarterly basis (May 21, August 21, and November 20 of 2014). The average of the results at ANY of the eight locations must not exceed the maximum contaminant level (MCL) for TTHMs, otherwise our water system exceeds the Maximum Contaminant Level (MCL). The standard for TTHMs is 80 µg/L. The location reporting the highest TTHM level was 99 µg/L; thus, our water system exceeds the TTHM MCL.

What should I do?

- There is nothing you need to do unless you have a severely compromised immune system, have an infant, or are elderly. These people may be at increased risk and should seek advice about drinking water from their health care providers.
- You do not need to boil your water or take other corrective actions. If a situation arises where the water is no longer safe to drink, you will be notified within 24 hours.

What does this mean?

This is not an emergency. If it had been an emergency, you would have been notified within 24 hours.

People who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

What is being done?

We are currently working on solutions to correct the problem. We anticipate resolving the problem by 2015.

For more information, please contact Mr. Brent Wright at 517-787-6537 or the Flint Water Plant at 4500 North Dort Highway, Flint, MI 48505.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by the City of Flint.

CERTIFICATION:

WSSN: 02310

I certify that this water supply has fully complied with the public notification requirements in the Michigan Safe Drinking Water Act, 1976 PA 399, as amended, and the administrative rules.

Signature

Title

Date Distributed

Reminder to water supplier: This notice / certification must be sent to the DEQ.

Koryzno, Edward (Treasury)

From: Byrne, Randall (Treasury)
Sent: Thursday, December 18, 2014 10:30 AM
To: Koryzno, Edward (Treasury)
Cc: Dempkowski, Angela (Treasury)
Subject: FW: Flint Drinking Water TTHM Standard Violation
Attachments: City of Flint VN - MCL TTHM 12_16_14.pdf

Ed:

This is a copy of the DEQ violation notice on Flint's drinking water for your review.

Randy,

From: Shekter Smith, Liane (DEQ)
Sent: Wednesday, December 17, 2014 5:12 PM
To: Byrne, Randall (Treasury)
Cc: Benzie, Richard (DEQ); Busch, Stephen (DEQ)
Subject: FW: Flint Drinking Water TTHM Standard Violation

Randy –

FYI - Attached is the letter we sent to the city of Flint earlier this week.

Liane

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

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 16, 2014 10:17 AM
To: Datema, Maggie (DEQ); Wurfel, Brad (DEQ)
Cc: Prysby, Mike (DEQ); Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ); Rosenthal, Adam (DEQ)
Subject: Flint Drinking Water TTHM Standard Violation

Attached is a copy of the Violation Notice and Public Notice Template being mailed to the City of Flint by the DEQ Office of Drinking Water and Municipal Assistance regarding an exceedance of the Maximum Contaminant Level standard for Total Trihalomethanes at certain locations within the City's drinking water distribution system.

You are being provided an electronic copy of this notice as exceedance of this drinking water standard is expected to generate inquiries from water system customers, news media, and the general public.

Maggie Datema will be informing members of the Michigan legislature.

If you have any questions or would like any additional information, you may contact Michael Prysby, District Engineer, DEQ-ODWMA at 517-290-8817, or you may contact me at the number below.

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



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE



DAN WYANT
DIRECTOR

December 16, 2014

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

WSSN: 02310

Dear Mr. Wright:

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

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

In accordance with R.325.10610, *MCLs for disinfection byproducts*, of the 1979 Administrative Code, the MCL for disinfection byproduct total trihalomethanes (TTHM) is 0.080 milligrams per liter (mg/L) as a Locational Running Annual Average (LRAA) at each monitoring location. As listed in the table below, our records show that the City of Flint's highest TTHM locational running annual average (LRAA), based on the last three quarters, ending November 30, 2014, is 0.099 mg/l which exceeds the standard, and that two of the eight sample site locations exceed the standard of 0.080 mg/L.

Further, in accordance with R325.10719I, *Disinfection byproducts: operational evaluation levels*, of the 1979 Administrative Code, when an operational evaluation level (OEL) at a monitoring location for TTHM exceeds 0.080 mg/L, a supply shall conduct an operational evaluation and submit a written report of the evaluation to the department not later than 90 days after being notified of the analytical result that causes the supply to exceed the operational evaluation level. As listed in the table below, our records show that TTHM operational evaluation levels for the City of Flint exceed 0.080 mg/L at four of the City's eight sample site locations.

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

Our investigation consisted of a review of ODWMA files for laboratory reports received for compliance monitoring. Our investigation is considered complete. This violation began on December 1, 2014, and will continue until TTHM LRAA is below the MCL at all sample sites.

We acknowledge and appreciate the city's cooperation with our recommendation to preemptively conduct an Operational Evaluation following the City's second quarterly round of monitoring in August. That Operational Evaluation report has identified possible causes and corrective measures for the elevated TTHM levels which we encourage the City continue implementing. These modifications have likely contributed in part to the reduction in TTHM levels reported in the most recent quarter, and suggest the City may be able to achieve compliance with the TTHM standard.

Our office is continuing to review the Operational Evaluation report that was submitted on December 1, 2014, and will provide the City and their consultant comments as needed to help address this MCL violation.

Water systems that exceed the OEL must complete and submit an Operational Evaluation in accordance with Administrative Rule 719I (R325.10719I) within 90 days of being notified of the violation. **An updated Operational Evaluation report, which incorporates the most recent sample results, must now be completed and received by our office by no later than March 1, 2015.**

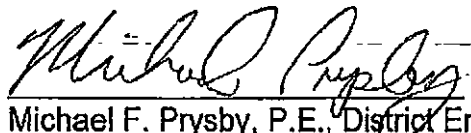
If you have any other factual information you would like us to consider regarding the violation identified in this Violation Notice (VN), please provide them in a written response by January 16, 2015.

Administrative rule R 325.10403 of Act 399 requires that suppliers provide public notice (PN) as soon as practical, but no later than thirty (30) days after the supplier learns of this type of violation, by mail or direct delivery and by any other means reasonably calculated to reach customers not normally reached by mail. Enclosed is a sample PN

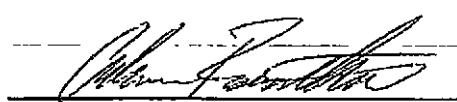
which contains the minimum required language. The City is encouraged to include additional information regarding its response to this violation. **Please notify your consumers by January 10, 2015, and send us a signed and dated copy of the notice that you issued within ten (10) days of distributing the public notice.** This violation must also be included in your 2014 Consumer Confidence Report (CCR), due by July 1, 2015. The PN must be repeated every quarter until you no longer exceed the TTHM standard. Failure to issue a PN for this violation will result in a fine of at least \$1,000 per event, with a maximum of \$5,000 per violation.

