EXHIBIT E

OUR Water Quality 2018 CCR
With a Lead & Copper Sampling Information
The List of 6 Public Notices Made
A Discussion on the Administrative Consent Order
City of Benton Harbor Utility Services Department's 2018 Consumers Confidence Report

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I know this is very long. A lot happened in 2018 & had to be included. Enjoy Mike O'Malley

2018 Benton Harbor Water Quality Report

The Benton Harbor Water Plant uses Lake Michigan as its source. There are presently 5 water plants in Berrien County that use Lake Michigan as its source, including: New Buffalo, Bridgman, Lake Township, St. Joseph, and Benton Charter Township Water Plant. Lake Michigan is a surface water supply and is vulnerable to a wide range of contaminates. Because of this the EPA and MDEQ have very strict guidelines for the proper operation and testing of the water processed in these types of plants. Our Lake Michigan water is collected through a 36" pipeline that extends 4800 feet west of the water plant's shoreline. The Benton Harbor Utility Service Department's number one priority is to provide safe, high quality water to all of its customers. In pursuit of that mission, we consistently meet, and often exceed, federal and state standards for safe water.

The State MDEQ performed an assessment of our source water in 2003 to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a six-tiered scale from "very-low" to "high" based primarily on geologic sensitivity, water chemistry and contaminant sources. The susceptibility of our source is moderately high. This is due to the fact that the source water area for the Benton Harbor intake includes 1,236 potential contaminant sources, 121 listed potential contaminant sources within the susceptible area, plus urban and agricultural runoff from the St. Joseph River watershed in the St. Joseph River. A copy of the full report can be obtained by calling the water plant at (269) 204-2733 (a brand-new phone system).

General Health Information Provided by EPA

To ensure that tap water is safe to drink, EPA prescribes limits on the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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

A. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
B. Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
C. Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm-water runoff, and residential uses.
D. Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can also, come from gas stations, urban storm-water runoff and septic systems.
E. Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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

National Primary Drinking Water Regulation Compliance

For more information about our water quality, or to receive an additional copy of this report, please contact the Water Superintendent, Michael O'Malley (269) 927-8471 or e-mail to momalley@cityofbentonharbormi.gov . You can also see information on the New City Web Site at www.bhcity.gov

Tours of the Water Plant are easily arranged for school or community groups by contacting the plant. For more information about safe drinking water, visit the U.S. Environmental Protection Agency (EPA) at www.epa.gov/safewater

Water Quality Detect Tables

Benton Harbor water personnel routinely monitor over 80 potential contaminants in our drinking water according to Federal and State laws. The following table lists detects of regulated contaminants found in our water for the year beginning January 1, 2017 and ending December 31, 2017, unless otherwise noted. Other contaminates are required as regulated monitoring, that the Water Plant personnel cannot do. These are sampled and sent to the MDEQ laboratory in Lansing and listed in the tables with various dates assigned.

Regulated Monitoring at the Plant Done at Eurofins Analytical in South Bend, IN. and MDEQ Lab in Lansing MI.

Detected Substance	Highest Level Allowed (MCL)	EPA Goal Level (MCLG)	Highest Level Detected (RAA)	Range	Violation Yes or No	Date of Sample	Likely Source of Contaminants
Arsenic	10*	0*	Less than 2 ppb	NA	No	9/6/10	Erosion of natural deposits; Runoff from Orchards; Runoff from glass and electronics production waste.
Nitrate (ppm)	10	N/A	0.0	0.0 to 0.12	No	8/24/18	Naturally present in the environment.
Fluoride (ppm)	4	4	1.12	0.53 to 1.12	No	8/24/18	Water additive, which promotes strong teeth.
Chlorine Residual	4	MRDL=4	1.86	0.25 to 1.99	No	2018	Disinfectant
TOC**	TT	N/A	2.50	1.46 to 2.50	No	2018	Naturally present in the environment
Bromodichloromethane (ppb)	80	N/A	10	10	No	11/8/18	Formed when chlorine is added to water containing naturally occurring organic material.
Chlorodibromomethane (ppb)	80	N/A	3.7	3.7	No	11/8/18	Formed when chlorine is added to water containing naturally occurring organic material.
Chloroform (ppb)	80	N/A	19	19	No	11/8/18	Formed when chlorine is added to water containing naturally occurring organic material.
Total Tri-halomethanes (ppb)	80	N/A	32.7	32.7	No	11/8/18	Formed when chlorine is added to water containing naturally occurring organic material.

Regulated Monitoring Distribution System (Stage 2 Disinfection Byproduct Rule) Testing in 2016

Detected Substance	LRRA is locational Running Annual Average	Benton Harbor city Samples LRRA Site 1	Benton Harbor city Samples LRRA Site 2	Likely Source of Contaminants. This testing is being conducted over a 12 month period to determine the vulnerability of various points in the 2 largest distribution systems served by the Benton Harbor Water Plant. Results listed are for tests run October to December 2008 only.
TTHM (ppb)	Each site is measured in ppb	53.2	57.0	Formed when chlorine is added to water containing naturally occurring organic material
HAA5 (ppb)	Each site is measured in ppb	30.0	18.9	Formed when chlorine is added to water containing naturally occurring organic material

TTHM's are Total Trihalomethanes and HAA5's are Haleoacetic Acids.

They form when Chlorine is in contact with organic matter over time. The results are averaged at each location as a Locational Running Annual Average (LRAA) to assure the community that the waters are properly disinfected and do not pose a threat from these by-products.

The limits set on LRAAs are 80 ppb for TTHMs and 60 ppb for HAA5s

The November 2018 Sample results were rejected by the MDEQ Inspector because the temperature of the sample when it arrived at the laboratory at a higher temperature than it should have been.
The MDEQ inspector wrote a monitoring violation and recommended that I simply exclude this quarter from the Locational Running Annual Averages (LRAA) calculation. Doing this lowered our LRAA and I chose to leave it as is, sort of the worse of 2 evils.
Public Notification was sent in December included the fact that this sample was rejected.

Long Term 2 (Enhanced Surface Water Treatment Rule) (LT2ESWTR) Testing in 2008-2009 (Previous Data Kept in CCR)

Detected Substance	Largest Number Detected	Range of organisms detected	Likely Source of Contaminants is Lake Michigan. Lake Michigan testing is was conducted over a 24-month period that began April 2008. Testing is complete in 2009
Cryptosporidium (# of organisms)	3	0 to 3	Open Lake Michigan. Cryptosporidium are microbes found in open water sources.
E. coli (# of organisms)	7	0 to 7	Open Lake Michigan. *E. coli* are bacteria found in open water sources.
Giardia	3	0 to 3	Open Lake Michigan. Giardia are microbes found in open water sources.

Long Term 2 (Enhanced Surface Water Treatment Rule) (LT2ESWTR) Testing in 2008-2009 Has Been Renewed in 2017 and completed in 2018.

