

EXHIBIT 70



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

FEB 19 2016

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Keith Creagh
Director
Michigan Department of Environmental Quality
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Lansing, Michigan 48909-7973

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Michigan Department of Environmental Quality
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Anthony C. Chubb
Interim Chief Legal Officer
City of Flint
1101 South Saginaw Street
Flint, Michigan 48502

Mike Glasgow
Utilities Administrator
City of Flint
1101 South Saginaw St.
Flint, Michigan 48502

Dear Director Creagh, Mr. Krisztian, Mr. Glasgow and Mr. Chubb:

Thank you for your continued work to address the serious and ongoing issues with the safety of the City of Flint's (City) public water system and to comply with the Emergency Order that EPA issued on January 21, 2016 (Order). There has been progress toward compliance by the City, the State of Michigan (State), and Michigan Department of Environmental Quality (MDEQ), collectively Respondents. We have been in regular communication with officials at all levels to

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assure that appropriate steps are being taken to protect the people of Flint and that we are informed of the status of compliance efforts.

As we have discussed, there are two significant issues that need immediate attention. First, Respondents must develop a comprehensive plan to ensure the optimization of corrosion control for the public water system for the current source water, as required by Paragraph 59 of the Order. Having a comprehensive and interactive plan instead of individual pieces of a strategy is essential to protect the residents of Flint, and will allow the City and MDEQ to better anticipate and handle changes in the public water system that may impact corrosion control for Lead and Copper Rule (LCR) purposes. Many of the data collection efforts underway to optimize corrosion control have been performed pursuant to expert advice from the EPA Flint Task Force and others, and these important steps are improving system operations and corrosion control. However, it remains important that the City have and operate under a rigorous, concerted, optimized corrosion control treatment plan for the existing source water to guide any necessary adjustments to treatment and to set performance goals on when treatment is considered optimized. The EPA Flint Task Force and others stand ready to assist the City and MDEQ in developing a comprehensive and interactive corrosion control plan that incorporates all the individual parts necessary to optimize corrosion control in the public water system. EPA would like to discuss an appropriate timeline for this plan in a meeting with Respondents next week.

EPA understands that the City is moving ahead with lead service line replacements. EPA supports that effort, and is happy to work with the City to ensure that it is carefully designed and implemented. EPA notes that lead service line replacement will not change the continued need for a robust and ongoing optimized corrosion control treatment program or any of the other requirements of the Order.

Second, the City has not yet demonstrated it has an adequate number of qualified personnel to perform the duties and obligations required to ensure the City's public water system complies with the Safe Drinking Water Act (SDWA) and the National Primary Drinking Water Regulations (NPDWRs), including the LCR. Paragraph 61 of the Order required the Respondents to demonstrate by February 5, 2016 that the necessary expertise and staffing exists. However, based on our conversations, your submissions under the Order, and EPA's observations on the ground, the staffing appears inadequate, even to operate as a consecutive public water system providing limited treatment. EPA expects to be alerted of any staffing changes that could impact the ability of Respondents to comply with the Order.

It is important to underscore that both of these ongoing problems relate to key provisions of the Order, which clearly states that there can be no switch away from the finished water purchased from the Great Lakes Water Authority to another water source (*e.g.*, Karegnondi Water Authority) unless and until the current system is fully optimized and running properly and the City demonstrates it has the technical, managerial, and financial capacity to operate the public

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water system in compliance with the SDWA and NPDWRs. EPA will determine the adequacy of the actions and plans required in the Order before the City switches to a new source. To be clear, the City cannot switch to a new water source until there is a comprehensive corrosion control plan that is fully operational with optimized corrosion control treatment in place and the system has the necessary staffing and expertise to reliably operate the drinking water plant and distribution system.

This letter includes three attachments that lay out recent exchanges regarding other issues that have been the subject of ongoing correspondence and discussion with the Respondents. Attachment A is the email EPA sent on February 8, 2016 describing concerns with responses to the Order. Attachment B is the State's preliminary response to Attachment A dated February 11, 2016. Attachment C is EPA's current summary of the status of compliance with the provisions of the Order, based on documents provided by the City and the State and on-going conversations over the past week. This attachment notes the actions that have already been taken in response to EPA's stated concerns, and others that are planned. In particular, EPA notes the positive steps that the State has taken to improve transparency, including an updated web site that makes it much easier to track the status of actions on each provision of the Order.

We urge you to immediately address the two priority topics described here, and to continue to implement the additional steps as described in Attachment C. We look forward to continuing to stay in close communication as we work toward a reliable drinking water system for the people of Flint.

Sincerely,



Mark Pollins
Director
Water Enforcement Division

cc: Cynthia Giles, Assistant Administrator Office of Enforcement and Compliance Assurance, USEPA

Attachment A

From: Mark Pollins

To: Keith Creagh, George Krisztian, Michael Glasgow, Anthony Chubb

CC: Peter Grevatt, Thomas Speth, Loren Denton, Carrie Wehling, Leslie Darman, Tinka Hyde, Heather Shoven, Leverett Nelson, Robert Thompson, Joanna Glowacki, Clarke Thurmon, Carol King, Kaitlyn Bendik

Date: Monday, February 8, 2016

Dear Director Creagh, Mr. Krisztian, Mr. Glasgow and Mr. Chubb,

Following our in-person meeting on January 28, 2016, the City, MDEQ and State made submissions pursuant to EPA's Order through February 5th of last week. After reviewing Respondents' submissions posted on the MDEQ website and provided to EPA electronically, EPA has serious concerns regarding the Respondents' compliance with the January 21, 2016 SDWA Section 1431 Emergency Administrative Order in the matter regarding the City of Flint, Michigan. As you are aware, members of the EPA Team will be in Flint tomorrow and Wednesday to discuss the following deficiencies:

1. Respondents have not responded in writing to the EPA Flint Task Force's requests and recommendations (Paragraph 52).
2. Respondents have not provided all lead in water testing results for the City since January 2013 (Paragraph 53(b)).
3. The existing inventory of homes with lead service lines submission is not adequate (Paragraph 54(a)).
4. Respondents have not adequately demonstrated (e.g., using daily sampling information) that they are maintaining chlorine residual in the distribution system (Paragraph 57) or continuing to add corrosion inhibitors at levels sufficient to re-optimize corrosion control in the distribution system (Paragraph 58).
5. Respondents have not provided plans and schedules to ensure the treatment plant is consistently and reliably meeting plant performance criteria (Paragraph 59(a)).
6. Respondents have not submitted a plan for daily monitoring of water quality parameters in the distribution system (Paragraph 59(b)).
7. Respondents have submitted an inadequate operations plan for the corrosion control equipment and daily monitoring of finished water corrosion control parameters (Paragraph 59(c)).
8. Respondents submitted a list of staff, but have not adequately demonstrated the City has the necessary, capable and qualified personnel required to perform the duties and obligations required to ensure the public water system complies with the SDWA and the National Primary Drinking Water Regulations (Paragraph 61).
9. Respondents have not yet provided a list of the "Independent Advisory Panel" membership (Paragraph 63).
10. Respondents must identify the 25 sites within the distribution system for which water quality parameter measurements are taken (Paragraph 53(a)).
11. Respondents must confirm they have identified all of the areas in the City of Flint with elevated blood lead levels (Paragraph 53(c)).

Sincerely,

Mark Pollins

Attachment B

From: Keith Creagh

To: Mark Pollins, Keith Creagh, George Krisztian, Michael Glasgow, Anthony Chubb

CC: Peter Grevatt, Thomas Speth, Loren Denton, Carrie Wehling, Leslie Darman, Tinka Hyde, Heather Shoven, Leverett Nelson, Robert Thompson, Joanna Glowacki, Clarke Thurmon, Carol King, Kaitlyn Bendik

Date: Thursday, February 11, 2016

Mark,

Thank you for bringing these concerns forward. Contrary to the tenor of your email, we made substantial efforts and progress toward meeting the requirements of the Order, including posting materials to the www.michigan.gov/flintwater website (“DEQ Reports to the EPA” tab) by the required dates and times. Your February 8, 2016, email below, and the subsequent meeting between City, DEQ and EPA on February 10, 2016 at the Flint Water plant, was the first time we received any feedback on the initial response efforts of the City and the DEQ. Going forward, should there be additional or future concerns, I suggest that we have more regularly scheduled meetings and open dialogue regarding the Order so that all parties are clear on the deliverables. While we continue to dispute the legality and efficacy of the order, we are fully committed to the ultimate goal: to ensure the health and safety of Flint’s water supply as quickly as possible.

Based upon the February 10, 2016, meeting, staff have taken steps to provide a better overall organizational structure and arrangement of content on the www.michigan.gov/flintwater website (“DEQ Reports to the EPA” tab) so that there’s a direct correlation between the materials that are posted with the paragraphs of the Order, along with a date and time stamp at the time of posting.

In relation to the items outlined in your February 8, 2016, email, the Order’s failure to distinguish between the City, which is the actual water supplier subject to the Safe Drinking Water Act, and the State, which is the regulator, continues to create confusion. To bring some clarity to the current situation, the City and DEQ have agreed to the following breakdown of responsibilities for addressing each paragraph in your February 8, 2016 email:

1. Respondents have not responded in writing to the EPA Flint Task Force’s requests and recommendations (Paragraph 52)
 - a. DEQ will respond
2. Respondents have not provided all lead in water testing results for the City since January 2013 (Paragraph 53(b)).
 - a. City of Flint will respond
3. The existing inventory of homes with lead service lines submission is not adequate (Paragraph 54(a)).
 - a. DEQ will respond
4. Respondents have not adequately demonstrated (e.g., using daily sampling information) that they are maintaining chlorine residual in the distribution system

- (Paragraph 57) or continuing to add corrosion inhibitors at levels sufficient to re-optimize corrosion control in the distribution system (Paragraph 58).
- a. City of Flint will respond
5. Respondents have not provided plans and schedules to ensure the treatment plant is consistently and reliably meeting plant performance criteria (Paragraph 59(a)).
 - a. DEQ & the City of Flint will respond
 6. Respondents have not submitted a plan for daily monitoring of water quality parameters in the distribution system (Paragraph 59(b)).
 - a. DEQ & the City of Flint will respond
 7. Respondents have submitted an inadequate operations plan for the corrosion control equipment and daily monitoring of finished water corrosion control parameters (Paragraph 59(c)).
 - a. DEQ & the City of Flint will respond
 8. Respondents submitted a list of staff, but have not adequately demonstrated the City has the necessary, capable and qualified personnel required to perform the duties and obligations required to ensure the public water system complies with the SDWA and the National Primary Drinking Water Regulations (Paragraph 61).
 - a. City of Flint will respond.
 9. Respondents have not yet provided a list of the “Independent Advisory Panel” membership (Paragraph 63).
 - a. DEQ will respond.
 10. Respondents must identify the 25 sites within the distribution system for which water quality parameter measurements are taken (Paragraph 53(a)).
 - a. City of Flint will respond.
 11. Respondents must confirm they have identified all of the areas in the City of Flint with elevated blood lead levels (Paragraph 53(c)).
 - a. DEQ will respond.

Updated content and information will be provided for all of the above items on the www.michigan.gov/flintwater website (“DEQ Reports to the EPA” tab) on Friday February 12, 2016.

Keith Creagh
Director
MDEQ

February 19, 2016

Attachment C

On February 8, 2016, U.S. Environmental Protection Agency (EPA) sent the State of Michigan (State), Michigan Department of Environmental Quality (MDEQ), and the City of Flint (collectively referred to as “Respondents”) a list (email attached, Attachment A) of serious concerns regarding Respondents compliance with the Safe Drinking Water Act § 1431 Emergency Order (Order). On February 10, 2016, EPA met in Flint, MI with representatives from MDEQ, acting on behalf of the State and MDEQ, and the City of Flint (City) to discuss EPA’s serious concerns and to clarify for Respondents the steps necessary to ensure continued compliance with the Order. The following represents EPA’s understanding of the Respondents’ current response to EPA’s concerns regarding the Order. The concerns identified in Attachment A are italicized below. Following each italicized concern is EPA’s current assessment of Respondents’ response.

- I. Respondents have not responded in writing to the EPA Flint Task Force’s requests and recommendations (Paragraph 52).*
 - a. This requirement was due on February 4, 2016. Respondents first posted 10 responsive documents on its website on February 12, 2016. Respondents have taken the positive step of beginning to respond in writing to EPA Flint Task Force requests and recommendations; however, EPA still has concerns that Respondents have not fully responded.
 - i. During the February 10, 2016 meeting, EPA and Respondents discussed that many EPA Flint Task Force requests and recommendations may already have been partially addressed. After the February 10, 2016 meeting, EPA shared a summary spreadsheet with Respondents that identifies the individual requests and recommendations from the EPA Flint Task Force in one document.
 - ii. As discussed during the February 10, 2016 meeting, EPA requested that Respondents provide information pertaining to each EPA Flint Task Force request and recommendation on the MDEQ website.
 - iii. To date, the EPA has not yet received a response from the Respondents to the provided spreadsheet or the individual requests and recommendations from the EPA Flint Task Force.
 - b. Some of the EPA Flint Task force requests and recommendations that remain unaddressed include:
 - i. Respondents have not yet identified 150 Tier 1 sites for LCR monitoring.
 - ii. Respondents have not yet begun the short-term (current) lead release optimization evaluation (utilizing pipe loop testing system). Respondents must immediately coordinate with EPA’s Office of Research and Development (ORD) to complete this task.
 - iii. Respondents have not provided the distribution system model discussed in the February 10, 2016 meeting that is under the control of the Respondents’ consulting engineers.

- iv. Respondents have not provided the design document(s) for the currently planned Karegnondi Water Authority (KWA) source water treatment facility as discussed in the February 10, 2016 meeting.
 - v. EPA remains concerned that the Respondents have not yet fully addressed the Task Force recommendation to develop and implement lead service line detection methodology.
 - vi. EPA remains concerned that the City of Flint has not optimized where it is monitoring water quality parameters to ensure adequate treatment options. The City of Flint is currently treating water (adding chlorine and orthophosphate) and needs to ensure that water quality parameters are adequately monitored in representative locations throughout the distributions system.
2. *Respondents have not provided all lead in water testing results for the City since January 2013 (Paragraph 53(b)).*
- a. During the February 10, 2016 meeting, Respondents provided an explanation for data gaps. MDEQ has since added a document to the website explaining the gaps in data. This responds to EPA's concerns.
3. *The existing inventory of homes with lead service lines submission is not adequate (Paragraph 54(a)).*
- a. Per the Order, this inventory was due on January 31, 2016. Following the February 10, 2016 meeting, Respondents provided the current inventory of homes with lead service lines to EPA electronically on February 12, 2016 (this information is considered personally identifiable information (PII) and thus not posted on the web). The current inventory indicates that 10,618 service lines are of an unknown type. MDEQ has indicated that it is currently developing a strategy to inventory and field verify these 10,618 residences over the next 30 to 45 days using a grid based system of the City and small teams of individuals to collect and populate this information. Respondents agreed that they would continue to update the electronic database as the number of residence with "known" service line types are identified.
4. *Respondents have not adequately demonstrated (e.g., using daily sampling information) that they are maintaining chlorine residual in the distribution system (Paragraph 57) or continuing to add corrosion inhibitors at levels sufficient to re-optimize corrosion control in the distribution system (Paragraph 58).*
- a. Paragraphs 57 and 58 are ongoing requirements. The Order requires Respondents to report on their compliance in required Weekly Reports (starting on January 28, 2016). Prior to our discussion last week, Respondents had been providing summary information in Monthly reports. In Respondents' first submittal on January 31, 2016, the information was only current through December 2015. Then, in Respondents' Weekly Report submitted on February 7, 2016 (due on February 4, 2016), Respondents updated monitoring data in a Monthly report through January 2016. EPA has requested that Respondents provide this

information weekly (not wait until the next Monthly report is prepared).

Respondents must submit Weekly Reports on each Thursday going forward.

- b. In addition, during the meeting on February 10, 2016, EPA raised concerns regarding the sufficiency of the sampling sites for assessing chlorine residual in the distribution system. EPA's ORD has been working with the City of Flint to assess representative sample site locations that will ensure that chlorine residual will be found throughout the distribution system. Respondents should continue this effort started by EPA's ORD.
5. *Respondents have not provided plans and schedules to ensure the treatment plant is consistently and reliably meeting plant performance criteria (Paragraph 59(a)).*
 - a. At the February 10, 2016 meeting, the City of Flint indicated that it thought its February 4, 2016 one-page response to Paragraph 59(a) addressed the Order requirement. Respondents further questioned this requirement because they indicated the City is not actively running a treatment plant and treating water. EPA disagreed that the original documents available on the MDEQ website were responsive. EPA also disagrees with the assessment that the City is not actively running a treatment plant and treating water, as the City is adding orthophosphate and chlorine to the system to enhance treatment.
 - b. Respondents have argued that such plans responding to Paragraphs 59(a) will only be due when the City switches to the KWA source water. EPA again indicated that it disagrees with this position, as Respondents must ensure the treatment plant is consistently and reliably meeting all treatment requirements before the distribution of KWA source water to the Flint distribution system is allowed.
 - c. During the February 10, 2016 meeting, EPA discussed with Respondents that the interactions between Respondents and the EPA Flint Task Force must be consolidated to a single location. The proper place for the location of the response is on the Respondents' website.
 6. *Respondents have not submitted a plan for daily monitoring of water quality parameters in the distribution system (Paragraph 59(b)).*
 - a. MDEQ has posted on its website the weekly monitoring parameters and location of sampling sites for the City of Flint. However, Respondents have not submitted a plan for how sampling is conducted, how results are quality assured and quality controlled, nor how results are evaluated.
 - b. During the February 10, 2016 meeting, EPA discussed with Respondents that the interactions between Respondents and the EPA Flint Task Force must be consolidated to a single location. The proper place for the location of the response is on the Respondents' website.
 7. *Respondents have submitted an inadequate operations plan for the corrosion control equipment and daily monitoring of finished water corrosion control parameters (Paragraph 59(c)).*
 - a. Per the Order, the Corrosion Control plan was due by February 4, 2016. On February 4, 2016, Respondents posted a one-page "Corrosion Control Equipment

Plan”; however, as discussed during the meeting on February 10, 2016, this one page document was not adequate. Within the last week, Respondents have supplemented the information; however, EPA still finds the information provided to date as insufficient. The supplied information and the information listed below are data components of a plan, but do not necessarily constitute a complete plan. Information that should be contained in a comprehensive corrosion control plan includes, but is not limited to:

- i. Evaluating the effectiveness of treatment (in this case, orthophosphate addition);
 - ii. Collecting data from a pipe rig/loop test;
 - iii. Plan for extraction of lead service lines to run pipe rig/loop test;
 - iv. Analyzing water quality parameters in the system, such as, lead, copper, pH, alkalinity, calcium, conductivity, water temperature, chlorine, and orthophosphate;
 - v. Identifying constraints, such as, distribution system dead zones, consumer knowledge (including community outreach, public education, and consumer encouragement to flush lines daily, perhaps a “Heal the Pipes Campaign”), etc.;
 - vi. Continued updating of known inventory of homes with lead service lines;
 - vii. Incorporation of all water testing results to inform adequacy of plan;
 - viii. Addresses of unoccupied homes;
 - ix. Identification of funding to incorporate plan;
 - x. Incorporation of Sentinel site selections;
 - xi. Long term operations and maintenance of corrosion control equipment and chlorine addition equipment;
 - xii. Long term evaluation of corrosion control;
 - xiii. Plans and/or schedules for lead service line removal and replacement;
 - xiv. Adequate numbers of staff to operate system; and
 - xv. Staff training.
8. *Respondents submitted a list of staff, but have not adequately demonstrated the City has the necessary, capable and qualified personnel required to perform the duties and obligations required to ensure the public water system complies with the SDWA and the National Primary Drinking Water Regulations (Paragraph 61).*
- a. On February 4, 2016, Respondents submitted an inadequate response. On February 12, 2016, Respondents provided supplemental information that more clearly identifies the gaps in City staffing. According to the City’s organizational chart and staffing plan, there are 26 positions identified for the Water Treatment Plant and 37 positions identified for the Water Service Center (collectively the treatment plant and distribution system), for a total of 63 identified positions the City expects it needs to effectively operate and maintain a water treatment plant and distribution system.
 - b. The City currently employs 17 people to operate the Water Treatment Plant and 27 people to operate the Water Service Center, for a total of 44 employees.
 - c. The City should immediately take steps to fill identified vacant City Water positions.

- d. In addition to the information already provided for current source water treatment and distribution, the City should provide a list of additional duties and staff that will be necessary to treat and distribute new source water (i.e. KWA source water) while ensuring compliance with Safe Drinking Water Act and National Primary Drinking Water Regulations.
- e. The City should provide a notification to EPA of all personnel changes that will impact the City's ability to comply with the Order.
- f. The City has not provided information in regards to how it utilizes consultants to fill some essential City tasks, such as Design Engineer or City Engineer, as agreed to at the February 10th meeting.

9. *Respondents have not yet provided a list of the "Independent Advisory Panel" membership (Paragraph 63).*

- a. Prior to February 12, 2016, MDEQ had not provided the list of members of the Independent Advisory Panel (IAP) to its website. That list was added to the website on February 12, 2016. However, EPA remains concerned that members of the IAP appear to be primarily public officials and health professionals. While both of those functions are important in advising the City on its future operation of the public water system, EPA finds the lack of technical operations experts, water treatment experts, and construction experts on the panel troubling.
- b. EPA is concerned that identified members of the IAP may no longer be in the role indicated on the IAP member list.

10. *Respondents must identify the 25 sites within the distribution system for which water quality parameter measurements are taken (Paragraph 53(a)).*

- a. This requirement was due on February 4, 2016. Respondents at that time provided information on only 10 sampling sites. As of February 12, 2016, Respondents have added the requested list of 25 sites within the distribution system to its website.

11. *Respondents must confirm they have identified all of the areas in the City of Flint with elevated blood lead levels (Paragraph 53(c)).*

- a. This requirement was due on February 4, 2016. Respondents provided information on the February 4, 2016; however, EPA had questions about the data provided. As of February 12, 2016, Respondents have added an explanation of the zip codes to its website that responds to these concerns.

EXHIBIT 71



City of Flint Water System Update September 2015



PA 00428

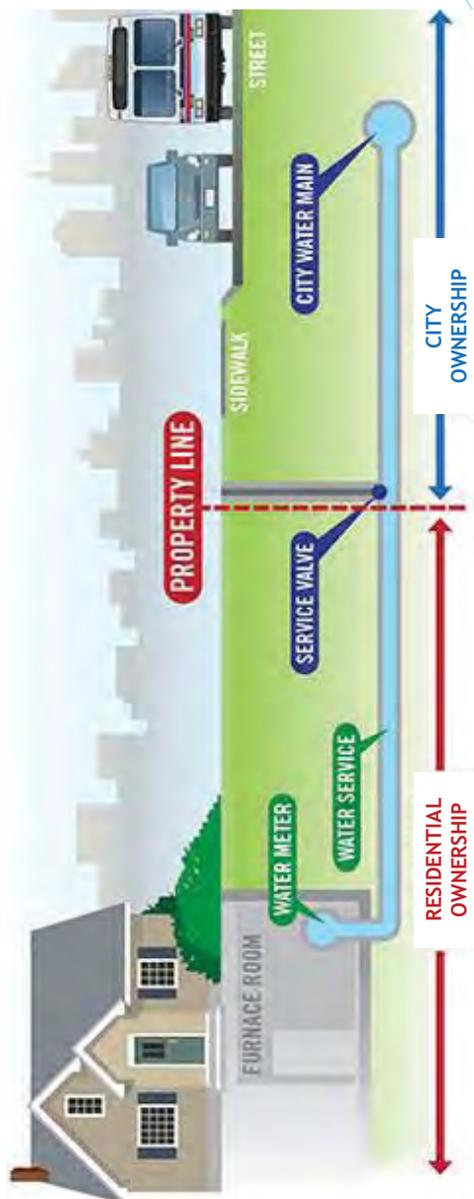
Overview

- Recent Concerns/Typical Household Service-lines
- Water System Roles and Responsibilities
- Other City Actions
- Lead and Copper Solutions
- Infrastructure Planning Documents
- Revenue Streams
- Utility Planning Documents



PA 00429

Typical Household Service Lines



PA 00430

Water System Roles & Responsibilities

Environmental Protection Agency (EPA) –

Agency of the U.S. Government who's mission is to protect human health and the environment.

Department Environmental Quality (DEQ) –

Agency of the state of Michigan charged with promoting wise management of the state's air, land and water resources to support a sustainable environment.

Lockwood, Andrews, & Newnam (LAN) –

Firm procured by the City of Flint to provide professional engineering services in the design and development of the Flint water plant.

City of Flint Utilities Division -

Owner and day to day operator of the Flint water system.

- State Licensed F-1 Operator – Oversees Water Plant Operations
- State Licensed S-1 Operator – Oversees Distribution System

Other City Actions

- Consulted with Various Industry Experts
- Developed a Written and Prioritized Infrastructure Plan
- Developed a Successful Implementation Plan for TTHM
- Developed a Draft Corrosion Optimization Plan Ready to present to the DEQ
- Developed Advisory Committees which Include EPA and DEQ Representatives
- We Expect the Committees to Remain Intact through the Transition to KWA



PA 00432

Lead & Copper Solutions

Short Term:

Flushing – If there is a concern, flush your pipes before drinking, and only use cold water for cooking and drinking.

Public Education - The City has produced an FAQ sheet that details EPA recommended measures to help reduce the risk of lead exposure and will maintain increased educational efforts.

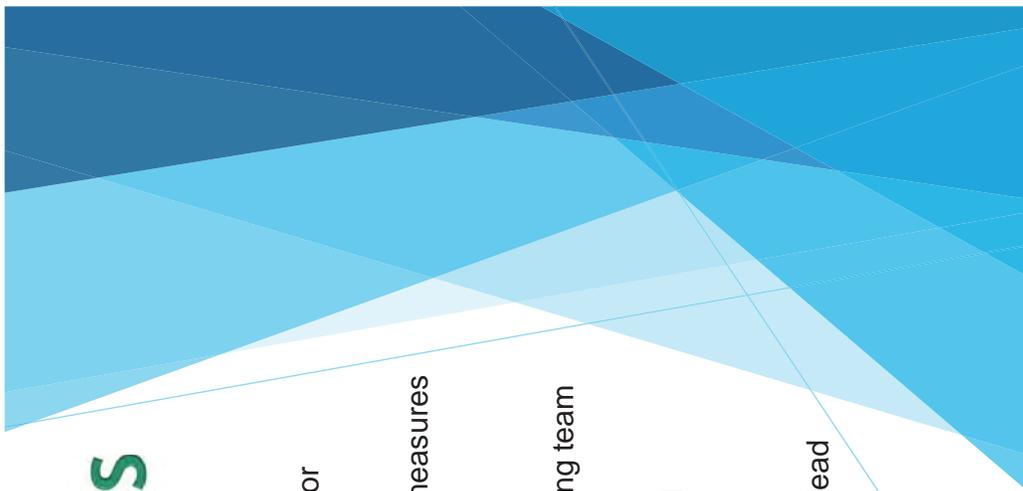
Mid Term:

Corrosion Optimization – A corrosion optimization plan has been drafted by the engineering team and will be submitted to the DEQ for approval.

Testing – The City continues to encourage water testing to all residents. This will help build confidence and will provide more data to be reviewed.

Long Term:

Change lead service lines – The City is actively reviewing options that would allow for all lead service lines to be changed over time.



Infrastructure Planning Documents

50 Year Master Plan - Section 8

10 Year Rate Study - Raftelis

5 Year Capital Improvement Plan Section 6 - Pages 47 - 68

2 Year Budget - Submitted to Treasury

2013 Water Reliability Study - ROWE / Potter Engineering

FY 2016 DPW/Utility Objectives and Tasks



PA 00434

Revenue Streams

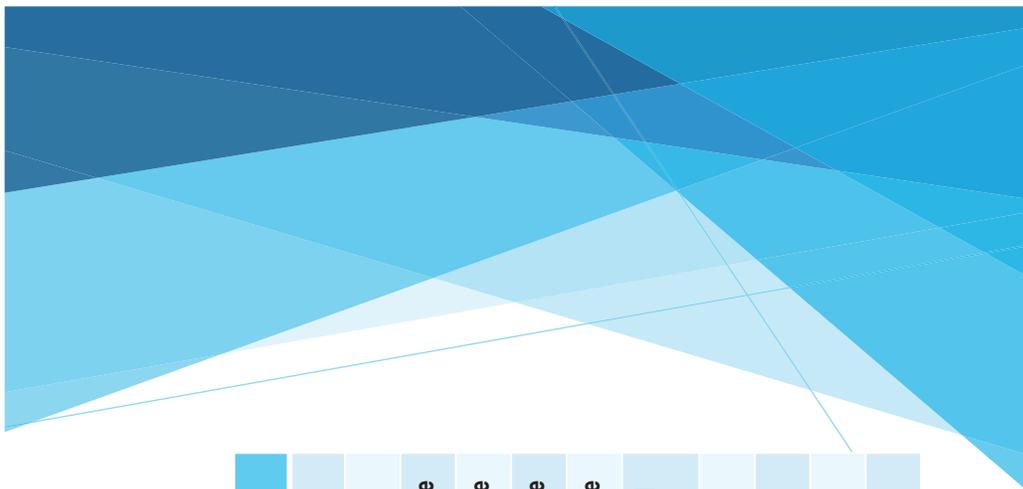
- ❑ Maintenance Budget
- ❑ Capital Improvement Plan
- ❑ DEQ Funding Opportunities
- ❖ **DWRF** – (Drinking water Revolving Loan) *Specific to Water Projects*
- ❖ **SRF** – (Sewer Revolving Loan) *Specific to Sewer Projects*
- ❖ **SAW** – (Stormwater, Asset Management, and Wastewater Grant)
- ❖ **SWQUIF** – (Strategic Water Quality Initiatives)
- ❖ **S2** – (Grant for engineering towards SAW/SWQIF)



PA 00435

Utility Project Status

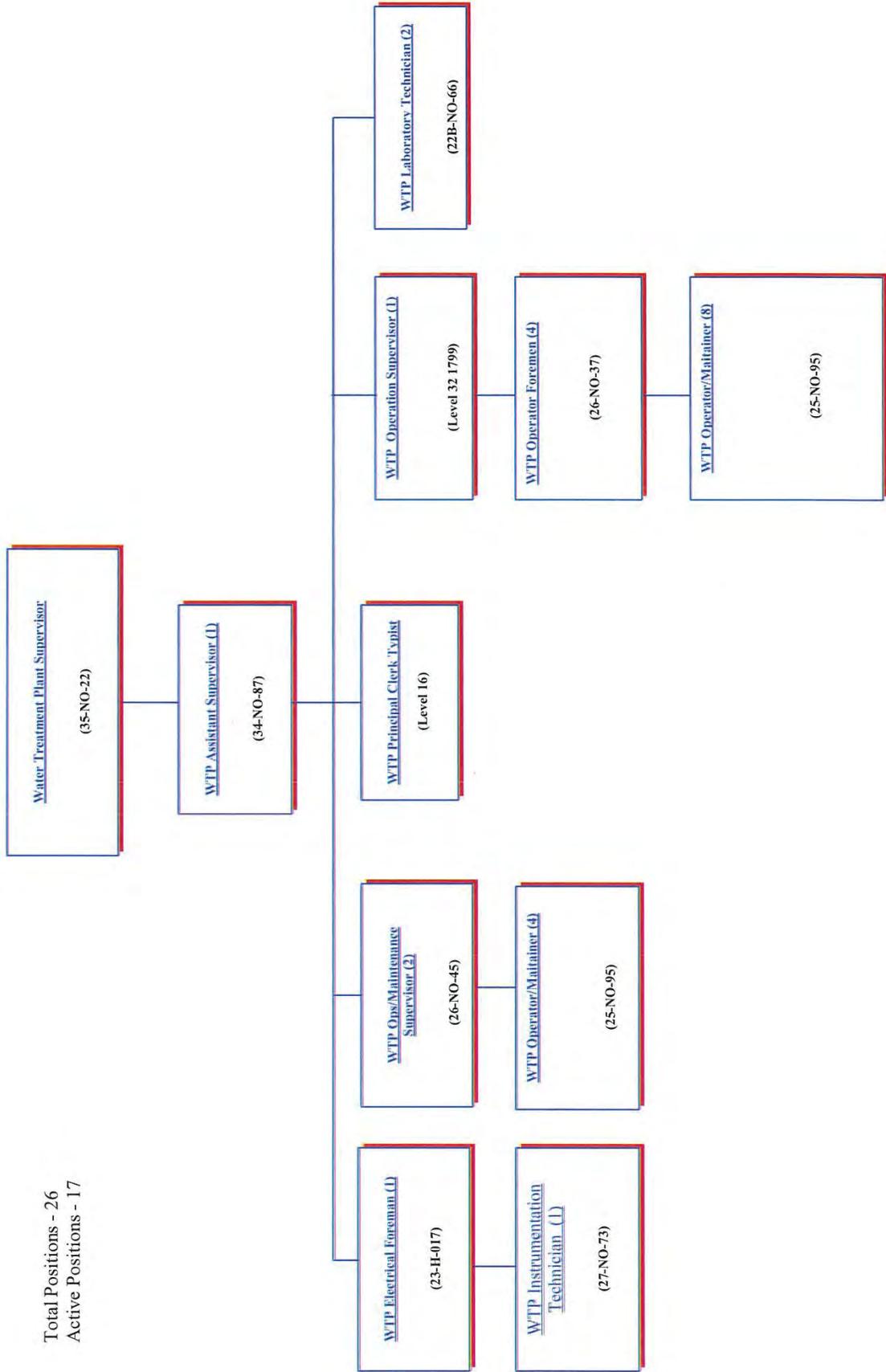
PROJECT	COST	STATUS
Installation on Granulated Activated Carbon	\$1,600,000	Completed
Valve cycling over 5000 valves (over 2/3 of system) to help water flow	\$400,000	Completed
Installation of over 9000 irregular reading meters for more accuracy	\$2,500,000	1/3 Complete
Leak detection on 600 miles of distribution main to identify water loss	\$900,000	1/2 Complete
Construction of load-out facility to eliminate the use of the incinerator	\$1,100,000	2/3 Complete
SCADA system upgrades	\$848,000	1/2 Complete
Hydraulic model of distribution system	\$45,000	Being filled with data
100's of main break repairs		Ongoing
Dozens of valve replacements		Ongoing
7- Mile pipe replacement		Delayed
Total	\$7,393,000	



PA 00436

EXHIBIT 72

WATER TREATMENT PLANT Personnel Organization Chart



Total Positions - 26
Active Positions - 17

CITY OF FLINT
Position Description

Class Title:	Water Plant Operator Trainee	Job Code Number:	12-N-001
Established:	October 22, 1974	Bargaining Unit:	Local 1600

GENERAL STATEMENT OF DUTIES: Under an on-the-job training program with close supervision, maintains, operates and repairs water pumping, softening, disinfecting and other treatment equipment; performs related work as required. (After six (6) months experience as a Water Plant Operator Trainee, the employee will be eligible for examination for promotion to Water Plant Operator/Maintainer).

SUPERVISION RECEIVED: Works under the direct supervision of the Water Plant Maintenance Supervisor or Water Plant Operations Foreman or another employee of higher grade who assigns work, provides assistance when needed and reviews work for satisfactory completion.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Inspects, cleans adjust and repairs water plant equipment such as filter beds, valves, controllers, recording gauges, coagulators, chlorinators, chemical feeders, softening equipment, sump and sludge pumps, compressors, pumps and motors.
2. Maintains, operates, and repairs settling basins, clear wells, hydraulic valves, and pumping equipment; operates and maintains dams.
3. Performs routine inspections of water treatment equipment and facilities; performs record keeping functions with regard to such inspections.
4. Backwash and cleans filters, checks filter valves, records loss of head, rate of flow; installs, and repairs water lines.
5. Takes water samples and makes simple chemical test such as hourly chlorine residuals of tap settled and effluent water; makes turbidity and coagulation tests.
6. Assists in maintaining and repairing plant buildings and appurtenances.
7. Loads and unloads material and supplies.