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

Sincerely,



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



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

mfp/ar/jlr
Enclosure

cc: Mr. Darnell Early, Emergency Manager, City of Flint
Mr. Daughtry Johnson, City of Flint
Mr. Howard Croft, City of Flint
Mr. Robert Bincsik, City of Flint
Ms. Jennifer Crooks, U.S. Environmental Protection Agency, Region 5
Genesee County Health Department
Ms. Liane Shekter Smith, P.E., DEQ
Mr. Richard Benzie, P.E., DEQ
Mr. Stephen Busch, P.E., DEQ



CITY OF FLINT

Department of Public Works

Dayne Walling
Mayor

Darnell Earley, ICMA-CM, MPA
Emergency Manager

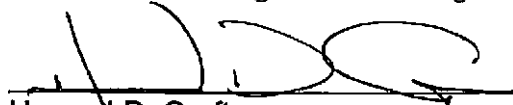
Howard Croft
Director

TO: Denise Elowsky, Financial Analyst, Michigan Department of Treasury
FROM: Howard Croft, DPW Director
RE: FDCVT Grant for **Water Main Leak Survey**
DATE: December 17, 2014

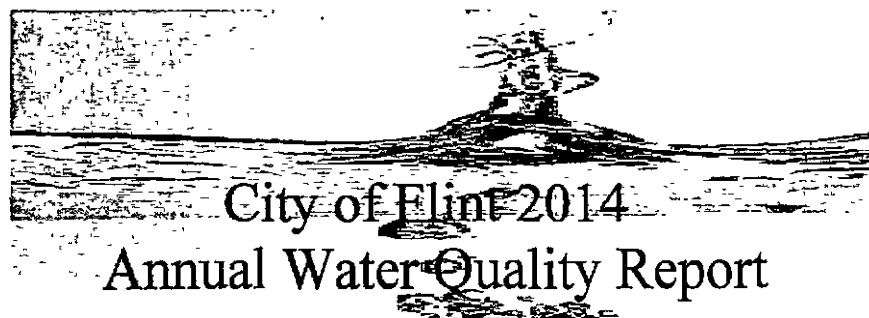
Denise,

The following is in response to your question regarding how the city would fund repairs that were discovered as a result our FDCVT grant request:

1. The City of Flint Utility department has funds allocated annually for maintenance such as main breaks within the distribution system. Any main breaks that are discovered as a result of the leak detection would be covered within the current maintenance budget.
2. The city has established a Capital Improvement line item in the Water Fund that includes approximately five million dollars for prioritized improvements. Repairs that are slightly greater than main breaks will be evaluated for urgency and scheduled as a capital improvement for the first half of fiscal year 2016.
3. If a repair is discovered as a result of the leak detection service that rises to a financial level greater than the capital improvement budget will support then the city will engage the DEQ with the concern and look to submit the repair as a project to be funded by the state drinking water revolving fund.


Howard D. Croft
Public Works Director

Cc: Darnell Earley, Emergency Manager
Dayne Walling, Mayor

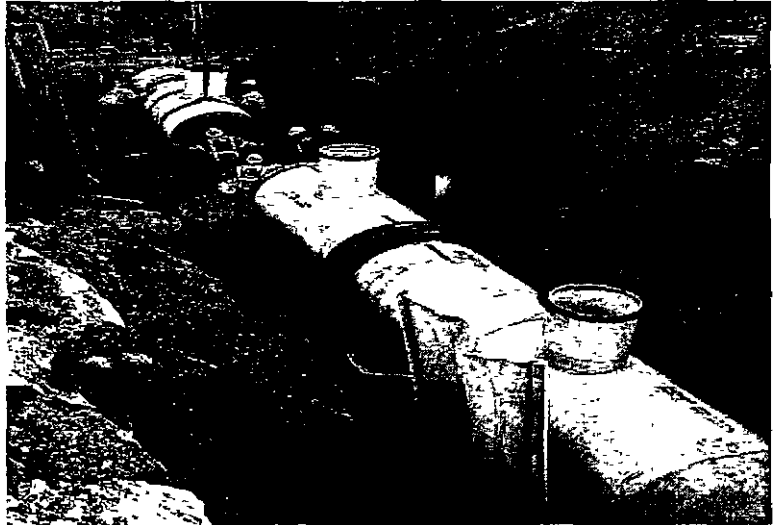


The Consumers Annual Water Quality Report provides important information about your drinking water. This report includes information about the source of the water, health information, a chart summarizing regulatory required testing results, and a table giving explanations of important terms to understand 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/.

Water Source

The City of Flint began using the Flint River as a water source in May of 2014. Flint is located roughly in the middle of the Flint River Watershed. The Flint River watershed includes Holloway Reservoir, C.S. Mott Lake, Kearsley Lake, and numerous streams and creeks that drain to these lakes or directly into the Flint River. The Michigan Department of Environmental Quality in partnership with the U.S. Geological Survey, and the City of Flint Utilities Department conducted a source water assessment in February 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 Flint River source water intake is categorized as having a very high susceptibility to potential contaminant sources.

The use of the Flint River as a source water for the City of Flint Water Treatment Plant was a temporary move, driven largely by economics and the financial state of the City. The City of Flint joined the Karegnondi Water Authority (KWA) in 2010. The KWA consists of a group of local communities that decided to support and fund construction of a raw water pipeline to Lake Huron. The KWA will provide the City of Flint Water Treatment Plant with source water from Lake Huron. The KWA pipeline is currently under construction, and is scheduled to be completed by the end of 2016.



KWA pipeline construction

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.

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.

Moving Forward (cont.)

Distribution system corrective actions that were enacted include:

- Increased water main flushing in an effort to alleviate stagnant water.
- Update distribution system water hydraulic model, to determine possible problem areas.
- Repaired or replaced several large water main valves, which were inhibiting the designed flow of water through the system.
- Planning and budgeting of 24' transmission water main repair in area of concern in the distribution system.
- Begin a complete distribution system evaluation of the 7000 water main valves that control the flow of water throughout the city. This project will be complete in July of 2015 and will provide information on where to proceed with further repairs and future projects.

The City of Flint is dedicated to resolving the issues that are facing the water system, and will continue to move forward as we prepare for the future. The City would like to thank all the residents and customers for their patience and understanding as we face the challenges ahead. The trials and tribulations that we have faced with the switch to the Flint River as a source water will prove to be important as we move ahead as a member of the KWA. Some of the distribution system issues experienced in 2014 while using the Flint River may also have been experienced with a different source water. As we continue to address the issues and take steps to be proactive, we can assure a future of quality drinking water in the City of Flint.



If you have any questions about this report or other concerns please contact the City of Flint Water Plant (810) 787-6537.

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

2014 Regulated Detected Contaminants Monitored in Distribution System

Disinfectant Residuals						
Regulated Contaminant	Unit of Measure	MCLG	MCL	Highest Level Detected	Range of Detection	Violation
Total Chlorine Residual	mg/L	4.0	4.0	3.5	0.1 – 3.5	No

Microbiological Contaminants				
Regulated Contaminant	MCL G	MCL	Highest Number detected (in 1 month)	Violation
Total Coliform bacteria	0	The presence of coliform bacteria in > 5% of monthly samples	15	Yes
<i>E. coli</i> Bacteria	0	0	1	Yes

Disinfectant residuals and microbiological contaminants are monitored at 8 locations throughout the city distribution system, and at the 2 drinking water reservoirs and pump stations located out in the distribution system. At least 100 samples are collected and analyzed each month.

Lead & Copper						
Regulated Contaminant	Unit of Measure	MCLG	Action Level AL	90 th Percentile Value	Number of samples over AL	Violation
Lead	ug/L	0	15	6	2	No
Copper	mg/L	1.3	1.3	0.11	0	No

Lead and copper monitoring was conducted from June through December 2014 with the collection of 100 samples. Samples were collected by residents from the taps at their residence. Thank you to all who participated in collecting samples.