Detected Substance	Largest Number Detected	Range of organisms detected	Likely Source of Contaminants is Lake Michigan. Lake Michigan testing is was conducted over a 12-month period that began October, 2017 to date (June 13,2018)
E. coli (# of organisms)	42	< 0.2 to 42	Open Surface Water of Lake Michigan. *E. coli* are bacteria found in open water sources.

E. coli is an ABSOLUTE VIOLATION IN TAP (drinking) WATER! However, the 2 sets of tests above are done on Lake Michigan water only. This testing was required by the USEPA to determine the vulnerability of the Lake Water to harmful organisms.
It is one of our PRINCIPAL JOBS TO REMOVE OR DESTROY ALL ***E. coli*** in the water treatment plant, and we did that Every Day in 2018! And will always do our best in years to come!

Benton Harbor Water Plant now serves only City Residents which have been officially counted by the MDEQ in 2018 as a population of 9,970. In the 2015 MDEQ study, the population was declared as 9,670?

Now in the recent renewal of the LT2ESWTR Smaller Systems (less than 10,000 residents) are required to Sample for ***E.coli*** as a surrogate to Actual Cryptosporidium organisms. This testing is quite a bit less expensive and is conducted locally by water plant personnel and a local lab every other Wednesday for 12 consecutive months that began in October, 2017.

All 24 samples were finished by October 2018. There was one Wednesday we missed a sample in 2018. The City received a Notice of Violation (NOV) for failing to monitor. We were eventually told to collect the missing sample as #24 at the end of the pool in October.
Later, the MDEQ changed this notice of violation from a Tier 3 to Tier 2 a more severe level and The City had to report to the residents in the December 2018 Public Notice letter. Instead of just an added piece to this CCR.

Turbidity Monitoring at the Plant

Water Clarity	Highest Level Allowed (MCL)	EPA Goal Level (MCLG)	Highest Level Detected	Range	Violation Yes or No	Date of Sample	Likely Source of Contaminants
Filter Effulent NTU	0.3* or no sample above 1.00	N/A	0.84	0.04 to 0.84	No	No	Soil runoff.

* Turbidity is a measure of the cloudiness of the water.

The water plant had 2 high levels of turbidity on February 26, 2018 (the 0.84 above). There were 2 high levels detected, one on the South Filter line and 1 on the North Filter line. Neither of those samples were allowed to go on long enough for a violation because of the quick work of our Operations Staff. Myself, Denny and Doug made the appropriate changes in treatment and filter operation to prevent any type of Turbidity violation in the box above.
A few days later 2 inspectors from the MDEQ came to the plant and although they were concerned, they agreed that no violation was ever found.

Total Organic Carbon (TOC) Reduction at the Water Plant.

TOC Reduction	Average Level reduction from Raw to Tap as %	EPA Goal Level (MCLG)	Lowest Level of Reduction as Percent	Range	Violation Yes or No	Date of Sample	Likely Source of Contaminants
TOC Reduction	≤88 %	N/A Not Contaminate	53%	53% to 100%	Yes, 3 of them.	Monthly all Year	Naturally occurring in Open Surface Source Waters. Lake Mi. The treatment plant is expected to reduce this raw TOC.

This is new to the Benton Harbor CCR. It is required, since the February sample. Last year, 2017 CCR, it did not seem necessary, but I added it anyway, since near the end of 2017 the water treatment system was un-able to remove the adequate amount of TOC from the Raw Water to the Tap Water.
TOCs are every day occurring organic chemicals in Lake Michigan raw water, most TOC are an important part of our lives, but certain types of TOCs have been shown to be a key component of Disinfection by Products (DBPs). It is a measure of the plant's ability to keep DBPs low as the formation of the DBPs are from Organic Chemicals in contact with the Chlorine we use for disinfection and grow over time.

Fast forward to this 2018 CCR. You may remember that there were 3 Public Notices for TOCs in 2018. The TOC reduction requirements are based upon running 12-month averages reported ever 4-quarters:
It is called: The TOC Running Quarterly Averages on a 12-month basis. All 12-months are used and each quarter the Annual basis starts again.

1. April, 2018 after the water plant failed to reduce the Lake water TOC level. The culprit was the sample taken in February of 2018 where the raw water TOC levels were at an all-time high and our treatment was well short of the appropriate reduction. The percentage reduction was actually a negative (-27%)! At that time, the operators and I attempted to conduct a jar test to indicate that the TOC reduction should be lowered to meet the reality of Treatment in Benton Harbor's water plant. The report was sent to MDEQ and it was rejected on simple technicalities. The percent of reduction was a large negative value, which created a deep hole of the running quarterly annual averages.

2. At the end of the 2nd Quarter, the plant could not reduce the TOC in the raw water, even though it was 100%. But because of the Negative % reduction in February, the average was well below 100%. A public notice went out in July, 2018 of the Water Plant's failure to reduce enough TOC to bring the average back to 100%

3. At the end of the 3rd Quarter, the plant again could not reduce the TOC in the raw water again to overcome the negative number in February. A 3rd Public Notice was sent out October, 2018.

4. In October 2018 we tested again for TOCs and like before, the negative number could not average out to 100%. Fortunately, the USEPA has another alternate test called SUVA 254. We also tested for that. The USEPA documentation states that if the SUVA 254 is less than 2.0; the raw water TOC is considered the type that Cannot Be Removed by conventional means.

5. The SUVA 254 test result in October was 0.92. That SUVA result replaces the calculated TOC reduction fail to reduce; from continued violation.

6. FYI, the same SUVA tests were run in the 1st quarter and 2nd quarter of 2019. Both results were less than 2.0 and neither of these quarters will be a violation. We will continue to collect 1 SUVA in each quarter as we move along in 2019.

Either way; the trouble with TOCs in 2018 were included in the Administrative Consent Order (ACO) and we have been working hard to improve our Alum treatment in an attempt to reduce more TOC than we could in the past. It has been slow going and quite expensive, but we are nearly there.

Other Water Quality Parameters of Interest

At the plant we routinely perform other water quality tests. These tests are not for official reporting, but are useful when describing the quality of our drinking water.

These water quality characteristics have been scanned from our Complete 2018 Data Compilation and will be available as an addition to this year's CCR later on the Web Site.

Parameter	2018Average	2018 Range	Units
Chlorine	1.66	0.25 to 1.99	Mg/L as free Cl-
PH	8.0	7.3to 8.2	pH units
Total Alkalinity	112	93 to 133	Mg/L as CaCO3
Total Hardness*	150	112 to 208	Mg/L as CaCO3
Calcium Hardness	42	30 to 67	Mg/L as Ca
Magnesium Hardness	11	2 to 18	Mg/L as Mg
Chloride	25.2	22.5 to 32.5	Mg/L as Cl-
Fluoride as F-ion	0.7	0.23 to .70	Mg/L as F-ion

- For Customers owning a new dishwasher the Benton Harbor average water hardness is *8-10 grains per gallon.*

Unregulated and Special Monitoring

Detected Substance	Highest Level Allowed (MCL)	EPA Goal Level (MCLG)	Level Detected	Likely Source
Sodium	N/A	N/A		Naturally present in the environment
Sulfate	N/A	N/A		Naturally present in the environment
Fluoride	2 ppm Secondary and 4 ppm Primary	N/A		Water Additive to help protect teeth from Dental Caries and for Public Health

Cyanide	< 0.2	N/A		<0.02	No	11/7/2018	

A sample was taken at the Water Plant on September 9, 2016. A laboratory in South Bend analyzed it for total Cyanide and did not detect any. Cyanide is a dangerous chemical and the EPA is determining how it may be monitored in water systems in the future.