MINIMUM ENTRANCE REQUIREMENTS:

- A. Education equivalent to completion of high school.
- B. Working knowledge of the methods, practices, tools, and materials used in the mechanical trades.
- C. Ability to perform mathematical calculations involving algebra and geometry.
- D. Ability to perform semi-skilled maintenance task as directed.
- E. Ability to use common hand tools with a reasonable degree of skill.
- F. Ability to meet the physical, mental and visual standards of the job.
- G. Ability and willingness to work in a manner that will not needlessly endanger the safety to one's self, other persons, or equipment.

NECESSARY SPECIAL REQUIREMENT:

- Possession of a valid State of Michigan Driver's License at the time of application.

PHYSICAL DEMANDS:

The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, traffic, toxic or caustic chemicals, risk of electrical shock, and vibration. The employee is occasionally required to stand; walk; use hands to finger, handle, feel or operate objects, tools, or controls; and reach with hands and arms. The employee is occasionally required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. The employee must occasionally lift and/or move up to 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus. Hand-eye coordination is necessary to operate computers and various pieces of office equipment.

Classification History:

Established CSC Mtg: 10-22-74
Revised: Personnel 06-27-78, 02-27-80, 04-15-85, 12-07-89
Revised & re-titled: Personnel 02-07-97 (formerly Water Trainee)
Revised: Human Resources 08/06/08
Revised: Human Resources 07/13/15

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title: Water Plant Operator/Maintainer	Job Code Number: 19-N-095
Established: August 6, 2008	Bargaining Unit: Local 1600

GENERAL STATEMENT OF DUTIES: Repairs and maintains Water Plant property and equipment including buildings and grounds, water treatment equipment, pumping stations and reservoirs, water supply facilities and related facilities and equipment, dams and freshwater reservoirs; performs related work as required. (After twelve (12) months experience in the position of Water Plant Operator/Maintainer and possession of an MDEQ F4 license, the employee will be promoted to the position of Water Plant Senior Operator/Maintainer.)

SUPERVISION RECEIVED: Works under the direct supervision of the Water Plant Maintenance Supervisor or Water Plant Operations Foreman or another employee of higher grade who assigns work, provides assistance when needed and reviews work for satisfactory completion.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Repairs and maintains water pumping and distribution equipment including, but not limited to, metering and control, power generation, switch-gear, pumps, and related equipment.
2. Repairs and maintains water treatment equipment including chlorinators, chemical handling and feed equipment, filtration system components, clear-wells, piping systems and control structures.
3. Maintains and operates dams, reservoirs, and associated land areas.
4. Performs routine building maintenance tasks including some custodial work, maintains grounds including mowing of lawn and maintenance of lawn and garden equipment and related work.
5. Chlorinate and test new water mains.
6. Assists in inspection and maintenance of elevated water storage tanks.
7. Repairs and maintains steam boiler, related heating system components and other HVAC equipment.
8. Performs arc and gas welding and cuts steel.
9. Inspects, operates and adjust filters, coagulators, chlorinators and other disinfection system components, chemical feeders and clarification equipment and treatment plant process control equipment; performs record keeping functions with regards to such equipment.
10. Backwashes, operates, and cleans filtration and lime and slaker components; performs record keeping functions and changes charts on various instrumentation system components.
11. Collects sample and perform chemical and bacteriological analysis such as chlorine residual, coliform, P/A tests, and turbidity analysis within the plant and distribution system.
12. Monitors SCADA System periodically when needed.
13. Inspects, adjusts, collects samples, and performs routine maintenance on steam and hot water boilers.
14. Changes Chlorine containers, checks for leaks, and makes repair to equipment.

MINIMUM ENTRANCE REQUIREMENTS:

- A. Six (6) months experience as a Water Plant Operator Trainee.
- B. Experience in mechanical maintenance and repair including basic trouble- shooting in such aspects as industrial equipment or HVAC equipment.
- C. Knowledge of the construction, design, and function(s) of water filtration, water pumping and chemical feeding equipment.
- D. Working knowledge of the methods, practices, tools, and materials used in water treatment and pumping plant maintenance and repair work.
- E. Familiarity with the construction, design and function(s) of water filtration, water pumping and chemical feeding equipment.
- F. Ability to perform complex mathematical calculations involving algebra and geometry.
- G. Ability to understand and work from sketches, drawings, O&M manuals and blueprints.
- H. Ability to keep routine records and prepare written reports.
- I. Reasonable skill in analyzing trouble and making appropriate adjustments and repairs to operating equipment.

- J. Ability to meet the physical, mental and visual standards of the job.
- K. Ability and willingness to work in a manner that will not needlessly endanger the safety to one's self, other persons, or equipment.
- L. Completion of approved coursework in or demonstrated ability to perform arc and gas welding or small engine repair or pump and motor troubleshooting and repair.
- M. Ability to perform routine chemical analysis.
- N. Skilled in the use of tools necessary to perform overhaul and repair functions on a variety of equipment.
- O. Ability to read and interpret measuring and testing devices connected with plant operation.
- P. Ability to understand and execute specific oral and written instructions.
- Q. Ability to detect audible changes in the operation of Water Plant equipment and to respond to audible alarms.
- R. Ability to effectively communicate with coworkers and customers in person, over the telephone and through the use of other communication methods.

NECESSARY SPECIAL REQUIREMENT:

- Possession of a valid State of Michigan Driver's License

PHYSICAL DEMANDS:

The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, traffic, toxic or caustic chemicals, risk of electrical shock, and vibration. The employee is occasionally required to stand; walk; use hands to finger, handle, feel or operate objects, tools, or controls; and reach with hands and arms. The employee is occasionally required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. The employee must occasionally lift and/or move up to 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus. Hand-eye coordination is necessary to operate computers and various pieces of office equipment.

Classification History:

Established: Human Resources 08/06/08
(replaces Water Plant Operator)

Revised Due to 2014 Reorg: Human Resources 02/08/16

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title:	Senior Operator/Maintainer	Job Code Number:	25-N-095
Established:	August 6, 2008	Bargaining Unit:	Local 1600

GENERAL STATEMENT OF DUTIES: Operates, repairs and maintains Water Plant property and equipment including buildings and grounds, water treatment equipment, pumping stations and reservoirs, water supply facilities and related facilities and equipment, dams and freshwater reservoirs; performs related work as required.

SUPERVISION RECEIVED: Works under the direct supervision of the Water Plant Maintenance Supervisor or Water Plant Operations Foreman or another employee of higher grade who assigns work, provides assistance when needed and reviews work for satisfactory completion.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Operates, repairs and maintains water pumping and distribution equipment including, but not limited to, metering and control, power generation, switch-gear, pumps, and related equipment.
2. Operates, repairs and maintains water treatment equipment including chlorinators, chemical handling and feed equipment, filtration system components, clear-wells, piping systems and control structures.
3. Operates, maintains and operates dams, reservoirs, and associated land areas.
4. Performs routine building maintenance tasks including some custodial work, maintains grounds including mowing of lawn and maintenance of lawn and garden equipment and related work.
5. Chlorinate and test new water mains.
6. Assists in inspection and maintenance of elevated water storage tanks.
7. Operates, repairs and maintains steam boiler, related heating system components and other HVAC equipment.
8. Performs arc and gas welding and cuts steel.
9. Inspects, operates and adjust filters, coagulators, chlorinators and other disinfection system components, chemical feeders and clarification equipment and treatment plant process control equipment; performs record keeping functions with regards to such equipment.
10. Backwashes, operates, and cleans filtration and lime and slaker components; performs record keeping functions and changes charts on various instrumentation system components.
11. Collects sample and perform chemical and bacteriological analysis such as chlorine residual, coliform, P/A tests, and turbidity analysis within the plant and distribution system.
12. Monitors SCADA System periodically when needed.
13. Inspects, adjusts, collects samples, and performs routine maintenance on steam and hot water boilers.
14. Changes Chlorine containers, checks for leaks, and makes repair to equipment.

MINIMUM ENTRANCE REQUIREMENTS:

- A. One (1) year experience as a Water Plant Operator/Maintainer.
- B. Experience in mechanical maintenance and repair including basic trouble- shooting in such aspects as industrial equipment or HVAC equipment.
- C. Knowledge of the construction, design, and function(s) of water filtration, water pumping and chemical feeding equipment.
- D. Working knowledge of the methods, practices, tools, and materials used in water treatment and pumping plant maintenance and repair work.
- E. Familiarity with the construction, design and function(s) of water filtration, water pumping and chemical feeding equipment.
- F. Ability to perform complex mathematical calculations involving algebra and geometry.
- G. Ability to understand and work from sketches, drawings, O&M manuals and blueprints.
- H. Ability to keep routine records and prepare written reports.
- I. Reasonable skill in analyzing trouble and making appropriate adjustments and repairs to operating equipment.
- J. Ability to meet the physical, mental and visual standards of the job.

- K. Ability and willingness to work in a manner that will not needlessly endanger the safety to one's self, other persons, or equipment.
- L. Completion of approved coursework in or demonstrated ability to perform arc and gas welding or small engine repair or pump and motor troubleshooting and repair.
- M. Ability to perform routine chemical analysis.
- N. Skilled in the use of tools necessary to perform overhaul and repair functions on a variety of equipment.
- O. Ability to read and interpret measuring and testing devices connected with plant operation.
- P. Ability to understand and execute specific oral and written instructions.
- Q. Ability to detect audible changes in the operation of Water Plant equipment and to respond to audible alarms.
- R. Ability to effectively communicate with coworkers and customers in person, over the telephone and through the use of other communication methods.

NECESSARY SPECIAL REQUIREMENT:

- Possession of a valid State of Michigan Driver's License and maintain operational status. ~~MDEQ-F4 license at time of application~~
- Ability to obtain fit test certification with respirator on an annual basis and maintain certification (facial hair and other articles must be maintained in a manner as to not interfere with the seal).
- Ability to obtain and maintain a confined space entry attendant and entrant certification.
- Ability to obtain and maintain the following hazardous waste operations and emergency certifications: First Responder Awareness, First Responder Operations.

PHYSICAL DEMANDS:

The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, traffic, toxic or caustic chemicals, risk of electrical shock, and vibration. The employee is occasionally required to stand; walk; use hands to finger, handle, feel or operate objects, tools, or controls; and reach with hands and arms. The employee is occasionally required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. The employee must occasionally lift and/or move up to 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus. Hand-eye coordination is necessary to operate computers and various pieces of office equipment.

Classification History:

Established: Human Resources 08/06/08
(replaces Water Plant Operator)

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title:	Water Plant Operations Foreman	Job Code Number:	26-N-037
Established:	October 3, 1985	Bargaining Unit:	Local 1799

GENERAL STATEMENT OF DUTIES: Plans, supervises and participates in the operation of a 36 MGD lime softening water treatment facility, the operation and regulation of the water flow to the City of Flint and within the City's and County's distribution system through the utilization of a Supervisory Control and Data Acquisition (SCADA) system, lime softening, residual management, chemical feed, and other water treatment processes. Supervises and participates in the operation and maintenance of the Water Plant facilities including: high and low service pumping, electric motors, engines, auxiliary equipment pump stations and reservoirs. Supervises and maintains water system and facilities security (such as facility lockup, employee supervision, etc.) after normal working hours, on holidays and on weekends. Performs related work as required.

SUPERVISION RECEIVED: Works under the general supervision of a higher grade who reviews work and performance for effectiveness.

SUPERVISION EXERCISED: Exercises supervision over operating personnel and trainees and maintenance employees.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Supervises and participates in the operation of reciprocating pumps, centrifugal pumps, diesel generators, diesel engines, electric motors and other plant equipment and remote pump station equipment. Consults with laboratory staff for proper chemical feed rates.
2. Evaluates water consumption and controls pressures and flows. Supervises and participates in the regulation of the City's water distribution system flows and pressures including elevated storage, ground storage pump stations and control stations.
3. Supervises and/or individually performs operations necessary to start, change or shut down pump station equipment, and to open or close or position manual, semi-automatic or automatic valves as demands for water loads increase or decrease.
4. Supervises and participates in the operation of the Flint River and tributaries, dams, and regulations of flows during normal flow conditions; makes dam gate changes and directs implementation of all changes. Notifies supervisor when flooding conditions arise.
5. Evaluates the performance of subordinates; maintains and reviews time cards for employees under his direct supervision; schedules and assigns work schedules for employees under his direct supervision.
6. Reviews, prepares and maintains records; makes periodic inspections of equipment and reads and records all metering devices on both written and electronic reports.
7. Supervises operations and laboratory analysis. Advises and makes recommendations concerning the operation of the plant, pump stations, potable water reservoirs, pipeline control stations and river dams and reservoir levels.
8. Provides job training to employees in all phases of the water treatment and supply operations. Recommends training assignments and evaluates the performance of trainees.
9. Supervises the operation of a 36 MGD lime softening plant, including responsible supervision over operations, laboratory, as required maintenance and clerical staff. Responsible for meeting all Federal and State drinking water quality standards.
10. Supervises and operates chemical feed systems for the efficient treatment of surface water. Responsible for individual and staff compliance with all applicable safety rules and regulations for the proper handling of various classes of chemicals.
11. Supervises and operates a Supervisory Control and Data Acquisition system utilized in the management of a drinking water production and supply system.

MINIMUM ENTRANCE REQUIREMENTS:

- A. Two (2) years experience as a Water Plant Operator/Maintainer and possession of an MDEQ F-4 Waterworks System Operator Certification OR Two (2) years operational experience in a lime softening Municipal water treatment plant and possession of an MDEQ F-4 Waterworks System Operator Certification.
- B. Working knowledge of electric powered machinery, reciprocating and centrifugal pumps, electronic monitoring and control systems and auxiliary equipment and their operation.

MINIMUM ENTRANCE REQUIREMENTS (cont.):

- C. Working knowledge and ability to operate a PC workstation, including word processing, spreadsheet, e-mail and database applications.
- D. Considerable knowledge of pump and pump practices.
- E. Ability to make minor mechanical repairs.
- F. Ability to read and interpret measuring devices connected with plant operation and to keep log records in both written and electronic formats of such readings.
- G. Skill in determining working condition of equipment, in detecting flaws or defects in operation, and in recognizing and taking proper precautions.
- H. Ability to establish and maintain harmonious working relationships with plant personnel, supervision and the public.
- I. Written and verbal communication skills requisite to maintain information exchange among plant staff, vendors, contractors, other City staff and the public.
- J. Ability to work from blueprints, diagrams, and repair manuals.
- K. Knowledge of the occupational hazards connected with Water Plant operations and of standard safety procedures.

NECESSARY SPECIAL REQUIREMENT(S):

- Possession of a valid State of Michigan driver's license at the time of application.
- Possession of a valid State of Michigan Department of Environmental Quality Waterworks System Operator F-4 Certification at the time of application and the ability to obtain a valid MDEQ Waterworks System Operator F-3 Certification after within 1 year of appointment.
- If in the event an employee does not obtain a valid State of Michigan Plant Operator's License within 1 year, the employee will return to their prior classification.
- Completion of the California State Sacramento series in operation of water treatment plants (Vol. 1 and Vol. 2)
- Ability and willingness to work various work schedules, shifts, and days.
- Ability to obtain a fit test certification with respirator on an annual basis and maintain certification (facial hair and other articles must be maintained in a manner as to not interfere with the seal).
- Ability to obtain and maintain a confined space entry attendant, entrant, and rescue team certification.
- Ability to obtain and maintain the following: hazardous material operations and emergency response certifications; first responder awareness, first responder operations, hazardous materials technician, hazardous materials specialist and assist or become the on-scene incident commander.

PHYSICAL DEMANDS:

While performing the duties of this job, the employee is frequently required to stand; sit; walk; talk or hear; use hands to handle or operate objects, tools or controls; and reach with hands and arms. The employee is frequently required to climb or balance; stoop, kneel, crouch or crawl; taste or smell. The employee regularly works in outside weather conditions. The employee occasionally works near moving mechanical parts and in high, precarious places and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, toxic or caustic chemicals, risk of electric shock and vibration.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move more than 100 pounds. The employee is required to occasionally wear a respirator and self-contained breathing apparatus. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception and the ability to adjust focus. The noise level in the work environment is usually moderate, except during the operation of heavy maintenance of water plant equipment when noise levels may be loud.

Classification History

Established: 10/03/85
 Revised: 11/22/93
 Revised: Human Resources 09/18/03
 Reallocated: Human Resources 07/01/08
 Revised: Human Resources 07/17/08
 Revised & Reallocated: 05/21/15

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title: Water Plant Laboratory Technician	Job Code Number: 25-N-066
Established: January 22, 1987	Bargaining Unit: Local 1600

GENERAL STATEMENT OF DUTIES:

Assists in the performance of routine physical, chemical and bacteriological analysis, collects samples, acquires data from various sources, enters data into computer programs and performs related work as required. May perform operations and maintenance duties as needed.

SUPERVISION RECEIVED:

Works under the direct supervision of an employee of higher level who trains, instructs, assigns, evaluates and reviews work performance for conformance to standard procedures, laboratory protocols and work rules.

SUPERVISION EXERCISED:

May exercise technical leadership over lower level employees.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Performs physical analysis such as pH, color, turbidity, temperature, total and suspended solids, jar tests and all related quality control and quality assurance procedures.
2. Performs chemical analysis such as total hardness, alkalinity, fluoride, chloride, chlorine, phosphorus, nitrogen and ammonia and related tests as directed.
3. Assists in the calibration and maintenance of laboratory equipment and facilities.
4. Performs microbiological analysis such as total coliform, fecal coliform, heterotrophic plate count, plankton identification and enumeration, and the preparation of all media related to microbiological testing.
5. Collects samples from a variety of water treatment plant, collection and distribution system locations in an investigative and compliant manner using proper protocol, techniques and apparatus.
6. Answers customer questions regarding water quality and conducts investigations as directed.
7. Utilizes computers and various application programs such as database, word processing, spreadsheets, drafting and drawing programs, and the Internet.
8. Assists in the preparation of routine and special reports.
9. Conducts analysis for all regulatory drinking water requirements.

MINIMUM ENTRANCE REQUIREMENTS:

- A. An Associate of Science degree or two (2) years of college education with at least twenty (20) cumulative semester hours of study in mathematics and science including chemistry and biology or one (1) year of full-time paid work experience performing quantitative chemical analyses.
- B. Working knowledge of biology, microbiology, chemistry and computers.
- C. Ability to manipulate, assemble and handle laboratory and other heavy equipment.
- D. Ability to prepare and maintain accurate and detailed records and reports using a computer.
- E. Ability to follow oral and written technical instructions.
- F. Ability to perform chemical, physical and biological analyses using standard methods.
- G. Ability to wear a respirator and self-contained breathing apparatus.
- H. Ability to effectively communicate ideas orally in English.

- I. Ability to work effectively with employees, customers and the public.

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NECESSARY SPECIAL REQUIREMENT:

- Must possess and maintain a valid Michigan Driver's License.
- Must obtain a Michigan F-4 Water Plant License within two (2) years of appointment and complete all necessary requirements to maintain certification.
- Ability to work weekends, holidays and shift work as required.

PHYSICAL DEMANDS:

The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, traffic, toxic or caustic chemicals, risk of electrical shock, and vibration. The employee is occasionally required to stand; walk; use hands to finger, handle, feel or operate objects, tools, or controls; and reach with hands and arms. The employee is occasionally required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. The employee must occasionally lift and/or move up to 25 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus. Hand-eye coordination is necessary to operate computers and various pieces of office equipment.

Classification History

Established: 01/22/87

Revised: 05/10/02

Reallocated (Wage Inequity): 11/16/08

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title: Water Plant Maintenance Supervisor	Job Code Number: 26-N-045
Established: February 6, 1984	Bargaining Unit: Local 1799

GENERAL STATEMENT OF DUTIES: Supervises and participates in the installation, maintenance, repair operations, and general operation maintenance of the Water Plant and water distribution pumping stations, reservoirs, dams, and transmission facilities; performs related work as required. May perform operational duties as needed.

SUPERVISION RECEIVED: Works under the supervision of an administrative employee of higher grade who reviews work and performance for effectiveness.

SUPERVISION EXERCISED: Exercises supervision over employees engaged in the installation, operation, maintenance and repair of the City's Water Plant and related facilities and operations as necessary.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Confers with supervisor regarding water facility general work plans and progress; gives recommendations for operation and maintenance programs including manpower, equipment and supplies required.
2. Supervises daily maintenance activities, issues assignments using both written orders and/or oral instructions; assists workers in maintenance activities as required; maintains and monitors employee overtime distribution.
3. Supervises and/or participates in the installation, maintenance and repair of water pumping and distribution equipment including metering and control, power generation and distribution, switchgear, pumps and heating system; and water purification equipment, including chlorinators, chemical handling and filtration equipment, clearwells and control structures.
4. Supervises and/or participates in the maintenance and operation of dams, reservoirs, and associated land areas.
5. Supervises maintenance of building and grounds including structural, custodial and lawn work.
6. Supervises the maintenance of vehicles and equipment; schedules repairs and preventative maintenance.
7. Supervises the chlorination and testing of new water and appurtenances.
8. Plans, organizes, assigns and supervises personnel in the daily performance of various maintenance activities, including pump repair and rebuilding; equipment alignment and equipment lubrication; building and grounds maintenance, painting and custodial duties throughout the plant. Trains subordinates and assures proper corrective and preventative maintenance for all Water Plant mechanical equipment; performs skilled maintenance tasks as required.
9. Monitors and insures that the safety procedures and practices are consistently followed by maintenance personnel in accordance with the requirements of OSHA, MIOSHA and the City's safety programs.
10. Assists in onthejob training of the maintenance staff in their assigned tasks, makes recommendations on training assignments, and evaluates performance. Instructs maintenance personnel in proper use of tools and equipment.
11. Plans, supervises and participates in the painting, plumbing, carpentry, masonry, HVAC equipment and repair activities. Implements safety procedures and directs personnel accordingly.
12. Participates in all plant safety programs such as: respiratory protection program, confined space entry program, process safety, hazardous waste operations, and emergency response, laboratory hygiene, ladder safety, electrical lockout, asbestos awareness, and right to know.
8. Confers with Laboratory staff, operations foreman and operating personnel concerning plant performance and condition of equipment; develops work schedules and reviews logs and daily plant records; makes investigations, reports (and recommendations) to supervisor relative to plant improvement and alterations; requisitions materials and supplies, and purchases equipment, parts and supplies from local suppliers.
9. Assists in the supervision, operation, maintenance and repairs of a water filtration plant.

Water Plant Maintenance Supervisor

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10. Assists in the supervision of the maintenance and repairs of a source of water supply consisting of surface reservoirs, dams, and a 72' concrete water aqueduct.
11. Performs skilled maintenance tasks as required and operates the system facilities for brief periods during emergencies.
12. Maintains records of work performed, operating supplies and equipment records, and equipment records and equipment reference files.
13. Assists in the documentation of time cards.

MINIMUM ENTRANCE REQUIREMENTS:

- A. Four (4) years experience in operating, repairing and maintaining water treatment equipment and facilities; two (2) years must be at a Operator Maintainer or Foreman level. Comparable experience in wastewater treatment or in a large industrial environment may be substituted on a year for year basis.
- B. Considerable knowledge of the methods, practices, tools and materials used in the operation of a water plant facility including the basic elements of designing and maintaining of a water plant power distribution system including wiring fundamentals, selection and application of protective devices, motor controls, instrumentation, and metering.

MINIMUM ENTRANCE REQUIREMENTS: (con't)

- C. Knowledge of safety equipment and methods to be utilized in performing work in a safe manner.
- D. Ability to detect faulty equipment and/or operation and to determine methods of repair.
- E. Ability to operate a personal computer and to work with work processing programs, basic spreadsheets and maintenance management programs.
- F. Ability to work from sketches, prints, electrical diagrams, and oral or written instructions.
- G. Ability to plan, lay out, schedule, assign and check the work performed by maintenance personnel and to deal tactfully and effectively with subordinates.
- H. Ability to develop and maintain records.
- I. Ability to meet the physical, mental, and visual standards of the job.
- J. Ability to obtain fit test certification with respirator on an annual basis and maintain certification (facial hair and other articles must be maintained in a manner as to not interfere with the seal).
- K. Ability to obtain and maintain a confined space entry attendant and entrant certification.
- L. Ability to obtain and maintain the following hazardous waste operations and emergency certifications: First Responder Awareness, First Responder Operations.

NECESSARY SPECIAL REQUIREMENT(S):

- A. Possession of MDEQ Waterworks System Operator Certification F-4, S-4 or ability to obtain within two (2) years of appointment.
- B. Possession of a valid State of Michigan driver's license.

PHYSICAL DEMANDS:

While performing the duties of this job, the employee is frequently required to stand; sit; walk; talk or hear; use hands to finger, handle or operate objects, tools or controls; and reach with hands and arms. The employee is frequently required to climb or balance; stoop, kneel, crouch or crawl; taste or smell. The employee regularly works in outside weather conditions. The employee occasionally works near moving mechanical parts and in high, precarious places and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, toxic or caustic chemicals, risk of electric shock and vibration.

The employee must frequently lift and/or move up to 200 pounds. The employee is required to occasionally wear a respirator and self-contained breathing apparatus. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception and the ability to adjust focus. The noise level in the work environment is usually moderate, except during the operation of heavy maintenance of water plant equipment when noise levels may be loud.

Classification History

Established: Personnel 02/06/84

Revised: Personnel 02/10/98

Revised & Reallocated: Human Resources 02/21/03

Revised: Human Resources 05/05/03

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title:	Water Plant Assistant	Job Code Number:	30-N-021
Supervisor			
Established:	September 30, 1983	Bargaining Unit:	Local 1799

GENERAL STATEMENT OF DUTIES: Assists in the planning, directing, and administering of various programs related to water treatment; assists in the supervision of the Water laboratory and compliance personnel; assists in the direction of process and research projects; performs related work as required.

SUPERVISION RECEIVED: Works under the supervision of an administrative employee who reviews work through conferences and written and oral reports.

SUPERVISION EXERCISED: Exercises supervision over employees engaged in laboratory operations, maintenance, analysis, compliance activities, and process and research projects.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Assists in the planning, directing, and administering of various programs related to water treatment.
2. Assists in the formulation, implementation, and enforcement of policies relating to the laboratory and compliance activities.
3. Assists in supervising laboratory personnel engaged in a variety of physical, chemical, and biological analyses. Assists in supervising and participates in laboratory research projects. Evaluates laboratory analysis findings and recommends treatment process changes as necessary.
4. Assists in planning, directing, monitoring, and evaluating water treatment process and compliance. Consults with federal, state, local and industrial/commercial officials regarding drinking water matters.
5. Assists in the planning, implementation, and evaluation of policies and actions relating to the Program of Effective Residuals Management.
6. Supervises the investigation of complaints received pertaining to drinking water and surface water. Monitors, coordinates, and initiates appropriate actions to resolve problems associated with water treatment.
7. Confers with federal, state, and local officials on performance and conformance matters.
8. Establishes and maintains plan files of blueprints, drawings, diagrams, and procedures and operations and maintenance manuals.
9. Supervises, prepares, or assists in preparing a variety of records and reports, such as conformance and performance reports, calendar and annual reports, work schedules, laboratory and compliance records, and the divisional budget.
10. Requisitions laboratory and compliance services, equipment, and supplies.

MINIMUM ENTRANCE REQUIREMENTS:

- A. A Bachelor's Degree in the physical or biological sciences, including coursework in water-water-wastewater technology, environmental technology, or environmental engineering.
- B. At least three (3) years of full-time paid laboratory experience performing compliance activities or chemical and microbiological tests of drinking, sanitary, and surface waters, or related laboratory experience. One year of such experience must have been in the classification of Laboratory Technician and three (3) years Operations Foreman or Chemist. Considerable knowledge of the chemical, microbiological, and physical science concepts related to the analysis and treatment of water and wastewater.
- C. Working knowledge of the modern principles and practices of water treatment and disposal.
- D. Working knowledge of the federal, state and local drinking water and regulations and ordinances.
- E. Ability to prepare difficult and detailed records and reports.
- F. Ability to deal effectively with industrial representatives, government officials, the general public, fellow employees, and subordinates.
- G. Ability to establish and maintain an effective public relations program.
- H. Ability to meet the physical, mental and visual standards of the job.
- I. Ability and willingness to work in a manner that will not needlessly endanger the safety to one's self, other persons and equipment.

NECESSARY SPECIAL REQUIREMENT(S):

- Possession of a valid State of Michigan driver's license at time of appointment.

PHYSICAL DEMANDS:

While performing the duties of this job, the employee is frequently required to sit and talk or hear. The employee is occasionally required to walk; use hands to finger, handle or feel objects, tools or controls; and reach with hands and arms.

The employee must occasionally lift and/or move up to 25 pounds. Specific vision abilities required by this job include close vision and the ability to adjust focus. The noise level in the work environment is usually quiet.

Classification History:

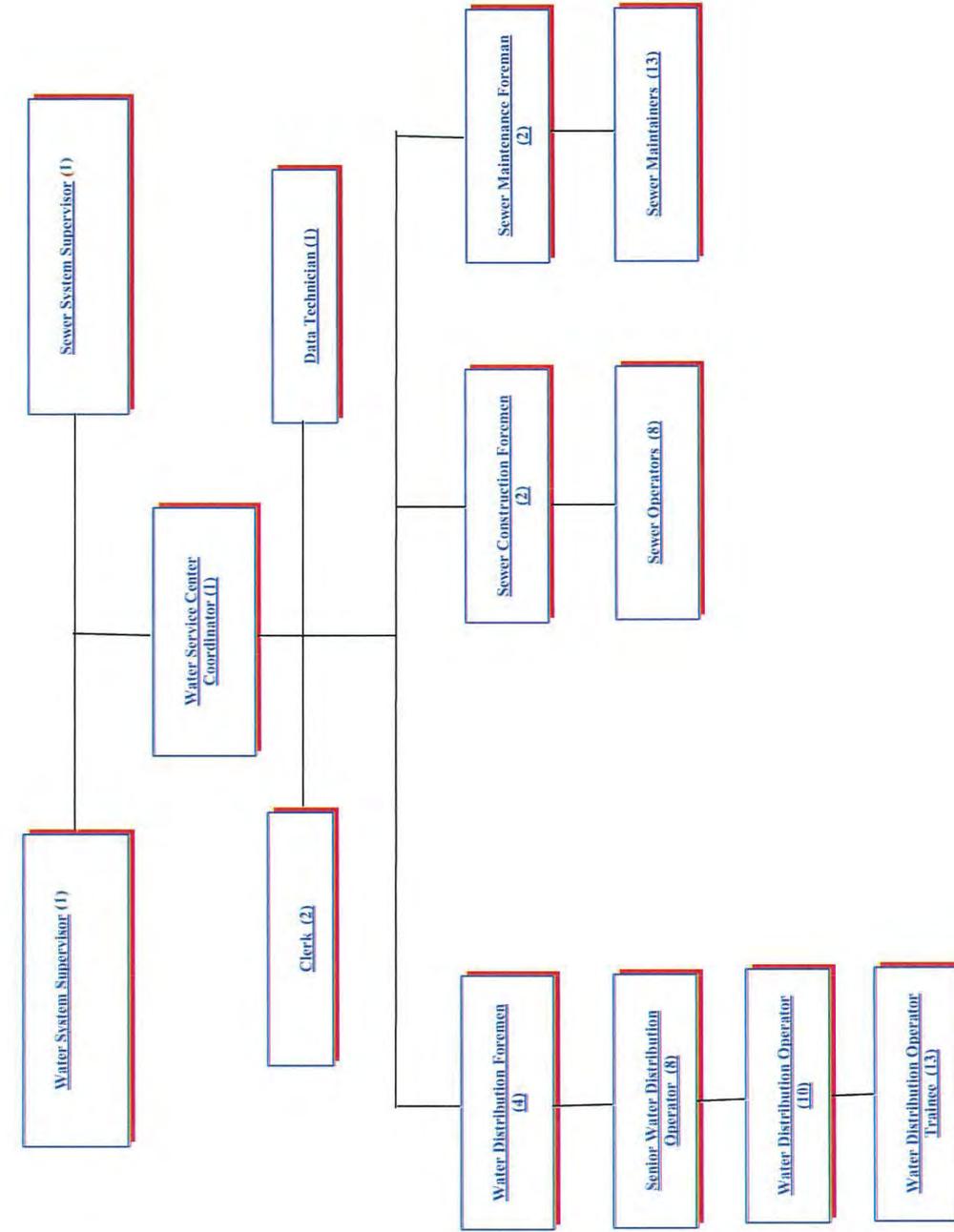
Established: Personnel 09/30/83

Revised: Personnel 05/03/89, 11/19/97

Revised & Reallocated (Wage Inequity) 11/15/08

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

WATER SERVICE CENTER Personnel Organization Chart



Water System
Total Positions - 37
Active Positions - 27

CITY OF FLINT
Position Description

Class Title:	Water Distribution Operator Trainee	Job Code Number:	16-N-035
Established:	June 26, 1961	Bargaining Unit:	Local 1600

GENERAL STATEMENT OF DUTIES: Under an on-the-job training program with close supervision installs, maintains and repairs water mains, valves, meters, hydrants and other appurtenances of the water supply system; performs related work as required. As the training progresses, supervision may be proportionately decreased and the responsibility of assignments increased. After completion of 2080 paid working hours, not including overtime, of on-the-job training, in the Water Service Center Division, the training period will be considered complete and the employee eligible for examination for promotion to Water Distribution Operator.

SUPERVISION RECEIVED: Works under the direct supervision of a foreman or employee of a higher grade who assigns work and checks for proper performance of duties.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Installs water mains and new service lines; inserts tapping valves for new mains and service lines.
2. Lays and repairs water mains; repairs gate valves; installs, repairs and tests fire hydrants; constructs and repairs wells on line gates.
3. Installs service connections, including tapping water main and laying service pipe; connects and disconnects shut-off valves and stop box; digs and back-fills trenches; locates and digs up curb boxes as necessary; thaws frozen lines in winter.
4. Caulks joints, cuts pipe, cuts out broken pipe, puts on sleeves, shuts off gate valves, repairs stuffing boxes.
5. Installs and removes consumer water meters. Performs water turn on and offs.
6. Operates equipment such as air compressors, valve turning or other equipment associated with water distribution and repair.
7. Drives utility dump trucks or other vehicles; orders materials; makes out simple reports on work performed and materials used.
8. May work with one or more Water Service Center employees.
9. May clean and repack water meters and/or be assigned duties in the stockroom.
10. May be required to perform duties in Sewer Operations.

MINIMUM ENTRANCE REQUIREMENTS:

- A. Ability to communicate orally and carry out oral instructions.
- B. Skill in the use of the more common shop tools.
- C. Ability to perform manual labor for extended periods under unfavorable climatic conditions or in mud or water.
- D. Mechanical aptitude.
- E. Ability to meet the physical, mental and visual standards of the job.
- F. Ability and willingness to work in a manner that will not needlessly endanger the safety to one's self, other persons and equipment.
- G. Underground excavation and heavy equipment experience preferred.

Water Distribution Operator Trainee – page 2

NECESSARY SPECIAL REQUIREMENT:

- A. Possession and maintenance of a valid Driver's License.
- B. Possession and maintenance of a valid CDL Class B Driver's License.
- C. Progression in the training series to Senior Operator level is required to remain in the program. Must make continuous satisfactory progress in the training program including promotion to Operator within twelve (12) months to remain employed in the series. Operational knowledge and training progress will be assessed periodically by WSC supervision.
- D. Employee must successfully complete six (6) month probationary period.

PHYSICAL DEMANDS:

While performing the duties of this job, the employee regularly works in outside weather conditions. The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, traffic, toxic or caustic chemicals, risk of electrical shock, and vibration. The employee is occasionally required to stand; walk; use hands to finger, handle, feel or operate objects, tools, or controls; and reach with hands and arms. The employee is frequently required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. The employee must frequently lift and/or move up to 50 pounds and occasionally lift and/or move up to 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus.