Disinfection By-Products						
Regulated Contaminant	Unit of Measure	MCL G	MCL	Highest Level Detected	Range of Detection	Violation
Total Trihalomethanes (TTHM)	ug/L	n/a	80	196	33.3 -196.2	Yes
Haloacetic Acids (HAA)	ug/L	n/a	60	64	5 - 64	No
Bromate	ug/L	10	10	23	0 - 23	No

Disinfection by-products occur as a result of the water treatment process. Bromate is formed as a result of using ozone as a treatment additive. Ozone is used to help control taste and odor issues, and as a pre-treatment disinfection. Naturally occurring bromide reacts with Ozone to generate bromate. Bromate is monitored monthly, and compliance is based on a yearly average.

TTHM's and HAA's are formed as a result of utilizing chlorine in the treatment process. Naturally occurring compounds known as TOC's (total organic carbon) react with chlorine to form TTHM's and HAA's. The temperature and the age of water increase the formation of THM's and HAA's, and as a result, during the warm months of the year is when levels were at their highest. Samples are tested quarterly from 8 sites throughout the distribution system and compliance is based on a running annual average at each individual site.

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 d 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

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

Signature of Operator-in-Charge

Genesee

County

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

Chemical Data

Chlorine on hand:	<u>20,000</u>	lb	Est. supply:	<u>30</u>	days
Primary Coagulant (Ferro 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:

0

0

Number of filter confluence samples collected:

232

232

Percent of filter confluence samples > 0.3 NTU:

0.0%

0.0%

Number of filter confluence samples > 1 NTU

0

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	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	8	0.10	0.12	6	0	0	8	0.10	0.10	6	0	0	0.08
7	0			0	0	0	0			0	0	0	0.07
8	0			0	0	0	0			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	0.08	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	0.08	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	0.08	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	6	0	0	7	0.07	0.09	6	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	

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		0.22	0.70				0.0			3.0	3.5	2.4	2.8
8		0.22	0.71				0.0			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.	0.42	0.22	0.66	0.61	1.9	2.9	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.	0.40	0.19	0.58	0.54	1.3	2.3	0.0	0.4	0.6	2.2	2.9	1.7	2.2

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	96	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	81	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	8.36	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	256	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	7.57	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

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		12	0	1	0	> 14760	4	0.38	5.1				
2	1		12	0	1	0	2320	2	0.38	6.4				
3	1		12	0	1	0	1360	4	0.37	5.6				
4	1		12	0	1	0	1020	< 2	0.38	5.4				
5	1		12	0	1	0	340	< 2	0.38	6.1				
6	1		4	0	1	0	40	2	0.40	7.2				
7	1		0	0	1	0	80	< 2	0.38	1.4				
8	1		0	0	1	0	240	< 2	0.38	3.3				
9	1		12	0	1	0	120	< 2	0.40					
10	1		12	0	1	0	240	< 2	0.38	6.5				
11	1		12	0	1	0	120	< 2	0.38	4.9				
12	1		12	0	1	0	< 2	< 2	0.39	6.0				
13	1		12	0	1	0	160	< 2	0.32	6.4				
14	1		12	0	1	0	80	2	0.39	5.6				
15	1		12	0	1	0	40	< 2	0.40	5.9				
16	1		12	0	1	0	> 14760	< 2	0.40	6.0				
17	1		12	0	1	0	166	< 2	0.39	6.3				
18	1		12	0	1	0	161	< 2	0.40	5.8				
19	1		12	0	1	0	116	2	0.39	6.4				
20	1		12	0	1	0	156	< 2	0.36	7.0				
21	1		12	0	1	0	137	< 2	0.36	3.9				
22	1		12	0	1	0	216	< 2	0.36	3.4				
23	1		12	0	1	0	324	< 2	0.35	4.5				
24	1		12	0	1	0	324	< 2	0.36	6.4				
25	1		12	0	1	0	470	< 2	0.37	7.4				
26	1		12	0	1	0	392	< 2	0.36	5.1				
27	1		12	0	1	0	> 738	< 2	0.37	5.6				
28	1		12	0	1	0	9400	2	0.36	4.5				
29	1		12	0	1	0	2640	< 2	0.37	4.0				
30	1		12	0	1	0	560	< 2	0.37	2.2				
31	1		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				

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	1.13

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

City of Flint

December 2014



Water Quality Report Summary

The City of Flint Department of Utilities is dedicated to providing a high quality drinking water to the residents of the community. The Consumers Annual Report on Water Quality provides important information about your drinking water and is mailed once a year to all water customers. This report is a summary of the monthly operating report (MOR) and also contains operational information and statistics about the water and sewer systems. This report will appear online each month along with the MOR

Additional information about your drinking water is available by calling the Flint Water Plant & Facilities at 810-787-6537

General drinking water information can be found on the USEPA website at www.epa.gov/safewater/



City of Flint
Water Quality
Monitoring Data

Detected Contaminants

Monitored at the Treatment Plant

Substance	Units	MCL-G	MCL	Highest Level	Range Detected	Are We Compliant	Typical Source of Contaminant
BARIUM	ppm	2	2	0.02	N/A	Yes	Discharge of drilling wastes Erosion of natural deposits
CHLORIDE	ppm	N/A	N/A	87	74 - 87	Yes	Erosion from natural deposits
CHLORINE RESIDUAL	ppm	4	4	3	1.7 - 3.0	Yes	Water additive used to control microbes
FLUORIDE	ppm	4	4	0.77	0.59 - 0.77	Yes	Discharge from fertilizer & aluminum factories
HARDNESS	ppm	N/A	N/A	210	168 - 210	N/A	
NITRATE	ppm	10	10	Not Detected	N/A	Yes	Runoff from fertilizer use; leaching from septic tanks, sewage;
TURBIDITY (cloudiness)	NTU	< 0.3 in 95 % of samples		0.12	0.06 - 0.12	Yes	Soil runoff
TOTAL ORGANIC CARBON	ppm	N/A	N/A	2.59	N/A	Yes	Erosion of natural runoff
BROMATE	ppm	N/A	0.01	0.023	N/A	N/A	By-product of ozone treatment, compliance based on RAA

Monitored in the Distribution System

Substance	Units	MCL-G	MCL	Highest Level	Range Detected	Are We Compliant	Typical Source of Contaminant
CHLORINE RESIDUAL	ppm	4	4	2.8	0.2 - 2.8	Yes	Water additive used to control microbes
HALOACIDIC ACIDS (HAA5)	ppb	N/A	60	24	5 - 24	Yes	By-product of drinking water disinfection
TRICHALOMETHANES (TTHM)	ppb	N/A	80	93.6	33.3 - 93.6	No	By-product of drinking water disinfection
TOTAL COLIFORM	ppm	< 5% of samples present		0	N/A	Yes	Naturally occurring

Monitored at the Customers Tap (from June through December 2014)

Substance	Units	MCL-G	AL	Highest Level	# samples over AL	Are We Compliant	Typical Source of Contaminant
COPPER	ppm	1.3	1.3	0.28	0	yes	Corrosion of household plumbing systems; leaching from wood preservatives
LEAD	ppb	0	15	37	2	Yes	Corrosion of household plumbing systems; erosion of natural deposits

Unregulated Contaminants

Substance	Units	MCL-G	MCL	Level Detected	Highest Level	Are We Compliant	Typical Source of Contaminant
SODIUM	ppm	N/A	N/A	18	N/A	N/A	Erosion of natural deposits
pH	S.U	N/A	N/A	8.49	7.41 - 8.49	N/A	

Note: TTHM, HAA5, and Chlorine are for the Flint Distribution System

*The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change that frequently. Some contaminants are sampled less frequently than once a month; as a result, not all contaminants were sampled for during the month of December.