Definitions

MCL Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG Maximum Contaminant Level Goal: The level of a contaminant in drinking water below, which there is no known or expected risk to health. MCLG's allow for a margin of safety.

MRDL Maximum Residual Disinfectant Level or MRDL means the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG Maximum residual disinfectant level goal, or MRDLG, means the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

AL Action Level: The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.

PPM parts per million or milligrams per liter (mg/l)

PPB parts per billion, or micrograms per liter (ug/l)

NTU Nephelometric Turbidity Units, a measure of the cloudiness of water

N/A Not applicable

RAA Running Annual Average.

LRAA Locational Running Annual Average.

TT Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Lead and Copper Data and Information 2018 CCR.

Key Page about Benton Harbor Water System Lead and Copper Sampling.
Please consider being a Part of Getting the Lead Out!

Distribution System Monitoring for Lead and Copper. The Official round was, September 2018!
The City Water Department will have to test 60 new sites in June and September 2019. If you would like to be a participant in this testing, please call the Water Plant and let us know.
Last Previous Official Lead and Copper Test Date was in 2015.

*Denotes New Required Language from the MI Department of Environmental Quality (MDEQ)

Detected Substance	Highest Level Allowed (AL)	EPA Goal Level (AL)	90 th Percentile Result Detected	Range	Sites Found Above AL of 15 ppb.	Violation	Likely Source of Contaminants
Lead (ppb)	15.0	0	22 ppb	0 ppb to 60 ppb	9	Yes	*Lead services lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits.*
Copper (ppb)	1300	1300	61	1.5 ppb to 86 ppb	0	No	Corrosion of Household plumbing

Lead and copper monitoring began in the early 1990's. The 10th tri-annual round of Benton Harbor testing was conducted in September 2018.
The Lead Action Level (AL) was at the sample with results of 22 ppb. More importantly to all of us, 9 sample results were above the AL set at 15 ppb. In the sampling pool the breakdown for Lead results were:

- Above the AL of 15: 9 homes ranged between 16 ppb to 60 ppb.
- Lead samples with double digit Lead results were: 5 homes ranged from 10 ppb to 14 ppb.
- Lead samples with single digit Lead results were: 11 homes ranged from 2 ppb to 5.8 ppb
- Only 5 homes had 0. for Lead results.

Due to exceeding the Action Level, the City water department needed to Issue 2 public notices:

1. Information about the AL exceedance for Lead and What to Do.
2. A Public Education Notice of how to minimize the homeowner's exposure to Lead in Drinking Water.

Along with that the City offered free Lead and Copper sampling to any City Resident.
We have processed 336 sample results. The break-out for those tests are:

1. Results greater than the Action Level of 15 ppb: 54 locations ranged from 16 ppb to 62 ppb
2. Results that were double digit for Lead: 31 households' range 10 ppb to 14 ppb
3. Results that were single digit for Lead: 161 households' range 1 ppb to 9.8 ppb
4. Results that showed no value for Lead: 89 households.

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

*A New Message, Please read:
The Michigan Legislature has revised the Safe Drinking Water Act of 1976;
In the new Act there are many changes regarding Lead and Copper Issues. One of those changes is for the Community Water Supplier to tell the Water Customers about the Major Source of Lead in Drinking Water and some Additional Health Concerns about Lead .

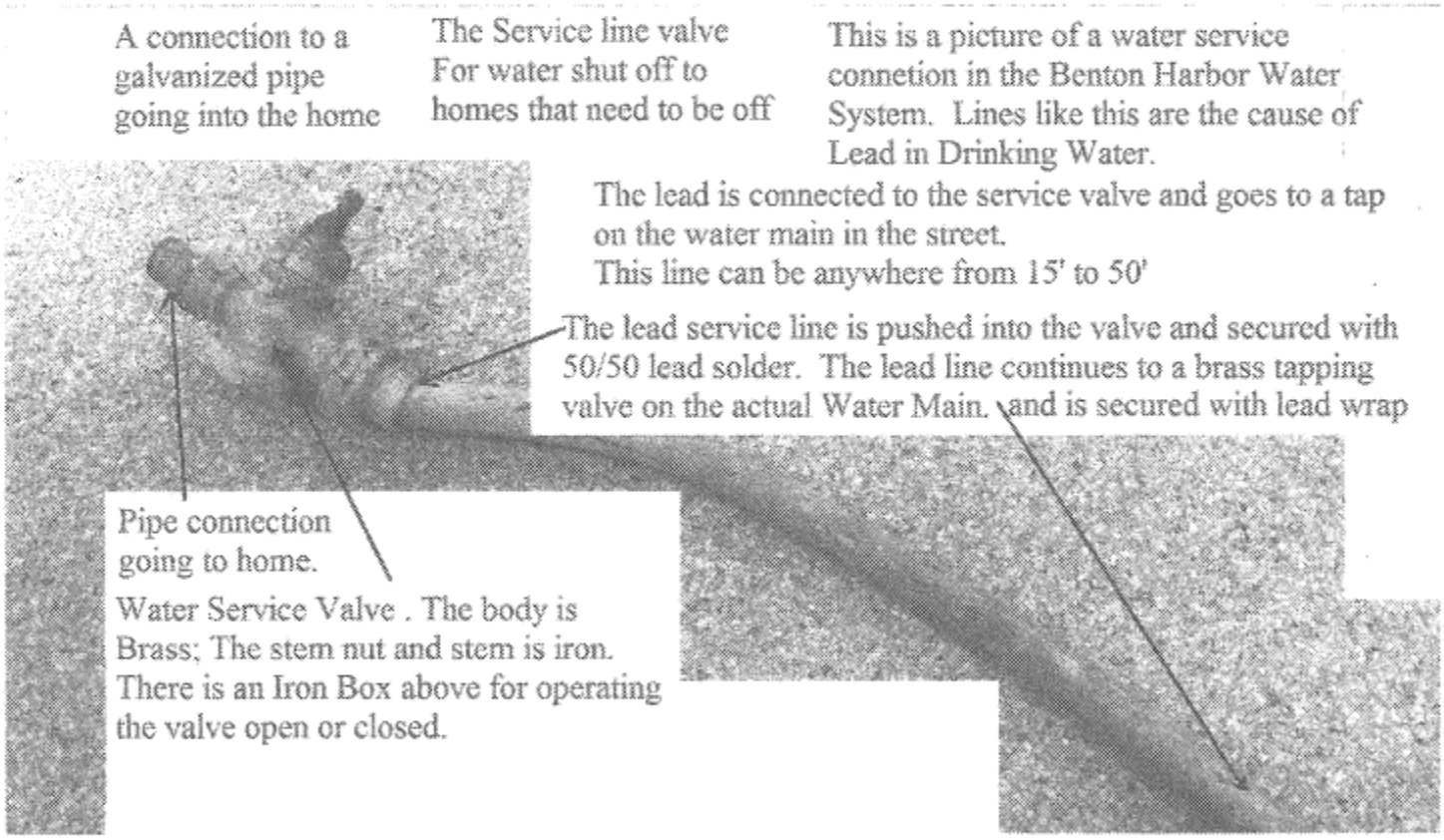
*1st, the additional Health Effects Statement, required: * Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure*.