Classification History

Allocated: CSC MTG. 05/15/61

Established: SC MTG. 06/26/61

Reallocated: CSC MTG. 12/12/69

Re-titled: CSC MTG. 07/02/74

Revised: Personnel 07/07/81, 03/17/82,
05/03/90, 02/01/01, 02/25/11

Revised, Reallocated, Retitled: Human Resources 11/08/2013
(Formerly Water Distribution Maintainer Trainee)
(LOU 11/24/13 Merged to New Training Series)

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title: Water Distribution Operator	Job Code Number: 20-N-036
Established:	Bargaining Unit: Local 1600

GENERAL STATEMENT OF DUTIES: Inspects, installs, maintains, and repairs water mains, water service lines, valves, meters, hydrants, and other appurtenances of the water supply system. Turns water on an off at the curb box. Performs a variety of tasks related to the inspection, testing, reading, installation, resetting, and/or removal of residential and commercial meters. May work independently or with one or more other water service employees, or may act as lead man in a small work crew; performs related work as required.

SUPERVISION RECEIVED: Works under the direct supervision of an employee of a higher grade who assigns work and checks for proper performance of duties.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Installs water mains and new service lines; inspects new mains and services lines being installed by contractors; may on occasion confer with contractors relative to installations and inspections of service lines and water mains; inserts tapping valves for new mains and service lines while maintaining constant water pressure.
2. Reads and interprets blueprints in locating and marking water or sewer infrastructure
3. Lays and repairs water mains; installs, operates and repairs valves of all sizes; installs repairs, and tests fire hydrants; constructs and repairs manholes on gate valves.
4. Installs service connections, including tapping water main and laying service pipe; connects and disconnects shut-off valves and stop box; digs up curb boxes; thaws frozen lines in winter; constructs and repair header for multiple meter settings.
5. Pours lead and caulks joints, cuts pipe, cuts out broken pipe, puts on sleeves, shuts off gate valves, repacks stuffing boxes.
6. Installs and removes consumer water meters; reads commercial and residential meters as required; checks low pressure complaints and causes of high water bills; makes cost estimates for relocation of meters and repair of service lines as required.
7. Drives utility dump trucks; orders materials; makes out simple reports on work performed and materials used.
8. May act as lead man in a small work crew engaged in installation and maintenance, or may work independently or with one or more Water Service Men.
9. May clean and repack water meters and/or be assigned duties in the stockroom.
10. Contacts customers and makes arrangements for temporary shutoff of water for repairs and/or new connections and installations of mains.
11. May be required to perform sewer maintenance duties if necessary.

MINIMUM ENTRANCE REQUIREMENTS:

- A. One year of experience as a Water Distribution Maintainer Trainee with the Water Distribution and Service system.
- B. Familiarity with the materials, methods and practices of water system installation and maintenance.
- C. Working knowledge of the water service and distribution system.
- D. Ability to carry out oral and written instructions and to work from blueprints.

Water Distribution Operator – page 2

MINIMUM ENTRANCE REQUIREMENTS CON'T:

- E. Skill in the use of tools and equipment common to water distribution, construction, maintenance, and service.
- F. Ability to perform manual labor for extended periods under unfavorable climatic conditions or in mud and water.
- G. Mechanical aptitude.
- H. Ability to meet the physical, mental and visual standards of the job.
- I. Ability and willingness to work in a manner that will not needlessly endanger the safety to one's self, other persons and equipment.

NECESSARY SPECIAL REQUIREMENT:

- A. Possession and maintenance of a valid Driver's License.
- B. Possession and maintenance of a valid CDL Class B Driver's License.
- C. Must successfully advance to Water Distribution Senior Operator by passing test and meeting all other job requirements after 1 year in this position which is part of a training series.

PHYSICAL DEMANDS:

While performing the duties of this job, the employee regularly works in outside weather conditions. The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, traffic, toxic or caustic chemicals, risk of electrical shock, and vibration. The employee is occasionally required to stand; walk; use hands to finger, handle, feel or operate objects, tools, or controls; and reach with hands and arms. The employee is frequently required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. The employee must frequently lift and/or move up to 50 pounds and occasionally lift and/or move up to 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus.

Classification History

REVISED: CSC Mtg. 07/24/61, 08/09/67
RETITLED: CSC Mtg. 07/02/74
REVISED: Personnel 10/16/81
REALLOCATED: Wage inequity 07/01/85
REVISED: Personnel 06/03/91
REALLOCATED: Human Resources 07/01/2006
REVISED, REALLOCATED, RETITLED: Human Resources 11/08/13
(LOU 11/24/13 Merged to New Training Series)

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title:	Senior Water Distribution Operator	Job Code Number:	22B-N-063
Established:		Bargaining Unit:	Local 1600

GENERAL STATEMENT OF DUTIES: Operates, maintains, and repairs equipment used for digging, loading, unloading, and handling materials used in the installation, repair and maintenance of the City of Flint Water System. Inspects, installs, maintains, and repairs water mains, water service lines, valves, meters, hydrants, and other appurtenances of the water supply system. Performs a variety of tasks related to the inspection, testing, reading, installation, resetting, and/or removal of residential and commercial meters. Turns water on and off at the curb box. Performs related work as required.

SUPERVISION RECEIVED: Works under the supervision of an employee of higher grade who assigns work and inspects jobs in progress.

SUPERVISION EXERCISED: May exercise working supervision over a small number of employees engages in the installation and maintenance of the City Water System

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Operates, maintains and repairs, heavy equipment to dig excavations for repair and installation of water mains, water service lines, fire hydrants, gates, valves, manholes or other components of the City Water System. Loads and unloads materials and supplies to and from trucks, other transporting equipment and stockpiles.
2. Operates heavy equipment for excavating and handling materials for various other City Departments in unusual or critical areas.
3. May assist foreman, and in his absence, performs the duties of the lead man in directing field crews in installation and repairs to the City Water System.
4. Installs water mains and new service lines; inspects new mains and service lines being installed by contractors; may on occasion confer with contractors relate to installations and inspections of service lines and water mains; inserts tapping valves for new mains and services lines while maintaining constant water pressure.
5. Lays and repairs water mains; installs, operates, and repairs valves of all sizes; installs, repairs. And tests fire hydrants; constructs and repairs manholes on gate valves.
6. Connects shut-off valves and stop box; digs up curb boxes; thaws frozen lines in winter; constructs and repairs headers for multiple meter settings.
7. Installs and removes consumer water meters; reads commercial and residential meters as required; checks low pressure complains and causes of high water bills; makes cost estimates for relocation of meters and repair of service lines as required.
8. Drives utility and dump trucks; orders materials, makes out simple reports on work performed and materials used.
9. Uses various hand held computing devices to program transponder, obtain meter reads, and diagnose transponder and/or meter malfunctions.
10. Installs, maintains, and removes meters and transponders. Records meter reads.
11. Contacts customers and makes arrangements for temporary shutoff of water for repairs and/or new connections and installations of mains. May be assigned duties in the stockroom.
12. Reads and interprets blueprints in location and marking water or sewer infrastructure.
13. May be required to perform sewer operation duties if necessary.

MINIMUM ENTRANCE REQUIREMENTS:

- A. Two years experience as a Water Distribution Maintainer or Senior Operator training series.
- B. Familiarity with the materials, methods, and practices of water system installation and maintenance.
- C. Working knowledge of water service and distribution system.
- D. Ability to carry out oral and written instructions and to work from blueprints.
- E. Skill in the use of tools and equipment common to water distribution, construction, maintenance, and service.
- F. Working knowledge of the principles of heavy automotive and diesel powered construction equipment operation and its uses.
- G. Ability to make minor repairs and adjustments and to service heavy construction equipment.
- H. Skill in the operation of heavy automotive and diesel powered construction equipment.
- I. Ability to meet the physical, mental, and visual standards of the job.
- J. Ability and willingness to work in a manner that will not needlessly endanger the safety to one's self, other persons, and equipment.
- K. Ability to work in all outside weather conditions and at all times of day or night.

NECESSARY SPECIAL REQUIREMENT:

- Possession and maintenance of a valid State of Michigan's driver's license.
- Possession and maintenance of a valid State of Michigan's C.D.L. driver's license "A" endorsement or the receipt of one within three (3) months of appointment.
- Possession and maintenance of an M.D.P.H. Waterworks System Operator "S-3" license or receipt of one within three (3) years of appointment.
- Must possess valid MIOSHA Certificate of Training as a "competent person" in excavation safety or be able to successfully complete training in this area within one (1) year of appointment.

PHYSICAL DEMANDS:

The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, traffic, toxic or caustic chemicals, risk of electrical shock, and vibration. The employee is occasionally required to stand; walk; use hands to handle, feel or operate objects, tools, or controls; and reach with hands and arms. The employee is occasionally required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. The employee must occasionally lift and/or move up to 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus. Hand-eye coordination is necessary to operate computers and various pieces of office equipment.

Classification History:

(LOU 11/24/13 Merged to New Training Series)

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title:	Water Distribution Foreman	Job Code Number:	24-N-013
Established:	August 8, 1976	Bargaining Unit:	Local 1799

GENERAL STATEMENT OF DUTIES:

Supervises and participates in the construction, installation, maintenance, repair, testing and inspection of the Water Distribution System and equipment; estimates cost of work and materials; confers with contractors and customers regarding water systems; keeps various production records; performs related work as required.

SUPERVISION RECEIVED:

Works under the supervision of the Assistant Water Distribution Supervisor, or an employee of higher grade, who assigns work and inspects for proper completion and conformance with established policies and regulations.

SUPERVISION EXERCISED:

Exercises working supervision over a number of employees engaged in the installation and repair of water mains, service lines, and other water distribution appurtenances.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Supervises and participates in constructing and repairing water mains and water service lines; installing gate valves and fire hydrants; constructing and repairing manholes on gate valves, valve boxes and curb boxes; inserting gate valves and making connections with tapping or drilling machine while maintaining constant water pressure.
2. Supervises and participates in the installation, maintenance and repair of service connections, including tapping water main and laying service pipe; connecting shut-off valves; installing curb boxes; and digging and back-filling trenches.
3. Supervises and participates in the installation and/or removal of consumer water meters.
4. Supervises and participates in checking locations for valves, manholes, valve boxes, and curb boxes; dismantling, cleaning and repairing or replacing broken valves, curb shut-offs, curb cocks, check and waste valves and fire hydrants; shutting off line valves; and repairing of mains, line valves, and fire hydrants.
5. Supervises and participates in caulking joints, cutting pipe, cutting out broken pipe, installing repair sleeves, shutting off valves, relocating water mains, water service lines, line valves, shut-off valves, and fire hydrants.
6. Supervises and participates in the operation of portable air compressors, pumps, generators, hydraulic or air operated pipe cutters, valve-inserting machines, tapping or drilling machines for pressure connections, valve-operating machines, hydraulic excavators, backhoes and sand blasting equipment. Drives vehicles.
7. Contacts customers and makes arrangements for temporary shut-off of water for repairs and new connections and installation of mains and meters; investigates customer complaints regarding faulty service leaks and other water system operating difficulties.
8. Supervises and participates in an on-going cross-connection inspection program; confers with contractors to discuss blueprints and the method for completion of work.
9. Plans and coordinates daily work schedules. Maintains various production records; prepares, reviews, and verifies daily work reports; completes various forms and maintains a variety of records.

Water Distribution Foreman – page 2

MINIMUM ENTRANCE REQUIREMENTS:

- A. Three (3) years of experience as a Water Distribution Maintainer.
- B. Considerable knowledge of the materials, methods, and practices commonly used in water system installation and maintenance.
- C. Possession of a valid MDEQ Waterworks System Operator S-2 certificate.
- D. Skill in the use and care of tools and equipment used in a water distribution system.
- E. Ability to lay out, direct and supervise the work of a small-sized group of workers performing construction, maintenance, and installation functions.
- F. Ability to interpret and work from blueprints.
- G. Ability to understand and effectively carry out written and oral instructions and to make reports.
- H. Ability to establish and maintain harmonious working relationships with employees and the public.
- I. Ability and willingness to work in a manner that will not needlessly endanger the safety to one's self, other persons, and equipment.

NECESSARY SPECIAL REQUIREMENT:

- Must possess a valid MDEQ Waterworks System Operator License S-2 Operator's Certificate or be able to write State of Michigan examination for S-2 certificate and pass within two (2) years of appointment.
- Possession and maintenance of a valid State of Michigan Driver's License at time of appointment.
- Must possess valid MIOSHA Certificate of Training as a "competent person" in excavation safety or be able to successfully complete training in this area within one (1) year of appointment.

PHYSICAL DEMANDS:

While performing the duties of this job, the employee regularly works in outside weather conditions. The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions, fumes or airborne particles, traffic, toxic or caustic chemicals, risk of electrical shock, and vibration. The employee is occasionally required to stand; walk; use hands to finger, handle, feel or operate objects, tools, or controls; and reach with hands and arms. The employee is occasionally required to sit; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and smell. The employee must occasionally lift and/or move up to 25 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus. Hand-eye coordination is necessary to operate computers and various pieces of office equipment.

Classification History

Reclassified & Reallocated: CSC Mtg. 8/6/76
Revised: Personnel 5/18/77
Revised: Personnel 11/10/79
Revised: Personnel 11/9/81
Revised: Personnel 6/27/84
Revised: Personnel 11/5/84
Revised: Personnel 3/28/90
Revised: Personnel 10/8/92
Reallocated: Personnel 10/21/07

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

CITY OF FLINT
Position Description

Class Title: Water Meter Technician Foreman	Job Code Number:	24-N-004
Established: June 7, 1994	Bargaining Unit:	Local 1799

GENERAL STATEMENT OF DUTIES:

Supervises and participates in the installation, maintenance, repair, testing, reading, and setting of residential and commercial water meters and remotes; confers with contractors and customers regarding meter sizing; investigates customer complaints and illegal water usage; performs related work as required.

SUPERVISION RECEIVED:

Works under the supervision of a Water Distribution employee of higher grade who assigns work and inspects for proper completion and conformance to established policies, procedures, and regulations.

SUPERVISION EXERCISED:

Exercises working supervision over a number of employees engaged in the installation, maintenance, repair, testing, reading, and setting of residential and commercial water meters and remotes.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Supervises and participates in the installation, maintenance, repair, testing, reading, and setting of residential and commercial water meters and remotes.
2. Plans and coordinates a comprehensive meter maintenance program to insure accurate meter registration for residential and commercial water meters. Identifies annual meter replacement needs and assists in specification preparation.
3. Plans, coordinates, and assigns routes and work schedules for the reading and setting of meters. Adjusts scheduled and non-scheduled work to meet changing priorities and needs. Analyzes route patterns and makes recommendations for changes. Coordinates reading and setting with the water billing system. Utilizes an automated information system for daily work schedules and activities. Loads data in and from the system.
4. Supervises and participates in investigating complaints regarding water meter activity and water consumption. Reports abnormal increases or decreases in consumption where plausible explanations are not found. Issues notices for ordinance violations. Documents violations, coordinates the case with the City Attorney, and testifies in court regarding the violation.
5. Supervises and participates in inspecting customer's plumbing; locates and points out leaks and needed repairs. May perform minor plumbing or building repair when damage is caused by employees.
6. Issues and receives meter reading devices and building keys.
7. Supervises and participates in the preparation of the meter activity payroll.
8. Prepares and maintains various records and reports relating to production, tools, equipment, materials, and inventory.
9. Requisitions equipment, supplies, and tools. Assists in the budgeting process by reviewing present needs and making recommendations for future ones.
10. Instructs an ongoing training program for all water meter activities.

Water Meter Technician Foreman – page 2

MINIMUM ENTRANCE REQUIREMENTS:

- A. At least one year of experience as a Senior Water Meter Technician or two years of experience as a Water Meter Technician; must currently be in the position as a Senior Water Meter Technician or Water Meter Technician.
- B. Knowledge of behavior of water flow and action on meters and related parts.
- C. Considerable knowledge of the methods, materials, and techniques used in testing meters and working knowledge of mathematics involved in the testing, repairing, and reading of meters.
- D. Considerable knowledge of the geography and street locations of the City of Flint.
- E. Ability to understand and carry out oral and written instructions.
- F. Ability to maintain and prepare a variety of records and reports.
- G. Ability to assign, direct, and supervise employees performing varied water meter activities.
- H. Ability to establish and maintain effective working relationships with subordinates, other employees, and the general public.
- I. Ability to work in a manner that will not needlessly endanger the safety to one's self, other persons, or equipment.

NECESSARY SPECIAL REQUIREMENT:

- A. Possession of a valid State of Michigan Driver's License at time of appointment.
- B. Must possess a valid MDEQ Waterworks System Operator S-4 Certificate or be able to write MDEQ examination and pass within one year of appointment.

PHYSICAL DEMANDS

While performing the duties of this job, the employee regularly works in outside weather conditions. The employee regularly works near moving mechanical parts and is exposed to inclement conditions, risk of electrical shock and vibration. The employee is regularly required to reach with hands and arms and is required to stand and walk; and use hands to finger, handle, feel or operate objects, tools, or controls. The employee is occasionally required to sit; climb or balance; stoop, kneel, crouch, or crawl; and talk or hear.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move more than 100 pounds. Specific vision abilities required by this job include close vision, and the ability to adjust focus.

Classification History

Established: 06/07/94
(Combined Wtr. Meter Frmn. & Wtr. Meter Rdr./Setter Frmn.)
Reallocated: (Wage Inequity) 07/01/97
Revised: 09/12/02
Reallocated (Wage Inequity) 10/21/07

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

EXHIBIT 73

RE: Flint TTHM Public Notice - April 1, 2015

Subject: RE: Flint TTHM Public Notice - April 1, 2015
From: "Prysby, Mike (DEQ)" <PRYSBYM@michigan.gov>
Date: 7/29/2015 1:56 PM
To: Brent Wright <bwright@cityofflint.com>

Yes....however, our AG keeps asking if they went out at the same time...I would assume so...however, I haven't heard back from Howard K. to confirm this.....

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

From: Brent Wright [mailto:bwright@cityofflint.com]
Sent: Wednesday, July 29, 2015 1:54 PM
To: Prysby, Mike (DEQ)
Subject: Re: Flint TTHM Public Notice - April 1, 2015

Mike what is on the web site is what was mailed to all water customers.

On Wed, Jul 29, 2015 at 1:40 PM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:
Thanks Brent....do you know if the Water Quality Update sheet was also sent to each resident and at the same time....or was this just posted on the website?

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

From: Brent Wright [mailto:bwright@cityofflint.com]
Sent: Tuesday, July 28, 2015 2:41 PM
To: Prysby, Mike (DEQ)
Cc: Michael Glasgow; Rosenthal, Adam (DEQ)
Subject: Re: Flint TTHM Public Notice - April 1, 2015

Mike

I have attached the information that was sent to all water customers and what was sent to your office. Let me know if any thing else is needed. You should be receiving the CCR report this week.

On Tue, Jul 28, 2015 at 11:42 AM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:
Brent, Michael

Can you send us a copy of the second TTHM public notice that the city distributed to city residents on or about April 1, 2015? This PN would reflect TTHM levels from monitoring

RE: Flint TTHM Public Notice - April 1, 2015

through Feb. of 2015. Thanks.

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

--

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

--

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

RE: Flint TTHM Public Notice - April 1, 2015

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Michael Prysby, P.E.
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Office of Drinking Water and Municipal Assistance
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Brent, Michael

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

--

Brent Wright
Water Plant Supervisor
City of Flint
4500 N. Dort Hwy.
Flint, MI. 48505

RE: Flint TTHM Public Notice - April 1, 2015

Ph: 810.787.6537 ext. 3510

Fx: 810.787.3710

EXHIBIT 74

AS AMENDED BY FLINT RTAB RESOLUTION No. 2016-1 ADOPTED JANUARY 22, 2016



**EMERGENCY MANAGER
CITY OF FLINT
GENESEE COUNTY MICHIGAN**

ORDER No. 3

CITY ADMINISTRATOR

BY THE POWER AND AUTHORITY VESTED IN THE EMERGENCY MANAGER ("EMERGENCY MANAGER") FOR THE CITY OF FLINT, MICHIGAN ("CITY") PURSUANT TO MICHIGAN'S PUBLIC ACT 436 OF 2012, LOCAL FINANCIAL STABILITY AND CHOICE ACT, ("PA 436"); GERALD AMBROSE, THE EMERGENCY MANAGER, ISSUES THE FOLLOWING ORDER:

Pursuant to PA 436, the Emergency Manager has broad powers in receivership to rectify the financial emergency and to assure the fiscal accountability of the City and its capacity to provide or cause to be provided necessary services essential to the public health, safety and welfare; and

Pursuant to PA 436, the Emergency Manager acts in place of local officials, specifically the Mayor and City Council, unless the Emergency Manager delegates specific authority; and

Pursuant to PA 436, the Emergency Manager has broad power to manage the local government, and may issue orders to elected and appointed officials necessary to accomplish the purpose of the Act. An Order issued under PA 436 is binding on the person to whom it is issued; and

IT IS HEREBY ORDERED:

The City Administrator shall serve as the City's Chief Administrative Officer at the pleasure of the Mayor, City Council and Emergency Manager or Receivership Advisory Transition Board (hereinafter "Board"), in accordance with the provisions of her contact with the City of Flint

AS AMENDED BY FLINT RTAB RESOLUTION NO. 2016-1 ADOPTED JANUARY 22, 2016

dated February 23, 2015, and is charged with implementing executive and legislative directives and policies of the Mayor and City Council, subject to oversight of the Board, including strategic planning and budgeting, and with directing the management of day-to-day-administrative activities and appointed staff officials.

Consistent with the City Administrator Employment Agreement and Position Description, and subject to the approval and directives of the Board, the City Administrator shall have the following authority, duties and responsibilities notwithstanding any provision of the City Charter or Code of Ordinances:

1. Serve, advise and report to the Mayor with respect to the Mayor's executive functions, as set forth in Charter §4-101.
2. Serve and advise the Council with respect to the Council's legislative functions, as set forth in Charter §3-101.
3. Serve, advise and report to the Emergency Manager, as required by Public Act 436, so long as an Emergency Manager is in place.
4. Serve, advise and report to the Board, including:
 - a. Advise and report to the Board as required by Public Act 436;
 - b. Fully comply and assist the Board in meeting all duties assigned to it by the governor pursuant to MCL 141.1563(h);
 - c. Provide all budgetary information requested by the Board;
 - d. Serve as the primary contact between the Board and the City, including any department heads, officers, attorneys, accountants, employees, and any other contractors or consultants hired by the City to assist the City Administrator or the City in the discharge of powers, duties, functions, and responsibilities;
 - e. Promptly and effectively communicate with the Board regarding any matter that may have a significant financial impact on the City.
5. Direct City department heads in carrying out the daily activities of the City, in the assembly of financial and management information; and in the gathering and assembly of pertinent data and information and recommendations for the Mayor and City Council's consideration in making executive determinations and policy.
6. Translate executive decisions and policies of the Mayor into administrative procedures for the cost effective and efficient operation of the City.
7. Implement legislative action of the City Council.
8. Monitor and manage the administrative inter-activity of the City departments so the delivery of public services represents an efficient, effective, and coordinated effort.
9. Interact with other governmental agencies as requested by the Mayor or City Council.

AS AMENDED BY FLINT RTAB RESOLUTION NO. 2016-1 ADOPTED JANUARY 22, 2016

10. Prepare and review correspondence, reports, speeches, resolutions, and other material for public relations purposes. Answers citizen and official inquiries regarding City policy matters.
11. In consultation with the Mayor, direct the assembly of information and items for consideration by the Council, and provide them to the City Clerk for inclusion on the appropriate agendas.
12. Regularly consult with the Mayor in the development of actions with respect to the Mayor's executive functions, and with matters relating to the daily administrative functions of the City, including the evaluation of the performance of department heads, and the resolution of customer service issues.
13. Except to the extent prohibited by or in material conflict with applicable laws and authorities, the City Administrator or designee shall attend all meetings of the City Council, both public and closed, with the exception of those closed meetings devoted to the consideration of any action or lack of action on, or pursuant to, this Agreement, or any amendment thereto, or the City Administrator's evaluation. The City Administrator shall advise members, and make recommendations consistent with policy objectives, strategic planning and administrative activities.
14. Attend public meetings and events; give presentations and information to the public regarding matters of City business.
- ~~15. Manage and oversee all department heads, division heads, managers and non-elected City employees. This shall include an annual written performance evaluation of all department heads, including those identified in paragraphs 15, 16 and 17.~~
- ~~16. Recommend, subject to the Mayor's approval, the following appointments:
 - a. Chief of Police;
 - b. Fire Chief;
 - c. Director of Finance;
 - d. Planning & Development Director;
 - e. Director of Department of Public Works;
 - f. Chief Legal Officer;
 - g. Chief Personnel Officer.~~
- ~~17. Recommend, subject to the Council's approval, the following appointments: City Clerk and City Auditor.~~
- ~~18. With the exception of those positions set forth in paragraphs 16 and 17, appoint all department heads, division heads and management positions, including the City Treasurer, Purchasing Director and the City Assessor, subject to any collective bargaining agreement(s) that may be applicable.~~

AS AMENDED BY FLINT RTAB RESOLUTION NO. 2016-1 ADOPTED JANUARY 22, 2016

- ~~19. Ensure that all appointment processes, whether by the Mayor, Council or City Administrator, are open, competitive, and administered by the Human Resources Department or a qualified recruitment firm, with selection of the most qualified candidate to be based on defined education, experience, and professional standards appropriate to the position.~~
- ~~20. All appointments made pursuant to paragraphs 15, 16 and 17 shall serve at the pleasure of the City Administrator based on performance review.~~
21. Review current and potential litigation and labor disputes with the City Attorney and Mayor, and as needed the Board, and have complete decision making authority on behalf of the City, on all matters of litigation and labor disputes, including the ability to settle or initiate lawsuits and resolve labor disputes. The Mayor and City Council shall be consulted on such matters prior to implementation.
22. Negotiate all collective bargaining agreements on behalf of the City.
23. Work collaboratively with the City Council, the Mayor, other City or State officials and the Board to successfully transition to the termination of receivership for the City by supporting, implementing, and maintaining the financial and operating plans and the reforms instituted by the City's emergency managers, including but not limited to, the financial and operating plan for the city under Section II Act 436, and by providing appropriate training and explanation of City operations.
24. Serve as an official City representative before the Board, State departments and agencies, and the Michigan Legislature, with assistance from the Finance Director and the Mayor.
25. Be responsible for and vested with full authority necessary to effectively direct and supervise the day-to-day operations of the City by seeing that all laws and ordinances are faithfully executed, preparing the proposed annual budget as recommended by the Finance Director and any accounting firm retained by the City, and supervising the expenditures of all sums appropriated to and the attainment of all objectives established for departments of the executive branch of the City and working collaboratively with all officers and officials to effectively execute daily operations.
26. Ensure that a rolling six-year capital improvement plan is annually prepared in accordance with applicable law and the City's Code of Ordinances. Coordinate with the Mayor on the annual preparation of a rolling two-year budget
27. Review, approve and co-sign with the Mayor all contracts on behalf of and entered into by the City and modify or terminate any current contract with the City.
28. Approve all financial policies, City policies and procedures, job descriptions and personal policies for the City, after consultation with the Mayor and City Council.

AS AMENDED BY FLINT RTAB RESOLUTION NO. 2016-1 ADOPTED JANUARY 22, 2016

29. Designate check signers on all City bank accounts.
30. Refer City Council communications to the appropriate City employee or investigate such matter(s) and inform the City Council of the results of such efforts. Provided, however, when responding to City Council referrals, the City Administrator shall have discretion to utilize the personnel and resources the City Administrator deems reasonable and so as to avoid unnecessary interruption of services or incurrence of unnecessary costs.
31. Any investigation by the City Council, as contemplated by Charter §3-205 and §3-206, including the power to subpoena witnesses, shall be subject to the City Administrator's review and approval, so as to avoid unnecessary interruption of services or incurrence of unnecessary costs.
32. In the event the Mayor or City Council fails to perform any duty or take any required action after having been afforded a reasonable opportunity to do so, the City Administrator may perform the duty or function of the Mayor or Council upon approval of the Board.
33. (1) NOTWITHSTANDING ANY PROVISION OF THIS ORDER TO THE CONTRARY, BUT SUBJECT TO ANY LIMITATIONS CONTAINED IN THE CITY'S CHARTER, THE MAYOR IS AUTHORIZED TO APPOINT A CITY ADMINISTRATOR AND THE HEAD OF EACH EXECUTIVE DEPARTMENT OF THE CITY GOVERNMENT (COLLECTIVELY THE "APPOINTED POSITIONS"), ALL OF WHICH APPOINTEES SHALL SERVE AT THE PLEASURE OF THE MAYOR.

(2) WITHIN 30 CALENDAR DAYS OF A VACANCY OCCURRING IN AN APPOINTED POSITION, THE MAYOR SHALL SUBMIT IN WRITING TO THE BOARD FOR ITS REVIEW AND APPROVAL THE MINIMUM PROFESSIONAL OR OCCUPATIONAL QUALIFICATIONS TO BE UTILIZED BY THE MAYOR TO SELECT A SUITABLE INTERIM OR PERMANENT APPOINTEE FOR THE APPOINTED POSITION AND THE MINIMUM AND MAXIMUM SALARY RANGE FOR THE APPOINTED POSITION. APPROVAL BY THE BOARD OF MINIMUM PROFESSIONAL OR OCCUPATIONAL QUALIFICATIONS AND THE MINIMUM AND MAXIMUM SALARY RANGE SHALL BE CONDITIONS PRECEDENT TO THE EXERCISE OF THE MAYOR'S AUTHORITY TO SELECT AN INTERIM OR PERMANENT APPOINTEE FOR AN APPOINTED POSITION.

This Order may be amended, modified, repealed or terminated by any subsequent Order issued by the Emergency Manager.

Dated: 4/16/15

By: 
Gerald Ambrose
Emergency Manager
City of Flint

AS AMENDED BY FLINT RTAB RESOLUTION NO. 2016-1 ADOPTED JANUARY 22, 2016

xc: State of Michigan Department of Treasury
Mayor Dayne Walling
Flint City Council
Inez Brown, City Clerk

S:\P. Bade\EM2015\Orders\Order No.3 City Administrator.03.30.15 pmb.docx

EXHIBIT 75

**City of Flint, Michigan
Office of the City Administrator**

Memo

To: Dayne Walling, Mayor
From: Natasha L. Henderson, City Administrator
cc: President Freeman and Councilmembers
Date: October 20, 2015
Re: Water Filtration Plant and Water Distribution Internal Review

Water Filtration Plant and Water Distribution Systems Overview

The City of Flint's water filtration plant and distribution system have experienced many challenges over the past two years and it is of grave concern that we reflect upon the decisions that have been made and understand how we will proceed in the future. First, and foremost the City will conduct an internal review of the steps that were taken in 2013 when the agreement with Karegnondi Water Authority (KWA) was signed.

In the wake of recent water concerns, I have developed a proactive and comprehensive plan showing the City's commitment to deliver high quality water, address its aging infrastructure, and maintain a qualified staff. I am outlining a series of steps that the city will take to not only ensure that these goals are met but a plan that is designed to start rebuilding community trust through action and transparency.

In addition, with the assistance of the EPA Task Force, Michigan Department of Environmental Quality, and Safe Drinking Water Technical Advisory Committee, the following steps are meant to go into effect as quickly as possible with all goals being accomplished by the time KWA begins delivering raw water.

- Independent review
- Processes & Testing
- Training

- Technology
- Communication
- Lead Lines
- Capital Improvements

Independent Review

We will seek to commission an independent source to review the technical and operational steps that occurred from the time the City signed on to the KWA to present. This is meant to internally perform an after action review in order to clearly assess the decisions that were made. My expectation is that we will hire out-side legal counsel to lead this internal review. I believe it is imperative that the City has all information that has led the City to the water quality issues that have arisen.

Internal Processes & Testing

We understand that EPA standards are the minimum requirements that utility systems are required to meet, the City will establish and move forward with higher standards and goals than those set by regulators. As these new standards are set, they will be published with a plan on how to obtain each goal complete with expected timeframes. The following are the first set of goals that have been set by the City that exceed the regulatory requirements.

Regulatory Requirements	City Goals
(1) F-1 Licenced Personnel	(2) F-1 Licenced Personnel
(1) S-1 Licensed Personnel	(2) S-1 Licensed Personnel
100 TTHM Samples per Month	120 TTHM Samples per Month
100 Lead/Copper Volunteer Samples / yr.	300 Lead/Copper Volunteer Samples / yr.
Annual Water Quality Report	Quarterly Water Report

Training

We will encourage all utility employees to become members of the American Water Works Association (AWWA) which is the largest nonprofit, scientific and educational association dedicated to managing and treating water. The AWWA offers continual training opportunities and the City will develop an internal training regimen that employees must adhere to. The goal is to continue to develop each employee which promotes a long term succession plan.

Technology

The addition of enhanced Supervisory Control and Data Acquisition (SCADA) will make sure that the system is running with the industries most updated technology and running as efficient as possible. The SCADA adds automation to the Water Plant thereby reducing the need for as much manual intervention. The City will also maintain Safe Drinking Water Technical Advisory Committee with more consistent meetings.

Enhanced Communication

We recognize that one of the key features of a Utility is the public communication with honest and candid information. We will increase the way we send information to people and the frequency that our communication is available. The following are first steps in that direction.

- Monitors around City Hall that display information about the water system

- Direct emails to individuals and neighborhood groups informing people where work is occurring
- Door hangers for field workers to distribute alerting people when water may be off or discolored
- A website page and GIS map dedicated to water events
- Quarterly Water reports that are directly mailed to users
- More frequent press releases that provide information relating to infrastructure concerns
- Immediate notification using all of the above media if a violation occurs
- An answering service so that every call is answered in a timely manor

Lead Service Lines

Every effort will be made to ensure a program will is in place to address the long-term goal of replacing all lead service lines. The program is expected to address the location of all City owned lead service lines and look to provide an opportunity for homeowners to receive a grant in order to have their service line changed at the same time as the city is changing its lines. This coordinated program will look to utilize funds from multiple avenues to support City residents, such as:

- CDBG Funds
- DWRF revolving loan funding
- Grant funding

Capital Improvement Plan

The City will continue to modify its 5-year CIP annually to make sure that we are always addressing the most critical issues facing the City. Another rate study will help set the correct rate for the system and determine the proper allocation to address concerns. The Water Reliability Study will continue to highlight the critical needs and will continue to be updated every two years.

As City Administrator, my goal is to ensure all of the necessary steps are in place prior to the implementation of KWA delivering water to the City. All of these initiatives will be inserted into the Utilities strategic plan and tracked regularly by staff, myself, and reported to the DPW Committee to ensure accountability.

EXHIBIT 76

150494

(Proposal No. 16000501)

SUBMISSION NO.: CA0342015

PRESENTED: 7-1-15

ADOPTED: RTAB 8-12-15

RESOLUTION TO AIRGAS USA, LLC FOR MACRO DELIVERY OF LIQUID CARBON DIOXIDE (CO2) FOR Ph REDUCTION AT THE WATER TREATMENT PLANT

BY THE CITY ADMINISTRATOR

RESOLUTION

The Department of Purchases & Supplies has solicited a proposal for the macro delivery of liquid carbon dioxide for Ph reduction at the treatment plant as requested by DPW Utilities Water Plant; and

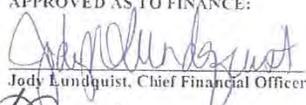
Airgas USA, LLC, G-5075 North Dort Highway, Flint, Michigan was the low proposal received from four solicitations for said requirements. Funding for said services will come from the following account: 591-545.200-740.000; and

IT IS RESOLVED, that the Department of Purchases and Supplies, upon City Council's approval, is hereby authorized to issue a purchase order to Airgas USA, LLC for macro delivery of liquid carbon dioxide for Ph reduction at the treatment plant in an amount not to exceed \$100,000.00. (Water Fund)

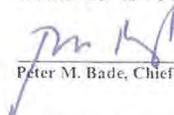
APPROVED PURCHASING DEPT.:


Derrick Jones, Purchasing Manager

APPROVED AS TO FINANCE:


Jody Lundquist, Chief Financial Officer

APPROVED AS TO FORM:


Peter M. Bade, Chief Legal Officer


Natasha L. Henderson, City Administrator

RECEIVERSHIP TRANSITION
ADVISORY BOARD:

CITY COUNCIL:


Joshua Freeman, Council President

**ADOPTED BY THE
RECEIVERSHIP TRANSITION
ADVISORY BOARD
AUGUST 12, 2015**

PRESENTED TO CITY COUNCIL: 7/08/2015

ADOPTED BY CITY COUNCIL: 7/13/2015

RESOLUTION STAFF REVIEW

May 28, 2015

Agenda Item Title: Water Plant – Liquid Carbon Dioxide

Background/Summary of Proposed Action:

The Flint Water Plant uses liquid carbon dioxide for PH reduction for the plants post softening process.