Non Compliant Explanation -A TTHM Violation was issued to the City of Flint by the DEQ December 16th, 2014. TTHM is tested once each quarter and the DEQ takes a rolling four quarter average to measure against the MCL in determining compliance. The City has addressed the violation by working with professional engineers to submit a required Operational Evaluation Plan to the DEQ and currently seven of eight test sites are below the MCL limit.

Water Source

The City of Flint currently uses the Flint River as its Primary water source.

Health Information

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 (1-800-426-4791).

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).

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; Inorganic contaminants, such as salts and metals, which can be naturally-occurring. Pesticides and herbicides, Organic chemical contaminant and radioactive contaminants.

In order to ensure that tap water is safe to drink, EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations established limits for contaminants in bottled water, which must provide the same protection for public health.

Should there be any water quality complaints or requests for technical information regarding water quality, Holloway Reservoir, Kearsley Lake, Thread Lake, and Flint River water levels call (810) 787-6537 for assistance.



The City of Flint Water Plant conducts lead & copper monitoring every three years from a limited number of

<u>Key to Detected Contaminants Table</u>		
Symbol	Abbreviation for	Definition / Explanation
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, and trichloroacetic acids. Compliance is based on the total of five
MCL	Maximum Contaminant Level	The highest level of a contaminant that is allowed in drinking water
MCL-G	Maximum Contaminant Level Goal	The level of a contaminant below which there is no known or expected risk to health
MRDL	Maximum Residual Disinfectant Level	The highest level of a disinfectant allowed in drinking water
MRDL-G	Maximum Residual Disinfectant Level Goal	The level of a disinfectant below which there is no known or expected risk to health
N/A	Not Applicable	
ND	Not Detected	
NTU	Nephelometric Turbidity Units	Measures the cloudiness in water
pCi/L	picocuries	A measure of radioactivity
ppb	Parts per billion (one in a billion)	The ppb is equivalent to micrograms per liter. A microgram is equal to 1/1000 milligram
ppm	parts per million (one in a million)	The ppm is equivalent to micrograms per liter. A microgram is equal to 1/1000 gram
TT	Treatment Technique	
TTHM	Total Trihalomethanes	Total trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane and bromoform

Water & Sewer System Information

Water System Statistics		Sewer System Statistics	
Water & Sewer Customers	29700	Catch Basins Cleaned/Replaced/Repaired	36
Main Break Repairs	26	Driveway/Sidewalk Repairs	5
Main Valves Replaced/Repaired	5	Lawn Repairs	3
Cut & Plug Services	43	Manhole Replacements	2
Fire Hydrants Replaced/Repaired	12	Sewer Inspections	28
Curb Box Services	42	Street Cut Repairs	13
Miss Dig Orders	5	Sanitary Sewer - TV Inspections (ft)	878
Avg. Water Usage	17.01 MGD	Miss Dig Orders	23

Strategic Plan - Utility Department Key Objective's 60 Day Outlook

Key Objective	Target Date	Comments
Develop and implement a "water loss" program	2/15/2015	Working with engineering firms
Implement a response time policy for the WSC	3/1/2015	Modifying management/union proposal
Implement a root control matrix	3/15/2015	Will reduce sewer infiltration
Complete electrical upgrades on Cedar Street pumping station	4/1/2015	Will increase pressure efficiency

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>25.3</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

10

Number of filter confluence samples collected

218218

Percent of filter confluence samples > 0.3 NTU

0.5%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]

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	0.06	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	8	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	

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

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	7.95	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	366	244	295	127	130	138	133.9	91.4	18.5	14.1	57	98
Min.	7.75	7.54	339	168	228	47	63	113	109.0	48.9	5.8	2.9	49	86

Date	Total Coliform						Standard Plate Count (SimplaPlate 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	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	0.56	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.									0.45	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										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
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

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

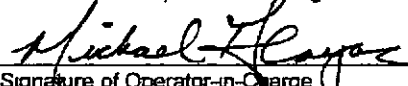
SUPPLY NAME: CITY of FLINT WATER PLANT
 WSSN: 2310

Michael Glasgow
 Operator-in-Charge

January 2015
 Month/Year

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

F-1
 Water Plant Classification


 Signature of Operator-in-Charge

Genesee
 County

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

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.		

WSSN: 2310

Date	Turbidity, Units												Point of Entry
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	
1	8	0.07	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	6	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	

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	0.26	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

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	206	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	188	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	64.5	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

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				

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WS	
1	0.7	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

Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WS	
1	0.8	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

[illegible]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

Michael Glasgow
Operator-in-Charge

July 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

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>124</u>	Hours
Average Head Loss	<u>n/a</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>3.3</u>	Gallons Per Square Feet per Minute
Average Wash Water Use	<u>1.0%</u>	Percent of Treated Water

Chemical Data

Chlorine on hand	<u>24,000</u>	lb.	Est. supply	<u>28</u>	days
Primary Coagulant (Ferric Chloride) on hand	<u>153,000</u>	lb	Est. supply	<u>10</u>	days
Lime (CaO) on hand	<u>197</u>	tons	Est. supply	<u>17</u>	days
Fluoride on Hand	<u>6,000</u>	lb	Est. supply	<u>13</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? 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]

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	0.12	6	0	0	0.11
2	7	0.11	0.15	6	0	0	7	0.09	0.12	6	0	0	0.09
3	8	0.09	0.11	6	0	0	8	0.09	0.11	6	0	0	0.13
4	8	0.09	0.13	6	0	0	8	0.08	0.09	6	0	0	0.11
5	8	0.08	0.09	6	0	0	8	0.08	0.11	6	0	0	0.09
6	7	0.09	0.12	6	0	0	7	0.08	0.09	6	0	0	0.10
7	7	0.10	0.12	6	0	0	7	0.09	0.10	6	0	0	0.10
8	6	0.11	0.13	6	0	0	6	0.10	0.11	6	0	0	0.09
9	7	0.11	0.15	6	0	0	7	0.10	0.10	6	0	0	0.11
10	7	0.11	0.11	6	0	0	7	0.10	0.12	6	0	0	0.12
11	7	0.12	0.25	6	0	0	7	0.11	0.13	6	0	0	0.10
12	6	0.08	0.11	6	0	0	6	0.10	0.13	6	0	0	0.08
13	7	0.10	0.11	6	0	0	7	0.10	0.12	6	0	0	0.10
14	7	0.18	0.31	6	1	1	7	0.11	0.11	6	0	0	0.11
15	7	0.14	0.20	6	0	0	7	0.12	0.16	6	0	0	0.13
16	7	0.14	0.20	6	0	0	7	0.12	0.15	6	0	0	0.12
17	7	0.13	0.15	6	0	0	7	0.12	0.14	6	0	0	0.18
18	7	0.14	0.20	6	0	0	7	0.12	0.16	6	0	0	0.15
19	7	0.16	0.19	6	0	0	7	0.14	0.18	6	0	0	0.18
20	7	0.13	0.18	6	0	0	7	0.12	0.16	6	0	0	0.12
21	7	0.14	0.17	6	0	0	7	0.14	0.19	6	0	0	0.12
22	7	0.15	0.20	6	0	0	7	0.15	0.19	6	0	0	0.16
23	7	0.14	0.18	6	0	0	7	0.13	0.15	6	0	0	0.15
24	7	0.17	0.19	6	0	0	7	0.17	0.20	6	0	0	0.16
25	7	0.17	0.19	6	0	0	7	0.16	0.19	6	0	0	0.14
26	7	0.14	0.17	6	0	0	7	0.13	0.15	6	0	0	0.13
27	7	0.16	0.22	6	0	0	7	0.15	0.21	6	0	0	0.16
28	7	0.15	0.16	6	0	0	7	0.14	0.16	6	0	0	0.13
29	7	0.13	0.17	6	0	0	7	0.12	0.13	6	0	0	0.12
30	7	0.12	0.14	6	0	0	7	0.13	0.16	6	0	0	0.13
31	7	0.08	0.10	6	0	0	7	0.10	0.13	6	0	0	0.12
Avg.	7	0.12	0.16	6	0	0	7	0.11	0.14	6	0	0	
Max.	8	0.18	0.31	6	1	1	8	0.17	0.21	6	0	0	0.18
Min.	6	0.08	0.09	6	0	0	6	0.08	0.09	6	0	0	