*2nd Major Source of Lead in Drinking Water: *Lead services lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits* (Required Language in Michigan's revised ruling.)

The City's new web site www.bhcity.us has additional information regarding lead in drinking water. Other locations are very informative such as the Berrien County's Public Health Page, and the Michigan MDEQ Lead Page.

MDEQ language above; but in simpler terms for you and me;

- Lead in drinking water does not come from Lake Michigan; or the Water Treatment Plant in Jean Klock Park; or (perhaps to a very small degree) the water in the mains that move the water all around the City.
- It does come from lead individual service lines from the main to the house (underground), and including any lead piping in the house and the plumbing fixtures (faucets and such) in the house.
- This picture of a lead service line helps visualize what is under the ground in front of your house:



Years (1990's) ago, the United States Environmental Protection Agency (USEPA) determined that lead and copper **could leach into still water that has been sitting in household water services and plumbing**. To a certain level, ≥ 15ppb this was considered potentially harm-full to people's health, over time, especially young children.

So, when you go to bed, work, or have been gone for a day or more, the water has been **sitting very still in the service line from the water main to your house and in the plumbing** of your house.
It is still under pressure at the watermain, so it holds still all the way to the faucets, laundry connections, showers, and toilets.
All this water adds up to maybe a few quarts or a gallon, depending on the size and length of all the piping.
Recently, the Berrien County recommended a 5-minute flush, to be sure. That is a bath or shower.

This is why all water professionals will tell you to:
Remember, to assure yourself that your glass of water will not contain Lead or other heavy metals, let the water run until it feels cool and then fill your glass. Berrien County Health Department has recommended 5-minutes. The simplest way to get that much water movement is a shower, bath, laundry, or a couple of toilet flushes.

This is also why the US EPA instructed the water departments to have the home owner draw a Lead and Copper sample from a faucet you typically drink water from. They required a Liter of water in the past and in Michigan the officials are looking for additional sampling up to approximately 1 gallon; actually- 5-liters.

Due to the Levels of Lead found in the September 2018 sampling, the City of Benton Harbor has to return to a program of sampling similar to the one initiated in 1991. In those years, a collection of 2 sets of samples were required. One set taken between January to June and a second set taken between July to December.
In the meantime, the State's Law has changed. The most notable change is the requirement to collect 2 samples for compliance; That will mean 1 original First Draw sample, and a 5th Draw Sample. The additional 5th draw sample is meant to find any lead that may be present in the service lines under the ground. From the entry to the home to the water main in the street.

Benton Harbor's water department has been working very hard this June to collect the required 60 test samples. It has been a difficult task as we essentially had to start the process completely over. At this writing, we are almost completely read to send the Lead and Copper Samples to the Michigan Lab in Lansing.

For important Public Education information, please see page 13 of this CCR.

A grant was made available to the City of Benton Harbor's Water Department in May of 2019; for Lead piping Asset Management. The City was awarded a $285,000 Pilot Grant from the DEQ to identify Many Service Lines and Replace Lead or Galvanized service lines from the Roadway to the Home.

This task is essentially complete. All of the grant monies have been spent on:

1. For Asset Management we had 2 contractors dig up about 100 water service valves. The piping material on the Public side and the Private side of the valves were recorded as well as the details of the valve and the valve box. These projects cost $300 to $500 each.
2. For Lead Service Line replacements, we dug up and replaced 13 Lead Service lines from the tap in the street to inside each home, with brand new copper piping, a new service valve and valve box. Each of these service line replacement cost from $5,000 to $10,000.
3. And finally, the State MDEQ set aside about $30,000 for engineering, equipment and set up of a new treatment system that adds an Orthopolyphosphate (OPP) to the tap water to act as a corrosion control treatment, specifically geared to Lead.

This treatment has been underway since March 26, 2019 and in some time in the future, if not already, will add a coating to the internal pipe walls and keep our drinking water out of direct contact with corroded pipes, iron, lead, etc.

The Next Set of Pages Are the 6 Official Public Notices Made in 2018

1. April 2018: The 1st Failure to Adequately Reduce TOCs in Lake Michigan Water

2. July 2018: The 2nd Failure to Adequately Reduce TOCs in Lake Michigan Water

3. October 2018: * The 3rd Failure to Adequately Reduce TOCs in Lake Michigan Water

4. October 2018: The Public Advisory for Lead Exceeding the Action Level

5. October 2018: * Actually part Included both Lead Exceeded Pubic Education and the October 3rd Failure to Reduce TOCs in Lake Michigan Water

6. December 2018; the Last Public Notice. Various Information Regarding Discrepancies in Test Procedures. They were originally only intended to be put into this CCR. However, the MDEQ elevated them to Tier 2 notices and had to be in their own Public Notice.

April 2018: The 1st Failure to Adequately Reduce TOCs in Lake Michigan Water

City of Benton Harbor Water Department and Public Works Important Notice:

Contact Us: Michael O'Malley, Benton Harbor Water Plant (269) 927-8471
Darwin Watson, Benton Harbor City Manager (269) 927-8401
Kaye Jenkins, Utility Billing Payment Center (269) 934-7638

NEW The City of Benton Harbor has a Brand-New City Web Site Look it over it is full of important information **NEW**

www.BHCity.us

Coming soon to our new web site is the CCR for 2017.
If you are asking "what is a CCR"; well, The United States Environmental Protection Agency created the idea in the late 1990's. CCR stands for Consumers Confidence Report. For you and me and all our residents it's sort of a label on the can; for all of us to know quite a bit about our City Drinking Water.
Kind of a Label for the water in the tap, without the can; like a label on the food packages we buy. In order to know what is in it and what is not!
IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER
Total Organic Carbons (TOC) Removal Requirements Not Met

The City of Benton Harbor (City) Water Treatment Plant was recently cited for a treatment technique violation for inadequate removal of Total Organic Carbon (TOC). We routinely monitor our source water from Lake Michigan for TOC, the amount of carbon found in natural organic compounds. TOC removal is calculated as the ratio between the actual TOC removal and the TOC removal requirements. Our TOC removal ratio during the first quarter of 2018 was 0.71, which is less than the standard Safe Drinking Water Act requirement of 1.00.

The TOC levels in source water and treated water are monitored quarterly to measure TOC levels and the removal efficiency of the treatment process. Historically, TOC levels in the source water have been low enough that the determination of TOC removal efficiency has not been necessary. However, in the past year, TOC levels in Lake Michigan have increased, triggering removal requirements. Normal treatment processes were not able to meet the TOC removal requirements in the first quarter of 2018.