The Flint Water Plant sought competitive bidding for Liquid Carbon Dioxide through the Purchasing Department and Airgas USA LLC. was the lowest bidder.

Financial Implications:

Please approve the Purchase Order with Airgas USA LLC. The funds are available in the FY 2016 approved budget amount of \$100,000.00 using account 591-545.200-740.000.

Budgeted Expenditure? Yes No Please explain if no:

Account No.: 591-545.200-740.000.

Pre-encumbered? Yes No Requisition: 150000200

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

Staff Recommendation: Approve

Department Approval: 

Airgas USA, LLC - Macro Delivery of Liquid Carbon Dioxide (CO2) for Ph Reduction - (Water Plant)
Resolution CA0342015

**Supplemental Staff Review
Request to Purchase Goods**

PERIOD ENDING 06/30/2016

GL NUMBER	DESCRIPTION	2015-16		ENCUMBRANCES APPROVED	YTD BALANCE 6/30/2016	UNENCUMBERED BALANCE
		ORIGINAL BUDGET	AMENDED BUDGET			
Fund 591 - Water Fund						
Dept 545.200-Water Plant - Operations						
591-545.200-740.000	Operating Supplies	1,500,000.00	2,000,000.00	40,000.00	0.00	1,960,000.00
Total Dept 545.200-Water Plant - Operations		1,500,000.00	2,000,000.00	40,000.00	0.00	1,960,000.00
Fund 591 - Water Fund:						
TOTAL EXPENDITURES		1,500,000.00	2,000,000.00	40,000.00	0.00	1,960,000.00

The Flint Water Plant uses liquid carbon dioxide for PH reduction for the plant's post softening process. The Flint Water Plant sought competitive bids for liquid carbon dioxide delivery through the Purchasing Department, and Airgas was the lowest bidder.

The Department of Public Works, Water Plant, is requesting a purchase order in the amount of \$100,000 be issued to Airgas USA, LLC for the macro delivery of liquid carbon dioxide.

EXHIBIT 77

150493

(Proposal No. 16000500)

SUBMISSION NO.: CA0332015

PRESENTED: 7-1-15

ADOPTED: RTAB 8-12-15

RESOLUTION TO ALEXANDER CHEMICAL CORP. FOR BULK LIQUID CHLORINE DELIVERY AT THE WATER POLLUTION CONTROL AND WATER TREATMENT PLANT

BY THE CITY ADMINISTRATOR

RESOLUTION

The Department of Purchases & Supplies has solicited a proposal for the annual bulk delivery of liquid chlorine at the sewerage and water treatment plants as requested by DPW Utilities Water Pollution Control and Water Plant; and

Alexander Chemical Corporation, A Carus Company, 315 Fifth Street, Peru, Illinois, was the low proposal received from three solicitations for said requirements. Funding for said services will come from the following accounts: 591-545.200-740.000 (\$70,000.00), 590-550.100-740.500 (\$35,000.00); and

IT IS RESOLVED, that the Department of Purchases and Supplies, upon City Council's approval, is hereby authorized to issue a purchase orders to Alexander Chemical Corporation for the bulk delivery of liquid chlorine at the sewerage and water treatment plants in an fiscal year FY16 amount not to exceed \$105,000.00. (Water Fund, Sewer Fund)

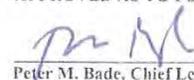
APPROVED PURCHASING DEPT.:

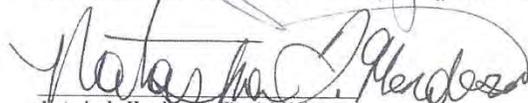

Derrick Jones, Purchasing Manager

APPROVED AS TO FINANCE:


Jody Lundquist, Chief Financial Officer

APPROVED AS TO FORM:


Peter M. Bade, Chief Legal Officer


Natasha L. Henderson, City Administrator

RECEIVERSHIP TRANSITION
ADVISORY BOARD:

CITY COUNCIL:


Joshua Freerhall, Council President

**ADOPTED BY THE
RECEIVERSHIP TRANSITION
ADVISORY BOARD
AUGUST 12, 2015**

PRESENTED TO CITY COUNCIL: 7/08/2015

ADOPTED BY CITY COUNCIL: 7/13/2015

RESOLUTION STAFF REVIEW

May 28, 2015

Agenda Item Title: Water Plant – Liquid Chlorine

Background/Summary of Proposed Action:

The Flint Water Plant uses liquid Chlorine for post chlorination in the distribution system.

The Flint Water Plant sought competitive bidding for Liquid Chlorine through the Purchasing Department and Alexander Chemical was the lowest bidder.

Financial Implications:

Please approve the Purchase Order with Alexander Chemical. The funds are available in the FY 2016 approved budget amount of \$70,000.00 using account 591-545.200-740.000.

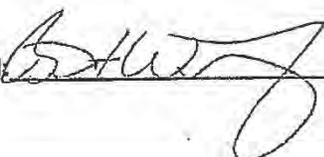
Budgeted Expenditure? Yes No Please explain if no:

Account No.: 591-545.200-740.000.

Pre-encumbered? Yes No Requisition: 150000194

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

Staff Recommendation: Approve

Department Approval: 

RESOLUTION STAFF REVIEW

July 2, 2015

Agenda Item Title: Liquid Chlorine: Alexander Chemical Corp. |
BID 16-500 (REQ150000209) |

Submitted By: Robert J. Case, WPC Supervisor

Background/Summary of Proposed Action:

The Water Pollution Control Facility operates a disinfection process as mandated by its National Pollution Discharge Elimination System permit (NPDES). The disinfection process utilizes chlorine to kill bacteria in its effluent discharge to the Flint River. The Chemical must be applied continuously.

Financial Implications:

Please issue a purchase order in the FY 2016 approved budget amount of \$35,000 for Liquid Chlorine. Use account 590-550.100-740.500 when issuing this purchase order.

Budgeted Expenditure? Yes No Please explain if no:

Account No.: 590-550.100-740.500

Pre-encumbered? Yes No Requisition: 150000209

Other Implications (i.e., collective bargaining):

Staff Recommendation: Approve

Staff Person RF for R. Case
Cost Center Manager or Dept. Head

Alexander Chemical, Corp.- Liquid Chlorine Delivery (Water Pollution Control and Water Plant)
Resolution CA0332015

**Supplemental Staff Review
Request to Purchase Goods**

PERIOD ENDING 06/30/2016

GL NUMBER	DESCRIPTION	2015-16 ORIGINAL BUDGET	2015-16 AMENDED BUDGET	ENCUMBRANCES APPROVED	YTD BALANCE 6/30/2016	UNENCUMBERED BALANCE
Fund 590 - Sewer Fund						
Dept 550.100-Wpc Operations						
590-550.100-740.500	Treatment Chemicals	261,000.00	261,000.00	13,500.00	0.00	247,500.00
Total Dept 550.100-Wpc Operations		261,000.00	261,000.00	13,500.00	0.00	247,500.00
Fund 590 - Sewer Fund:						
TOTAL EXPENDITURES		261,000.00	261,000.00	13,500.00	0.00	247,500.00
Fund 591 - Water Fund						
Dept 545.200-Water Plant - Operations						
591-545.200-740.000	Operating Supplies	1,500,000.00	2,000,000.00	40,000.00	0.00	1,960,000.00
Total Dept 545.200-Water Plant - Operations		1,500,000.00	2,000,000.00	40,000.00	0.00	1,960,000.00
Fund 591 - Water Fund:						
TOTAL EXPENDITURES		1,500,000.00	2,000,000.00	40,000.00	0.00	1,960,000.00

The Flint Water Plant uses liquid chlorine for post chlorination in the distribution system. The Water Pollution Control Facility operates a disinfection process, as mandated by the National Pollution Discharge Elimination System permit (NPDES). The disinfection process utilizes chlorine to kill bacteria in its effluent discharge to the Flint River. The chemical must be applied continuously. The Purchasing Department has solicited competitive bids for the liquid chlorine for these purposes, and Alexander Chemical Corp. was the lowest bidder.

The Department of Public Works, Water Plant and Water Pollution Control Facility, is requesting a purchase order in the amount of \$105,000 be issued to Alexander Chemical for the bulk delivery of liquid chlorine to the Water Pollution Control Facility and the Water Plant for the FY'16 fiscal year. Funding for these services will come from the following accounts: #590-550.100-740.500, \$35,000.00, and #591-545.200-740.000, \$70,000.00.

EXHIBIT 78

150851

(Proposal No. 16000529)

SUBMISSION NO.: CA0882015

PRESENTED: 9/23/15

ADOPTED: RTAB 10-14-15

RESOLUTION TO ETNA SUPPLY COMPANY FOR THE ANNUAL SUPPLY OF WATER DISTRIBUTION PIPE STAINLESS STEEL REPAIR CLAMPS AND REPAIR PARTS FOR THE WATER SERVICE CENTER

BY THE CITY ADMINISTRATOR

RESOLUTION

The Finance Department, Purchases and Supplies Division, has solicited a unit pricing proposal for the annual supply of water distribution pipe stainless steel repair clamps and repair parts for the Utilities Water Service Center; and

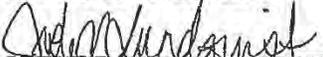
Etna Supply Company, 529 – 32nd Street, Grand Rapids, Michigan 49548 was the lowest responsive overall unit pricing proposal received from four solicitations for said clamps and repair parts. The funding for this purchase will come from the following account: 591-540.202-726.000; and

IT IS RESOLVED, that the Finance Department is authorized to issue a purchase order to Etna Supply Company for the annual supply of water distribution pipe stainless steel repair clamps and repair parts for the Utilities Water Service Center in an amount not to exceed \$130,000.00. (Water Fund)

APPROVED PURCHASING DEPT.:


Derrick Jones, Purchasing Manager

APPROVED AS TO FINANCE:


Jody N. Lundquist, Chief Financial Officer

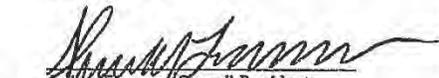
APPROVED AS TO FORM:


Peter M. Bade, Chief Legal Officer


Natasha L. Henderson, City Administrator

RECEIVERSHIP TRANSITION
ADVISORY BOARD:

CITY COUNCIL:


Jennifer Freeman, Council President

**ADOPTED BY THE
RECEIVERSHIP TRANSITION
ADVISORY BOARD
OCTOBER 14, 2015**

PRESENTED TO CITY COUNCIL: 9/28/2015

ADOPTED BY CITY COUNCIL: 9/28/2015

RESOLUTION STAFF REVIEW

DATE: 7-1-15

Agenda Item Title: Repair Clamp and Water Service Parts

Prepared By: Cheri Priest, Water Service Center

Background/Summary of Proposed Action: The City of Flint Water Service Center requests that a purchase order be issued for the purchase of stainless steel repair clamps and miscellaneous service parts which are used in the repair of water mains and service lines.

Financial Implications: Adequate funding has been allocated for this purchase

Budgeted Expenditure? Yes No Please explain if no:

Account No.: 591-540.202-726-000 \$130,000.00

Pre-encumbered? Yes No Requisition # 150000608

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

Staff Recommendation: Recommend Approval

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

EXHIBIT 79

150434

(Proposal No. 844)

SUBMISSION NO.: CA0132015

PRESENTED: 5-20-15

ADOPTED: RTAB 6-11-15

RESOLUTION FOR CONTRACT CHANGE ORDER #3 TO ROWE ENGINEERING SERVICES FOR THE NEW IROQUOIS & DUPONT WATERMAIN DESIGN

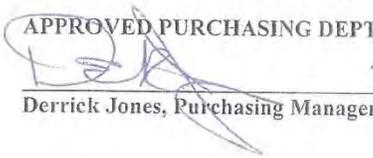
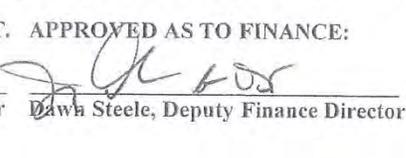
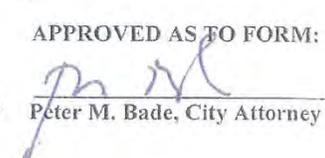
BY THE MAYOR

RESOLUTION

On October 17, 2014, the Emergency Manager by resolution number EME5672014 authorized the Proper City Officials to enter into change order #2 to contract #F13149 with Rowe Engineering, PO Box 3748, Flint, Michigan for professional engineering services in the amount of \$190,000.00 and a new contract total amount of \$315,000.00; and

The DPW Utilities/Water Service Center has requested the need for additional professional engineering services for the construction and installation design of the new Iroquois and Dupont Street watermain project in the amount of \$210,000.00. Funding for said services will come from the following account: 591-540.300-801.000; and

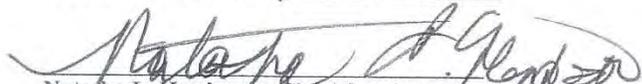
IT IS RESOLVED, that the Appropriate City Officials, upon the City Council's approval, are hereby authorized to issue a change order #3 to Rowe Engineering for additional professional engineering services for the construction and installation design of the new Iroquois and Dupont Street watermain project in an amount not to exceed \$210,000.00 for a revised aggregate FY15 total of \$525,000.00. (Water Fund)

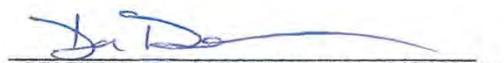
<u>APPROVED PURCHASING DEPT.</u>	<u>APPROVED AS TO FINANCE:</u>	<u>APPROVED AS TO FORM:</u>
		
Derrick Jones, Purchasing Manager	Dawn Steele, Deputy Finance Director	Peter M. Bade, City Attorney

DISPOSITION: ADMINISTRATION

DISPOSITION: CITY COUNCIL

REFER TO COUNCIL FAIL


Natasha L. Henderson, City Administrator


PRESENTED TO CITY COUNCIL: 5/27/2015
ADOPTED BY CITY COUNCIL: 5/27/2015

DISPOSITION: RECEIVERSHIP TRANSITION ADVISORY BOARD (RTAB)

ENACT _____ ADOPTED BY THE _____ FAIL _____

**RECEIVERSHIP TRANSITION
ADVISORY BOARD**

SIGNED: _____

JUNE 11, 2015

FY15 - BDB

RESOLUTION STAFF REVIEW

DATE: 5-11-15

Agenda Item Title: Water Main Replacement – Iroquois Avenue

Prepared By: Cheri Priest, Water Service Center

Background/Summary of Proposed Action: The City of Flint Water Service Center requests that that change order #3 be issued to Rowe Engineering for additional engineering services for the above project. See attached specification sheet for proposal details.

Financial Implications: Adequate funding has been allocated in the below listed account.

Budgeted Expenditure? Yes No Please explain if no:

Account No.: 591-540.100-300-000

Pre-encumbered? Yes No Requisition #150000360

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

Staff Recommendation: Recommend Approval

Staff Person:

Robert Binesik

(Dept Head or other authorized staff)

EXHIBIT 80

STATE OF MICHIGAN CONTRACT NO. 271N3200089

CITY OF FLINT WATER SUPPLY ASSESSMENT
February 2013

For Submittal to:

State of Michigan, Department of Treasury



Submitted by:

TY TUCKER, YOUNG,
JT JACKSON, TULL INC.

CONSULTING ENGINEERS-PLANNERS
615 Griswold Suite 600
Detroit, Michigan 48226
(313)963-0612 FAX (313)963-2156

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1. INTRODUCTION

Tucker, Young, Jackson, Tull, Inc. (TYJT), at the request of the State Treasurer performed an analysis of the water supply options being considered by the City of Flint. The City of Flint is presently supplied potable water from the Detroit Water and Sewerage Department (DWSD). This supply is from a single 72-inch water main that terminates at a master meter located at Potter and Baxter. Additionally, downstream of the DWSD master meter, Flint supplies its customer Genesee County. The City of Flint also operates a water treatment plant that uses the Flint River as its source of supply to provide back up and redundancy to the DWSD supply as required by MDEQ

The Karegnondi Water Authority (KWA) is planning on constructing a raw water supply system that could provide Lake Huron water to the Flint Water Treatment Plant. Flint's existing plant would be upgraded to treat the new raw water source.

The State Treasurer has appointed an emergency financial manager for the City of Flint. As such the Treasurer has requested TYJT to provide an analysis of the water supply options to assist the Treasurer in determining any potential risk and the best course going forward for supplying potable water to the City of Flint.

Report Organization

The following sections of this report are described below:

Section 2 – The basis of the analysis is described in this section. The options include the KWA option and several options offered by DWSD.

Section 3 – A significant amount of information and data was collected including memorandums, reports, drawings, financial reports, and other documents. This section summarizes the information used in the analysis.

Section 4 – This section describes the evaluation of the cost of supply for the Flint options. The costs are comprised of the initial cost of operations plus the annual rate of escalation/inflation.

Section 5 – The evaluation process used to analyze the construction costs associated with the KWA supply system is described in this section. Additionally, the cost of financing the capital requirements is described.

Section 6 – This section presents the financial review of the options considered to supply potable water to Flint. A summary of these options is also provided.

Section 7 – In addition to the financial analysis other considerations were identified that should be considered in understanding the risks and determining the best option to supply Flint. They include items related to cost, redundancy and reliability, and Flint's ability to control their future cost of water supply.

2. FLINT WATER SUPPLY OPTIONS

Two water purveyor options were evaluated; the KWA water supply system and continued supply from DWSD. Both suppliers would provide water from Lake Huron as the source. The KWA system is a raw water supply, which means that the water would have to be treated by Flint before distributing the potable water to its customers. The DWSD supply is potable or “finished” water and would not need additional treatment.

Additionally, an option for the Flint WTP to supply the City of Flint without being supplied from either DWSD or KWA was initially considered. The preliminary investigation evaluated the cost associated with the required improvements to the plant and to the Flint River dam system. Although it appeared that this was a viable option, Flint in a meeting on December 20, 2012 with the Treasury, stated that the City did not want to pursue the option and it is no longer being considered.

Karegnondi Water Authority (KWA) Lake Huron Water Supply

The KWA water supply system schematic is shown in Figure 2-1. The system is comprised of an intake in Lake Huron that supplies water to the Lake Huron Pump Station (LHPS). The LHPS lifts the water and pumps it through an approximately 22 mile long 60-inch pipeline. The pipeline terminates at a 5 MG reservoir and is then pumped from the Intermediate Pump Station (IPS) through approximately 26 miles of 60-inch and 18 miles of 30-inch pipeline to the existing Flint WTP. Downstream of the IPS, approximately half way to the Flint WTP, the 60-inch line would also supply a new Genesee County WTP.

The raw water transmission system has a 60 MGD capacity and is sized to deliver a maximum of 18 MGD to the Flint WTP with an average day supply of 12 MGD. Improvements at the Flint WTP would also be required to treat the lake water as the plant is currently designed to treat the Flint River water.

The term of the KWA contract for Flint is 40 years.

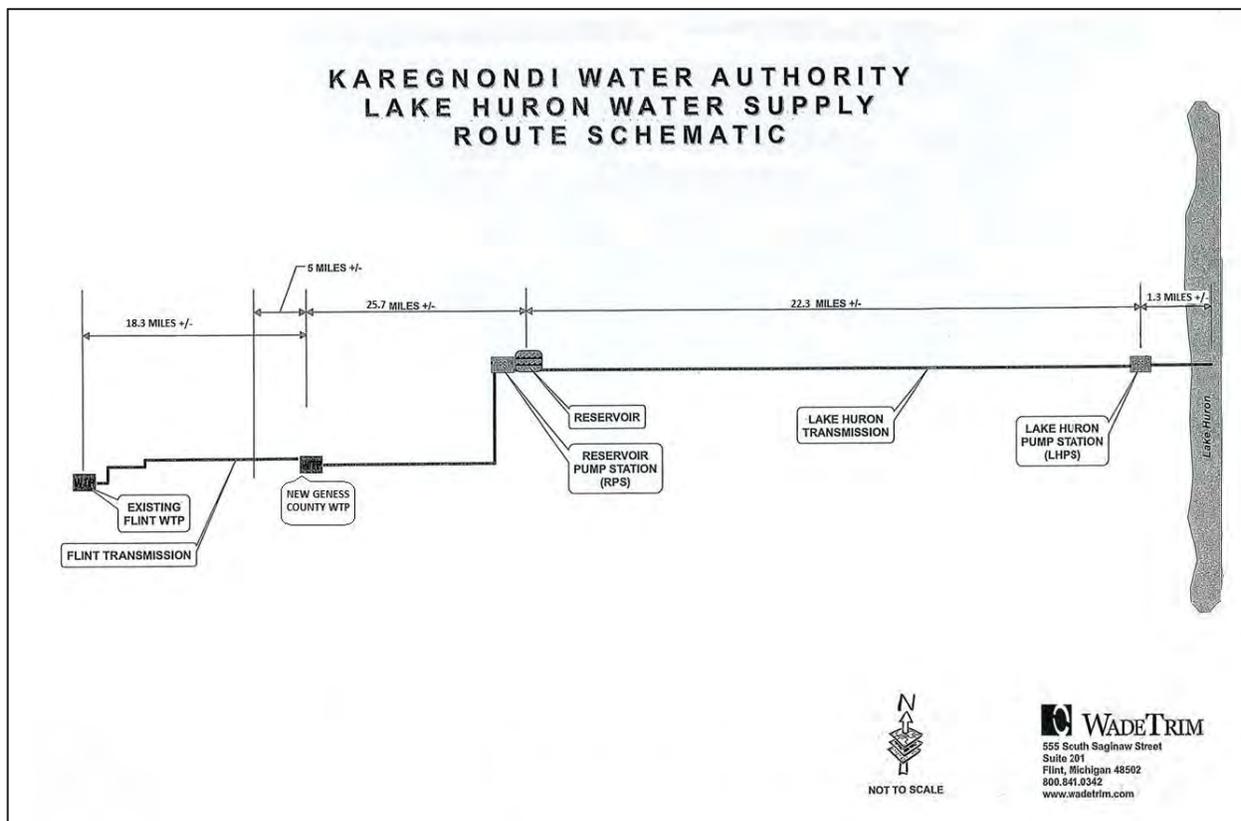


Figure 2-1: KWA Raw Water System

DWSD Water System

The DWSD system schematic is shown in Figure 2-2. Flint is currently supplied by DWSD at Master Meter FL-1, located at Potter and Baxter. Flint typically gets its water from the Lake Huron WTP, located in Fort Gratiot, Michigan; near the Lake Huron shoreline. Water is treated and pumped at the Lake Huron WTP and supplied through a 120-inch pipeline to an intermediate pump station called the Imlay Pump Station. The Imlay Pump Station has 20 MG of reservoir capacity. Depending on the time of year and the DWSD system demand, water is either bypassed directly to Flint or it is re-pumped at Imlay. It should be noted that the DWSD supply to Flint is part of a very large water system and during emergencies or outages water can be supplied from the south up to Flint in lieu of the Lake Huron facility.

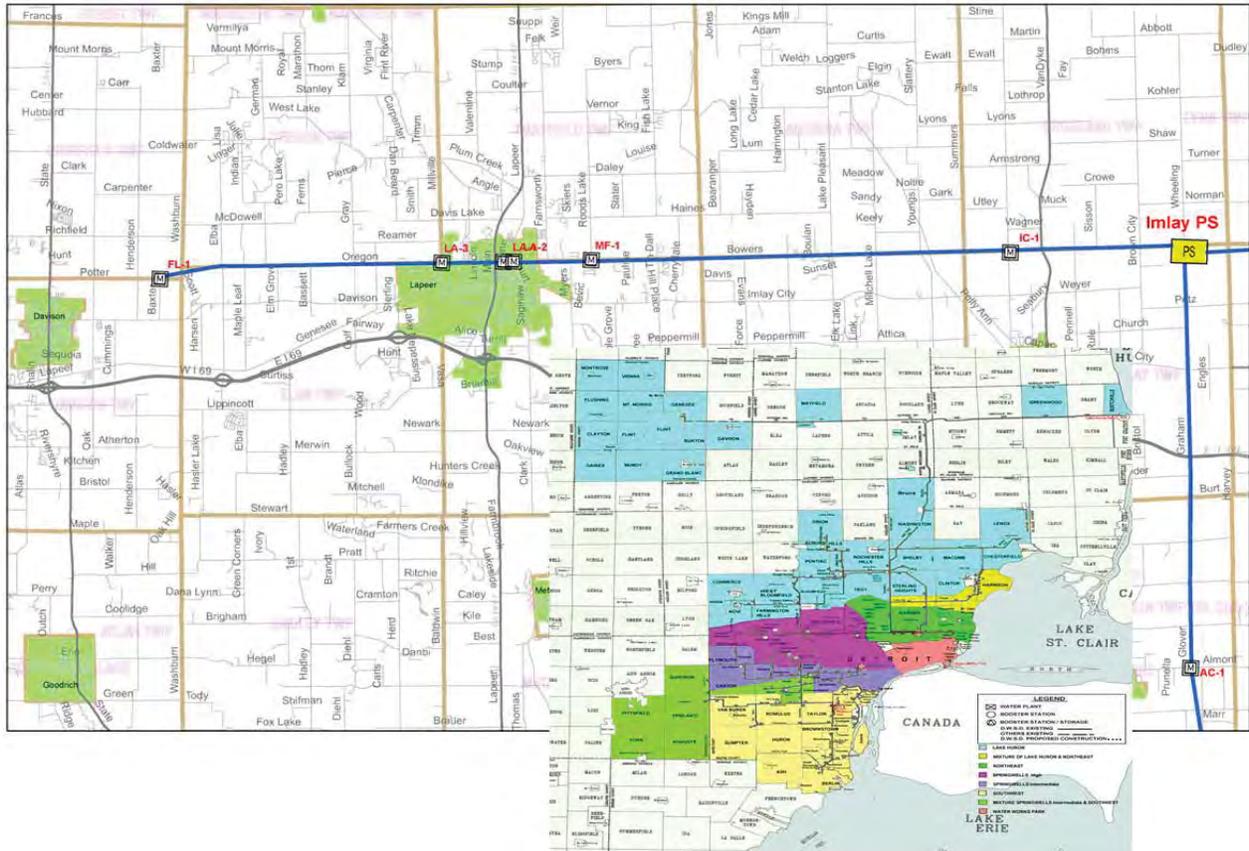


Figure 2-2: DWSD Water System

The pipeline from Imlay to FL-1 is a 72-inch pipeline. It has been estimated that the 72-inch line serving Flint has a capacity in excess of 90 MGD.

DWSD has presented several contractual options to Flint and all of them are based on Flint signing a new 30 year contract. The options shown in Table 2-1 are based on two different supply points; one at the current master meter location FL-1 at Potter and Baxter (P&B) and the other at the location of the Imlay Pump Station. The reason for the varying options is to provide a lower water rate at the Imlay Station, since the DWSD rate formula is based on distance and elevation factors related to the supply location.

The rates are also dependent on the maximum amount of water DWSD supplies. As example, if DWSD supplies a maximum day demand of 18 MGD that would equal the entire amount of water required by Flint.

For the options less than the maximum of 18 MGD means that the Flint WTP would supplement the difference by supplying water treated from the Flint River. These options are known as “blending” and would allow for Flint to blend two sources of water to supply its customers; the Flint River using the Flint WTP and Lake Huron from DWSD system.

Description	Average Day Demand
18 MGD Maximum Day Customer – FL-1	12 MGD
12 MGD Maximum Day Customer – FL-1	8 MGD
8 MGD Maximum Day Customer – FL-1	8 MGD
12 MGD Maximum Day Customer - Imlay	12 MGD
8 MGD Maximum Day Customer - Imlay	12 MGD

Table 2-1: DWSD Supply Options

3. DATA COLLECTION

During the course of the investigation several documents were used to perform the analysis. The names of the documents are listed below for reference.

KWA and Flint

- Preliminary Engineering Report, Lake Huron Water Supply Karegnondi Water Authority, September 2009;
- Analysis of the Flint River as a Permanent Water Supply for the City of Flint, July 2011;
- Cost Comparison, KWA vs. DWSD, Letter to Mr. Kurtz, October 31, 2012;
- Lake Huron Supply Study, KWA, Appendix 20, October 2012 Preliminary Report Update, Final Report (DRAFT), October 4, 2012;
- Articles of Incorporation of Karegnondi Water Authority, endorsed in 2010;
- Karegnondi Water Authority Bylaws, October 26, 2010;
- KWA Raw Water Supply Contract;
- Flint WTP Statement of Revenues and Expenditures 09' – 12';
- GCDC Division of Water and Waste Services Financial Statements 03' – 11'; and
- Assorted emails with further clarification of questions and documentation.

DWSD

- Historical Rates and Charges to Flint 04' – 13';
- Historical Rates and Charges to Flint with Hypothetical Model Contract 10' – 13';
- 2013 Rates and Charges for the following options:
 - 18 MGD Maximum Day Customer at FL-1;
 - 12 MGD Maximum Day Customer at FL-1 (Flint blending*);
 - 8 MGD Maximum Day Customer at FL-1 (Flint blending*);
 - 12 MGD Maximum Day Customer at Imlay (Flint blending*);
 - 8 MGD Maximum Day Customer at Imlay (Flint blending*); and
- Assorted emails with further clarification of questions and documentation.

- * Flint blending based on DWSD supplying two-thirds and Flint one-third of 12 MGD average day demand.

Two meetings were also held; one with DWSD and one with Flint and Genesee County representing KWA. The meetings were held on November 19, 2012 and November 20, 2012, respectively. Minutes from these meetings are included in Appendix A.

4. COST OF SERVICE

Information provided by DWSD, Flint, and representatives of the KWA were used in the cost of service evaluation. To evaluate the annual escalation/inflation rate over the planning period, the rate adjustment for DWSD was estimated based on the recent rate adjustment history. For the KWA system both the estimated cost of operations when the system begins supplying water and the annual rate adjustment or inflation was evaluated. The existing cost of operations and escalation for the Flint WTP was based on actual costs provided and then adjusted depending on the scenario considered. This section describes the evaluation process and the rates used in the analysis.

DWSD Water Supply

The City of Flint has been a customer of DWSD since 1967. The Flint WTP has been maintained as a backup to the DWSD system. As indicated previously, several options were provided by DWSD depending on the type of service Flint was to select. The unit cost of water for each of these options is shown in Table 4-1. These rates are based on DWSD's FY13, which are current until July 2013.

Description	Average Day Demand (MGD)	Unit Rate (\$/MCF)
18 MGD Maximum Day Customer – FL-1	12	16.37
12 MGD Maximum Day Customer – FL-1	8	16.31
8 MGD Maximum Day Customer – FL-1	8	12.68
12 MGD Maximum Day Customer - Imlay	12	14.38
8 MGD Maximum Day Customer - Imlay	12	11.11

Table 4-1: Cost of DWSD Supply Options

To determine annual escalation rate, DWSD's last 10 years of history was used along with other large urban water systems in Michigan. The water systems used for benchmarking comparison were: Lansing, Grand Rapids, and Saginaw.

Table 4-2 identifies the annual and average rate of increase to Flint based on supplying water either to the current FL-1 at Potter and Baxter or Imlay. Note the last three years of the rates (FY 2011 through FY 2013) assumes that Flint's cost would be based on the new 30 year contract; FY 2011 being the first year that the new contract was available.

Fiscal Year	Average Unit Cost (\$/MCF)	Annual Change (%)
2004	11.06	
2005	10.24	-7.4
2006	10.56	3.1
2007	11.09	5.0
2008	11.35	2.3
2009	13.07	15.2
2010	11.73	-10.3
2011	13.89	18.4
2012	15.08	8.6
2013	16.24	7.7
Average		4.4%

From FL-1

Fiscal Year	Average Unit Cost (\$/MCF)	Annual Change (%)
2004	11.06	
2005	10.24	-7.4
2006	10.56	3.1
2007	11.09	5.0
2008	11.35	2.3
2009	13.07	15.2
2010	11.16	-14.6
2011	12.23	9.6
2012	13.28	8.6
2013	14.32	7.8
Average		2.9%

From Imlay

Table 4-2: Recent DWSD Water Rates

Audited financial reports were used to determine the rate of inflation associated with other three large municipal systems. The results are shown in Table 4-3.

Water Systems	Years Evaluated	Average Rate (%)
Lansing	05'-12'	4.6
Grand Rapids	04'-11'	1.6
Saginaw	04'-11'	7.0

Table 4-3: O&M Inflation Rates of Other Large Water Systems

Based on the information analyzed from DWSD and the other communities, it was determined that a fair annual rate of inflation for operations and maintenance cost for the analysis should be 4.4%. The 4.4% has historical significance from Flint's current water supplier and falls within the range of the other communities.

KWA Water Supply

The initial projected O&M cost for the KWA supply would be comprised of KWA's O&M costs as well as Flint's O&M costs. Because there was limited information provided, the initial estimated rate of \$1.50/MCF was used. This rate is based on information from the cost comparison analysis attached to the letter to Mr. Kurtz, dated October 31, 2012.

The KWA cost evaluation used an annual O&M inflation rate of 5%. To validate this rate a similar analysis to DWSD's operations and maintenance annual rate of inflation was used. First, in discussions with Flint and the Genesee County Drain Commission (GCDC), they believed that the annual rate of inflation for the new KWA system would be similar to the GCDC Water & Waste Services (WWS). Additionally, two large transmission systems were used to benchmark the inflation rates: the Southeastern Oakland County Water Authority (SOCWA) and the Ypsilanti Utility Community Authority (YUCA). Although both of these systems transmit finished water opposed to raw water, they were considered similar enough for comparison as they are comprised of only large water mains, pumping facilities and storage.

Once again audited financial statements were used to calculate the inflation rates. A summary of the findings are shown in Table 4-4. Based on the fact that the information analyzed showed a large difference between the two systems, it was determined that the KWA assumption of 5% was a good rate of inflation to use in the financial analysis. This rate is almost equally between the GCDC rate and the other two transmission systems.

Systems	Years Evaluated	Average Rate (%)
GCDC WWS	03' – 11'	10.5
SOCWA	04'-12'	--
YUCA	04'-12'	0.7

Table 4-4: O&M Inflation Rates of Other Comparable Systems to KWA

Flint WTP

The Flint WTP currently serves as a backup supply to the DWSD service to Flint. To maintain backup operations, the City of Flint operates the plant approximately 20 days each year. Flint indicated that the average production rate when they operate is 11 MGD.

For the blending options and the KWA supply considered, Flint would be required to operate its plant all year around. Therefore, their operating and maintenance costs were evaluated and adjusted to determine an annual cost associated with year-round operations.

The Flint WTP provided three years of operating costs for the assessment. Additionally, reports listed in Section 3 were also used as reference to determine both operating costs for the plant processing Flint River water (blending options) and Lake Huron raw water (KWA option).

Major cost centers were analyzed to estimate annual operation and maintenance. They included: labor, utilities, chemicals and residual management. In general, as recommended by the Flint plant staff, labor and overhead were increased from the current costs by two-thirds. Additionally, variable costs for power, chemicals and residual cost were increased to estimate full time treatment at the Flint WTP. Data from the KWA Preliminary Report and annual operating data for the Flint WTP (provided separately) were analyzed to make these forecasts.

The annual operating and maintenance costs developed for Flint WTP used are shown in Table 4-5.

Source of Supply	Average Daily Production (MGD)	Estimated Annual O&M Cost
Flint River (Blending with DWSD)	4	\$5,895,097
Lake Huron (Supplied by KWA)	12	\$7,913,118

Table 4-5: FY 13 O&M Costs for Year-round Operations

It was determined that a fair annual rate of inflation for operations and maintenance cost for the Flint WTP plant should be 4.51%. The 4.51% is an average of Lansing, Grand Rapids and Saginaw facilities.

5. CAPITAL REQUIREMENTS

Large capital investments would be required by Flint and GCDC to construct the KWA supply system. Furthermore, some of the options presented by DWSD (supply point from Imlay) would require the purchase by Flint of DWSD's 72-inch water main. Performing the financial analysis; therefore, required an analysis of the KWA construction cost estimate for the transmission system and Flint WTP improvements.