[illegible]

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	8.37	7.59	232	148	190	56	42	92	87.3	46.5	15.6	7.8	45	84
2	8.12	7.36	260	150	220	54	40	96	77.8	50.5	16.0	5.8	47	87
3	8.40	7.43	260	155	218	55	42	100	89.0	56.9	9.2	2.9	43	89
4	8.35	7.40	252	153	210	52	42	101	80.2	52.1	12.6	3.9	42	86
5	8.18	7.49	258	156	216	54	42	102	89.8	52.1	8.3	6.8	42	86
6	8.19	7.48	264	156	208	56	56	100	85.8	57.7	12.2	2.9	44	88
7	8.06	7.68	258	156	212	50	46	106	87.4	50.5	9.7	7.3	48	85
8	7.98	7.52	252	148	208	54	44	94	85.0	51.3	9.7	4.9	43	77
9	8.18	7.49	246	152	208	52	38	100	80.2	52.9	11.2	4.9	43	82
10	8.22	7.47	244	150	202	52	42	98	84.2	55.3	8.3	2.9	43	77
11	8.30	7.54	250	150	206	62	44	88	85.8	48.9	8.7	6.8	47	81
12	8.21	7.45	256	144	214	48	42	96	79.4	47.3	14.1	6.8	42	89
13	8.36	7.60	242	142	200	50	42	92	79.4	47.3	10.7	5.8	45	83
14	7.83	7.45	250	144	208	50	42	94	75.4	39.3	15.1	11.2	50	84
15	8.13	7.38	250	134	212	48	38	86	81.8	41.7	11.2	7.3	44	81
16	8.16	7.43	252	156	212	48	40	108	78.6	44.1	13.6	11.2	44	79
17	8.05	7.36	256	140	206	52	50	88	82.6	45.7	9.2	8.7	43	78
18	8.07	7.42	248	132	206	42	42	90	80.2	40.1	11.7	7.8	41	80
19	8.13	7.45	252	134	212	44	40	90	80.2	47.3	12.8	3.9	43	76
20	8.21	7.53	248	142	214	46	34	96	78.6	43.3	12.3	8.3	42	79
21	8.15	7.35	250	134	220	54	30	80	82.6	41.7	10.7	7.3	42	79
22	8.31	7.42	252	132	216	44	36	88	76.2	36.9	15.1	9.7	44	80
23	8.33	7.35	252	136	214	36	38	100	81.8	40.1	11.7	8.7	43	84
24	8.28	7.34	246	136	206	34	40	102	79.4	39.3	11.7	9.2	43	83
25	8.24	7.52	248	149	208	47	40	102	76.2	38.5	14.1	8.7	43	81
26	8.15	7.43	254	153	212	51	42	102	85.0	47.3	10.2	7.3	43	89
27	8.14	7.40	258	146	216	48	42	98	77.0	48.9	16.0	5.8	45	88
28	8.19	7.42	248	162	210	58	38	104	79.4	61.7	12.2	1.9	45	96
29	8.03	7.32	242	152	206	50	36	102	79.4	54.5	10.7	3.9	47	100
30	7.97	7.37	240	158	208	60	34	98	70.5	58.5	15.6	2.9	51	98
31	7.91	7.37	248	166	212	52	36	104	75.4	55.3	14.6	4.4	51	99

Avg.	8.17	7.45	251	147	210	50	41	97	80.4	48.2	12.1	6.4	44	85
Max.	8.40	7.68	264	162	220	62	56	108	89.8	61.7	16.0	11.2	51	100
Min.	7.83	7.32	232	132	190	34	30	80	67.3	36.9	8.3	1.9	41	76

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			Raw	Raw	Tap	Raw	Tap
1	1	4884	12	0	1	0	2870	< 2	0.44	22.5					
2	1	3448	12	0	1	0	2020	< 2	0.44	22.3					
3	1	3654	12	0	1	0	2390	< 2	0.45	22.1					
4	1	4611	12	0	1	0	1830	< 2	0.44	23.5					
5	1	5172	12	0	1	0	1830	< 2	0.45	22.5					
6	1	3873	12	0	1	0	1890	< 2	0.45	22.8					
7	1	5794	12	0	1	0	1460	< 2	0.43	23.5					
8	1	3654	12	0	1	0	1950	< 2	0.41	22.0					
9	1	6867	12	0	1	0	2990	< 2	0.43	22.5					
10	1	4106	12	0	1	0	1830	< 2	0.41	23.3					
11	1	3654	12	0	1	0	2090	< 2	0.43	23.5					
12	1	3654	12	0	1	0	1510	< 2	0.42	22.9					
13	1	4884	12	0	1	0	1510	< 2	0.41	24.8					
14	1	11191	12	0	1	0	7380	< 2	0.40	23.3					
15	1	8164	12	0	1	0	3390	< 2	0.40	23.1					
16	1	6867	12	0	1	0	2020	< 2	0.40	25.9					
17	1	3873	12	0	1	0	1460	< 2	0.41	23.8					
18	1	3873	12	0	1	0	5550	< 2	0.39	24.4					
19	1	5794	12	0	1	0	3390	< 2	0.39	24.4					
20	1	6867	12	0	1	0	2870	< 2	0.39	24.4					
21	1	8664	12	0	1	0	2870	< 2	0.39	24.5					
22	1	4884	12	0	1	0	2870	< 2	0.39	25.1					
23	1	6480	12	0	1	0	3550	< 2	0.40	24.9					
24	1	6480	12	0	1	0	3390	< 2	0.40	25.1					
25	1	7270	12	0	1	0	4440	< 2	0.42	25.2					
26	1	8164	12	0	1	0	4140	< 2	0.44	25.1					
27	1	7270	12	0	1	0	2230	< 2	0.43	26.0					
28	1	5172	12	0	1	0	2660	< 2	0.47	27.6					
29	1	6867	12	0	1	0	6230	< 2	0.45	27.2					
30	1	17329	12	0	1	0	3240	< 2	0.48	26.2					
31	1	19863	12	0	1	0	4700	< 2	0.46	25.5					