What does this mean?
This is not an emergency. This notice is required to be distributed to all customers within 30 days of the violation being identified. If a situation arises where the water is not safe to drink, you will be quickly notified within 24 hours.
TOC has no health effects; however, TOC provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the Maximum Contaminant Level (MCL) may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
All drinking water standards for disinfection byproducts in the water delivered to our customers have been consistently met. The water is safe for drinking and all other uses, and no alternative water sources are needed.

What is being done?
We are investigating the reason for the increased TOC in our source water and are taking steps to improve the removal efficiency of our treatment process. This will include bench tests to determine the effects of any changes we make. We are implementing changes immediately and expect to make necessary improvements to prevent future violations. You will be notified if a future violation occurs.

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

For more information, please contact Michael O'Malley, Water Treatment Plant Superintendent, at momalley@cityofbentonharbormi.gov or call (269) 927-8471, press 2. Between 6:30am to 2:30 pm.

The text above is the required text for the public notice for failure to remove the right amount of TOC.
In some simpler terms:

Total Organic Carbon as a group is anything organic that has a Carbon chain in its molecule.

There is a whole world of organic carbons in the total group and some of them are in Lake Michigan.
The good TOCs are living things, including human beings; yes we are a bundle of organics, water, and minerals. TOCs are practically all the food we eat and are in nearly all the things of our everyday life.
The bad TOCs are waste products, things used in the industrial world, and certain types of algae in the lake. During the testing there is no difference between good, bad, or otherwise TOCs.

The United States Environmental Protection Agency (USEPA) has set limits and requires a certain reduction of the general group of TOCs that we must try to remove in order to keep from forming additional Chlorine by Products such as Trihalomethanes (TTHMs) and Haloacetic Acids (HAAs). Lake Michigan, which is the source of water we treat for City Drinking Water, has some TOCs in it. Our treatment processes have easily reduced these TOCs until recently. We are working out ways to better reduce them, now that they are higher.

This public notice is to let you know that we are working hard to remove more of them than ever before. As for the potential of Chlorine by Products, they have not changed much, but we keep careful track of them and will find the ways needed to keep these levels as low as we always have, maybe better.

July 2018: The 2nd Failure to Adequately Reduce TOCs in Lake Michigan Water

Let's get the Lead Out of Drinking Water

Floyd and Mike along with the rest of the Water Dept. stand ready to find, dig up and replace lead service lines in 2018.
But, we cannot go it alone! We need help from the residents of the City of Benton Harbor Please HELP!

1st. Visit the City's Web Page at www.bhcity.us
2nd Contact us and let us know you are concerned about having a lead service line into your house.
Email Mike at momalley@cityofbentonharbormi.gov
3rd. We need to know your name; address; contact phone; and if you own the home or rent the home.
4th If you are a renter, please include the owner's contact information.
You will get a reply and we will arrange to take care of your concerns. Either You are okay, or on a list for work.

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Total Organic Carbons (TOC) Removal Requirements Not Met 2nd Quarter in a Row.

The City of Benton Harbor (City) Water Treatment Plant was recently cited for a treatment technique violation for inadequate removal of Total Organic Carbon (TOC). We routinely monitor our source water from Lake Michigan for TOC, the amount of carbon found in natural organic compounds. This is our 2nd violation quarter for 2018. TOC removal is calculated as the ratio between the actual TOC removal and the TOC removal requirements. Our TOC removal ratio during the first quarter of 2018 was 0.71, which is less than the standard Safe Drinking Water Act requirement of 1.00.

The TOC levels in source water and treated water are monitored quarterly to measure TOC levels and the removal efficiency of the treatment process. Historically, TOC levels in the source water have been low enough that the determination of TOC removal efficiency has not been necessary. However, in the past year, TOC levels in Lake Michigan have increased, triggering removal requirements. Normal treatment processes were not able to meet the TOC removal requirements in the first quarter of 2018.

What does this mean?
This is not an emergency. This notice is required to be distributed to all customers within 30 days of the violation being identified. If a situation arises where the water is not safe to drink, you will be quickly notified within 24 hours.

***TOC has no health effects**; however, **TOC provides a medium for the formation of disinfection byproducts**. These byproducts include **trihalomethanes (THMs) and haloacetic acids (HAAs)**. Drinking water containing these byproducts in excess of the Maximum Contaminant Level (MCL) may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.*

All drinking water standards for disinfection byproducts in the water delivered to our customers have been consistently met. **The water is safe for drinking and all other uses, and no alternative water sources are needed.**

What is being done?
We are investigating the reason for the increased TOC in our source water and are taking steps to improve the removal efficiency of our treatment process. This will include bench tests to determine the effects of any changes we make. We are implementing changes immediately and expect to make necessary improvements to prevent future violations. The changes have not worked as planned, thus a 2nd Violation. Hopefully we will have success now.

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

For more information, please contact Michael O'Malley, Water Treatment Plant Superintendent, at momalley@cityofbentonharbormi.gov or call (269) 927-8471, press 2. Between 8:30am to 2:30 pm.

The text above is the required text for the public notice for failure to remove the right amount of TOC.
In some simpler terms: Total Organic Carbon as a group is anything organic that has a Carbon chain in its molecule. There is a whole world of organic carbons in the total group and some of them are in Lake Michigan.

The good TOCs are living things, including human beings; yes we are a bundle of organics, water, and minerals. TOCs are practically all the food we eat and are in nearly all the things of our everyday life.

The bad TOCs are waste products, things used in the industrial world, and certain types of algae in the lake. During the testing there is no difference between good, bad, or otherwise TOCs.

The United States Environmental Protection Agency (USEPA) has set limits and requires a certain reduction of the general group of TOCs that we must try to remove in order to keep from forming additional Chlorine by Products such as Trihalomethanes (TTHMs) and Haloacetic Acids (HAAs). Lake Michigan, which is the source of water we treat for City Drinking Water, has some TOCs in it. Our treatment processes have easily reduced these TOCs until recently. We are working out ways to better reduce them, now that they are higher.

This public notice is to let you know that we are working hard to remove more of them than ever before. As for the potential of Chlorine by Products, they have **still** not changed much, but we keep careful track of them and will find the ways needed to keep these levels as low as we always have, maybe better.

But get this. Lake Michigan has recently yielded low levels of TOCs at 2 mg/L or less. The EPA acknowledges that TOC levels coming into a treatment plant like ours is nearly impossible to remove. And since we go back 12-months for the averages; we will be hard pressed to remove additional TOCs, but we are going to try new treatments. However, this will take time and a lot of effort.

Remember: There is Water Information on the City's new website

Find it at www.bhcity.us and follow the links to Public Works.