Revenue bonds were also identified as the source of financing the new supply system and associated improvements. This section describes the assumptions made and the interest used for financing the improvements.

KWA Supply System

The most current cost estimate of the KWA system was presented in the document titled; Lake Huron Supply Study, KWA, Appendix 20, October 2012 Preliminary Report Update, Final Report (DRAFT), October 4, 2012. The cost of construction is estimated at \$272,421,558. Flint's portion would be 30% or \$81,726,467.

Due to the significance of this expenditure, a detailed review of the cost was performed and is presented in this section. The analysis was performed based on the main elements of the supply system: the lake intake, the two pumping stations, and the transmission pipeline. Additionally, an analysis was performed related to construction contingencies and other costs such as engineering, legal, and administration.

Lake Intake

KWA representatives indicated in a meeting in November that the design documents for the intake were at 90% and that it was planned for advertisement in January 2013. A summary of the estimate is shown in Table 5-1.

Description	Estimate
Intake and Crib	\$22,076,850
ELAC at 25%	5,519,213
Property	2,300,000
Total	\$29,896,063

Table 5-1: KWA Intake Cost Estimate

Based on the evaluation, it appeared that the cost estimate was reasonable. Given that the design was nearly complete, the engineering, legal, administration, and construction contingencies (ELAC) at 25% were also found to be appropriate.

Pumping Stations

KWA representatives indicated that the pump stations were estimated at a level of design less than 15%. Therefore, in addition to an evaluation of their cost estimate, other water pumping station costs were used for comparison. Additionally, contractors were also contacted for costs. Table 5-2 summarizes the KWA cost estimate compared to our cost estimate performed for the Treasury.

Description	KWA	Estimate	TYJT	Estimate
Pumping Stations		\$24,618,080		\$54,573,314
Land for Intermediate Pump Station and Reservoir		--		75,000
Subtotal		\$24,618,080		\$54,648,314
ELAC for Construction	25%	6,154,520	30%	16,394,494
Total		\$30,772,600		\$71,042,808

Table 5-2: Pumping Stations Cost Estimate

Two things to note regarding the difference in the cost estimates; firstly, there is a large difference in the cost estimates of the pumping stations. The estimate developed for the Treasury used several other pumping stations construction costs from Southeastern Michigan and discussions with contractors. These costs were then computed on a \$/MG's for comparison.

Secondly, our estimate for the Treasury is based on an ELAC of 30% instead of KWA's 25%. Although 25% was acceptable for the intake, it is believed to be too low for the pumping station estimate given that the engineering effort is less than 15%.

Transmission Main

Although the specific route for the transmission main was not provided, an estimate was calculated based on the general information provided. Once again, the KWA estimate was based on a level of design less than 15%. The estimate performed for the Treasury used the line items provided by KWA for the pipeline and also consulted with contractors to evaluate the cost of construction. The comparison is shown in Table 5-3.

Although the cost of construction of the pipeline is similar, a value of 30% was used for ELAC due to the level of design. Additionally, KWA did not believe there would be any additional costs for easements; however, this did not seem practical. Therefore an estimate for acquiring the easements was added to the Treasury estimate and is based on the 277 easements identified by KWA. The cost shown includes surveying, legal, engineering, administration, etc.

Description	KWA	Estimate	TYJT	Estimate
Transmission Mains		\$166,202,316		\$167,419,530
ELAC for Construction	25%	41,550,579	30%	50,225,859
Subtotal		\$207,752,895		\$217,645,389
Easements		--		1,166,170
Total		\$207,752,895		\$218,811,559

Table 5-3: Transmission Pipeline Cost Estimate

Other KWA Costs

In prior estimates of the construction cost, KWA used an ELAC of 37%. In this case it could be considered that the engineering effort associated with the design would have been included. However, it is believed that KWA's reduced ELAC of 25%, does not include the design effort. Additionally, it would be prudent to assume that the owner would want a construction manager during construction of this large project. A summary of these costs are shown in Table 5-4.

Description	Estimate
Design Engineering for Pumping Stations and the Transmission Pipeline	\$16,939,581
Construction Management at 5% of Project Cost Estimate of \$217,645,389	14,434,609
Administration	349,440
Legal, Easements, Contract Documents	831,000
Total	\$32,554,630

Table 5-4: Other Costs

Summary Comparison

A summary of the two cost estimates are shown in Table 5-5. Based on the comparison, the estimate performed by TYJT shows a higher cost to Flint by approximately \$25,000,000.

Note that there are two other costs shown in the summary that were not previously addressed; power and backup power. Regarding the cost of providing power to the pumping facilities, the cost of \$4,000,000 appears reasonable.

The KWA has repeatedly indicated that backup power is not needed. Backup power is a standard practice in the water industry. Furthermore, a loss of power at either pumping facility will prevent the supply of water to both Flint and Genesee County. For these reasons, the cost of providing backup power was included in our estimate for the Treasury.

Description	KWA Estimate	TYJT Estimate
Intake/Crib	\$ 27,596,063	\$ 27,596,063
Pump Stations	30,772,600	71,042,808
Transmission Mains	207,752,895	217,645,389
Power	4,000,000	4,000,000
Redundant Power for PS		1,273,200
Land for Lake Huron Pumping Station	2,300,000	2,300,000
Design Engineering/PS and Transmission		16,939,581
Construction Management		14,434,410
Administration		349,440
Legal/Easement/Contract Documents		831,000
Easements		1,166,170
Total	\$ 272,421,558	\$ 357,578,060
Flint Share at 30%	\$81,726,467	\$107,273,418

Table 5-5: Total Cost Comparison

Flint WTP Improvements

The KWA analysis identified capital costs required to convert the existing WTP from river water treatment to treating lake water. The cost estimate was identified as \$7,100,000 in the 2009 report. This number was used in the our analysis, since additional information was not provided. For the purpose of the financial analysis; however, the \$7,100,000 was increased by 3% each year for three years to account for inflation.

DWSD Imlay Station Supply Options

The options identified by DWSD to supply service to Flint at the Imlay Pump Station would require Flint to purchase the 72-inch water main from Imlay to Master Meter, FL-1. The pipeline is approximately 25 miles long. The estimated cost provided by DWSD for estimating purposes is \$4,700,000.

Financing

The cost of financing the revenue bonds for the capital work was investigated. Based on conversations with local financial advisors knowledgeable in bond financing, an interest rate of 5% for the 25 year

period was considered acceptable. This is based on a Standard and Poor's bond rating of A without insurance.

Additional costs associated with the bond include the reserve and bond issuance fee. The bond holders will require a reserve of approximately 10% of the loan to be held for the 25 year payment period. The cost associated with the bond issuance has been estimated at 2.25% of the principal borrowed for the KWA project and 3% for the smaller loan associated with the Flint WTP improvements or the purchase of the 72-inch main.

Furthermore, since no revenue will be generated to pay on the bonds for the first three years that the system is being constructed, the cost associated with capitalizing the interest was also included.

Finally, interest on the reserve will be provided back to KWA and Flint. Although the interest is currently less than 1%, it was determined that a 3% rate would be more prudent long-term.

6. FINDINGS

Using the information described in the previous sections, a cost evaluation was conducted for the KWA supply and the DWSD options. Individual worksheets for each option are provided in Appendix B. For the purpose of comparison a 30 year period was used. This period includes the 3 year construction period, the 25 loan period and an additional two years to get a sense of the cost of operation after the loans have been paid.

There were three separate cost sheets prepared for the KWA option. The first cost sheet (KWA) is based on the cost estimate provided by KWA. The costs provided assumed no overruns or delay in construction. With KWA's own assumptions of an overrun in construction of 15% and a one year delay in operations, the KWA estimated cost becomes \$686,375,920 through Year 2042.

Since this cost estimate did not appear to include the financing of revenue bonds, another cost sheet (KWA-1) was developed that included KWA's cost estimate without overruns with the additional finance costs associated with the revenue bonds. A final cost sheet (KWA-2) includes the cost associated with the revenue bonds based on the estimate provided by TYJT for the Treasury.

A summary of the cost sheets provided in Appendix B are shown in Table 6-1. Figure 6-1 shows the cumulative annual costs associated with each option.

Option	Costs through 2042 (\$)	Ranking by Cost
DWSD 8 MGD Maximum Day at Imlay Station	634,795,488	1
KWA (10/31/12 No Overruns, As Provided)*	649,775,166	2
DWSD 8 MGD Maximum Day at FL-1	672,671,705	3
KWA-1 (10/31/12 No Overruns with Cost of Financing)	707,279,715	4
DWSD 12 MGD Maximum Day at Imlay Station	725,576,803	5
DWSD 12 MGD Maximum Day at FL-1	762,110,308	6
KWA-2 (Treasury Estimate)	766,784,313	7
DWSD 18 MGD Maximum Day at FL-1	821,226,268	8

* \$686,375,920 with 15% overrun in construction and a one year delay in operations

Table 6-1: Total Cost of Options through 2042

Based on the analysis, it is prudent to assume the KWA water supply option costs would be somewhere between the KWA-1 and KWA-2 options. Therefore, the analysis indicates that the two DWSD options of supplying 8 MGD on a maximum day and up to 8 MGD on average are the least cost options for Flint. These options allow Flint to maximize the use of existing assets; the City of Flint's (the Flint WTP) and DWSD's (the existing 72-inch main).

Additionally, in recent conversations with the Treasury another option was discussed that could potentially be the most cost-effective solution. Currently the Flint WTP serves as a backup if service is

lost through either the DWSD or KWA pipeline. If the a twin pipe paralleling the DWSD 72-inch water main were constructed with interconnects with the 72-inch line, then the new water main could serve as the backup to Flint and the Flint WTP could be abandoned or potentially sold to Genesee County for their use.

The construction of the parallel pipeline would be considered in the DWSD capital expenditure as a Common to All (CTA) cost. This means that the capital cost of the pipeline would be shared by all DWSD customers and not just by Flint. Preliminary analysis of this option appears to be the most cost-effective of all the options discussed. However, a more thorough cost analysis is warranted and this approach would require an agreement between Flint and DWSD.

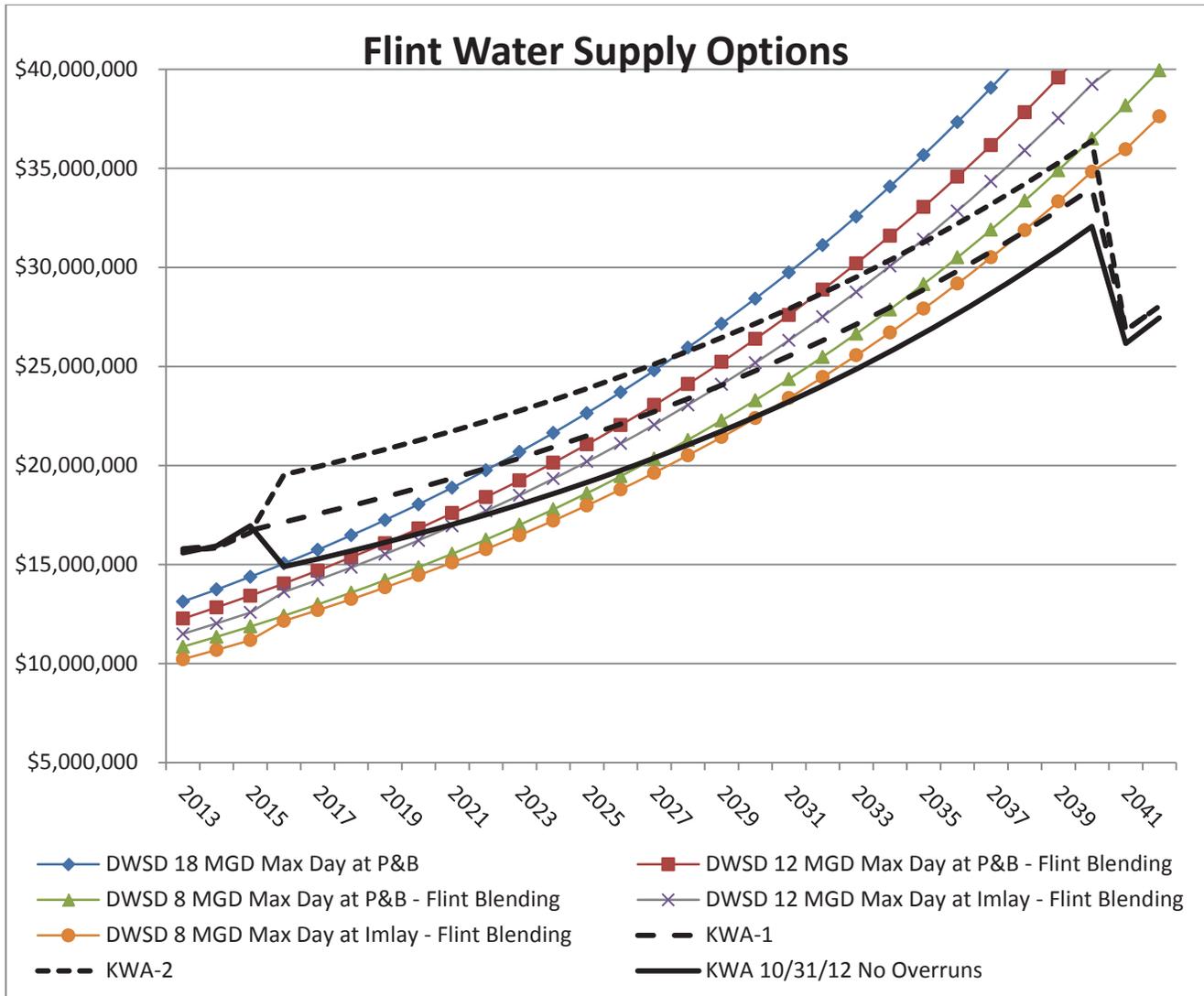


Figure 6-1: Flint Water Supply Options through 2042

7. OTHER CONSIDERATIONS

As part of the investigation other issues were identified that may result in risks to Flint that should be considered by the Treasury in determining how Flint's potable water should be supplied. These issues are related to redundancy and reliability, other items affecting cost, and Flint's desire to control its own destiny related to its water supply. These are described further below.

Redundancy/Reliability

In one of the first meetings related to this task assessment, which was held on November 1, 2012, the Genesee County Drain Commissioner, Mr. Jeff Wright, stated that one of the main reasons for pursuing the KWA supply option related to the lack of reliability of the DWSD system. He pointed to the Northeast blackout of 2003; a widespread power outage that occurred throughout parts of the Northeastern and Midwestern United States and Ontario, Canada, on Thursday, August 14, 2003. He stated that Flint and Genesee County were out of water for several days.

It is worth noting that this was a power outage of historic proportions that affected millions of Americans. However, DWSD did begin supplying water again relatively quickly in comparison to other major cities impacted by the same power outage.

Furthermore, the KWA supply system offers less redundancy to Flint than the current DWSD system. Under both options, Flint is supplied by a single pipeline; however, DWSD has backup power at all of its major facilities supplying Flint. The KWA system will not have a redundant power at its pumping facilities. This would be a major risk.

Currently, backup to the DWSD system for Flint is Flint's WTP using the Flint River as the source of supply. KWA has stated that the Flint River source would also be used as backup to Flint if the KWA supply through its pipeline was lost. However, since the Flint WTP would be upgraded to treat Lake Huron water under the KWA option, using the Flint River as a backup source would require the Flint WTP to maintain two process treatment streams.

In addition to Flint and Genesee County, the DWSD's 72-inch main supplies Imlay City, Mayfield and the Greater Lapeer County Utilities Authority (GLCUA). The volume of water contained within the 72-inch main is approximately 30 MG. Only supplying these three remaining communities would cause the water age to increase dramatically; somewhere in excess of three weeks old, before reaching the customers' master meters. Since the half-life of chlorine in the DWSD system is approximately 5 days, the chlorine would most probably be near zero requiring re-chlorination of the finished water upstream of the master meters.

Re-chlorinating is a costly and risky process due to the instability of chlorine gas. It is unknown whether DWSD would pursue this improvement or possibly abandoned the 72-inch pipeline.

If Flint is supplied by the KWA system, then DWSD supplying their other customers along the 72-inch water main may be reconsidered. Since the KWA system is a raw water supply, the communities would

either have to build a treatment facility to treat the water from KWA or find another water source for their communities.

Additional Cost and Risk Considerations

The design of the KWA supply and the construction of the system have not been completed; therefore, final costs and time to complete are unknown. Cost overruns and delays in completion will both negatively impact Flint's final cost. As example, if the project is not completed within the three year period, payment on the bonds will be due, but the revenue source needed from the sale of water could not be provided.

Furthermore, there is always a risk with large water system construction; especially those including an intake in the Great Lakes, pumping stations and rehabilitation of older water treatment plants. These risks include the potential of explosive gases in tunneling below Lake Huron, changing site conditions associated with the large number of miles of pipe installation and rehabilitating an older WTP, and the startup and debugging of the entire pumping system.

Flint has indicated that they have a high water loss. Not addressing this issue prior to sizing the Flint supply pipeline from KWA could cause the water main to be oversized along with its incremental cost in construction.

Also, the KWA supply option appears to run counter to the Treasury's Competitive Grant Assistance Program (Formerly EVIP Grant). This program has been put in place to allow for communities to consolidate their services and save money. Two existing customers of DWSD (Flint and Genesee County) along with the potential of others customers (GLCUA, Mayfield, Imlay City) separating to from another water system is in contradiction to the program.

Finally, there is a concern over the ability of smaller systems (KWA) over larger systems (DWSD) to pay for future unfunded mandates and regulations. Obviously, identifying regulation requirements over 30 years is hard to determine. However, it is widely accepted that a large system has greater ability to respond to unfunded mandates because the cost can be distributed over a large customer base.

Flint's Autonomy

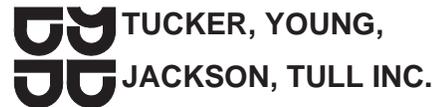
Flint has indicated that a major point of consideration is that they have no control over the rate increases issued to Flint by DWSD. All other counties supplied by DWSD have representatives on the Board of Water Commissioners (BOWC). The BOWC is one of the governing bodies that approve the water rates. Since Flint and Genesee County do not have a representative on the BOWC, Flint believes they are held "hostage" to DWSD's rates and cost of service.

This issue was stated in Flint's handout at the November 1, 2012 meeting. The handout is titled, "Flint Water Supply Future." However, it is worth noting in the same handout, Flint also identifies similar concerns with the governing board of the KWA system. Notably, that although Flint and Genesee County will be the only customers and Flint will be responsible for 30 percent of the construction cost,

they will have a minority vote on the KWA board. Furthermore, there are other communities (Lapeer County, the City of Lapeer, and Sanilac County) that sit on the board and vote. However, they are not purchasing water nor contributing to the construction costs.

STATE OF MICHIGAN CONTRACT NO. 271N3200089
CITY OF FLINT WATER SUPPLY ASSESSMENT
State of Michigan, Department of Treasury

Appendix A: Meeting Minutes



CONSULTING ENGINEERS-PLANNERS
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MEETING MINUTES

IN ATTENDANCE: Sue McCormick, DWSD Director
Darryl Latimer, DWSD Deputy Director
George Karmo, TYJT
Awni Qaqish, TYJT
Dave Guastella, TYJT

DATE: November 24, 2012

PURPOSE OF MEETING: Meeting with DWSD for the Indefinite-scope, Indefinite-delivery Contract Number 00383, 2012 Professional General Architectural/Engineering Services – City of Flint Water Supply Assessment

PREPARED BY: Dave Guastella

A meeting was held at the DWSD Main Office Building on November 19, 2012 to discuss the water supply options being presented by DWSD to the City of Flint. The main items discussed generally followed the attached DWSD Discussion/Questions that were provided to the Department prior to the meeting. A summary of the key points discussed are provided below.

DISCUSSION ITEMS

1. Question/Discussion Item: Verify that the four options presented at the November 1, 2012 meeting are still available for consideration:
 - a. Supplied from Potter & Baxter using the new model contract (assume a Maximum Day Customer),
 - b. Supplied from Imlay Station,
 - c. Finished un-pumped supply from Lake Huron WTP, and
 - d. Raw un-pumped supply from Lake Huron WTP.

DWSD prefers to focus on the first two supply point listed; from the current location at Potter & Baxter and at the Imlay Pump Station as these apply specifically to Flint.

DWSD provided the attached summary regarding the current costs to Flint based on the various options that DWSD is offering. The savings associated with each option is provided as well. As example, if Flint were to purchase water from the supply point located at Imlay Station, the current cost to Flint would be \$5,661,000 and it would be a savings of nearly 50%

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compared to Flint's current rate.

2. Question/Discussion Item: What additional capital improvements will be required for each option?

If Imlay Pump Station is selected as the supply point then Flint would need to purchase the 72-inch water main and an agreement to supply Lapeer would need to be worked out. DWSD believes that this could be worked out through a "wheeling" charge over the 72-inch main or possibly moving the supply point downstream of the Lapeer connection.. DWSD estimates the value of the water main at \$4.7M. Flint could bond for this amount or DWSD could include the cost into Flint's rate.

3. Question/Discussion Item: Are there other options being presented that should be considered (e.g., blending)?

Only the two options indicated above are currently being considered and both would include blending; DWSD providing 2/3 of the supply and the Flint WTP providing the other 1/3.

4. Question/Discussion Item: To evaluate each option over the 25 year planning period, provide:

- a. Annual water rate for Flint for 2002 through 2012, and the
- b. Projected annual rate adjustment for each option. What are the proposed measures to keep the rate adjustments down in the future?

DWSD provided the attached historical rates from 2002 through 2012 for the existing water contract with Flint. The attachment also includes what the rates would have been if Flint had signed the new model contract or had taken service from Imlay. These rates were provided back to 2010.

DWSD believes that 5% would be a good estimation to assume for their annual escalation in rates over the 25 year planning period.

5. Question/Discussion Item: Flint stated a 10% increase in the capacity charge. What number did DWSD provide Flint?

It was unclear to DWSD where the 10% increase in capacity charge stated by Flint came from. DWSD's information provided shows an average of 6.3%. DWSD offered a meeting with TYJT to discuss how the fixed and commodity charges are allocated.

6. Question/Discussion Item: Flint financial comparison is based on the initial Cost of \$14,413,858, which includes \$2,725,538 for Flint WTP operating cost; i.e, DWSD charge is \$11,688,320. How good is this number?

DWSD indicated that the charge of \$11,638,320 is good through 6/30/13.based on their existing contract with DWSD.

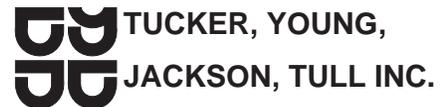
7. Question/Discussion Item: KWA's initial charge to Flint is based on 12 MGD. Is DWSD charge

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based on 12 MGD?

Yes, 12 MGD from DWSD would be a maximum with Flint supplying 6 MGD for a total of 18 MGD (2/3 vs. 1/3).

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**Indefinite-scope, Indefinite-delivery Contract Number 00383
2012 Professional General Architectural/Engineering Services**

CITY OF FLINT WATER SUPPLY ASSESSMENT

DWSD Discussion/Questions for the November 19, 2012 Meeting

1. Verify that the four options presented at the November 1, 2012 meeting are still available for consideration:
 - c. Supplied from Potter & Baxter using the new model contract (assume a Maximum Day Customer),
 - d. Supplied from Imlay Station,
 - e. Finished un-pumped supply from Lake Huron WTP, and
 - f. Raw un-pumped supply from Lake Huron WTP.
2. What additional capital improvements will be required for each option?
3. Are there other options being presented that should be considered (e.g., blending)?
4. To evaluate each option over the 25 year planning period, provide:
 - g. Annual water rate for Flint for 2002 through 2012, and the
 - h. Projected annual rate adjustment for each option. What are the proposed measures to keep the rate adjustments down in the future?
5. Flint stated a 10% increase in the capacity charge. What number did DWSD provide Flint?
6. Flint financial comparison is based on the initial Cost of \$14,413,858, which includes \$2,725,538 for Flint WTP operating cost, i.e DWSD charge is \$11,688,320. How good is this number?
7. KWA's initial charge to Flint is based on 12 MGD. Is DWSD charge based on 12 MGD?

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Summary of DWSD Cost Allocations to Flint Under Various Scenarios

Flint Only

	Revenue <u>Requirement</u>	Rates and Charges		
		<u>Fixed</u>	<u>Commodity</u>	<u>Avg Unit Cost</u>
1 Status Quo	11,461,700	357,271	12.46	19.91
2 Model Contract	9,732,100	275,517	11.16	16.90
3 Change	(1,729,600)	(81,754)	(1.30)	(3.00)
4 % Change	-15.1%	-22.9%	-10.4%	-15.1%
5 Max Day Only	9,424,700	271,010	10.72	16.37
6 Change	(307,400)	(4,507)	(0.44)	(0.53)
7 % Change	-3.3%	-1.7%	-4.1%	-3.3%
8 Allow Blending	6,302,800	182,369	10.72	16.42
9 Change	(3,121,900)	(88,641)	0.00	0.05
10 % Change	-49.5%	-48.6%	0.0%	0.3%
11 Imlay City Connections	5,800,700	170,912	9.77	15.11
12 Change	(502,100)	(11,457)	(0.95)	(1.31)
13 % Change	-8.7%	-6.7%	-9.7%	-8.7%
14 Cumulative Change	(5,661,000)	(186,359)	(2.69)	(4.80)
15 Cumulative %Change	-49.4%	-52.2%	-21.6%	-24.1%

Assumptions

	Avg Day	Max Day	Peak Hour	Distance	Elevation	Sales
	<i>mgd</i>	<i>mgd</i>	<i>mgd</i>	<i>miles</i>	<i>feet</i>	<i>mgd</i>
1 Status Quo	11.8	21.6	22.6	52.0	866	11.8
2 Model Contract	11.8	17.9	18.8	52.0	866	11.8
3 Max Day Only	11.8	17.9	17.9	52.0	866	11.8
4 Allow Blending	7.9	11.9	11.9	52.0	866	7.9
5 Imlay City Connections	7.9	11.9	11.9	45.2	866	7.9

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PA 00525

Recent DWSD Water Rates to Flint

FY	Rates and Charges			Annual Change			Average Annual Change
	Fixed \$/mo	Commodity \$/Mcf	Avg Unit Cost \$/Mcf	Fixed \$/mo	Commodity \$/Mcf	Avg Unit Cost \$/Mcf	
<i>As Charged</i>							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		14.32	14.32			9.6%	
2011	182,301	14.29	16.01		-0.2%	11.8%	
2012	443,096	13.36	17.53	143.1%	-6.5%	9.5%	
2013	707,000	12.46	19.12	59.6%	-6.7%	9.1%	6.3%
<i>Hypothetical Model Contract</i>							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		13.96	13.96			6.8%	
2011	145,918	13.74	15.28		-1.6%	9.5%	
2012	378,968	12.58	16.57	159.7%	-8.4%	8.4%	
2013	597,323	11.63	17.93	57.6%	-7.6%	8.2%	5.5%

Recent DWSD Water Rates to Flint

FY	Rates and Charges			Annual Change			Average Annual Change
	Fixed \$/mo	Commodity \$/Mcf	Avg Unit Cost \$/Mcf	Fixed \$/mo	Commodity \$/Mcf	Avg Unit Cost \$/Mcf	
<i>As Charged</i>							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		14.32	14.32			9.6%	
2011	182,301	14.29	16.01		-0.2%	11.8%	
2012	443,096	13.36	17.53	143.1%	-6.5%	9.5%	
2013	707,000	12.46	19.12	59.6%	-6.7%	9.1%	6.3%
<i>Hypothetical Model Contract - Flint Only</i>							
2004		11.06	11.06				
2005		10.24	10.24			-7.4%	
2006		10.56	10.56			3.1%	
2007		11.09	11.09			5.0%	
2008		11.35	11.35			2.3%	
2009		13.07	13.07			15.2%	
2010		11.73	11.73			-10.3%	
2011	70,060	12.45	13.89		6.1%	18.4%	
2012	175,882	11.47	15.08	151.0%	-7.9%	8.6%	
2013	272,923	10.65	16.24	55.2%	-7.1%	7.7%	4.4%

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Recent DWSD Water Rates to Flint

FY	Rates and Charges			Annual Change			Average
	Fixed \$/mo	Commodity \$/Mcf	Avg Unit Cost \$/Mcf	Fixed \$/mo	Commodity \$/Mcf	Avg Unit Cost \$/Mcf	Annual Change
<i>As Charged</i>							
2004		11.06	11.06				
2005		10.24	10.24				-7.4%
2006		10.56	10.56				3.1%
2007		11.09	11.09				5.0%
2008		11.35	11.35				2.3%
2009		13.07	13.07				15.2%
2010		14.32	14.32				9.6%
2011	182,301	14.29	16.01		-0.2%		11.8%
2012	443,096	13.36	17.53	143.1%	-6.5%		9.5%
2013	707,000	12.46	19.12	59.6%	-6.7%		6.3%
<i>Hypothetical Model Contract - Flint Only @ Imlay</i>							
2004		11.06	11.06				
2005		10.24	10.24				-7.4%
2006		10.56	10.56				3.1%
2007		11.09	11.09				5.0%
2008		11.35	11.35				2.3%
2009		13.07	13.07				15.2%
2010		11.16	11.16				-14.6%
2011	65,919	10.88	12.23		-2.5%		9.6%
2012	165,275	9.89	13.28	150.7%	-9.1%		8.6%
2013	255,580	9.09	14.32	54.6%	-8.1%		2.9%

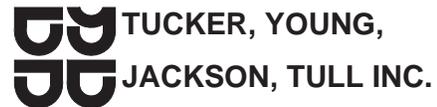
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11/20/12

PA 00528



CONSULTING ENGINEERS-PLANNERS
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MEETING MINUTES

IN ATTENDANCE: Ed Kurtz; Flint Emergency Financial Manager, City of Flint
Dayne Walling; Mayor, City of Flint
Mike Brown, City of Flint
John O'Brien, Genesee County
Howard Croft, City of Flint
Dwayne "Duffy" Johnson, City of Flint
Brent Wright, City of Flint
Awni Qaqish, TYJT
Dave Guastella, TYJT

DATE: November 24, 2012

PURPOSE OF MEETING: Meeting with the City of Flint for the Indefinite-scope, Indefinite-delivery Contract Number 00383, 2012 Professional General Architectural/Engineering Services – City of Flint Water Supply Assessment

PREPARED BY: Dave Guastella

A meeting was held at the City of Flint Municipal Center on November 20, 2012 to discuss the water supply option being presented by the Karegnondi Water Authority (KWA) to the City of Flint. The main items discussed generally followed the attached KWA Discussion/Questions that were provided to City prior to the meeting. A summary of the key points discussed are provided below.

The questions submitted are repeated in the Discussion Items for easy reference. A summary of the action items generated from the meeting follow the Discussion Items.

DISCUSSION ITEMS

1. Question/Discussion Item: Is the maximum day demand of 18 MGD for Flint the maximum day demand (MDD) throughout the 25 year planning period? If not, what is the 25 year projected MDD?

KWA would supply up to 18 MGD. 18 MGD has been assumed as the maximum day demand and 12 MGD is assumed as the average day demand throughout the 25 year planning period.

2. Question/Discussion Item: Copy of the intake contract documents and engineer's estimate.

The intake contract documents are approximately 90% complete and are not available for distribution. However, the updated Appendix 20, dated October 4, 2012 includes the most recent cost estimate of the intake based on the current design in process.

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

3. Question/Discussion Item: Documentation of the Flint WTP improvements required and cost estimate.

The costs are approximately \$7M as presented in the September 2009 Preliminary Engineering Report. However, this estimate has been updated. Some processes have been eliminated. John O'Brien will provide the updated costs and the description of the planned improvements to the plant.

4. Question/Discussion Item: Confirm Flint's allocated percentage of the KWA capital improvements (30%?).

Yes, the allocation is based on 18 MGD/60 MGD total capacity.

5. Question/Discussion Item: Copy of the proposed KWA operating agreement for Flint.

John O'Brien will provide the operating agreement as well as the Capacity Contract and Articles of Incorporation.

6. Question/Discussion Item: What is the annual operating agreement adjustment projected for the 25 year planning period?

This information is provided in Appendix 14, Table 14.2 of the September 2009 Preliminary Engineering Report. Operating cost based on Table 1. Used 12 MGD as average day demand (ADD). Assumed 5% as the annual increase in operating costs. John O'Brien indicated that these operating costs were based on Genesee County's operating costs. John O'Brien will provide the last 10 years of audited financial statements for the water fund.

To assess operating and maintenance costs for the Flint WTP, Duffy will provide multiple years of financial statements for the water fund. Duffy did not believe they had 10 years, but they will provide what they have.

Regarding operation and maintenance costs, Flint believes that these costs will increase by 2/3 of what they are now.

7. Question/Discussion Item: Need the route of the pipelines and the locations of the facilities proposed. Purpose is to identify constraints that impact costs (i.e., utilities, environmental (e.g. wetlands), easements, etc.).

KWA will not release the route due to concerns regarding speculation of land and easements. John O'Brien did indicate that the Lake Huron pump station would be at Fisher and M-25. The intermediate pump station site is near a location of the Lapeer/Sanilac/St. Clair border; where all three meet.

8. Question/Discussion Item: KWA's initial charge to Flint is based on a 12 MGD average day demand. What is the basis of this number? Are there population projections and water use figures available that were used to determine the Flint demand for the 25 year planning period?

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This was answered in Question No. 1 above.

9. Question/Discussion Item: Is there a transition plan and cost during construction of the KWA system identified?

Flint is looking for an agreement with DWSD for back-up supply from the 72-inch main at the Genesee border.

10. Question/Discussion Item: The October 4, 2012 Preliminary Engineering Report Update states: "no backup power is planned for the pumps" (LHPS) and "No backup power is planned for pumping" (IPS). In case of power loss, how would Flint supply its customers?

Flint indicated that they have adequate storage to supply the system for 6 to 7 days. Flint has 55 MG of storage and Genesee County has 65 MG for 2.5 days.

11. Question/Discussion Item: The latest plan shows only a 5 million gallon ground reservoir is planned for balancing between LHPS and IPS. How is redundancy maintained?

In cases of emergency, Flint indicated that the back-up for the KWA system will be the same as it is now with DWSD; they will use the Flint River as the source water. Flint currently operates their plant four times a year.

When questioned as to whether the WTP will be able to treat both lake water from the KWA system and river water Flint indicated that once the improvements identified in the September 2009 Preliminary Engineering Report are completed they will be able to accomplish both treatment processes. Flint will provide a schematic of the treatment trains at the WTP and a copy of the Flint transmission system.

Genesee County indicated that additional redundancy would also be provided from the new Genesee County WTP.

Regarding hydraulic transients; Genesee County indicated that a model analysis has not been included, but capital costs for mitigating transients have been included.

12. Question/Discussion Item: Related to the construction cost:

- a. Does it include an additional traffic lane since the construction will occupy half the right of way? *Not required, all roads are county roads; however, there are a few State road crossings.*
- b. Does it include costs/fees for permit requirements such as inspection cost by the jurisdictional authorities? As a point of reference, the permit fee costs for the Flint Transmission System came out to be \$5.8 million. *Not required; all of the counties have waived any fees.*
- c. Does the cost of the steel pipe segments include corrosion protection measures such as

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anode stations and related O&M? *Yes; however, the KWA has not settled on using steel pipe. PCCP pipe may be used. Steel shown in estimate because it is highest in cost and therefore the pricing is conservative.*

- d. SCADA monitoring stations require power. Is the cost of bring power to the SCADA stations included? Again, as a point of reference for the Flint Transmission System we estimated \$800,000 for power to SCADA and valve operators. *Yes, Genesee County did emphasize that the SCADA system will be simple and straightforward because a lot of controls are not required.*
- e. Other items discussed at the meeting included:
- The 2009 plant improvement cost is still good; however, there will be some reduction, such as a sulfuric chloride feed system that was eliminated. Plant capacity now is 36MGD, but will be 18 MGD.
 - The KWA Lake Huron Pumping Station (LHPS) is now only high lift pump station.
 - Genesee County will provide the distance of the intake pipe from the crib to the LHPS.
 - The intake project is almost ready to bid; waiting for the COE permit.
 - Genesee County is estimating the construction for the pipe lines and pump stations will begin July 2013.
 - The route has been flown for survey.
 - Genesee County is estimating construction will be complete and the project will be placed in service by Jan 2016.
 - Genesee County to provide a list of assumptions that the \$272 million cost estimate is based on since the route is now known.