Avg.									0.42	24.2						
Max.		19863					7380	< 2	0.48	27.6						
Min.									0.39	22.0						

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WS	
1	0.5	1.0	1.1	0.3	0.2	0.2	0.6	1.3	0.7	1.4	10
2											0
3											0
4											0
5											0
6											0
7	0.1	1.1	1.0	0.2	1.9	0.2	0.5	1.0	1.3	4.0	10
8	1.1	0.3	1.2	0.1	0.8	0.3			0.5	1.2	8
9	0.1	0.7	1.2	0.2	0.1	0.2	0.4	1.1	0.2	1.3	10
10											0
11											0
12											0
13											0
14	0.9	1.0	1.0	0.1	0.2	0.2	0.5	1.3	0.3	1.2	10
15	0.1	0.9	1.0	0.4	0.6	0.1	0.2	1.3	0.6	1.2	10
16											0
17											0
18											0
19											0
20											0
21											0
22	0.5	0.5	0.9	0.2	0.1	0.1	0.3	1.0	0.6	1.6	10
23	0.6	0.7	0.9	0.2	0.1	0.1	0.1	1.2	0.1	1.3	10
24											0
25											0
26											0
27											0
28	0.6	0.9	1.0	0.3	0.3	0.1	0.5	1.0	0.9	1.0	10
29											0
30	0.6	0.7	0.8	0.1	0.1	0.5	0.3	1.7	0.1	1.2	10
31				0.2	0.4	0.2					3

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	0.67

Date	Total Chlorine Residual at Bacteriological Monitoring Stations mg/l										Number of Samples
	1	2	3	4	5	6	7	8	CS	WS	
1	0.9	1.3	1.4	0.6	0.4	0.4	0.9	1.7	1.0	1.7	10
2											0
3											0
4											0
5											0
6											0
7	0.1	1.4	1.2	0.3	2.2	0.4	0.8	1.3	1.6	4.0	10
8	1.4	0.6	1.6	0.4	1.0	0.5			0.8	1.5	8
9	0.2	1.0	1.5	0.4	0.2	0.5	0.6	1.4	0.4	1.6	10
10											0
11											0
12											0
13											0
14											0
15	1.3	1.3	1.3	0.3	0.4	0.4	0.8	1.7	0.5	1.5	10
16	0.2	1.2	1.3	0.7	0.9	0.2	0.5	1.5	0.9	1.5	10
17											0
18											0
19											0
20											0
21											0
22	0.8	0.8	1.3	0.5	0.3	0.2	0.5	1.4	0.9	2.0	10
23	0.9	1.1	1.2	0.5	0.4	0.3	0.3	1.5	0.1	1.6	10
24											0
25											0
26											0
27											0
28	0.8	1.3	1.3	0.5	0.5	0.2	0.8	1.4	1.3	1.3	10
29											0
30	1.0	1.2	1.3	0.3	0.3	0.2	0.6	2.3	0.3	1.5	10
31				0.4	0.6	0.4					3

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	0.9

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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

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

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?		<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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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	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	

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	0.6	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

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	8.18	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	183	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

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				

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

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]

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
 WSSN: 2310

Michael Giasgow

Operator-in-Charge

May 2015

Month/Year

F-1R, F-2

Certification of Operator-in-Charge

F-1

Water Plant Classification

Genesee

County

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
 Number of filter confluence samples collected
 Percent of filter confluence samples > 0.3 NTU
 Number of filter confluence samples > 1 NTU

0
229
0.0%
0

0
229
0.0%
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.

[illegible]

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	8	0	0	0.07
10	8	0.08	0.08	6	0	0	8	0.08	0.07	8	0	0	0.08
11	7	0.06	0.08	6	0	0	7	0.08	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	6	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	6	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	0.08	0.07	8	0	0	0.07
18	4	0.07	0.09	6	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	0.08	0.07	6	0	0	0.08
22	7	0.07	0.12	6	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	0.06	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	

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
16	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	0.76		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	1.6	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

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	7.91	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	94.8	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	106	97.0	83.3	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	68	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

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	0.48	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	16.4				
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	0.6	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										Number of Samples
	1	2	3	4	5	6	7	8	CS	WS	
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

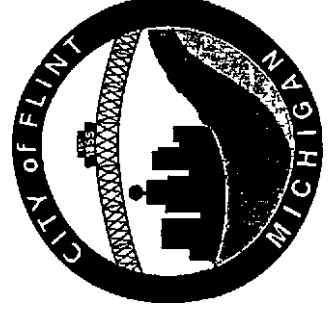
[illegible]