October 2018: The 3rd Failure to Adequately Reduce TOCs in Lake Michigan Water

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER
Total Organic Carbons (TOC) Removal Requirements Not Met

The City of Benton Harbor (City) Water Treatment Plant was recently cited for a treatment technique violation for inadequate removal of Total Organic Carbon (TOC). We routinely monitor our source water from Lake Michigan for TOC, the amount of carbon found in natural organic compounds. TOC removal is calculated as the ratio between the actual TOC removal and the TOC removal requirements. Our TOC removal ratio during the first quarter of 2018 was 0.71, which is less than the standard Safe Drinking Water Act requirement of 1.00.

The TOC levels in source water and treated water are monitored quarterly to measure TOC levels and the removal efficiency of the treatment process. Historically, TOC levels in the source water have been low enough that the determination of TOC removal efficiency has not been necessary. However,

in the past year, TOC levels in Lake Michigan have increased, triggering removal requirements. Normal treatment processes were not able to meet the TOC removal requirements in the first quarter of 2018.

What does this mean?
This is not an emergency. This notice is required to be distributed to all customers within 30 days of the violation being identified. If a situation arises where the water is not safe to drink, you will be quickly notified within 24 hours.

***TOC has no health effects**; however, **TOC provides a medium for the formation of disinfection byproducts.** These byproducts include **trihalomethanes (THMs) and haloacetic acids (HAAs)**. Drinking water containing these byproducts in excess of the Maximum Contaminant Level (MCL) may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.*

All drinking water standards for disinfection byproducts in the water delivered to our customers have been consistently met. **The water is safe for drinking and all other uses, and no alternative water sources are needed.**

What is being done?
We are investigating the reason for the increased TOC in our source water and are taking steps to improve the removal efficiency of our treatment process. This will include bench tests to determine the effects of any changes we make. We are implementing changes immediately and expect to make necessary improvements to prevent future violations. You will be notified if a future violation occurs.

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

For more information, please contact Michael O'Malley, Water Treatment Plant Superintendent, at momalley@cityofbentonharbormi.gov or call (269) 927-8471, press 2. Between 6:30am to 2:30 pm.

The text above is the required text for the public notice for failure to remove the right amount of TOC.
In some simpler terms: Total Organic Carbon as a group is anything organic that has a Carbon chain in its molecule. There is a whole world of organic carbons in the total group and some of them are in Lake Michigan.

The good TOCs are living things, including human beings; yes we are a bundle of organics, water, and minerals. TOCs are practically all the food we eat and are in nearly all the things of our everyday life.

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This public notice is to let you know that we are working hard to remove more of them than ever before. As for the potential of Chlorine by Products, they have not changed much, but we keep careful track of them and will find the ways needed to keep these levels as low as we always have, maybe better.

October 2018: The Public Advisory for Lead Exceeding the Action Level

BENTON HARBOR
Port of Opportunities

This Notice has Important information for the Drinking Water Residents of the City of Benton Harbor.

Read inside for the what is happening and what the City is doing and what you can do.

An Advisory to the Drinking Water Customers of the City of Benton Harbor

Every three years, since 1993, the City of Benton Harbor conducts testing of tap water in the City's homes for lead and copper as required by the Michigan Department of Environmental Quality (MDEQ) and the Environmental Protection Agency (EPA). This summer, we collected water samples from thirty homes. Eight of those homes were above the Action Level of 15 parts per billion (ppb) for lead. The 90th percentile of samples was 22 ppb for lead.

Exceeding the Action Level triggers additional actions including, but not limited to, increased investigative sampling of water quality and educational outreach to customers. Elevated levels of lead in the drinking water can cause health concerns. The most important thing you can do is run water to flush out potential lead contaminants.

You can reduce your risk of lead exposure from water using the information below:

- Run your water to stable, cold temperatures (usually 3 to 5 minutes) before drinking to flush out any potential contaminants.
- Use cold water tap for drinking or cooking.
- Use bottled water to prepare baby formula.
- Do not boil your water as boiling will not reduce the amount of lead in water.
- Water is safe for bathing.

The Berrien County Health Department continues to monitor the blood lead levels of children six and under throughout the county by individual community. There have been no detected increases in the trend of elevated blood lead levels in Benton Harbor children; there is a downward trend of elevated blood lead levels continuing into 2018.

This is the first of several informational notices you will receive about lead in drinking water. A more comprehensive document and additional information regarding lead in drinking water is available at the MDEQ website at: www.michigan.gov/deqleadpublicadvisory. Additionally, the City will be collecting many samples every six months and reviewing the results to determine if corrective actions are necessary to reduce corrosion in household plumbing.

Questions about the water system, water testing, health concerns, or getting your child's blood lead level tested can be directed to the Benton Harbor Water Response Hotline at 1-800-815-5485 from 8:30-5:00pm.

Additional information regarding lead can be found on the City's website: www.bhcity.us or at the MDEQ website at: www.michigan.gov/deqleadpublicadvisory or the Berrien County Health Department website at: www.bchdmi.org.

All of MDEQ's Public Education about Lead in the Drinking Water

5 The Public Education Notice for Lead in Drinking Water.

This was actually coupled with the 3rd notice for failing to reduce TOCs.

All the Drinking Water Customers of the City of Benton Harbor please open and read this Notice

The City of Benton Harbor's Water Department Presents
A Public Education Document Regarding:

IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER

Benton Harbor's water source is Lake Michigan and it does not contain lead. The water is treated and pumped to the community from the Plant in the SW corner of Jean Klock Park. Some of the water mains in the streets are old enough to be cast iron with lead sealed joints. However, the service lines to the homes could be made of lead and if those lines are not in use for several hours, the lead may enter drinking water. Lead, Copper, and other heavy metals do not dissolve very quickly. Water sitting still for several hours may dissolve lead and other heavy metals. Corrosion has never been an issue as the Lake water is considered Scale Forming, from the Moderately hard (around 160 ppb Calcium Carbonate Hardness) Lake Michigan water.

Most of the Benton Harbor homes were built during the City's Industrial days from early 1900's to the 1960's Homes built before 1986 are more likely to have plumbing containing lead. New homes may also have lead; even "lead-free" plumbing may contain some lead.

EPA estimates that drinking water can make up 20 percent or more of a person's potential exposure to lead. Infants who consume mostly mixed formula can receive 40 percent to 60 percent of their exposure to lead from drinking water.

Don't forget about other sources of lead, such as lead paint, lead dust, and lead in soil. Wash your children's hands and toys often as they can come into contact with dirt and dust containing lead.

Steps You Can Take to Reduce Your Exposure to Lead in Your Water

1. ***Run your water to flush out lead.*** The more time water has been sitting in your home's pipes, the more lead it may contain. Therefore, if your water has not been used for several hours, run the water before using it for drinking or cooking. This flushes lead-containing water from the pipes.
   - If you **do not** have a lead service line, run the water for 30 seconds to two minutes, or until it becomes cold or reaches a steady temperature.
   - If you **do** have a lead service line, run the water for three to five minutes to flush water from both the interior building plumbing and the lead service line.

Additional flushing may be required for homes that have been vacant or have a longer service line.

2. ***Use cold water for cooking and preparing baby formula.*** Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water. Do not use water from the hot water tap to make baby formula.