13. The Flint River is identified as a backup: At what capacity? MDD or emergency supply?

The Flint River would serve as a back up supply.

14. Where did the 40 years come from (Flint hostage to Detroit)? DWSD's new contracts are 30 years with openers to revise terms of supply (volume and pressure) after the first two years, then three years, and then in five year increments thereafter.

The 40 years was stated in error. The reference was to DWSD's requirement to sign a 30 year contract.

After 40 years Flint will own 30% of the project and can sell their share of ownership if they want. Conversely, with DWSD, they continue to pay for the capital projects but have no ownership. Flint believes they will know what they will be charged for the next 25 years versus DWSD that can't commit to a fixed escalation.

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

Action Items for Follow-up		
Items:	Assigned To:	Date to Complete
1. Updated Costs for the Flint WTP Improvements and a description of the improvements.	John O'Brien	11/21/12
2. KWA Operating Agreement, Capacity Contract and Articles of Incorporation.	John O'Brien	11/20/12
3. Provide the last 10 years of audited financial statements for the Genesee water fund.	John O'Brien	11/20/12
4. Provide multiple years of financial statements for the City of Flint water fund.	Duffy Johnson	11/26/12
5. Provide schematic of the Flint WTP and a map of the Flint transmission system.	Brent Wright	11/26/12
6. Provide the length of the intake pipe from the crib to the pump station.	John O'Brien	11/20/12
7. Provide a list of assumptions that the \$272 million cost estimate is based on since the route is now known.	John O'Brien	11/26/12

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.



**Indefinite-scope, Indefinite-delivery Contract Number 00383
2012 Professional General Architectural/Engineering Services**

CITY OF FLINT WATER SUPPLY ASSESSMENT

KWA Discussion/Questions for the November 20, 2012 Meeting

1. Is the maximum day demand of 18 MGD for Flint the maximum day demand (MDD) throughout the 25 year planning period? If not, what is the 25 year projected MDD?
2. Copy of the intake contract documents and engineer's estimate.
3. Documentation of the Flint WTP improvements required and cost estimate.
4. Confirm Flint's allocated percentage of the KWA capital improvements (30%?).
5. Copy of the proposed KWA operating agreement for Flint.
6. What is the annual operating agreement adjustment projected for the 25 year planning period?
7. Need the route of the pipelines and the locations of the facilities proposed. Purpose is to identify constraints that impact costs (i.e., utilities, environmental (e.g. wetlands), easements, etc.).
8. KWA's initial charge to Flint is based on a 12 MGD maximum day demand. What is the basis of this number? Are there population projections and water use figures available that were used to determine the Flint demand for the 25 year planning period?
9. Is there a transition plan and cost during construction of the KWA system identified?
10. The October 4, 2012 Preliminary Engineering Report Update states: "no backup power is planned for the pumps" (LHPS) and "No backup power is planned for pumping" (IPS). In case of power loss, how would Flint supply its customers?
11. The latest plan shows only a 5 million gallon ground reservoir is planned for balancing between LHPS and IPS. How is redundancy maintained?
12. Related to the construction cost:
 - a. Does it include an additional traffic lane since the construction will occupy half the right of way?
 - b. Does it include costs/fees for permit requirements such as inspection cost by the jurisdictional authorities? As a point of reference, the permit fee costs for the Flint Transmission System came out to be \$5.8 million.

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

- c. Does the cost of the steel pipe segments include corrosion protection measures such as anode stations and related O&M?
 - d. SCADA monitoring stations require power. Is the cost of bring power to the SCADA stations included? Again, as a point of reference the for the Flint Transmission System we estimated \$800,000 for power to SCADA and valve operators.
13. The Flint River is identified as a backup: At what capacity? MDD or emergency supply?
14. Where did the 40 years come from (Flint hostage to Detroit)? DWSD's new contracts are 30 years with openers to revise terms of supply (volume and pressure) after the first two years, then three years, and then in five year increments thereafter.

Comments: Meeting minutes were recorded based on the understanding of the author. Please contact the author within three days if you have any different understanding of the meeting. These minutes will be considered approved unless comments are provided within three days.

STATE OF MICHIGAN CONTRACT NO. 271N3200089

CITY OF FLINT WATER SUPPLY ASSESSMENT

State of Michigan, Department of Treasury

Appendix B: Cost Worksheets

DWSD Worksheet : 18 MGD Maximum Day Customer with Model Contract at Potter & Baxter

Capacity Flint ADD: 0.60 MGD 81 MCF/Day
 DWSD ADD: 12 MGD 1,604 MCF/Day

Annual Volume Flint: 29,412 MCF
 DWSD: 585,561 MCF

2013 Cost of supply Flint WTP O&M: 120.30 /MCF \$ 3,538,214 /Yr
 DWSD: \$ 16.37 /MCF \$ 9,585,642 /Yr

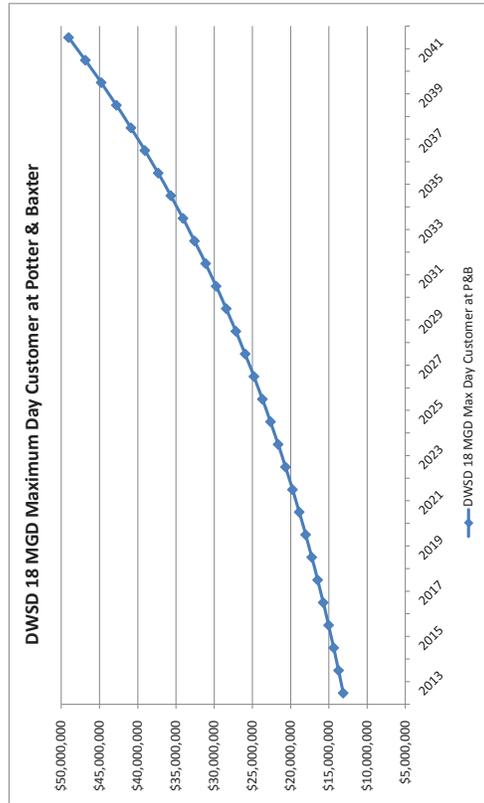
Escalation/Inflation Rate Flint: 4.51% /Yr
 DWSD: 4.7% /Yr

Capital Expenditure Amount: \$ - Reserve Rate: 0.00%
 Reserve: \$ - 0%
 Amount plus Reserve: \$ -
 Revenue Bond Rate: 5%
 Number of Years: 25
 Annual Cost: \$0

Year	Flint WTP O&M	Water Purchase	Revenue Bond Payment	Interest on Reserve	TOTAL
2013	\$ 3,538,214	9,585,642	-	-	\$ 13,123,856
2014	\$ 3,697,788	10,036,167	-	-	\$ 13,733,955
2015	\$ 3,864,558	10,507,867	-	-	\$ 14,372,425
2016	\$ 4,038,850	11,001,736	-	-	\$ 15,040,586
2017	\$ 4,221,002	11,518,818	-	-	\$ 15,739,820
2018	\$ 4,411,369	12,060,203	-	-	\$ 16,471,571
2019	\$ 4,610,322	12,627,032	-	-	\$ 17,237,354
2020	\$ 4,818,247	13,220,503	-	-	\$ 18,038,750
2021	\$ 5,035,550	13,841,866	-	-	\$ 18,877,416
2022	\$ 5,262,653	14,492,434	-	-	\$ 19,755,087
2023	\$ 5,499,999	15,173,578	-	-	\$ 20,673,577
2024	\$ 5,748,049	15,886,736	-	-	\$ 21,634,785
2025	\$ 6,007,286	16,633,413	-	-	\$ 22,640,699
2026	\$ 6,278,215	17,415,183	-	-	\$ 23,693,398
2027	\$ 6,561,362	18,233,697	-	-	\$ 24,795,059
2028	\$ 6,857,279	19,090,681	-	-	\$ 25,947,960
2029	\$ 7,166,543	19,987,943	-	-	\$ 27,154,486
2030	\$ 7,489,754	20,927,376	-	-	\$ 28,417,130
2031	\$ 7,827,542	21,910,963	-	-	\$ 29,738,505
2032	\$ 8,180,564	22,940,778	-	-	\$ 31,121,342
2033	\$ 8,549,507	24,018,995	-	-	\$ 32,568,502
2034	\$ 8,935,090	25,147,887	-	-	\$ 34,082,977
2035	\$ 9,338,063	26,329,838	-	-	\$ 35,667,901
2036	\$ 9,759,209	27,567,341	-	-	\$ 37,326,550
2037	\$ 10,199,350	28,863,006	-	-	\$ 39,062,355
2038	\$ 10,659,340	30,219,567	-	-	\$ 40,878,907
2039	\$ 11,140,076	31,639,886	-	-	\$ 42,779,963
2040	\$ 11,642,494	33,126,961	-	-	\$ 44,769,455
2041	\$ 12,167,570	34,683,928	-	-	\$ 46,851,499
2042	\$ 12,716,328	36,314,073	-	-	\$ 49,030,401
					\$ 216,222,171
					\$ 596,916,044

25 Yrs Cumulative \$ 596,916,044

30 Yrs Cumulative \$ 821,226,268

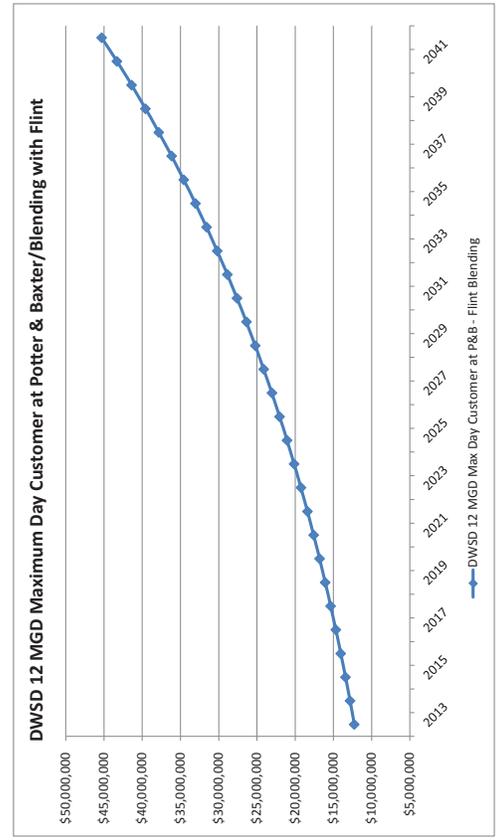


DWSD Worksheet : 12 MGD Maximum Day Customer with Model Contract at Potter & Baxter/Blending with Flint

Capacity	Flint ADD:	4 MGD	535 MCF/Day	Year	Flint WTP O&M	Water Purchase	Revenue Bond Payment	Interest on Reserve	TOTAL
	DWSD ADD:	8 MGD	1,070 MCF/Day	2013	\$ 5,895,097	6,367,005	-	\$ 12,262,103	
				2014	\$ 6,160,966	6,666,255	-	\$ 12,827,221	
				2015	\$ 6,438,826	6,979,569	-	\$ 13,418,395	
Annual Volume	Flint:	195,187 MCF	195,187,1658	2016	\$ 6,729,217	7,307,608	-	\$ 14,036,825	
	DWSD:	390,374 MCF		2017	\$ 7,032,705	7,651,066	-	\$ 14,683,771	
				2018	\$ 7,349,880	8,010,666	-	\$ 15,360,546	
				2019	\$ 7,681,359	8,387,167	-	\$ 16,068,527	
2013 Cost of Supply	Flint WTP O&M:	30.20 /MCF	\$ 5,895,097 /Yr	2020	\$ 8,027,789	8,781,364	-	\$ 16,809,153	
	DWSD:	16.31 /MCF	\$ 6,367,005 /Yr	2021	\$ 8,389,842	9,194,088	-	\$ 17,583,930	
				2022	\$ 8,768,224	9,626,210	-	\$ 18,394,434	
				2023	\$ 9,163,671	10,078,642	-	\$ 19,242,313	
				2024	\$ 9,576,952	10,552,338	-	\$ 20,129,291	
				2025	\$ 10,008,873	11,048,298	-	\$ 21,057,171	
				2026	\$ 10,460,273	11,567,568	-	\$ 22,027,841	
				2027	\$ 10,932,031	12,111,244	-	\$ 23,043,275	
				2028	\$ 11,425,066	12,680,473	-	\$ 24,105,538	
				2029	\$ 11,940,336	13,276,455	-	\$ 25,216,791	
				2030	\$ 12,478,845	13,900,448	-	\$ 26,379,294	
				2031	\$ 13,041,641	14,553,769	-	\$ 27,595,410	
				2032	\$ 13,629,819	15,237,796	-	\$ 28,867,616	
				2033	\$ 14,244,524	15,953,973	-	\$ 30,198,497	
				2034	\$ 14,886,952	16,703,810	-	\$ 31,590,762	
				2035	\$ 15,558,354	17,488,889	-	\$ 33,047,242	
				2036	\$ 16,260,035	18,310,866	-	\$ 34,570,902	
				2037	\$ 16,993,363	19,171,477	-	\$ 36,164,840	
				2038	\$ 17,759,764	20,072,537	-	\$ 37,832,300	
				2039	\$ 18,560,729	21,015,946	-	\$ 39,576,675	
				2040	\$ 19,397,818	22,003,695	-	\$ 41,401,513	
				2041	\$ 20,272,660	23,037,869	-	\$ 43,310,528	
				2042	\$ 21,186,956	24,120,649	-	\$ 45,307,605	

25 Yrs Cumulative
\$ 554,681,686

30 Yrs Cumulative
\$ 762,110,308



Capital Expenditure
Amount: \$ -
Reserve: \$ -
Amount plus Reserve: \$ -
Revenue Bond Rate: 5%
Number of Years: 25
Annual Cost: \$0

Escalation/Inflation Rate
Flint: 4.51% /Yr
DWSD: 4.7% /Yr

Flint WTP O&M: \$ 30.20 /MCF
DWSD: \$ 16.31 /MCF

Flint: 195,187 MCF
DWSD: 390,374 MCF

Flint ADD: 4 MGD
DWSD ADD: 8 MGD

535 MCF/Day
1,070 MCF/Day

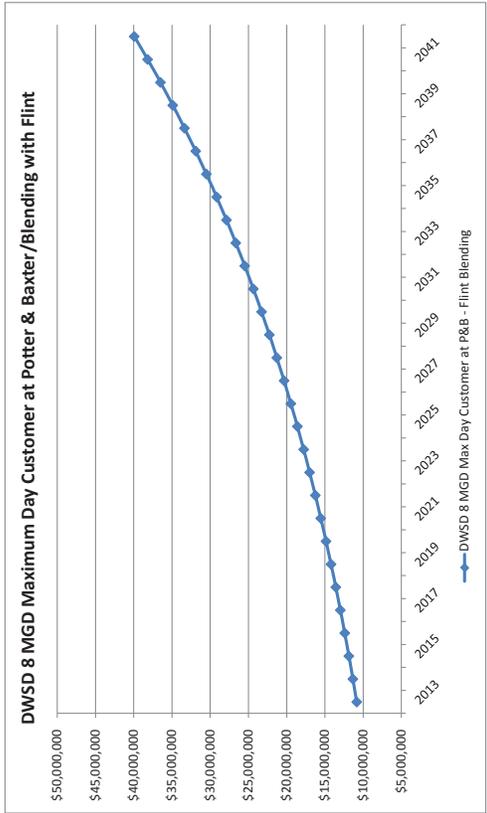
Capacity

DWSD Worksheet : 8 MGD Maximum Day Customer with Model Contract at Potter & Baxter/Blending with Flint

Capacity	Flint ADD:	4 MGD	535 MCF/Day	1	Year	Flint WTP O&M	Water Purchase	Revenue Bond Payment	Interest on Reserve	TOTAL
DWSD ADD:	8 MGD	1,070 MCF/Day		2	2013	\$ 5,895,097	4,949,947			\$ 10,845,044
Annual Volume	Flint: 195,187 MCF			3	2014	\$ 6,160,966	5,182,594			\$ 11,343,560
	DWSD: 390,374 MCF			4	2015	\$ 6,438,826	5,426,176			\$ 11,865,002
				5	2016	\$ 6,729,217	5,681,206			\$ 12,410,423
				6	2017	\$ 7,032,705	5,948,223			\$ 12,980,928
				7	2018	\$ 7,349,880	6,227,789			\$ 13,577,669
				8	2019	\$ 7,681,359	6,520,495			\$ 14,201,855
				9	2020	\$ 8,027,789	6,826,959			\$ 14,854,747
				10	2021	\$ 8,389,842	7,147,826			\$ 15,537,668
				11	2022	\$ 8,768,224	7,483,774			\$ 16,251,997
				12	2023	\$ 9,163,671	7,835,511			\$ 16,999,182
				13	2024	\$ 9,576,952	8,203,780			\$ 17,780,732
				14	2025	\$ 10,008,873	8,589,358			\$ 18,598,230
				15	2026	\$ 10,460,273	8,993,057			\$ 19,453,330
				16	2027	\$ 10,932,031	9,415,731			\$ 20,347,762
				17	2028	\$ 11,425,066	9,858,271			\$ 21,283,336
				18	2029	\$ 11,940,336	10,321,609			\$ 22,261,945
				19	2030	\$ 12,478,845	10,806,725			\$ 23,285,570
				20	2031	\$ 13,041,641	11,314,641			\$ 24,356,282
				21	2032	\$ 13,629,819	11,846,429			\$ 25,476,248
				22	2033	\$ 14,244,524	12,403,211			\$ 26,647,735
				23	2034	\$ 14,886,952	12,986,162			\$ 27,873,114
				24	2035	\$ 15,558,354	13,596,512			\$ 29,154,866
				25	2036	\$ 16,260,035	14,235,548			\$ 30,495,583
				26	2037	\$ 16,993,363	14,904,619			\$ 31,897,982
				27	2038	\$ 17,759,764	15,605,136			\$ 33,364,899
				28	2039	\$ 18,560,729	16,338,577			\$ 34,899,306
				29	2040	\$ 19,397,818	17,106,490			\$ 36,504,308
				30	2041	\$ 20,272,660	17,910,495			\$ 38,183,155
				31	2042	\$ 21,186,956	18,752,288			\$ 39,939,245

25 Yrs Cumulative \$ 489,780,792

30 Yrs Cumulative \$ 672,671,705

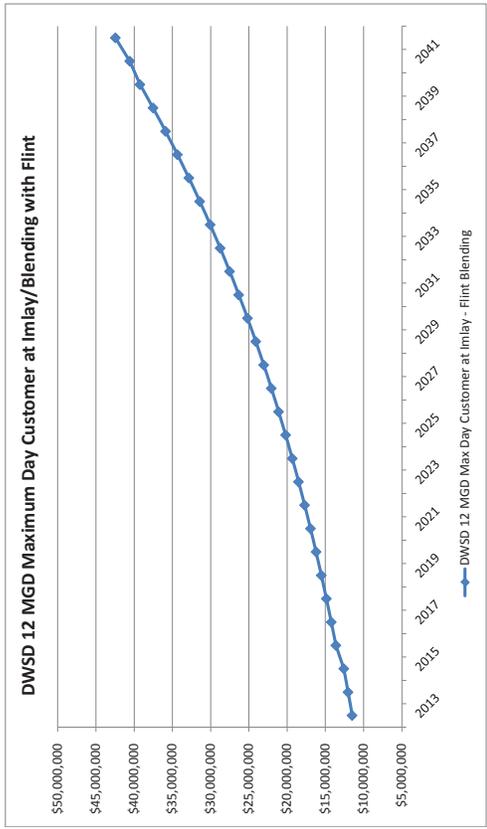


DWSD Worksheet : 12 MGD Maximum Day Customer with Model Contract at Imlay/Blending with Flint

Capacity	Flint ADD:	4 MGD	535 MCF/Day	Year	Flint WTP O&M	Water Purchase	Bond Payment	Interest on Reserve	TOTAL
DWSD ADD:		8 MGD	1,070 MCF/Day	2013	\$ 5,895,097	5,613,583	19,500	\$ 11,489,180	
Annual Volume	Flint:	195,187 MCF		2014	\$ 6,160,966	5,877,421	19,500	\$ 12,018,888	
	DWSD:	390,374 MCF		2015	\$ 6,438,826	6,153,660	19,500	\$ 12,572,986	
				2016	\$ 6,729,217	6,442,882	462,610	19,500	\$ 13,615,209
				2017	\$ 7,032,705	6,745,698	462,610	19,500	\$ 14,221,512
				2018	\$ 7,349,880	7,062,745	462,610	19,500	\$ 14,855,735
				2019	\$ 7,681,359	7,394,694	462,610	19,500	\$ 15,519,164
				2020	\$ 8,027,789	7,742,245	462,610	19,500	\$ 16,213,144
				2021	\$ 8,389,842	8,106,131	462,610	19,500	\$ 16,939,082
				2022	\$ 8,768,224	8,487,119	462,610	19,500	\$ 17,698,452
				2023	\$ 9,163,671	8,886,013	462,610	19,500	\$ 18,492,794
				2024	\$ 9,576,952	9,303,656	462,610	19,500	\$ 19,323,718
				2025	\$ 10,008,873	9,740,928	462,610	19,500	\$ 20,192,910
				2026	\$ 10,460,273	10,198,751	462,610	19,500	\$ 21,102,134
				2027	\$ 10,932,031	10,678,093	462,610	19,500	\$ 22,053,234
				2028	\$ 11,425,066	11,179,963	462,610	19,500	\$ 23,048,139
				2029	\$ 11,940,336	11,705,421	462,610	19,500	\$ 24,088,867
				2030	\$ 12,478,845	12,255,576	462,610	19,500	\$ 25,177,531
				2031	\$ 13,041,641	12,831,588	462,610	19,500	\$ 26,316,339
				2032	\$ 13,629,819	13,434,673	462,610	19,500	\$ 27,507,602
				2033	\$ 14,244,524	14,066,102	462,610	19,500	\$ 28,753,736
				2034	\$ 14,886,952	14,727,209	462,610	19,500	\$ 30,057,271
				2035	\$ 15,558,354	15,419,388	462,610	19,500	\$ 31,420,852
				2036	\$ 16,260,035	16,144,099	462,610	19,500	\$ 32,847,245
				2037	\$ 16,993,363	16,902,872	462,610	19,500	\$ 34,339,345
				2038	\$ 17,759,764	17,697,307	462,610	19,500	\$ 35,900,181
				2039	\$ 18,560,729	18,529,080	462,610	19,500	\$ 37,532,919
				2040	\$ 19,397,818	19,399,947	462,610	19,500	\$ 39,240,875
				2041	\$ 20,272,660	20,311,745	462,610	19,500	\$ 40,984,404
				2042	\$ 21,186,956	21,266,397	462,610	19,500	\$ 42,863,353

25 Yrs Cumulative
\$ 529,865,071

30 Yrs Cumulative
\$ 725,576,803



Revenue Bond Rate: 5%
Number of Years: 25
Annual Cost: \$462,610
Interest on Reserve: 3%

Capital: \$ 4,700,000
Bond Issuance (3% of Total): 195,000
3 Years of Capitalized Interest: 975,000
Reserve (10% of Total): 650,000
Total: \$ 6,520,000

Flint: 4.51% /Yr
DWSD: 4.7% /Yr

Flint WTP O&M: \$ 30.20 /MCF
DWSD: \$ 14.38 /MCF

Flint: 5.895,097 /Yr
DWSD: \$ 5,613,583 /Yr

Flint ADD: 4 MGD
DWSD ADD: 8 MGD

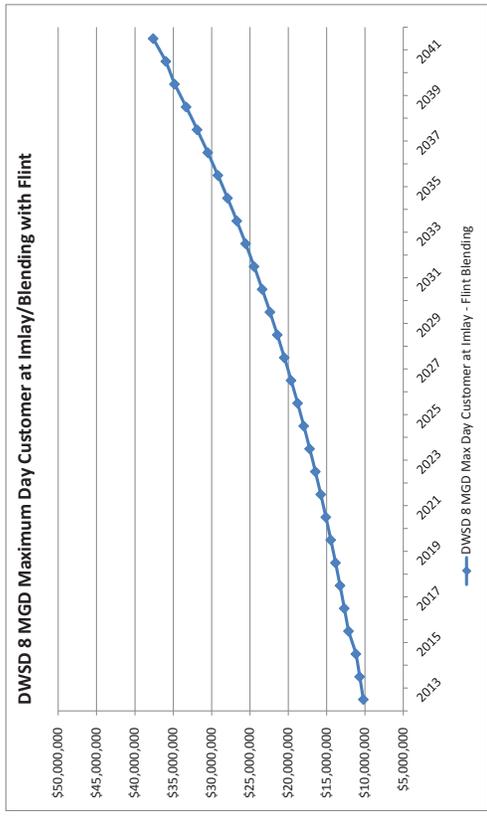
Capacity: 12 MGD

DWSD Worksheet : 8 MGD Maximum Day Customer with Model Contract at Imlay/Blending with Flint

Capacity	Flint ADD:	4	MGD	535	MCF/Day	Year	Flint WTP O&M	Water Purchase	Bond Payment	Interest on Reserve	TOTAL
	DWSD ADD:	8	MGD	1,070	MCF/Day	1	\$ 5,895,097	4,337,059	19,500	19,500	\$ 10,212,656
						2	\$ 6,160,966	4,540,901	19,500	19,500	\$ 10,682,367
						3	\$ 6,438,826	4,754,323	19,500	19,500	\$ 11,173,649
Annual Volume	Flint:	195,187	MCF			4	\$ 6,729,217	4,977,776	462,610	462,610	\$ 12,150,103
	DWSD:	390,374	MCF			5	\$ 7,032,705	5,211,732	462,610	462,610	\$ 12,687,546
						6	\$ 7,349,880	5,456,683	462,610	462,610	\$ 13,249,673
						7	\$ 7,681,359	5,713,147	462,610	462,610	\$ 13,837,616
2013 Cost of Supply	Flint WTP O&M:	\$ 30.20	/MCF	\$ 5,895,097	/Yr	8	\$ 8,027,789	5,981,665	462,610	462,610	\$ 14,452,564
	DWSD:	\$ 11.11	/MCF	\$ 4,337,059	/Yr	9	\$ 8,389,842	6,262,803	462,610	462,610	\$ 15,095,755
						10	\$ 8,768,224	6,557,155	462,610	462,610	\$ 15,768,489
Escalation/Inflation Rate						11	\$ 9,163,671	6,865,341	462,610	462,610	\$ 16,472,122
	Flint:	4.51%	/Yr			12	\$ 9,576,952	7,188,012	462,610	462,610	\$ 17,208,074
	DWSD:	4.7%	/Yr			13	\$ 10,008,873	7,525,849	462,610	462,610	\$ 17,977,832
Capital Expenditure						14	\$ 10,460,273	7,879,564	462,610	462,610	\$ 18,782,947
	Capital:	\$ 4,700,000				15	\$ 10,932,031	8,249,503	462,610	462,610	\$ 19,625,044
	Bond Issuance (3% of Total):	195,000	Check:	3.0%		16	\$ 11,425,066	8,637,649	462,610	462,610	\$ 20,505,824
	3 Years of Capitalized Interest:	975,000	Check:	5.0%	/Yr (Bond Interest on Total)	17	\$ 11,940,336	9,043,618	462,610	462,610	\$ 21,427,064
	Reserve (10% of Total):	650,000	Check:	10.0%		18	\$ 12,478,845	9,468,668	462,610	462,610	\$ 22,390,624
	Total:	\$ 6,520,000				19	\$ 13,041,641	9,913,696	462,610	462,610	\$ 23,398,447
Revenue Bond Rate:		5%				20	\$ 13,629,819	10,379,639	462,610	462,610	\$ 24,452,569
Number of Years:		25				21	\$ 14,244,524	10,867,482	462,610	462,610	\$ 25,555,117
Annual Cost:		\$462,610				22	\$ 14,886,952	11,378,254	462,610	462,610	\$ 26,708,316
Interest on Reserve:		3%				23	\$ 15,558,354	11,913,032	462,610	462,610	\$ 27,914,496
						24	\$ 16,260,035	12,472,945	462,610	462,610	\$ 29,176,090
						25	\$ 16,993,363	13,059,173	462,610	462,610	\$ 30,495,646
						2038	\$ 17,759,764	13,672,954	462,610	462,610	\$ 31,875,828
						2039	\$ 18,560,729	14,315,583	462,610	462,610	\$ 33,319,422
						2040	\$ 19,397,818	14,988,415	462,610	462,610	\$ 34,829,343
						2041	\$ 20,272,660	15,692,871	462,610	462,610	\$ 36,438,142
						2042	\$ 21,186,956	16,430,436	462,610	462,610	\$ 38,179,002

25 Yrs Cumulative \$ 493,063,801

30 Yrs Cumulative \$ 634,795,488

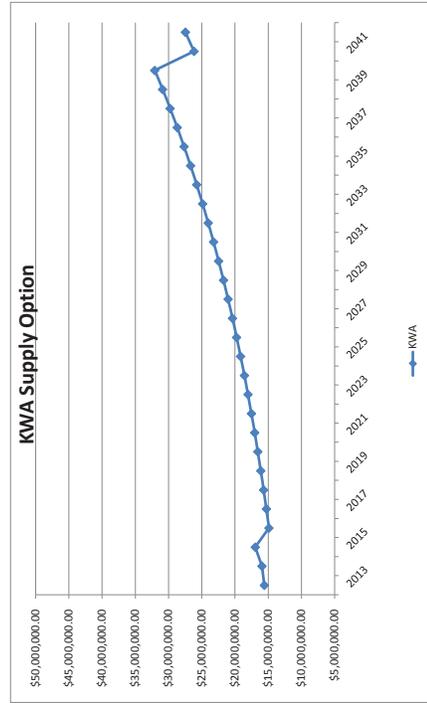


KWA Supply Option Worksheet
KWA 10/31/12 No Overruns

Year	DWSD & Flint WTP Costs	Flint WTP Debt Service	KWA Entry Fee	KWA Debt Service	Flint WTP Debt Service	KWA Operations	Flint WTP Operations with KWA	TOTAL
1	2013	\$ 14,413,858	1,162,800		572,781	878,869	6,843,344	\$ 15,576,658
2	2014	\$ 15,355,135	581,400		572,781	922,812	7,185,511	\$ 15,936,535
3	2015	\$ 16,365,534	581,400		572,781	968,953	7,544,787	\$ 16,946,934
4	2016			6,593,155	572,781	1,017,401	7,922,026	\$ 16,105,363
5	2017			6,593,155	572,781	1,068,271	8,318,127	\$ 16,552,334
6	2018			6,593,155	572,781	1,121,684	8,734,034	\$ 17,021,654
7	2019			6,593,155	572,781	1,177,769	9,170,735	\$ 17,514,440
8	2020			6,593,155	572,781	1,236,657	9,629,272	\$ 18,031,865
9	2021			6,593,155	572,781	1,298,490	10,110,736	\$ 18,575,162
10	2022			6,593,155	572,781	1,363,414	10,616,273	\$ 19,145,623
11	2023			6,593,155	572,781	1,431,585	11,147,086	\$ 19,744,607
12	2024			6,593,155	572,781	1,503,164	11,704,441	\$ 20,373,541
13	2025			6,593,155	572,781	1,578,322	12,289,663	\$ 21,033,921
14	2026			6,593,155	572,781	1,657,239	12,904,146	\$ 21,727,320
15	2027			6,593,155	572,781	1,740,101	13,549,353	\$ 22,455,390
16	2028			6,593,155	572,781	1,827,106	14,226,821	\$ 23,219,862
17	2029			6,593,155	572,781	1,918,461	14,938,162	\$ 24,022,559
18	2030			6,593,155	572,781	2,014,384	15,685,070	\$ 24,865,390
19	2031			6,593,155	572,781	2,115,103	16,469,323	\$ 25,750,362
20	2032			6,593,155	572,781	2,220,858	17,292,789	\$ 26,679,584
21	2033			6,593,155	572,781	2,331,901	18,157,429	\$ 27,655,266
22	2034			6,593,155	572,781	2,448,496	19,065,300	\$ 28,679,733
23	2035			6,593,155	572,781	2,570,921	20,018,565	\$ 29,755,422
24	2036			6,593,155	572,781	2,699,467	21,019,494	\$ 30,884,897
25	2037			6,593,155	572,781	2,834,440	22,070,468	\$ 32,070,845
26	2038				2,976,162	3,124,970	23,173,992	\$ 26,150,154
27	2039						24,332,691	\$ 27,457,662
28	2040							
29	2041							
30	2042							

\$ 25 Yrs Cumulative
503,456,186

\$ 30 Yrs Cumulative
649,775,166



KWA Supply Option Worksheet
KWA-1

Capacity	Flint ADD: 12 MGD	1,604 MCF/Day
	KWA ADD: 12 MGD	1,604 MCF/Day
Annual Volume	Flint: 585,561 MCF	
	KWA: 585,561 MCF	
2016 Cost of Supply	Flint WTP O&M: \$ 13.51 /MCF	\$ 7,913,118 /Yr
	KWA: \$ 1.50 /MCF	\$ 878,869 /Yr
Escalation/Inflation Rate	Flint: 4.51% /Yr	
	KWA: 5.0% /Yr	
Capital Expenditure	Capital: \$ 272,021,558	
	Bond Issuance (2.25% of Total): 8,440,000	
	3 Years of Capitalized Interest: 56,000,000	
	Reserve (10% of Total): 37,500,000	
	Total: \$ 374,361,558	
	Flint's Share (80%): \$ 12,208,467	

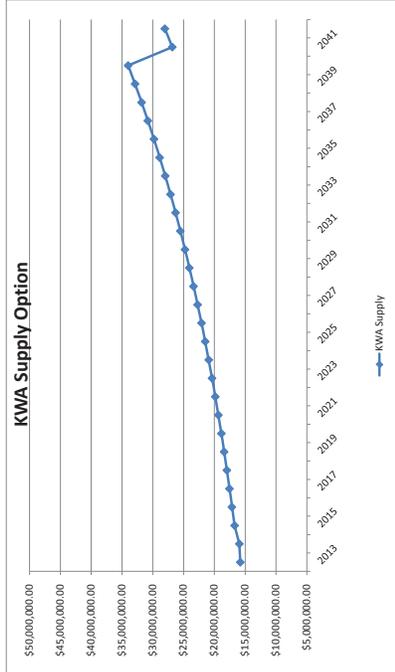
David Guastella:
Assumes Bond Issuance and Reserve are not included.

Capital: \$ 272,021,558	Check: 2.25%
Bond Issuance (2.25% of Total): 8,440,000	Check: 5.0% /Yr (Bond Interest on Total)
3 Years of Capitalized Interest: 56,000,000	Check: 10.0%
Reserve (10% of Total): 37,500,000	Check: 10.0%
Total: \$ 374,361,558	
Flint's Share (80%): \$ 12,208,467	

David Guastella:
Assumes Bond Issuance and Reserve are not included.