City of Flint Water System Facts

Over 600 Miles of Distribution
Mains

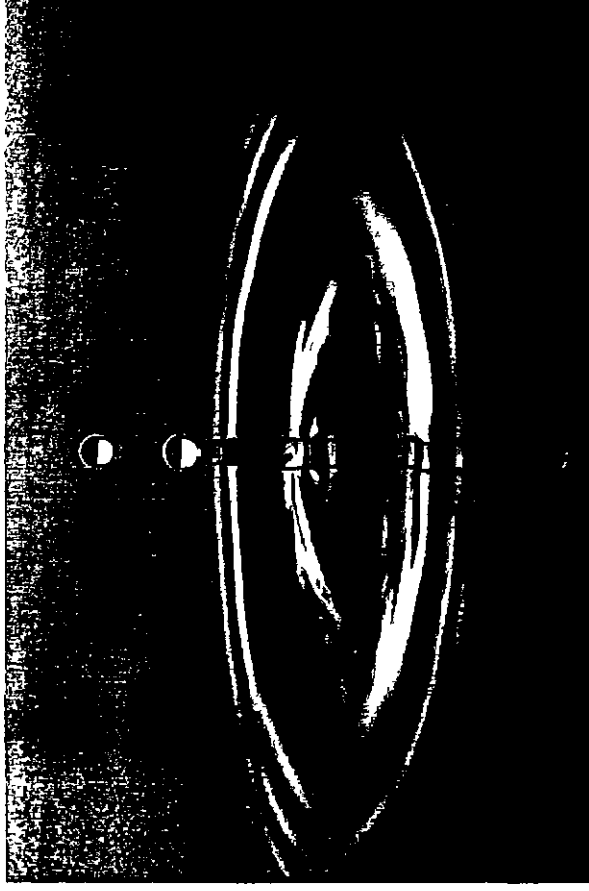
Over 7000 Valves
Over 3909 Hydrants

Over 46,000 users in 2006
Only 31,000 users in 2014



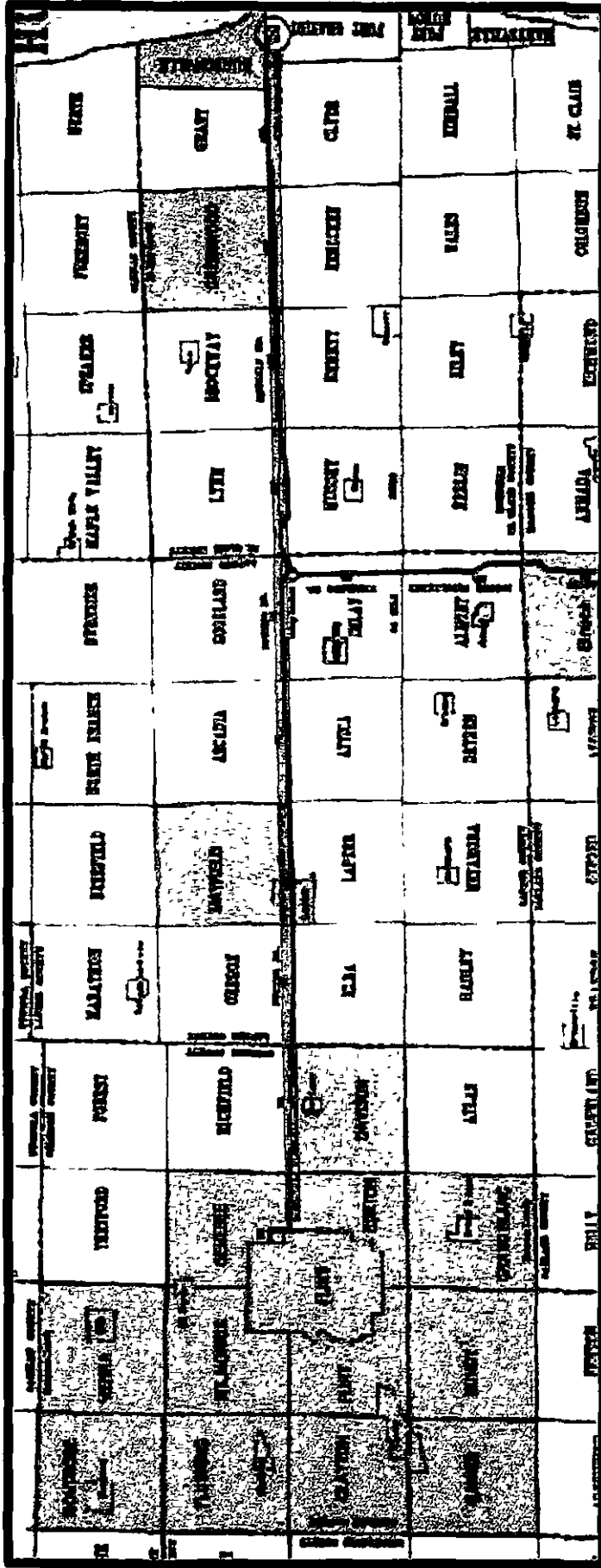
What Can Impact Water Quality ?

- Condition of source water
- Temperature
- Organic material
- Retention time in system
- Low flow
- Dead ends
- Main Breaks
- Repairs



Quality Indicators

- ❖ Chlorine residual
- ❖ Total coliforms



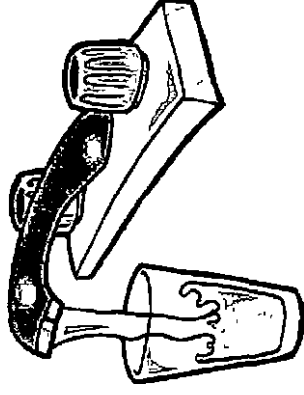
Flint River

vs.

DWSD

CITY TESTING

- ☐ 10 test sites around the city
- ☐ Tests are performed manually 2 – 3 times a week
- ☐ Over 100 Tests are performed a month
- ☐ **All** tests are reported to the DEQ for oversight
- ☐ Tests are performed **EVERY** four hours inside the Plant
- ☐ The City responds to and tests all reported concerns



Michigan DEQ

State License Types

Complete Treatment	Limited Treatment	Distribution
F-1	D-1	S-1
F-2	D-2	S-2
F-3	D-3	S-3
F-4	D-4	S-4

Recent Boil Water Advisories in MICHIGAN

LOCATION	DATE	CAUSE
Edwardsburg / Lunkern	Nov 12, 2014	Fire
Superior Township	May 03, 2014	Main Break
Benton Harbor	Jan 9, 2014	Water Pressure
Union Township	Nov 6, 2013	Main Break
Charlevoix	August 7, 2013	Pressure Loss
Novi	Feb 13, 2013	Pressure Loss
Muskegon Heights	Nov 17, 2012	Main Break
Commerce Township	Dec 6, 2010	Depressurization



City of Flint Contacts

Public Works Director
Utilities Administrator
Plant Supervisor
F-1 Operator in Charge
S-1 Operator in Charge

Howard Croft – hcroft@cityofflint.com
Daugherty Johnson- djohnson@cityofflint.com
Brent Wright – bwright@cityofflint.com
Mike Glasgow – mglasgow@cityofflint.com
Robert Bincsik – rbincsik@cityofflint.com

Phone Numbers

City of Flint Treatment Plant
Public Works Director
Utilities Administrator
EPA Safe Drinking Water Hotline

810-787-6537
810-766-7346 x 2403
810-766-7135 x 2602
1-800-426-4791

DWSD Customer Area & Rate Methodology

Exhibit C: Development of Unit Cost at Detroit 3rd Unit

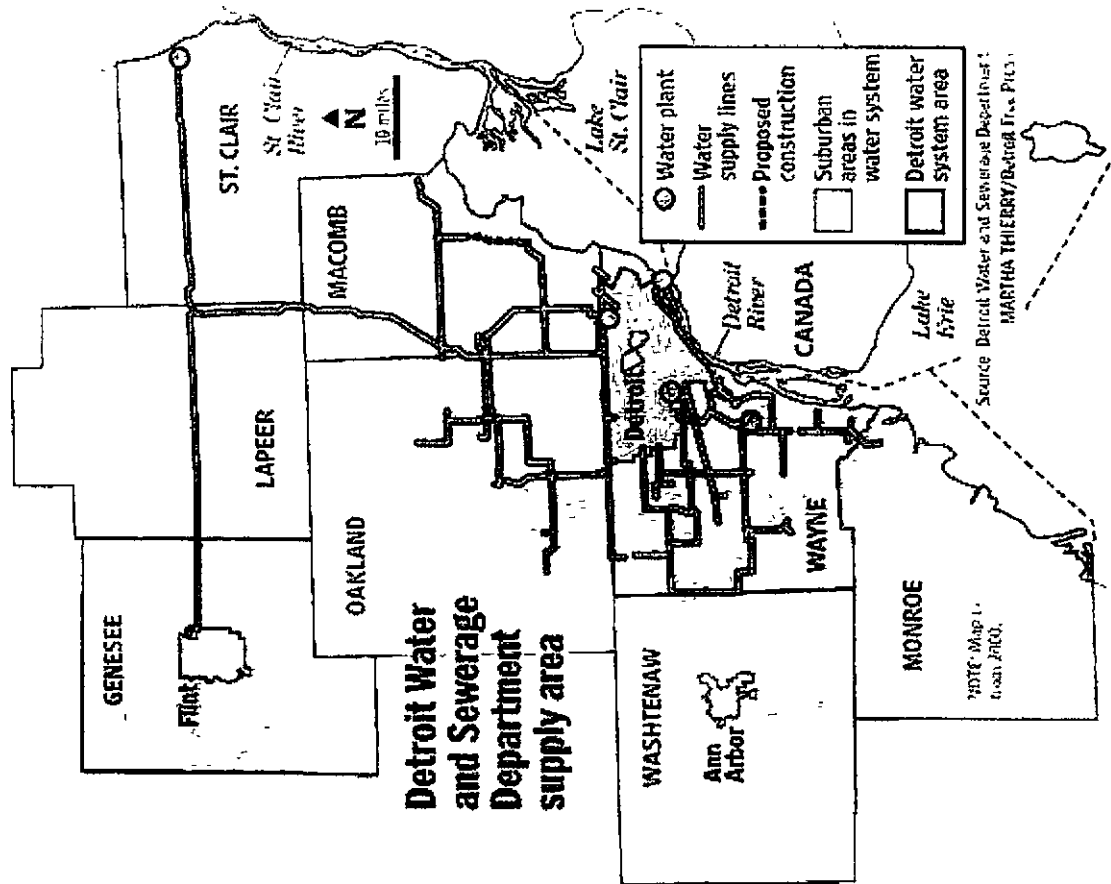
Line No.	Cost Function	7th Unit	8th Unit	9th Unit
1	Base	\$ 72,000,000	\$ 82,000,000	\$ 97,000,000
2	Minimum Day Increment	26,100,000	26,100,000	26,100,000
3	Peak Hour Increment	3,750,000	3,750,000	3,750,000
4	Base Distance	25,000,000	25,000,000	25,000,000
5	Minimum Day Distance	43,000,000	43,000,000	43,000,000
6	Peak Hour Distance	5,000,000	5,000,000	5,000,000
7	Base Distance-Elevation	34,000,000	34,000,000	34,000,000
8	Minimum Day Distance-Elevation	50,000,000	50,000,000	50,000,000
9	Peak Hour Distance-Elevation	10,000,000	10,000,000	10,000,000
10	Customer A	10,000,000	10,000,000	10,000,000
11	Customer B	10,000,000	10,000,000	10,000,000