3. ***Do not boil water to remove lead.*** Boiling water will not reduce lead levels. *However, if you follow step 1 above, you can boil your water for cooking and Coffee; as there is no significant lead in your piping once you have flushed out the stagnant water.*

The Benton Harbor Water Department; found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this notice closely to see what you can do to reduce lead in your drinking water.

This notice is brought to you by the Benton Harbor Water Department. Water Supply Serial Number MI0600 Date: November 30, 2018.

Health Effects of Lead

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

Sources of Lead

Lead is a common metal found in the environment. Drinking water is one possible source of lead exposure.

Action Levels	90th Percentile Value	Range of results (minimum-maximum)	# of samples used for 90th Percentile
Lead 15 parts per billion (ppb)	**22 ppb**	0 to 60	27th of 30 Samples
Copper 1.3 parts per billion (ppb)	**61 ppb**	1.5 to 86	27th of 30 Samples

Other sources of lead exposure for most individuals are lead-based paint, lead-contaminated dust or soil, and some plumbing materials. In addition, lead can be found in certain types of pottery, pewter, fixtures, food, and cosmetics. Other sources include exposure in the work place and exposure from certain hobbies (lead can be carried on clothing or shoes).
Plumbing products such as pipes and fixtures, may contain lead. Homes built before 1988 are more likely to have plumbing containing lead, but newer homes may also contain lead. Beginning in 2014, the law reduced the allowable level of lead in these products to a maximum of 0.25 percent to be labeled as "lead free." Older fixtures may contain higher levels of lead.

4. ***Look for alternative sources or treatment of water.*** You may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010 or www.nsf.org for information on performance standards for water filters. Be sure to maintain and replace a filter device in accordance with the manufacturer's instructions to protect water quality.

5. ***Get your child tested.*** Contact your local health department or healthcare provider to find out how you can get your child tested for lead if you are concerned about exposure.

[Items 6 and 7, below, may be omitted if the water supply is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices or if the supply provides water as part of the cost of services provided and does not separately charge for water consumption.]

6. ***Test your water for lead.*** Call us at The City Water Payment Center: (269) 927-8400 press 2, then 3. If you have already taken advantage of the City's Free Lead and Copper testing, your results have been mailed to you or will be once available.

7. ***Identify if your plumbing fixtures contain lead.*** Faucets, fittings, and valves may contribute lead to drinking water unless they have been replaced since 2013. Any new connecting plumbing and fittings should meet the 2014 lead-free definition. If you replace your faucet, buy a new one that meets the 2014 lead-free definition. Visit the National Sanitation Foundation Web site at www.nsf.org to learn more about lead-containing plumbing fixtures.

What Happened? What is Being Done?

This 2018 sampling year had to be changed quite a bit, because many of the homes were gone or vacant. Several homes were added, mostly by volunteers', in order to get the required number of 30 homes. Some of those added homes, measured high and some of the previous homes measured high for lead and some for copper. There were 7 homes that had lead results higher than the 15ppb Action Level (AL). When the sample results were reported to the MDEQ, the action level was exceeded for Lead at 22ppb.

The City has provided the Public Announcement of the exceedance; and free lead and copper testing. The 1st results were for a group of 159 homes. 17% of these homes showed lead levels higher than the AL for lead. These homeowners received a letter with their results and the results are listed on the City's new web site at *www.bhcity.us*

Water Service tap records the City has is mostly information about their location in the tree lawn. And essentially nothing about the materials they were made of. City crews through the last couple of years have had to dig up many of these lines due to leaks and many were found to

be made of lead. At a Commission meeting, Lead lines received some attention and it was determined, based on the dig ups, that maybe 30% of the lines in the City were made of lead.

The MDEQ in 2018 has awarded the City with a Lead Service line grant for identification and some full replacements. Work towards these 2 tasks is nearly ready to begin.

Benton Harbor began lead and copper sampling the same as all communities in 1991. At that time, there was very limited information about lead service lines. A pool of 60 homes from the Benton Harbor Housing Commission had been properly inspected and all of the qualified as proper Tier 1 sites. In 1993 Benton Harbor qualified for reduced monitoring. Since then every 3-years, Benton Harbor sampled 30 sites as required. Occasionally, Benton Harbor would have 1 or 2 sites above the Action Level of 15 ppb. The sampling pool has changed frequently through the years.

6th December 2018; the Last Public Notice. Various Information Regarding Discrepancies in Test Procedures.

They were originally only intended to be put into this CCR. However, the MDEQ elevated them to Tier 2 notices and had to be in their own Public Notice.

To the Water Residents of The City of Benton Harbor
IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER
You have been receiving many updates regarding your drinking water lately. This notice is a summary of everything that has happened, and what we are doing to resolve these issues.

Lead

As you were previously told, our City exceeded the lead action level with samples taken during the summer/fall of 2018. We immediately got the word out through media outlets, and you have received 2 informational notices: 1 for the Public Advisory and a 2nd for the longer Public Education. Each informed you about what happened and how to reduce your risk of exposure to lead in drinking water. Both of these are available on the City's Web site www.bhcity.us.

Many of the residents of the City of Benton Harbor participated in the Free Lead Testing Program, **thank you**. With the Holidays arriving, we will have to stop this free testing program. If you have a bottle and the paperwork, please take a sample and bring it to the payment center at City Hall this week.

However, the City will be required to conduct 2 full rounds of lead and copper testing in 2019 and we will need volunteers to help. If you are interested in helping, please call the water plant 927-8471 press 2 and/or the Payment Center at 927-8400, press 2. Or email the water superintendent at *momalley@cityofbentonharbormi.gov*.

Total Organic Carbon (TOC)

There have been 3 public notices for TOC sent out in 2018 and a copy is also available on the City's web site at www.bhcity.us. We began additional testing and anticipate returning to compliance by the end of the year. We are also improving our treatment process to improve removal. **TOC has no health effects**. TOC helps form disinfection byproducts, so it is good to minimize in the treatment process. Disinfection byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the Maximum Contaminant Level (MCL) may lead to adverse health effects. **Our THM and HAA levels continue to remain below the MCL.**

Monitoring and Reporting

The city water system is required to sample for many things throughout each year. In 2018 there were a number of samples that were either invalidated by the lab or improperly collected. The table below summarizes the city's sampling in 2018, including the dates we collected follow-up samples. The results of the samples collected were not alarming and met all regulatory limits. You will be sent more detail on the results in the annual water quality report.

Contaminant	Required sampling frequency	Number of samples taken	When all samples should have been taken	Date additional samples were (or will be) taken
Disinfection Byproducts	2 per quarter	2 taken, invalidated	August 2018	Completed November 2018
Total Organic Carbon	2 per month	2 taken, invalidated	May, June, July and August 2018	Completed November 2018
Total Organic Carbon	2 per month	0	September 2018	Completed October 2018
Volatile Organic Compounds (such as gasoline)	1 sample per year	0	Between January and September 2018	Completed December 2018
Raw Water e. Coli	1 sample every 2 weeks	1 missed	March 2018	Completed 1 extra sample in October
Synthetic Organic Compounds (such as pesticides)	2 samples every year	0	2nd and 3rd quarters of 2018	Completed December 2018
Cyanide	1 sample per year	0	Between January and September 2018	Completed December 2018

What happened? What was done?
Missed and invalidated samples have been re-collected, and the results meet regulatory requirements. To help with TOC removal, improvements to our chemical mixing process are being made. Also, due to the recent lead action level exceedance, **we will be discussing the installation of corrosion control treatment to help prevent lead from entering drinking water in service lines and household plumbing**. We must make these changes slowly and carefully to prevent unintended side effects. We are working with the DEQ to best determine how to make these changes.