Capital: \$ 7,758,362	Check: 2.25%
Bond Issuance (3% of Total): 240,000	Check: 5.0% /Yr (Bond Interest on Total)
3 Years of Capitalized Interest: 1,600,000	Check: 10.0%
Reserve (10% of Total): 1,070,000	Check: 10.0%
Total: \$ 10,668,362	
Revenue Bond Rate: 5%	
Number of Years: 25	
Annual Cost: \$756,946	
Interest on Reserve: 3%	

KWA Supply Option



Year	Flint WTP O&M	Water Purchase	KWA Revenue Pre-bond Entry Fee & Bond Payment	Flint Reseque Bond Payment	Interest on Reserve	TOTAL
2013	\$ 3,538,214	11,461,700	1,162,800		369,600	\$ 15,793,114
2014	\$ 3,697,789	12,094,785	581,400		369,600	\$ 15,944,373
2015	\$ 3,864,558	12,636,524	581,400		369,600	\$ 16,712,882
2016	\$ 7,913,118	878,869	7,988,562	756,946	369,600	\$ 17,147,896
2017	\$ 8,270,000	922,812	7,988,562	756,946	369,600	\$ 17,547,721
2018	\$ 8,642,977	968,953	7,988,562	756,946	369,600	\$ 17,967,838
2019	\$ 9,032,775	1,017,401	7,988,562	756,946	369,600	\$ 18,406,084
2020	\$ 9,440,153	1,068,271	7,988,562	756,946	369,600	\$ 18,864,332
2021	\$ 9,865,904	1,121,684	7,988,562	756,946	369,600	\$ 19,343,497
2022	\$ 10,310,857	1,177,769	7,988,562	756,946	369,600	\$ 19,844,533
2023	\$ 10,775,876	1,236,657	7,988,562	756,946	369,600	\$ 20,368,441
2024	\$ 11,261,868	1,298,490	7,988,562	756,946	369,600	\$ 20,916,266
2025	\$ 11,769,779	1,363,414	7,988,562	756,946	369,600	\$ 21,489,101
2026	\$ 12,300,596	1,431,585	7,988,562	756,946	369,600	\$ 22,088,089
2027	\$ 12,855,352	1,503,164	7,988,562	756,946	369,600	\$ 22,714,425
2028	\$ 13,435,129	1,578,322	7,988,562	756,946	369,600	\$ 23,369,359
2029	\$ 14,041,053	1,657,239	7,988,562	756,946	369,600	\$ 24,054,200
2030	\$ 14,674,905	1,740,101	7,988,562	756,946	369,600	\$ 24,770,313
2031	\$ 15,336,116	1,827,106	7,988,562	756,946	369,600	\$ 25,519,130
2032	\$ 16,027,775	1,918,461	7,988,562	756,946	369,600	\$ 26,302,144
2033	\$ 16,750,627	2,014,384	7,988,562	756,946	369,600	\$ 27,120,919
2034	\$ 17,506,080	2,115,103	7,988,562	756,946	369,600	\$ 27,977,092
2035	\$ 18,295,605	2,220,858	7,988,562	756,946	369,600	\$ 28,872,371
2036	\$ 19,120,737	2,331,901	7,988,562	756,946	369,600	\$ 29,808,546
2037	\$ 19,989,082	2,448,496	7,988,562	756,946	369,600	\$ 30,787,486
2038	\$ 20,895,519	2,570,921	7,988,562	756,946	369,600	\$ 31,811,148
2039	\$ 21,826,201	2,699,467	7,988,562	756,946	369,600	\$ 32,881,577
2040	\$ 22,810,563	2,834,440	7,988,562	756,946	369,600	\$ 34,000,912
2041	\$ 23,839,320	2,976,162	7,988,562	756,946	369,600	\$ 35,185,482
2042	\$ 24,914,473	3,124,970	7,988,562	756,946	369,600	\$ 36,394,443

David Guastella:
Flint's Entry Fee to KWA is \$1,162,800. Highlighted portion is Flint's Entry Fee to KWA.

David Guastella:
Flint's Entry Fee to KWA is \$1,162,800. Highlighted portion is Flint's Entry Fee to KWA.

25 Yrs Cumulative
\$ 553,731,153

30 Yrs Cumulative
\$ 707,279,715

KWA Supply Option Worksheet
KWA-2

Capacity
Flint ADD: 12 MGD
KWA ADD: 12 MGD

Annual Volume
Flint: 585,561 MCF
KWA: 585,561 MCF

2016 Cost of Supply
Flint WTP O&M: \$ 13.51 /MCF
KWA: \$ 1.50 /MCF

Escalation/Inflation Rate
Flint: 4.51% /Yr
KWA: 5.0% /Yr

Capital Expenditure
Capital: \$ 357,578,060
Bond Issuance (2.25% of Total): 11,050,000
3 Years of Capitalized Interest: 74,000,000
Reserve (10% of Total): 49,000,000

Flint's Share (30%)
Revenue Bond Rate: 5%
Number of Years: 25
Annual Cost: \$10,464,666
Interest on Reserve: 3%

Capital: \$ 7,758,362
Bond Issuance (3% of Total): 240,000
3 Years of Capitalized Interest: 1,600,000
Reserve (10% of Total): 1,070,000

Revenue Bond Rate: 5%
Number of Years: 25
Annual Cost: \$756,946
Interest on Reserve: 3%

Year	Flint WTP O&M	Water Purchase	Pre-bond Entry Fee & Bond Payment	Flint Revenue Bond Payment	Interest on Reserve	TOTAL
2013	\$ 3,538,214	\$ 11,631,890	\$ 1,163,890		\$ 73,100	\$ 15,689,614
2014	\$ 3,697,788	\$ 12,084,785	\$ 1,208,478		\$ 73,100	\$ 16,840,873
2015	\$ 3,864,558	\$ 12,656,524	\$ 1,265,524		\$ 73,100	\$ 18,069,382
2016	\$ 4,041,118	\$ 13,258,263	\$ 1,325,263	\$ 756,946	\$ 73,100	\$ 19,540,500
2017	\$ 4,227,812	\$ 13,881,002	\$ 1,388,002	\$ 756,946	\$ 73,100	\$ 20,360,442
2018	\$ 4,424,977	\$ 14,534,741	\$ 1,453,741	\$ 756,946	\$ 73,100	\$ 20,798,688
2019	\$ 4,643,075	\$ 15,220,480	\$ 1,520,480	\$ 756,946	\$ 73,100	\$ 20,798,688
2020	\$ 4,882,553	\$ 15,940,219	\$ 1,590,219	\$ 756,946	\$ 73,100	\$ 21,256,936
2021	\$ 5,143,804	\$ 16,694,958	\$ 1,664,958	\$ 756,946	\$ 73,100	\$ 21,736,101
2022	\$ 5,427,429	\$ 17,485,697	\$ 1,745,697	\$ 756,946	\$ 73,100	\$ 22,237,137
2023	\$ 5,734,928	\$ 18,313,436	\$ 1,833,436	\$ 756,946	\$ 73,100	\$ 22,761,045
2024	\$ 6,066,812	\$ 19,179,175	\$ 1,931,175	\$ 756,946	\$ 73,100	\$ 23,308,870
2025	\$ 6,424,591	\$ 20,084,914	\$ 2,040,914	\$ 756,946	\$ 73,100	\$ 23,881,705
2026	\$ 6,808,776	\$ 21,031,653	\$ 2,163,653	\$ 756,946	\$ 73,100	\$ 24,480,693
2027	\$ 7,220,015	\$ 22,020,392	\$ 2,302,392	\$ 756,946	\$ 73,100	\$ 25,107,029
2028	\$ 7,660,854	\$ 23,052,131	\$ 2,457,131	\$ 756,946	\$ 73,100	\$ 25,761,963
2029	\$ 8,132,893	\$ 24,128,870	\$ 2,628,870	\$ 756,946	\$ 73,100	\$ 26,446,804
2030	\$ 8,637,742	\$ 25,251,609	\$ 2,817,609	\$ 756,946	\$ 73,100	\$ 27,162,917
2031	\$ 9,176,011	\$ 26,421,348	\$ 3,024,348	\$ 756,946	\$ 73,100	\$ 27,911,733
2032	\$ 9,749,300	\$ 27,639,087	\$ 3,249,087	\$ 756,946	\$ 73,100	\$ 28,694,748
2033	\$ 10,359,219	\$ 28,905,826	\$ 3,492,826	\$ 756,946	\$ 73,100	\$ 29,513,523
2034	\$ 11,007,368	\$ 30,221,565	\$ 3,756,565	\$ 756,946	\$ 73,100	\$ 30,369,696
2035	\$ 11,695,257	\$ 31,587,304	\$ 4,040,304	\$ 756,946	\$ 73,100	\$ 31,264,975
2036	\$ 12,424,506	\$ 33,003,043	\$ 4,344,043	\$ 756,946	\$ 73,100	\$ 32,200,150
2037	\$ 13,196,755	\$ 34,468,782	\$ 4,667,782	\$ 756,946	\$ 73,100	\$ 33,180,090
2038	\$ 14,015,604	\$ 35,984,521	\$ 5,011,521	\$ 756,946	\$ 73,100	\$ 34,203,752
2039	\$ 14,883,453	\$ 37,550,260	\$ 5,375,260	\$ 756,946	\$ 73,100	\$ 35,274,181
2040	\$ 15,803,802	\$ 39,166,000	\$ 5,759,000	\$ 756,946	\$ 73,100	\$ 36,393,516
2041	\$ 16,779,251	\$ 40,831,739	\$ 6,162,739	\$ 756,946	\$ 73,100	\$ 37,562,851
2042	\$ 17,812,400	\$ 42,547,478	\$ 6,597,478	\$ 756,946	\$ 73,100	\$ 38,793,186

25 Yrs Cumulative
\$ 686,057,940

30 Yrs Cumulative
\$ 766,784,313

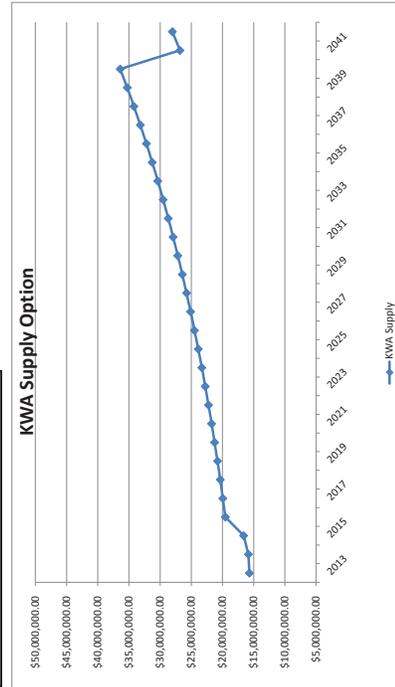


EXHIBIT 81

From: [Pryby, Mike \(DEQ\)](#)
To: [Bloemker, Jon \(DEQ\)](#); [Busch, Stephen \(DEQ\)](#); [Benzie, Richard \(DEQ\)](#); [Shekter Smith, Liane \(DEQ\)](#)
Subject: Flint - Dept of Treasury
Date: Wednesday, January 23, 2013 10:01:30 AM

I spoke with Mr. Randy Byrne from the Dept. Treasury – Office of Fiscal Resp. concerning the Flint WTP. Below is a brief summary of our discussion. I can fill you on more details this afternoon just prior or immediately after our KWA meeting.

Q1: The city of Flint has considered using the Flint River as a source of drinking water to be treated at their WTP; however,

The city may be somewhat reluctant to use the river as their source, what is your assessment of this issue?

A: The city could utilize the Flint River ranging from 100% utilization – to a certain percent blending (either Detroit or KWA) or

zero percent utilization of the river. I agree that the city should have concerns of fully utilizing the Flint River (100%) for the following; the need to soften, the potential for more advanced treatment after next round of crypto monitoring, available capacity in Flint River at 100-year low flow, residuals management (disposal of lime sludge). As the percent utilization of the river decreases (blending options), the need for softening, residuals disposal, capacity issues do not pose as much of a concern.

Q2: When comparing the treatment of Lake Huron water vs. Flint River water, are more treatment chemicals needed to effectively treat the water?

A2: Flint river water will require a larger amount of primary coagulant (Ferric) due to poorer raw water quality than Lake Huron water. Also, a different type of primary coagulant (Alum) may be more suitable for the treatment of Lake Huron water. I can confirm that based on what the Detroit Lake Huron WTP uses. Also, since softening would need to be employed, treatment compounds including lime, soda ash, and carbon dioxide would be necessary.

Q3: If the city needed to borrow money to be able to operate full time (KWA or

blending), does the DEQ offer funding via the DWRF?

A3: The city could apply for DWRF funding and their eligibility would be based upon how well they score in the overall DWRF ranking process. Also, the total amount of the loan and their ability to repay the loan would be considered.

Q4: Flint has put forth a significant capital investment over the past 10 years to maintain their WTP, is the condition of the WTP sufficient for full time treatment of raw water from Lake Huron ? Are the operators qualified to operate the WTP?

A4: The Flint WTP has demonstrated its ability to treat raw water (Flint River) and meet the drinking water standards based on quarterly test runs since 2009 and two pipeline emergencies that occurred in 2009 where water from the WTP was distributed to the city. Successful operation of the WTP on an intermittent basis is difficult. WTP operators face the constant challenge of maintaining WTP components in good working order while the plant is normally out of service over 90% of the time. The reliability of WTP and its components are better maintained through continuous operation. The operating experience and knowledge of the operators is also better established with full-time operation. WTP operators have the required operator certification and are very familiar with the operation of the Flint WTP, meeting drinking water standards, and troubleshooting operational problems. The Flint WTP is capable of meeting the drinking water standard if the plant was utilized to treat raw water from Lake Huron.

Q5: Do you see any weak links in the WTP or significant improvements if the WTP were to be fully utilized?

A5: I would not see any major treatment changes or additions needed if Lake Huron water was utilized; however, in order for the city to fully utilize its storage capacity, a pumping station would need to be added immediately after the WTP such that treated water can be pumped into the city's 20-Mgal Dort reservoir. In the current configuration, water from Detroit flows by gravity through this reservoir and then into the WTP's 3 Mgal reservoir followed by

pumping via Pump Station No. 4 into the city's distribution system.

Improvement in stand-by power may also be necessary. Finally, if a component of Flint River water were to be treated, then more advanced treatment based upon higher bin classification (UV disinfection, etc.) could be required based upon crypto. results.

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 335-6122

EXHIBIT 82

Lamphier, Wendy (Treasury)

From: Lamphier, Wendy (Treasury) on behalf of Dillon, Andy (Treasury)
Sent: Wednesday, October 07, 2015 4:44 PM
To: Robert, Carla M. (Treasury)
Subject: FW: ODWMA Response - Flint KWA-DWSD Report
Attachments: deq-wb-dwehs-wwciu-gcdclqwwpermitresponsepubliccomment_290345_7.pdf; Rowe Review of Tucker Young Report.pdf

Importance: High

From: Wyant, Dan (DEQ)
Sent: Wednesday, March 27, 2013 2:13 PM
To: Dillon, Andy (Treasury) <DillonA2@michigan.gov>
Subject: FW: ODWMA Response - Flint KWA-DWSD Report
Importance: High

Andy,

Attached is staff feedback. I will be getting additional feedback in the morning. All indications are that we are supportive of KWA and its cost benefits compared to DWSD options. If that is not the answer you want tomorrow – then we should discuss.

Dan Wyant, Director
Department of Environmental Quality
517-373-7917

From: Busch, Stephen (DEQ)
Sent: Wednesday, March 27, 2013 1:39 PM
To: Thelen, Mary Beth (DEQ); Wyant, Dan (DEQ); Sygo, Jim (DEQ); Donaldson, Kristina (DEQ); Creal, William (DEQ)
Cc: Willard, Veronica (DEQ); Benzie, Richard (DEQ); Prysby, M.
Subject: ODWMA Response - Flint KWA-DWSD Report
Importance: High

email & 2 attachments

Director Wyant, and Deputy Director Sygo,

Addendums to ODWMA comments provided yesterday regarding the City of Flint water system and comments on the reports from Tucker, Young, Jackson, Tull, Inc. (TYJT) can be found below in red. Additional comments are as follows:

With regards to regulatory authority for DEQ to allow or prevent the breakup of water utilities, and State vs. local decisions about cost effectiveness, it is important to note that when the DEQ permitted the water withdrawal for KWA (permit 2009-001) part of the decision making process (copy attached) included reasonable use and the balance of Economic Development, Social Development, and Environmental Protection. As part of the public participation process general comments were received (pages 6 & 7) regarding impacts on DWSD and rates to remaining customers. The Department’s response to those comments stated:

“The DEQ is specifically precluded from using part 327 to “...diminish or create any existing authority of municipalities to require persons to connect to municipal water supply systems as authorized by law” (MCL 324.32726).”

And

"It is appropriately an issue for water service contract negotiations between the regional water system and its customers. To do otherwise invites unwanted intervention of the state into local decision making."

ODWMA cannot on its own assess an actual dollar value to any regional benefit for the City of Flint to remain a full customer of DWSD, but the following should be included in any additional analysis:

- The cost estimates provided in the TYJT report show a cost difference between full KWA and full DWSD participation of \$172 million over 30 years.
- The formation of KWA would itself be considered one of the largest regional drinking water authorities in the State in terms of capacity, and as such any regional benefits provided by DWSD may only be marginal in comparison.

Finally, we have additional questions for TYJT regarding the various DWSD supply options and the considerations they made in the operations of the Flint WTP. These considerations will have an impact on the cost estimates for DWSD options.

We look forward to further discussion of these comments during our meetings tomorrow, and please let us know if you have any additional questions for us between now and then.

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

From: Busch, Stephen (DEQ)
Sent: Tuesday, March 26, 2013 3:58 PM
To: Wyant, Dan (DEQ); Thelen, Mary Beth (DEQ); Sygo, Jim (DEQ)
Cc: Willard, Veronica (DEQ); Shekter Smith, Llane (DEQ)
Subject: RE: Flint Draft Response

I will provide additional follow up by tomorrow (Wed.) afternoon to my previous email below based on our discussion and the conference call with Andy Dillon earlier today.

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

From: Busch, Stephen (DEQ)
Sent: Tuesday, March 26, 2013 12:37 PM
To: Wyant, Dan (DEQ); Thelen, Mary Beth (DEQ); Sygo, Jim (DEQ)
Cc: Willard, Veronica (DEQ); Shekter Smith, Llane (DEQ)
Subject: Flint Draft Response

Director Wyant,

In preparation for our call today with Treasurer Dillon's office, ODWMA has developed the following for consideration. We can provide any additional info you require during the meeting.

ODWMA has reviewed the materials developed by the consultant Tucker, Young, Jackson, Tull, Inc. (TYJT) for Treasury regarding the City of Flint and potential alternatives for public water supply. Based on our reviews, we have developed the following comments to this point in our analysis:

1. The TYJT report does not contain the full scope of the Karegnondi Water Authority (KWA) raw water supply system. TYJT concerns over raw water supply redundancy and reliability are addressed to the satisfaction of ODWMA under the full KWA proposal. Please note some portions of the overall project are being financed independently by the Genesee County Drain Commission.
2. There are significant differences in contract language between KWA and Detroit Water and Sewerage Department (DWSD) with respect to the contracted maximum day demand capacity.
 - a. Under a KWA contract, a "maximum day" capacity of 18 million gallons per day (MGD) would fully satisfy current demands of the City of Flint, without the need to supplement raw water capacity using the Flint River. (18 MGD, average over a 30 day period).
 - b. Under a DWSD model contract, a "maximum day" capacity, even at 18 MGD, would not satisfy the current demands for the City of Flint. (18 MGD, over any 24 hour period).
3. Restrictions in contracted capacity that would prevent the City of Flint from meeting peak demand requirements present potential limits to economic development within the City of Flint, including possible connection bans and water system extension bans. This information was previously conveyed to the City of Flint by ODWMA staff.
4. All contract options with DWSD that are considered semi-competitive with the KWA contract do not fully supply the City of Flint, and would require the City of Flint to meet a significant, if not majority, of its water demands by treating water from the Flint River. Continuous use of the Flint River at such demand rates would:
 - a. Pose an increased microbial risk to public health (Flint River vs. Lake Huron source water)
 - b. Pose an increased risk of disinfection by-product (carcinogen) exposure to public health (Flint River vs. Lake Huron source water)
 - c. Trigger additional regulatory requirements under the Michigan Safe Drinking Water Act (LT2ESWTR)
 - d. Require significant enhancements to treatment at the Flint WTP, beyond those identified in the TYJT report (see item 5 below).
 - e. Water Resource Division is evaluating potential impacts to NPDES wastewater discharge permits in downstream segments of the Flint River, as a result of decreased river baseflow caused by Flint WTP use.
5. The TYJT report does not adequately address increased requirements and costs associated with using the Flint River as a significant source for the Flint WTP, which are not necessary under a Lake Huron source water scenario. This includes:
 - a. The need to provide softening treatment
 - b. Limitations on disposal options for lime softening sludge
 - c. Increased ozone capacity, UV disinfection
 - d. Additional backup power, more power required for Flint River operation
6. The Flint WTP must operate at some minimum level and within a range of flow rates to maintain treatment effectiveness. Currently that minimum level is 9 MGD. This level may be reduced with additional capital costs to modify the WTP, not addressed in the TYJT report.
7. Allowing Flint WTP to blend water with DWSD sets a new precedent that could pose future consequences with other DWSD customers.
8. Costs impacts to remaining DWSD customers would be similar under the proposed scenarios, only retaining 8 MGD of 30+ MGD total Flint/Genesee Co. demands, based on the following:

- a. Genesee County distribution system demands are pulling out of DWSD regardless of the decisions by Flint WTP
 - b. Flint's need to utilize the Flint River as a source
9. ODWMA anticipates cost savings under the KWA proposal will be leveraged to provide additional improvements to the City of Flint water distribution system, improving efficiency and providing additional cost benefits. The KWA water withdrawal permit (2009-001) includes the required implementation of conservation measures that would also drive these distribution system improvements.
10. Major cost discrepancies in TYJT analysis
 - a. Engineering, Legal, Administration, Contingency – TYJT appears to have effectively double charged for these costs in their KWA estimates without adequate justification
 - b. Pumping facilities – TYJT cost estimate methodology does not appear to address localized market costs and does not distinguish fixed and variable costs in its comparison analysis.
11. Remaining DWSD customers in Lapeer County could potentially see water quality impacts as a result of Flint joining KWA, if they remain with DWSD. However, indications to ODWMA are that these communities are currently in final negotiations with KWA for service, which would make this a non-issue.
 - a. City Lapeer
 - b. City of Imlay City

Additional response to the TYJT report has also been provided by Rowe Engineering to Flint EFM, Mr. Ed Kurtz. (Copy Attached)

ODWMA has continued to meet on a regular basis with KWA, Genesee County, and the City of Flint regarding these water supply proposals.

ODWMA will continue to provide any additional detailed analysis requested by Treasury or the DEQ Executive Office.

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

EXHIBIT 83

89 (Rev. 02-11)



STATE OF MICHIGAN
DEPARTMENT OF TREASURY
LANSING

RICK SNYDER
GOVERNOR

ANDY DILLON
STATE TREASURER

ANALYSIS

TO: Edward Koryzno, Administrator; Office of Fiscal Responsibility

FROM: Eric Cline, Unit Operations Specialist

SUBJECT: Updated Flint Water System Status Assessment

DATE: January 30, 2013

On November 26, 2012, the Department of Treasury commissioned the firm of Tucker, Young, Jackson & Tull, Inc. (TYJT) to analyze options for the City of Flint to either remain a customer of the Detroit Water & Sewer Department (DWSD) or to join the Karegnondi Water Authority (KWA) in Genesee County. The overarching purpose of this study was to provide objective analysis to the State Treasurer and to Flint's Emergency Financial Manager (EFM) in order to secure potable drinking water for the City for the foreseeable future. The Office of Fiscal Responsibility (OFR) has been the lead office representing Treasury on this project.

On December 21, 2012, staff from TYJT met with representatives from the Department of Treasury and the City of Flint to provide a preliminary report on their findings. At this meeting, TYJT outlined 5 options that they had analyzed. These options were: 1) 100% water provision by the City of Flint Water Plant from its water source of the Flint River; 2) 100% provision of untreated Lake Huron Water by KWA (which would require treatment by the Flint Water Plant); 3) Effective 100% provision of treated drinking water by DWSD; 4) Provision of variable amounts of water from DWSD through the existing Potter & Baxter mains (this option called for Flint to treat and *blend* river water into DWSD water in order to reach their daily needs); and 5) Provision of variable amounts of water from DWSD through the 72" Imlay City main (this option also called for Flint to treat and *blend* river water into DWSD water in order to reach their daily needs). Each of the blending options looked at Flint purchasing 4, 8, or 12 Million Gallons per Day (MGD) from DWSD and blending the balance in river water to achieve their maximum daily water needs of 18 MGD. The Imlay City option also provided for DWSD to sell the 72" main to the City of Flint, which would then become the operational and maintenance responsibility of Flint.

From the presentation of the preliminary report on December 21 to the planned submission of the final report to the State by TYJT, a number of developments have occurred that resulted in making a final decision more difficult. These developments were:

- The City of Flint received slightly modified proposals from DWSD; one on December 21, 2012, and the second on January 10, 2013.
- On January 8, 2013, the OFR received, via the City of Flint, a written response from Rowe Professional Services Company (Rowe), the principal engineering firm for KWA, disputing a number

Page 2

of the conclusions reached by TYJT regarding the construction of the KWA pipeline. It should be noted that Rowe Professional Services Company is the consulting engineering firm for KWA and they also provide engineering services to Genesee County and the City of Flint.

- The Flint EFM also provided information to the Department of Treasury at a January 10, 2013, meeting disputing several of TYJT's conclusions. A written rebuttal to the Rowe report was received from TYJT on January 14, 2013. A follow-up conference call was also held with Flint officials on January 16, 2013 to further discuss these issues.

Also on January 14, 2013, the State Treasurer requested information to three questions. The three questions are summarized as follows: 1) Show the different projected construction costs provided by TYJT and by the City of Flint/KWA. If these costs are different, explain why Treasury believes that the projects provided by Flint/KWA are acceptable; 2) identify the construction contingencies included in the TYJT and Flint/KWA projections; and 3) identify the options Flint will utilize in the event of a construction cost overrun or a delay in construction by KWA.

On January 28, 2013, Deputy Treasurer Roger Fraser, State Administrative Manager Randall Byrne and I met with Flint Officials (Mayor Dane Walling, Emergency Financial Manager Ed Kurtz, City Administrator Mike Brown, Flint Finance Director Jerry Ambrose, Public Works Administrator Howard Croft, and Flint Utility Administrator Duffy Robinson) and representatives from KWA Water Authority that included Genesee County Drain Commissioner Jeff Wright, Genesee County Water and Sewer Administrator John O'Brien, and Jim Redding of Rowe Engineering.

Some clarifications to ongoing questions were provided at this meeting. Also, at this meeting, EFM Kurtz stated that he believes the KWA option is the cheaper alternative over time. He also stated that he believes that the Mayor and City Council will support the KWA Project.

For purposes of this analysis, all responses have been organized to respond to the questions posed by the State Treasurer on January 14, 2013.

Projected Construction Costs:

Based upon the provided construction estimates, TYJT estimates the KWA construction costs at \$357.6-million. KWA estimates construction costs at \$272.4-million. There is a lack of agreement on which of these estimates is more accurate.

Given all of the available information to the OFR, the following details make arriving at a clear recommendation difficult. Below is a summary of these details.

City of Flint Water System

- At a January 10, 2013, meeting with Treasury, Flint officials eliminated the 100% Water Plant option, using the Flint River as a 100% water source (which was cheapest option, as determined by TYJT).
- According to Flint officials, their water system experiences water losses, at a minimum, between 20-30%. Despite assurances that a plan is being developed to address losses, the true condition of the water system is not clearly known. Percentage losses of this size would suggest an impact upon current (and future) water purchases if not addressed. However, at the January 28 meeting, it was stated that Flint is billing for 85% of the water it distributes and the majority of loss comes from fires, deficient water meters, and theft. It is reasonable to conclude that at this time verification of true system losses is likely difficult to achieve. Further, it is logical to conclude that water loss will have some impact upon making future usage and cost projections.

Page 3

- Funding sources for any City water system upgrades are unclear. TYJT based many of their cost models on the issuance of revenue bonds. At the January 10, 2013, meeting, Flint officials indicated that the County would issue G.O. bonds for all KWA-related work. The January 8 report from Rowe also indicated that G.O. bonds would be issued. However, at the January 28 meeting, KWA officials emphatically stated that revenue bonds would be issued for this project.
- Flint officials indicated that approximately \$3.5-million in capital upgrades is needed for the Water Plant if the KWA option is selected. At the January 28, 2013 meeting, it was stated that Genesee County will permit Flint to participate in its revenue bond sale for KWA for Flint's 30% share of capacity in the KWA System and for plant upgrades. Given Flint's current financial situation, were this participation to occur, it will be a positive development for the City because it is likely Flint would have a very difficult time issuing bonds on the strength of its own credit rating.
- Flint officials have also indicated that if DWSD is selected as a final option then any needed plant upgrades will likely require SRF/DWRF loans to complete.

DWSD Options

- At the January 10 meeting, Flint officials eliminated all of the DWSD Imlay City options (which were the cheapest DWSD options) over concerns of owning and maintaining the 72" water main.
- It is also the understanding of the OFR that Flint officials will only consider any of the blending options originally proposed to DWSD if they are certain that it is a cheaper option than KWA. Blending was one of the initial criteria that TYJT was asked to evaluate by Treasury and was an option raised by the City of Flint.
- Further, the blending options to purchase only 8 MGD from DWSD and blend the balance of water from the Flint River appear to be no longer viable. According to Flint officials, blending more than 1/3 of the total water volume will require water softening to be added to the process; adding approximately \$5.00/mcf (one-thousand cubic feet). One million gallons of water is approximately 133.7mcf, so treatment costs could raise \$669/MGD.
- There is no agreement on the estimates used to project future water rates that will be charged by DWSD. The information provided by DWSD regarding water rates they charged Flint over the past 10-years does not appear to match the rates Flint officials stated that they have paid. TYJT maintains that DWSD rates are a matter of public record and rate information was provided directly by DWSD. Flint officials state that invoices received from DWSD indicate higher rates. At the January 28, 2013 meeting, EFM Kurtz stated that DWSD is charging Flint and Genesee County between \$24- and \$25-million per year for water purchases.
- Even if Flint was to continue with DWSD supplying water, it is understood that the MDEQ will likely require DWSD to address the issue of redundancy for Flint during the term of the new water contract by constructing an additional water main from Oakland County to the City of Flint. This project has been in conceptual stages for many years but never implemented.

KWA Options

- There is a complete lack of agreement regarding the most accurate cost estimates for construction.
- As previously indicated, there was some dispute on whether General Obligation or revenue bonds would be issued for construction of KWA. At the January 28, 2013 meeting it was clarified that revenue bonds will be issued for this project.
- It was announced at the recent January 28 meeting that bids will be opened for construction of the KWA lake water intake on February 26, 2013. Interest in the construction of the intake has apparently

Page 4

been very high. County Water and Sewer Administrator O'Brien noted that the size of the intake will be the same whether Flint joins KWA or not. It was also noted that the construction of the pipeline will be done by multiple contractors. This will save time and allow more Michigan contractors to bid on the project.

- County Drain Commissioner Wright also indicated at the January 28 meeting a willingness to discuss how KWA might mitigate the \$7- to \$8-million cost of the "premium" rate that would be charged to the City of Flint by DWSD for the City to purchase water while KWA was being constructed. These costs are of great concern to Flint officials if the KWA option is selected.
- KWA has made no provisions for redundant power at the pumping facilities. TYJT included the provision of redundant power in their estimates and notes that this is an industry standard. Standby power was discussed at the January 28 meeting and KWA officials clarified that the water plant will have redundant power but that the pumping stations will not. The stated reasons for not including redundant power were cost containment, that Flint can use the Flint River as a backup water supply in the event of an extended power outage and that the KWA systems' water storage capacity will allow for 7 days of reserve supply. County Drain Commissioner Wright stated that KWA will look at installing standby power later but can utilize portable generators at the pumping stations, if necessary. TYJT estimates that adding redundant power adds \$1.3-million in new costs.

Given the above points, it appears that the only options remaining under consideration by Flint are the 100% DWSD option (which TYJT estimated to be more expensive than either of the KWA cost options) or joining KWA.

Project Contingency:

Construction contingency costs, also known as Engineering, Land, Administration, and Contingency costs (ELAC) are summarized in an attached chart developed by Rowe for the City of Flint. KWA/Rowe estimates total construction at \$272.4-million, with \$53.2-million (25%) for ELAC contingencies. County Water and Sewer Administrator O'Brien clarified at the January 28, 2013 meeting that there is a 15% contingency for unforeseen issues and 10% "extra." TYJT estimates total construction at \$357.6-million, with \$104.6-million (42.9%) for ELAC contingencies.

Construction Cost Overrun/Construction Delay Options:

The OFR is not aware of any contingency plans developed by either KWA or the City of Flint to address construction cost overruns or significant construction delays. County Drain Commissioner Wright stated at the January 28 meeting that, if necessary, KWA has the authority to borrow more funds to complete the project. As the City of Flint would purchase approximately 30% of the KWA system, any additional debt levied to complete the project would likely require the City to assume 30% of that cost. However, Mr. O'Brien also stated that the January 28 meeting that KWA expects to purchase an insurance policy to insure against delays to the project. Drain Commission Wright also indicated that if construction bids come-in significantly higher than estimated that KWA will likely reassess its approach to this project.

Overall, comparing these two options is very difficult because they are very different types of operations. DWSD is a "known" entity and the system is already in-place and in operation. DWSD may also be the cheaper option in the short term. However, selecting DWSD requires a 30-year commitment, the unknown aspect of future rate increases is very concerning to Flint officials and there appears to be considerable local resistance to continuing with DWSD.

KWA is a new venture and the "unknowns" exist at the initial phases of the project. KWA has the potential to be the cheaper, long-term cost for the City of Flint after the bond debt for construction is

Page 5

retired. The upfront costs and the premium water charges assessed by DWSD while KWA is being constructed are of great concern to City officials. The potential inclusion of Flint in the issuance of revenue bonds by Genesee County and the potential for KWA to assist the City in mitigating some of these premium charges could greatly reduce those concerns. Significant construction delays and/or cost overruns could greatly add to the cost of this project, which could add to the financial burden on Flint. However, there appears to be good cooperation between City and County officials in discussing this project and there also appears to be community support for the City of Flint joining KWA.

If further analysis on this issue is needed, please let me know.

Copy: Randall Byrne, State Administrative Manager; Office of Fiscal Responsibility

Attachment

S:\OFR\Cities\City of Flint\KWA Water Authority\UPDATED FLINT DWSD KWA ASSESSMENT Version V.01-30-13.doc

EXHIBIT 84



October 27, 2015

Dear Parent,

To help make sure the children of Flint are safe from lead exposure, the Genesee County Health Department and the Michigan Department of Health and Human Services are providing answers to the following questions:

- Where does lead come from?
- What can I do to protect my family?
- Should I get my child tested for lead?
- Where can I find more information about lead?

Where does lead come from?

Elevated levels of lead have been found in the drinking water from lead pipes in the City of Flint. Kids can also be exposed to lead from old lead paint, soil, pottery, cosmetics and toys and some home remedies. Adult jobs and hobbies, like auto repair, stained glass, jewelry making and ammunitions handling can also put children at risk if they touch clothing or play in areas where lead is found. Lead is a serious health hazard, especially for small children who become lead poisoned when they eat, drink or breathe lead.

Should my child get a blood lead test? Children who live in the City of Flint, live in a home using City of Flint water, or who attend school, childcare or often spend time with a caregiver in the City of Flint should be tested for lead poisoning.

This should be done as soon as possible.

Where should I go to get a blood lead test for my child?

The best place to get your child's blood lead test is your doctor's office. Tests are covered by most health plans. Your doctor will follow up with you on lab tests and provide you with information on what to do next. Your child can also get a free lead test at the Genesee County Health Department. If you need transportation, contact 2-1-1 for help.

Understanding your child's lead test result.

A lead level below 5 means there is a little lead in your child's blood. Use the tips below to help keep your child safe. Your doctor may suggest retesting your child within the next 12 months to make sure the level does not go up.

A lead level of 5-44 means that your child has had some exposure to lead. Work with your doctor and local health department for further guidance on how to limit your lead exposure. Your doctor may retest your child in 1-3 months to make sure the level does not go up.

Children with very high levels of lead (**over 44**) may require treatment at the hospital.

What Can I Do to Keep My Family Safe?

The following steps should be taken right away to help protect you and your child.

Protecting your family from lead in the water:

- Get your water tested for lead. It's free. Call (810) 787-6537 to learn more.
- Use a water filter in your home. Call 2-1-1 for information on free NSF Certified water filters.
- Run only cold water through the filter.
- If you do not have a water filter, use bottled water for drinking and mixing formula.
- Use filtered or bottled water for drinking (including making coffee, drink mixes, juice, baby formula), and cooking (even if you boil the water, the lead will stay in the water and food).
- You can use unfiltered tap water for washing your hands and washing dishes.
- If you have to use unfiltered water for drinking or cooking, run the tap for five minutes before using the water.