Community "A"

Cost Function	Base	Max Day	Peak Hour	Total	Elevation
1, 2, 3	\$2.09	\$ 2.73	\$0.45	\$ 5.78	
4, 5, 6	1.06	1.05	6.39	3.11	
7, 8, 9	1.50	6.89	1.04	10.10	43.2
Other	0.18			0.18	
Total	\$3.49	\$11.59	\$7.49	\$14.17	

Community "B"

Cost Function	Base	Max Day	Peak Hour	Total	Elevation
1, 2, 3	\$2.65	\$1.95	\$0.44	\$ 5.04	
4, 5, 6	0.94	1.05	6.42	2.41	
7, 8, 9	1.23	3.92	1.57	6.72	
Other	0.09			0.09	
Total	\$4.91	\$6.92	\$2.43	\$14.26	



KWA Original Engineering Estimates [SEPTEMBER 2009].

Table 1: Demands for Planning

	Initial (2014)		25 Year (2036)	
	Avg Day (mgd)	Max Day (mgd)	Avg Day (mgd)	Max Day (mgd)
Genesee County	14.2	25.0	16.2	32.5
City of Flint	16.5	25.0	11.2	28.8
Lapeer County	2.5	18	9.1	14.9
Sanilac County	0.1	0.1	0.1	0.1
Totals	33.3	68.0	44.5	76.2

Table 4: Project Operating Expenses during Initial Year of New Lake Huron Water Supply

	Community	KWA (\$MCF)	Local (\$MCF)	New Water Supply Treatment Cost (2014)	2009-2010 DWSD Rate
Genesee County		\$1.30	\$41.56	\$42.86	PLA
Lapeer County (CLCUA)		\$1.30	\$5.11	\$4.41	\$16.10
CLCUA-WWS		\$1.30	\$2.86	\$4.16	\$14.32
Flint		\$1.30	\$4.19	\$5.43	\$14.32

Notes:

1. The above costs are based on current rates and are subject to change as rates change.
2. Costs are for operating expenses only, not capital costs.

Figure 1: Study Area

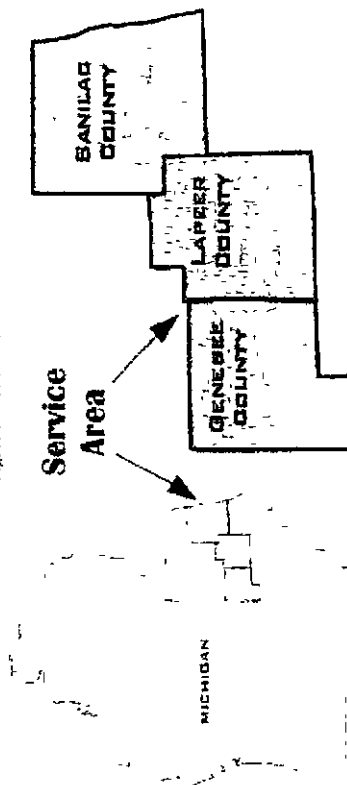


Table 3: Summary of Cost of New Lake Huron Water Supply

Project Component	Total Project Cost	Sanilac Co. Share	Lapeer Co. Share	CLCUA-WWS Share	Flint Share
KWA Lake Huron Water Supply	\$143,885,707	\$812,723	\$85,312,736	\$188,899,927	\$107,859,381
KWA Sanilac Co. Facilities	\$1,049,360	\$1,049,360			
KWA Lapeer Co. Facilities	\$40,009,000		\$40,009,000		
New Genesee Co. Facilities Upgrades	\$110,036,554			\$110,036,554	
New Flint Upgrades	\$5,987,030				\$5,987,030
Totals	\$300,709,771	\$812,723	\$126,321,736	\$298,938,481	\$173,846,411

KWA Original Cost Estimates [SEPTEMBER 2009].

Figure 3. Projected Cost of Water

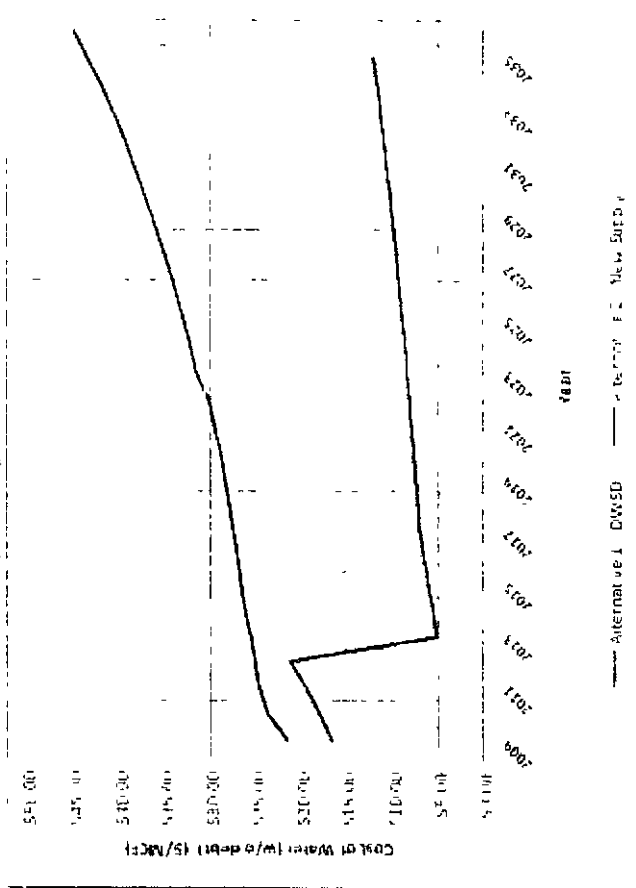


Figure 4. Comparison of Alternatives