Safe cleaning:

Safe cleaning is important. Keeping your home clean and safe from lead hazards will help to protect your family.

- Buildings built before 1978 could have lead paint in them. Use wet paper towels to clean up paint chips and dust in these older buildings. Be sure to clean around windows, play areas, and floors.
- Wash hands and toys often with soap and water.
- You can use unfiltered tap water to wipe down countertops, mop floors, and wash clothes.

Good nutrition:

Some foods will help keep lead from being stored in a child's body. These are foods with a lot of calcium, iron and vitamin C. These foods include:

Calcium Rich Foods	Iron Rich Foods	Foods with Vitamin C
➤ Milk	➤ Beans	➤ Oranges
➤ Cheese	➤ Lean meats like fish and chicken	➤ Orange juice
➤ Yogurt	➤ Whole grain cereals	➤ Grapefruits
➤ Tofu	➤ Peanut butter	➤ Tomatoes
➤ Spinach		➤ Green peppers

Always wash your fruits with filtered water. If you are concerned about your child's diet, talk with your doctor who may also recommend a daily multivitamin.

WIC and SNAP provide assistance to parents and children who need fresh and healthy foods. Contact the **Genesee County WIC office at (810) 237-4537** to learn more. SNAP also offers a Double Bucks program to purchase even more healthy food for no additional costs.

Where can I get more information on lead?

- Genesee County Health Department Lead Program
(810) 257-3833
www.gchd.us
- Michigan Department of Health and Human Services
Childhood Lead Poisoning Prevention Program
(888) 322-4453
www.michigan.gov/lead
- United States Environmental Protection Agency
www.epa.gov/lead
- U.S. Centers for Disease Control and Prevention (CDC) Web site
www.cdc.gov/nceh/lead

These recommendations will stay in effect until the Genesee County Health Department lifts the restrictions on water usage.

Sincerely,



Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services



Gary K. Johnson, MD, MPH
Medical Director
Genesee County Health Department

EXHIBIT 85

3/18/2016

MDOT - Flint MTA Assisting with Contaminated Water Supply Crisis


[MDOT Home \(/mdot\)](#)
[Contact MDOT \(/mdot/0,4616,7-151-68368---,00.html\) \(/mdot/\)](#)
[FAQ \(/mdot/0,4616,7-151-12965---F,00.html\)](#)
[Sitemap \(/mdot/0,4616,7-151-12959---SM,00.html\)](#)
[MDOT \(/MDOT/\)](#)
[/ DOING BUSINESS \(/MDOT/0,4616,7-151-9625---,00.HTML\)](#)
[/ PASSENGER TRANSPORTATION \(/MDOT/0,4616,7-151-9625_21607-- ,00.HTML\)](#)
[MI.gov](#)
[\(/som\)](#)

Flint MTA Assisting with Contaminated Water Supply Crisis

Flint Mass Transportation Authority has been actively involved in assisting Flint residents during the ongoing contaminated water supply crisis (see [photos \(/documents/mdot/FlintMTA_helpWithContaminatedWaterSupplyCrisis_514165_7.pdf\)](#)).

MTA has provided vehicles to help move volunteers from the county administration offices and American Red Cross buildings into neighborhoods; added water distribution sites as stops along its fixed routes; stationed buses in some neighborhoods to serve as warming stations for volunteers delivering water to homes; and developed bus stops at Flint fire stations to facilitate access for individuals traveling to and from the stations to get water supplies (no fares are being charged when individuals use the bus service for this purpose).

In late January, MTA officials turned the Transportation Center in downtown Flint into a distribution site to accept delivery of pallets of water so residents could pick up cases. In addition, the Your Ride service provided house deliveries of water and supplies to older individuals, people with disabilities and dialysis patients.

Federal Emergency Management Agency (FEMA) personnel commented to MTA officials that in 40 years of providing disaster and emergency relief, they had never witnessed a better coordinated public transit system.

3/18/2016

MDOT - Flint MTA Assisting with Contaminated Water Supply Crisis

[Michigan.gov Home \(/\)](#) | [MDOT Home \(http://www.michigan.gov/mdot\)](http://www.michigan.gov/mdot) | [Site Map \(/mdot/0,4616,7-151-12971---SM,00.html\)](/mdot/0,4616,7-151-12971---SM,00.html) | [FAQ \(/mdot/0,4616,7-151-12967---F,00.html\)](/mdot/0,4616,7-151-12967---F,00.html) | [State Web Sites \(/mdot/0,4616,7-151---A,00.html\)](/mdot/0,4616,7-151---A,00.html) | [FOIA \(/mdot/0,4616,7-151-72655-357799--,00.html\)](/mdot/0,4616,7-151-72655-357799--,00.html) | [Office of Regulatory Reinvention \(/orr\)](/orr) | [Transparency \(/openmichigan/0,4648,7-266-58520---,00.html\)](/openmichigan/0,4648,7-266-58520---,00.html)

[Policies \(/mdot/0,4616,7-151-9625_21607-281460--,00.html\)](/mdot/0,4616,7-151-9625_21607-281460--,00.html) | [Michigan News \(/minewswire\)](/minewswire) | [ADA \(/adaform\)](/adaform)

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EXHIBIT 86

3/18/2016

State of Emergency – City of Flint

Home Department Listing ▾

Search



STATE OF EMERGENCY

HOW CAN I HELP?

ONLINE SERVICES

RESIDENTS

CITY BUSINESS

VISITORS

CITY HALL

State of Emergency Declared in the City of Flint

To help with the Flint Water Emergency, see [How Can I Help?](#)

On Monday, December 14, 2015, Mayor Karen Weaver declared a State of Emergency in response to a man-made disaster caused by the City switching to the Flint River as a water source in 2014. This switch has resulted in elevated lead levels in drinking water which prompted both the City and the County Health department to issue a health advisory earlier this year. It is important that residents get their water tested as regularly as possible and not consume City water without using a filter.

Genesee County supported the call to action by declaring an emergency on January 4th, 2016. The State of Michigan followed suit with a declaration on January 5th. On January 12th, the Governor activated the National Guard to assist with water and filter distribution to Flint Water Customers.

On October 16, 2015, the City switched back to the Detroit Water and Sewerage Department as the source of water, however lead levels remain well above the federal action level of 15 parts per billion in many homes. Residents are advised to continue using water filters while long term solutions are being developed. Boiling will not remove lead from the water. It is important to use an NSF certified water filter that specifically removes lead.

Filters can be picked up at City Hall and at the Water Resource Centers, located in every active Fire Station. For questions about filters, call 211 for general information or City Hall at 810-766-7165 ext 2606.



Additional information can be found at michigan.gov/flintwater

Where to get water, filters, and test kits:

[See Map](#)

Show 10 entries

Search:

Location	Address	Filters	Water	Test Kit
WRC Fire Station 1	310 E. 5th Street	Yes	Yes	Yes
WRC Fire Station 3	1525 Martin Luther King Avenue	Yes	Yes	Yes
WRC Fire Station 5	3402 Western Road	Yes	Yes	Yes
WRC Fire Station 6	716 W. Pierson Road	Yes	Yes	Yes

3/18/2016

State of Emergency – City of Flint

WRC Fire Station 8	202 E. Atherton Road	Yes	Yes	Yes
Flint City Hall	1101 S. Saginaw	Yes	No	Yes
GCCARD	601 North Saginaw, Flint MI 48502	Yes	No	No
GCAARD	2727 Lippencott Blvd, Flint MI 48507	Yes	No	No
Mich. Dept. Health and Human Services	4809 Clio Road, Flint MI 48504	Yes	No	No
Mich. Dept. Health and Human Services	125 E. Union Street, Flint, MI 48502	Yes	No	No

Showing 1 to 10 of 10 entries

◀ Previous Next ▶

Water Relief Efforts Updates

Emergency Response Updates

The City of Flint is responding to the immediate needs of this emergency by distributing water filters, testing the water for customers, and verifying lead service lines. The below table contains updates of the City's activities.

Show entries

Search:

Date	# of Brita Filters	# of Pur Filters	# of Zero Pitcher Filters
October 6th-10th, 2015	25		
October 11th-17th, 2015	20		
October 18th-24th, 2015	25		
October 25th- 31st, 2015	12		
Nov. 1st-7th,	1		1
Nov. 8th-14th	49	7	
Nov. 15th-21st	57	36	47
Nov. 22nd-30th	25	18	26
Total	Sum: 214	Sum: 61	Sum: 74

Showing 1 to 10 of 11 entries

◀ Previous [Next](#) ▶

Water Testing

Show entries

Search:

Sample Information	Test Results mg/L	DEQ		
#	Address	Lead	Copper	Lab ID Results Sent
549	3718 Dolphine	N.D.	N.D.	LF48388 December 4, 2015
550	318 Buckingham Ave.	N.D.	N.D.	93550 December 4, 2015
551	318 Buckingham Ave. (2)	0.003	0.07	93551 December 4, 2015
552	319 Buckingham Ave. (3)	0.042	0.05	93552 December 4, 2015
553	319 Buckingham Ave. (4)	0.042	0.09	93553 December 4, 2015

3/18/2016

State of Emergency – City of Flint

554	320 Buckingham Ave. (5)	N.D.	0.05	93558	December 4, 2015
555	321 Buckingham Ave. (1)	0.005	0.19	93559	December 4, 2015
556	2101 Stedron St.	N.D.	0.21	93554	December 4, 2015
557	1302 Blanchard	0.003	N.D.	93557	December 4, 2015

Showing 1 to 10 of 124 entries

◀ Previous [Next](#) ▶

NEED DIRECTIONS?



CONTACT INFORMATION:

1101 S. Saginaw St.
Flint, MI 48502
Phone Number: (810) 766-7346

Contact Us



Title VI Policy



QUICK LINKS:

- City Clerk
- City Council
- City Attorney
- RTAB
- Human Resources & Labor Relations
- Finance
- Income Tax
- Mayor's Office
- Online Services
- Planning and Zoning
- Public Safety
- Public Works

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[Community](#) [Home](#)

EXHIBIT 87

FLINT WATER RESPONSE TEAM

Visit our comprehensive website at www.michigan.gov/flintwater

WATER RESOURCE CENTERS

- Free Bottled Water • Free Water Filters • Free Testing Kits •

Fire Station #1
310 East 5th St.
Flint, MI 48502

Fire Station #3
1525 Martin Luther King Ave.
Flint, MI 48503

Fire Station #5
3402 Western Rd.
Flint, MI 48506

Fire Station #6
716 West Pierson Rd.
Flint, MI 48505

Fire Station #8
202 East Atherton Rd.
Flint, MI 48507

OPEN DAILY FROM 9 AM - 9 PM

• RESOURCES •

MEDICAL

For medical or testing information,
please contact
your primary care provider
or dial **211**

FOR IMMEDIATE
ASSISTANCE

DIAL 211
(24/7/365)

We're committed to a coordinated approach with resources from state agencies to address all aspects of this situation.

If you don't find what you need here or by calling 211, please call my office at 517-335-7858. I will continue working to make this right.

~ Rick Snyder, Governor



FLINT WATER RESPONSE TEAM

NUTRITION

Did you know that some foods will keep lead from being stored in a child's body? These are foods with a lot of calcium, vitamin C and iron.

FREE WATER TESTING

Flint residents who are concerned about their water can obtain free water testing kits at the water resource sites.

USE WATER FILTERS & CARTRIDGES

Water filters can reduce lead and other contaminants by 99 percent when installed and maintained correctly. Free water filters are available at the water resource sites.

FOR IMMEDIATE ASSISTANCE

DIAL 211
(24/7/365)



EXHIBIT 88



DP04 | SELECTED HOUSING CHARACTERISTICS

2010-2014 American Community Survey 5-Year Estimates

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Subject	United States			Flint city, Michigan			
	Estimate	Margin of Error	Percent	Estimate	Margin of Error	Percent	Percent Margin of Error
HOUSING OCCUPANCY							
Total housing units	132,741,033	+/-9,144	132,741,033	53,315	+/-727	53,315	(X)
Occupied housing units	116,211,092	+/-230,463	87.5%	40,509	+/-721	76.0%	+/-1.1
Vacant housing units	16,529,941	+/-222,145	12.5%	12,806	+/-613	24.0%	+/-1.1
Homeowner vacancy rate	2.1	+/-0.1	(X)	3.2	+/-0.8	(X)	(X)
Rental vacancy rate	6.9	+/-0.1	(X)	7.6	+/-1.5	(X)	(X)
UNITS IN STRUCTURE							
Total housing units	132,741,033	+/-9,144	132,741,033	53,315	+/-727	53,315	(X)
1-unit, detached	81,840,073	+/-105,470	61.7%	41,325	+/-736	77.5%	+/-0.8
1-unit, attached	7,725,793	+/-22,020	5.8%	1,246	+/-229	2.3%	+/-0.4
2 units	4,976,158	+/-29,713	3.7%	1,964	+/-325	3.7%	+/-0.6
3 or 4 units	5,880,728	+/-21,612	4.4%	1,814	+/-276	3.4%	+/-0.5
5 to 9 units	6,341,597	+/-29,956	4.8%	2,016	+/-253	3.8%	+/-0.5
10 to 19 units	5,950,163	+/-29,526	4.5%	1,486	+/-288	2.8%	+/-0.5
20 or more units	11,410,553	+/-18,994	8.6%	2,225	+/-244	4.2%	+/-0.5
Mobile home	8,506,996	+/-34,964	6.4%	1,231	+/-170	2.3%	+/-0.3
Boat, RV, van, etc.	108,952	+/-2,225	0.1%	8	+/-14	0.0%	+/-0.1
YEAR STRUCTURE BUILT							
Total housing units	132,741,033	+/-9,144	132,741,033	53,315	+/-727	53,315	(X)
Built 2010 or later	1,315,426	+/-8,462	1.0%	69	+/-58	0.1%	+/-0.1

Subject	United States			Flint city, Michigan		
	Estimate	Margin of Error	Percent	Estimate	Margin of Error	Percent
Built 2000 to 2009	19,803,260	+/-35,507	14.9%	951	+/-196	1.8%
Built 1990 to 1999	18,512,067	+/-29,203	13.9%	1,270	+/-260	2.4%
Built 1980 to 1989	18,346,272	+/-27,254	13.8%	1,451	+/-236	2.7%
Built 1970 to 1979	20,978,482	+/-33,211	15.8%	4,901	+/-455	9.2%
Built 1960 to 1969	14,626,326	+/-25,933	11.0%	8,221	+/-535	15.4%
Built 1950 to 1959	14,374,462	+/-26,411	10.8%	15,347	+/-667	28.8%
Built 1940 to 1949	7,119,373	+/-17,667	5.4%	7,764	+/-532	14.6%
Built 1939 or earlier	17,665,365	+/-36,160	13.3%	13,341	+/-655	25.0%
ROOMS						
Total housing units	132,741,033	+/-9,144	132,741,033	(X)	+/-727	53,315
1 room	2,592,537	+/-22,971	2.0%	296	+/-120	0.6%
2 rooms	3,296,927	+/-14,568	2.5%	1,001	+/-191	1.9%
3 rooms	12,118,439	+/-29,115	9.1%	3,470	+/-402	6.5%
4 rooms	22,035,203	+/-68,593	16.6%	9,603	+/-620	18.0%
5 rooms	27,095,008	+/-66,592	20.4%	14,841	+/-743	27.8%
6 rooms	23,977,269	+/-29,582	18.1%	12,258	+/-654	23.0%
7 rooms	16,292,098	+/-37,817	12.3%	5,621	+/-387	10.5%
8 rooms	11,253,941	+/-48,325	8.5%	3,038	+/-387	5.7%
9 rooms or more	14,076,611	+/-95,309	10.6%	3,187	+/-392	6.0%
Median rooms	5.5	+/-0.1	(X)	5.3	+/-0.1	(X)
BEDROOMS						
Total housing units	132,741,033	+/-9,144	132,741,033	(X)	+/-727	53,315
No bedroom	2,881,051	+/-20,196	2.2%	389	+/-131	0.7%
1 bedroom	14,819,392	+/-25,619	11.2%	5,106	+/-421	9.6%
2 bedrooms	35,427,481	+/-61,769	26.7%	17,778	+/-702	33.3%
3 bedrooms	52,700,275	+/-51,135	39.7%	24,403	+/-666	45.8%
4 bedrooms	21,306,928	+/-51,099	16.1%	4,614	+/-362	8.7%
5 or more bedrooms	5,605,906	+/-15,662	4.2%	1,025	+/-200	1.9%
HOUSING TENURE						
Occupied housing units	116,211,092	+/-230,463	116,211,092	(X)	+/-721	40,509
Owner-occupied	74,787,460	+/-343,068	64.4%	22,471	+/-692	55.5%
Renter-occupied	41,423,632	+/-117,733	35.6%	18,038	+/-745	44.5%
Average household size of owner-occupied unit	2.70	+/-0.01	(X)	2.33	+/-0.06	(X)
Average household size of renter-occupied unit	2.52	+/-0.01	(X)	2.54	+/-0.07	(X)
YEAR HOUSEHOLDER MOVED INTO UNIT						
Occupied housing units	116,211,092	+/-230,463	116,211,092	(X)	+/-721	40,509
Moved in 2010 or later	29,066,830	+/-48,912	25.0%	12,402	+/-645	30.6%
Moved in 2000 to 2009	47,790,733	+/-109,929	41.1%	13,227	+/-656	32.7%
Moved in 1990 to 1999	19,278,432	+/-89,662	16.6%	5,353	+/-514	13.2%

Subject	United States			Flint city, Michigan		
	Estimate	Margin of Error	Percent Error	Estimate	Margin of Error	Percent Error
Moved in 1980 to 1989	9,217,041	+/-40,312	7.9%	3,103	+/-302	7.7%
Moved in 1970 to 1979	6,106,304	+/-24,313	5.3%	3,478	+/-297	8.6%
Moved in 1969 or earlier	4,751,752	+/-21,865	4.1%	2,946	+/-286	7.3%
VEHICLES AVAILABLE						
Occupied housing units	116,211,092	+/-230,463	116,211,092	40,509	+/-721	40,509
No vehicles available	10,594,153	+/-24,393	9.1%	7,621	+/-451	18.8%
1 vehicle available	39,277,554	+/-34,476	33.8%	19,391	+/-815	47.9%
2 vehicles available	43,550,477	+/-123,370	37.5%	10,559	+/-598	26.1%
3 or more vehicles available	22,788,908	+/-85,515	19.6%	2,938	+/-316	7.3%
HOUSE HEATING FUEL						
Occupied housing units	116,211,092	+/-230,463	116,211,092	40,509	+/-721	40,509
Utility gas	56,767,054	+/-141,535	48.8%	34,940	+/-663	86.3%
Bottled, tank, or LP gas	5,646,369	+/-26,488	4.9%	411	+/-128	1.0%
Electricity	42,625,609	+/-61,047	36.7%	4,751	+/-427	11.7%
Fuel oil, kerosene, etc.	6,814,395	+/-16,507	5.9%	55	+/-54	0.1%
Coal or coke	134,004	+/-2,192	0.1%	0	+/-23	0.0%
Wood	2,460,911	+/-8,903	2.1%	72	+/-45	0.2%
Solar energy	59,558	+/-1,527	0.1%	0	+/-23	0.0%
Other fuel	543,264	+/-4,637	0.5%	108	+/-51	0.3%
No fuel used	1,159,928	+/-8,040	1.0%	172	+/-72	0.4%
SELECTED CHARACTERISTICS						
Occupied housing units	116,211,092	+/-230,463	116,211,092	40,509	+/-721	40,509
Lacking complete plumbing facilities	537,459	+/-7,817	0.5%	216	+/-95	0.5%
Lacking complete kitchen facilities	1,014,759	+/-8,380	0.9%	421	+/-143	1.0%
No telephone service available	2,875,544	+/-18,807	2.5%	1,470	+/-262	3.6%
OCCUPANTS PER ROOM						
Occupied housing units	116,211,092	+/-230,463	116,211,092	40,509	+/-721	40,509
1.00 or less	112,358,382	+/-246,172	96.7%	39,806	+/-757	98.3%
1.01 to 1.50	2,700,932	+/-17,376	2.3%	557	+/-144	1.4%
1.51 or more	1,151,778	+/-8,667	1.0%	146	+/-86	0.4%
VALUE						
Owner-occupied units	74,787,460	+/-343,068	74,787,460	22,471	+/-692	22,471
Less than \$50,000	6,932,847	+/-38,975	9.3%	14,337	+/-543	63.8%
\$50,000 to \$99,999	11,653,495	+/-60,149	15.6%	6,169	+/-410	27.5%
\$100,000 to \$149,999	11,976,117	+/-57,726	16.0%	995	+/-177	4.4%
\$150,000 to \$199,999	11,313,218	+/-56,952	15.1%	510	+/-154	2.3%
\$200,000 to \$299,999	13,619,254	+/-69,215	18.2%	194	+/-66	0.9%
\$300,000 to \$499,999	11,615,518	+/-53,585	15.5%	102	+/-65	0.5%
\$500,000 to \$999,999	6,104,301	+/-25,926	8.2%	64	+/-43	0.3%

Subject	United States			Flint city, Michigan		
	Estimate	Margin of Error	Percent	Estimate	Margin of Error	Percent
\$1,000,000 or more	1,572,710	+/-7,745	2.1%	100	+/-54	0.4%
Median (dollars)	175,700	+/-224	(X)	36,700	+/-2,009	(X)
MORTGAGE STATUS						
Owner-occupied units	74,787,460	+/-343,068	74,787,460	22,471	+/-692	22.471
Housing units with a mortgage	49,043,774	+/-223,725	65.6%	11,202	+/-565	49.9%
Housing units without a mortgage	25,743,686	+/-122,089	34.4%	11,269	+/-586	50.1%
SELECTED MONTHLY OWNER COSTS (SMOC)						
Housing units with a mortgage	49,043,774	+/-223,725	49,043,774	11,202	+/-565	11.202
Less than \$300	96,963	+/-2,216	0.2%	23	+/-18	0.2%
\$300 to \$499	781,682	+/-7,596	1.6%	510	+/-122	4.6%
\$500 to \$699	2,456,179	+/-17,428	5.0%	2,082	+/-260	18.6%
\$700 to \$899	7,022,549	+/-34,969	14.3%	4,113	+/-308	36.7%
\$1,000 to \$1,499	13,681,666	+/-64,039	27.9%	3,390	+/-350	30.3%
\$1,500 to \$1,999	9,879,343	+/-48,809	20.3%	821	+/-167	7.3%
\$2,000 or more	15,025,392	+/-68,541	30.6%	263	+/-106	2.3%
Median (dollars)	1,522	+/-2	(X)	921	+/-22	(X)
Housing units without a mortgage						
Less than \$100	25,743,686	+/-122,089	25,743,686	11,269	+/-586	11.269
\$100 to \$199	309,245	+/-4,117	1.2%	81	+/-47	0.7%
\$200 to \$299	1,687,548	+/-12,257	6.6%	794	+/-161	7.0%
\$300 to \$399	3,784,894	+/-22,295	14.7%	2,238	+/-268	19.9%
\$400 or more	4,704,897	+/-25,654	18.3%	2,649	+/-283	23.5%
Median (dollars)	15,257,102	+/-71,346	59.3%	5,507	+/-410	48.9%
	457	+/-1	(X)	396	+/-8	(X)
SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOC-API)						
Housing units with a mortgage (excluding units where SMOC-API cannot be computed)	48,786,530	+/-225,422	48,786,530	11,095	+/-567	11.095
Less than 20.0 percent	18,542,199	+/-122,744	38.0%	3,593	+/-332	32.4%
20.0 to 24.9 percent	7,836,596	+/-50,584	16.1%	1,653	+/-236	14.9%
25.0 to 29.9 percent	5,720,107	+/-32,045	11.7%	961	+/-197	8.7%
30.0 to 34.9 percent	3,986,364	+/-20,519	8.2%	839	+/-199	7.6%
35.0 percent or more	12,701,264	+/-22,114	26.0%	4,049	+/-450	36.5%
Not computed	257,244	+/-4,078	(X)	107	+/-65	(X)
Housing unit without a mortgage (excluding units where SMOC-API cannot be computed)						
Less than 10.0 percent	10,345,359	+/-60,024	40.7%	3,121	+/-316	29.0%
10.0 to 14.9 percent	5,045,311	+/-24,943	19.9%	1,973	+/-220	18.3%
15.0 to 19.9 percent	3,057,326	+/-16,964	12.0%	1,563	+/-239	14.5%
20.0 to 24.9 percent	1,903,860	+/-11,753	7.5%	871	+/-167	8.1%

Subject	United States			Flint city, Michigan			
	Estimate	Margin of Error	Percent	Estimate	Margin of Error	Percent	Percent Margin of Error
25.0 to 29.9 percent	1,247,914	+/-8,668	4.9%	689	+/-159	6.4%	+/-1.4
30.0 to 34.9 percent	852,064	+/-6,972	3.4%	446	+/-114	4.1%	+/-1.0
35.0 percent or more	2,958,336	+/-15,108	11.6%	2,115	+/-284	19.6%	+/-2.3
Not computed	333,516	+/-3,988	(X)	491	+/-133	(X)	(X)
GROSS RENT							
Occupied units paying rent	39,201,928	+/-116,716	39,201,928	16,767	+/-728	16,767	(X)
Less than \$200	588,063	+/-4,913	1.5%	616	+/-151	3.7%	+/-0.9
\$200 to \$299	1,247,551	+/-7,847	3.2%	954	+/-245	5.7%	+/-1.4
\$300 to \$499	2,889,355	+/-10,352	7.4%	2,533	+/-329	15.1%	+/-1.8
\$500 to \$749	8,250,822	+/-24,021	21.0%	5,990	+/-476	35.7%	+/-2.4
\$750 to \$999	9,457,480	+/-29,769	24.1%	4,465	+/-422	26.6%	+/-2.3
\$1,000 to \$1,499	10,539,358	+/-46,880	26.9%	2,075	+/-293	12.4%	+/-1.6
\$1,500 or more	6,229,299	+/-36,264	15.9%	134	+/-79	0.8%	+/-0.5
Median (dollars)	920	+/-1	(X)	684	+/-15	(X)	(X)
No rent paid	2,221,704	+/-9,088	(X)	1,271	+/-223	(X)	(X)
GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI)							
Occupied units paying rent (excluding units where GRAPI cannot be computed)	38,273,765	+/-112,502	38,273,765	15,941	+/-734	15,941	(X)
Less than 15.0 percent	4,472,954	+/-25,827	11.7%	1,189	+/-231	7.5%	+/-1.4
15.0 to 19.9 percent	4,620,792	+/-20,652	12.1%	986	+/-188	6.2%	+/-1.1
20.0 to 24.9 percent	4,767,805	+/-19,926	12.5%	1,234	+/-216	7.7%	+/-1.3
25.0 to 29.9 percent	4,400,387	+/-16,276	11.5%	1,427	+/-282	9.0%	+/-1.7
30.0 to 34.9 percent	3,486,079	+/-16,574	9.1%	1,160	+/-219	7.3%	+/-1.3
35.0 percent or more	16,525,748	+/-49,454	43.2%	9,945	+/-595	62.4%	+/-2.5
Not computed	3,149,867	+/-10,575	(X)	2,097	+/-309	(X)	(X)

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Households not paying cash rent are excluded from the calculation of median gross rent.

Telephone service data are not available for certain geographic areas due to problems with data collection. See Errata Note #93 for details.

While the 2010-2014 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the

results of ongoing urbanization.

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates

Explanation of Symbols:

1. An "n" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An "-" entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An "-" following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An "+" following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An "n" entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An "n" entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An "N" entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An "(X)" means that the estimate is not applicable or not available.

EXHIBIT 89

3/21/2016

2-1-1 Update Flint Water Response for Wednesday, March 16, 2016 | Flint Neighborhoods United



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2-1-1 UPDATE FLINT WATER RESPONSE FOR WEDNESSDAY, MARCH 16, 2016

📅 March 17, 2016

This is the daily 2-1-1 summary on the Flint Water Response for

Wednesday, March 16, 2016

GENERAL INFORMATION

- **The Flint Water Crisis Community Partners Workgroup meets Thursday March 17 from 3:00 pm-5:00 pm at Food Bank of Eastern Michigan, 2300 Lapeer Road, Flint MI 48503**
 - **The agenda for the meeting follows this update.**
 - **The partners have drafted a recovery plan “to provide a common planning model including the community objectives, activities, and success criteria to enable the affected community to recover from the water crisis. This plan will be supplemented by plans produced by each partner agency based on the objectives and activities agreed upon by each partner organization. This plan is also intended to provide a common view among all participating organizations into the objectives, activities, responsibilities, and resources required to reach destination recovery.”**
 - **The draft plan is attached to today’s email update.**

Community Workgroup meetings for Flint Community Resilience Group (FCRG) Mental Health Workgroup:

- *Sub-workgroup meetings*
 - **FCRG Data & Gap Analysis:** Every Thursday, 1:30 p.m., Genesee Health System Board Room
- **State seeking extension of federal aid in Flint.** Snyder plans to ask the federal government to extend the current state of emergency from April to August. An extended emergency declaration would continue federal assistance that pays for bottled water, water filters and filter cartridges. Full article from last Friday’s Detroit Free Press at www.freep.com/story/news/local/michigan/flint-water-crisis/2016/03/11/snyder-see-extension-federal-emergency-flint/81647916/
- **State request turned down for certain FEMA funds** from pots of funding intended to cover costs for essential needs, operation of emergency operation centers and other needs, as well as a

NEWSPAPER



Click here for the newspaper archives.

DISCLAIMER

Postings to this site do not necessarily reflect the opinions of Flint Neighborhoods United.

UPCOMING EVENTS

<p>MAR 21 Mon (http://www.flintneighborhoodsunitd.org/events/action-oneday/exact_date~3-21-2016/)</p>	<p>6:00 pm Charter Commission Public Outrea... @ Flint City Hall, 2nd Floor (http://www.flintneighborhoodsunitd.org/event/charter-commission-public-outreach-committee-meeting-6/?instance_id=254493)</p>
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<p>MAR 22</p>	<p>6:00 pm Community</p>
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second pot that would have provided money for homeowners to repair damage from a disaster that is not covered by insurance, including septic or sewage systems and well or other water systems. Full story including statement from FEMA at <http://www.freep.com/story/news/local/michigan/flint-water-crisis/2016/03/16/snyder-disappointed-federal-denial-funding-flint/81857808/>

- Governor Snyder is scheduled to testify to the Congressional House Oversight and Government Reform Committee on Thursday, March 17.**
 - The governor’s office has released prepared remarks to the Free Press at:**
<http://www.freep.com/story/news/local/michigan/flint-water-crisis/2016/03/16/rick-snyder-flint-water-crisis/81877720/>
 - MLIVE summarizes highlights from last month’s Congressional hearings on Flint at**
http://www.mlive.com/news/index.ssf/2016/03/eight_key_take

CALL VOLUME

Call volume remains manageable with existing staffing levels.

SPECIAL NEEDS/REQUESTS

- 2-1-1 received a request today from a nursing home for 20 cases of water. The caller was directed to local churches. Adult Foster Care residences are receiving water deliveries, but 2-1-1 is not aware of a mechanism at this time to provide deliveries to other residential homes. 2-1-1 has contacted DHHS and is working with the Sheriff’s office to identify a solution.**

RUMOR/SCAM CONTROL

- The Attorney General’s Office investigates reports of potential scams. These can be reported to the Charitable Trust Section at ct_email@michigan.gov. The AG has tips on how to avoid falling**

Tue
(http://www.flintneighborhoodsunitd.org/events/action-oneday/exact_date~3-22-2016/)

Meeting @ Northridge Academy (http://www.flintneighborhoodsunitd.org/event/community-meeting-14/?instance_id=254567)

MAR
23
Wed
(http://www.flintneighborhoodsunitd.org/events/action-oneday/exact_date~3-23-2016/)

9:00 am Veterans Support Expert at UM-Flint @ Student Veterans Resource Center - University Pavilion - UM-Flint (http://www.flintneighborhoodsunitd.org/event/veterans-support-expert-at-um-flint-march-23rd/?instance_id=254571)

6:00 pm Ask A Lawyer: How does the Flint... @ Flint Public Library (http://www.flintneighborhoodsunitd.org/event/ask-a-lawyer-how-does-the-flint-water-crisis-affect-my-rights-custody-family-law/?instance_id=254562)

MAR
24

4:30 pm City of Flint Public

victim to con artists at http://www.michigan.gov/ag/0,4534,7-164-17337_20942-375279-,00.html.

UNRESOLVED

- **From 2/29/16: The City of Flint Water Plant can no longer handle water sample pick-up/drop-off for homebound residents due to increasing demand. 2-1-1 is coordinating with the Water Plant to identify another option for serving these residents and will provide updates until we confirm a solution. In the meantime, please do not refer homebound callers to the Water Plant for assistance. Have them call 2-1-1.**

[View Calendar](http://www.flintneighborhoodsunitd.org/events/action-oneday/exact_date~3-24-2016/) → (<http://www.flintneighborhoodsunitd.org/events/>)

Thu (http://www.flintneighborhoodsunitd.org/events/action-oneday/exact_date~3-24-2016/)	Needs Hearing @ Brennan Community Center (http://www.flintneighborhoodsunitd.org/event/city-of-flint-public-needs-hearing/?instance_id=254572)
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From 3/8/16: CAN SEOC OR THE GOVERNOR’S OFFICE PLEASE ASSIST WITH A RESPONSE TO THE FOLLOWING COMMUNITY REQUESTS:

- **The Community Partners Communications Workgroup is asking for guidance from the State of Michigan on the following issues:**
 - What affects does heat/time have on the plastic water bottles?
 - Regarding the side-effects of lead: On average how soon do symptoms appear?
 - Who is testing the samples provided by residents? Is more than just lead and copper levels being tested? If so what is being tested?
 - Will lead be passed on to recipients that received blood, organs or plasma from Flint donors?
- **From 3/8/16: The Community Partners Communications Workgroup requested additional information on safe gardening practices to disseminate to the community.**
- **From 3/8/16: The Communications Workgroup requested a diagram or org chart of the crisis response mechanism and how all parties work together, including JIC, EOC, SECO, UCG, CHECC, ACE, CDC, EPA, DEQ, HHS, DHHS, FEMA.**

POPULAR POSTS



NEWS RELEASE: FLINT RESIDENTS ENCOURAGED TO CHECK FILTER CARTRIDGES
 March 18, 2016



NEWS RELEASE: MICHIGAN CALLS IN FEDERAL ACE TEAM TO STUDY RASHES
 February 23, 2016



NEWS RELEASE: STATE POLICE: PREPARE FOR WINTER STORM
 February 23, 2016

- From 3/8/16: The Communications Workgroup requested coordination by state, federal and local governments on the distribution of information related to the Flint Water situation and the response, emphasizing the community doesn't want multiple information documents for every department. They are asking for one consistent document on key issues and a mechanism to provide feedback to government entities prior to releasing information.



**NEIGHBORHOOD
ENGAGEMENT HUB**

February 23, 2016



**NEWS
RELEASE:
FLINT
RESIDENTS**

**ENCOURAGED TO VISIT
WATER RESPONSE SITES
BEFORE WINTER STORM**

February 24, 2016

Flint Water Recovery Group

Date: Thursday, March 17, 2016

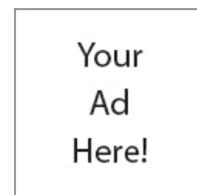
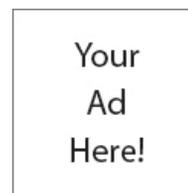
Time: 3:00 p.m.

Location: Food Bank of Eastern Michigan, 2300 Lapeer Road, Flint MI 48503

AGENDA

- Welcome
- Good 360/United Way of Genesee County
- DRAFT – Flint Community Recovery Plan
 - Physical Health
 - Mental Health
 - Communications
 - Education
 - Recovery Resources
 - Federal Partners
 - State Emergency Management
- Question & Answer
- Other Reports & Updates
 - City of Flint
 - County Emergency Management
 - Federal Partners
- Question & Answer
- Miscellaneous

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8. Closing (Workgroup Break-Out Sessions – OPTIONAL)

[Click here to download the recovery plan for Flint, MI \(PDF\)](#)

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