What should I do?
There is nothing you need to do unless you have a severely compromised immune system, have an infant, or are elderly. These people may be at increased risk and should seek advice about drinking water from their health care providers. Continue to follow the recommendations of the lead advisory and education documents on our website, www.bhcity.us Please do not boil your water. **It is important to flush out the lines and run the water until cold before using for drinking or cooking**. The level of lead coming out of your tap greatly depends on individual home plumbing and fixture materials and varies from home to home. If a situation arises where your water is no longer safe to drink, you will be notified within 24 hours.

We regret there have been so many issues with the water this year, and the impact this has on our customers. We are working to increase our staffing and oversight of the water system to help us return to compliance. Please be assured your health and safety are our number one concern, and we are doing everything we can.

For more information please contact Mike O'Malley at the water plant, 927-8400 and press 2, but only from 7:00am to 2:00pm during the plant's official working hours. This notice is being sent to you by the City of Benton Harbor.

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

A Discussion on the Administrative Consent Order (ACO)

As I said earlier in the February near violation of Filtered Water Turbidity, The State Michigan Department of Environmental Quality (MDEQ) returned 2 additional times, once to inform us that they were here to do a Sanitary Survey of the Water System in Benton Harbor. 5 officials came and looked around the water plant and we had a short meeting and they left at noon.

Oh, so I don't forget, the MDEQ now calls itself Michigan Department of Environment, Great Lakes, and Energy (EGLE).

A few weeks went by and the City Manager and Water Superintendent were asked to come to the Kalamazoo MDEQ office to discuss the scope of the Sanitary Survey. Honestly, I was overwhelmed by the number of officials I was surrounded by at the table. I met the Director of Drinking Water and Municipal Services Division (DW MAD), someone I had never met before.

A few weeks later the same group came to Benton Harbor to meet with the City Manager, The Mayor and the Water Plant Superintendent to work out the details and firm up a time line for the items in the report to be corrected.

A certified letter was sent to Mayor Marcus Muhammad dated February 14, 2019. This was the actual Order sent and signed by the Director of DW MAD and the Mayor of Benton Harbor.

It was quite a document in 14 pages. A brief scope of the key items, titled DEQ Significant Deficiency Violation Notice (SVDN):

1. Submit to DWMAD a completed rate study by a qualified consultant.

The City manager supplied a rate study that was initiated after the Emergency Financial Managers left Benton Harbor. And the City began and completed a comprehensive Asset Management Plan 2 years ago.

2. Upgrade the water plant's SCADA computer.

The SCADA Computer at the Water Plant was not outfitted with an Operator Interface or a means to collect, view and keep data. This task was completed soon after the ACO was delivered.

3. Install metering on the Distribution piping at the water plant.

This task was attempted but failed in 2011 at the water plant. The meter has been installed as part of the corrosion control treatment project. It will soon be connected at the metering pump and the SCADA computer.

4. Make necessary improvements to the Continuous Chlorine Analyzer on the water plant tap.

The previous meter failed and has now been replaced and is functioning as it should.

5. Obtain an adequately licensed operator-in-charge for the distribution system.

The City Manager entered into an agreement with F&V Contract Operations firm and Darold came the day after it was approved by the Benton Harbor City Commission. The City has tried very hard to recruit a licensed operator for the plant and distribution system for many years. Soon after the Emergency Financial laid off Mike O'Malley (me) and the next official left to join the F&V Contract Operations Firm. They have been un-successful to find any one qualified for the distribution system at the salary available.

6. Submit to DWMAD a proposal for optimal Corrosion Control Treatment.

This was added after September 2018 when our Lead and Copper required monitoring proved the presence of Lead Service lines in our water system. The State experts in corrosion control assisted and $30,000 was set aside for the City to purchase the equipment and have local contractors install it. We are not quite done, as we

have a meter installed but not yet connected (see item 3 above). We have the last piece of the task to complete within a week or so. However, we put the system on line March 26, 2019 without the meter and it has been working very well.

7. Submit to DWMAD a plan for consistent and equitable rate collection program.

The plan still needs improvements, but portions of it have been implemented and will be better done now that additional staff and the new Distribution Superintendent is here.

8. Submit to DWMAD an updated Cross Connection Control program.

The Cross-Connection Control plan was very effective during the days when Benton Charter Twp. and St Joe Charter Twp. were part of the system. It remained in a much smaller form during the Financial Manager days. With help from our Contract operations, we expect to improve inspections and reporting during this summer.

9. Install necessary modifications to the water plant to inject coagulant to a DWMAD-approved rapid mix location.

During the DWRLF project the rapid mix was built for the new Alum Treatment in the Plate Settling basins. We have found a means to re-purpose equipment that was installed but never used. There is only 1 piece for the contractors to install left to do, we have 1 of 2 quotes to be approved very soon.

10. Submit to DWMAD a plan to inventorying and on-going maintenance of distribution valves and hydrants.

I am sorry, but this is where MDEQ's lack of a detailed inspection have left them wanting; these were things we already had!

Although the Benton Harbor system is old and much of it was built in 1902 to 1950; some of those records are lost.

The last full time Water Distribution Supervisor was an incredible water man named Ed Ward. Ed was the most impressive and knowledgble man I have ever known; we lost him in early 2018. Many of you may remember him, he worked for Benton Harbor for 28 years. Ed had records galore in his office and his computers.

Due to the turmoil in 2008 – 2010; and then the Emergency Financial Manager chaos; unfortunately, a great deal of those records has been lost. I did manage to save as much as I could in the1st 3 years I worked at the City and kept them safe.

But of utmost importance, Ed had worked with the City's engineer to develop a complete Water System map and Sanitary Sewer System map 2017; that thankfully were not lost.

With these system maps and the SAW Grant and then The Asset Management project, a fairly accurate and detailed system was digitized and put into a GIS mapping system.

There is much more that needs to be found and documented and we have been working very hard to uncover things. We will continue on that path, particularly now that we have help.

11. Conduct Professional Inspection of the Water Tower.

This task is coming as soon as possible. A great many details have to be ironed out before, we can just take it out of service and look. The City has applied for a Drinking Water Revolving Loan Fund opportunity (DWRLF) and we hope for it to be approved by the State soon.

12. Install working zebra mussel control system to the Lake Michigan intake.

This treatment is important but not essential, because we do not take very much water from Lake Michigan and the Zebra Mussels prefer a steady stream of water passing by. We have a dive team ready to help us with this after the fiscal year starts (July 1).

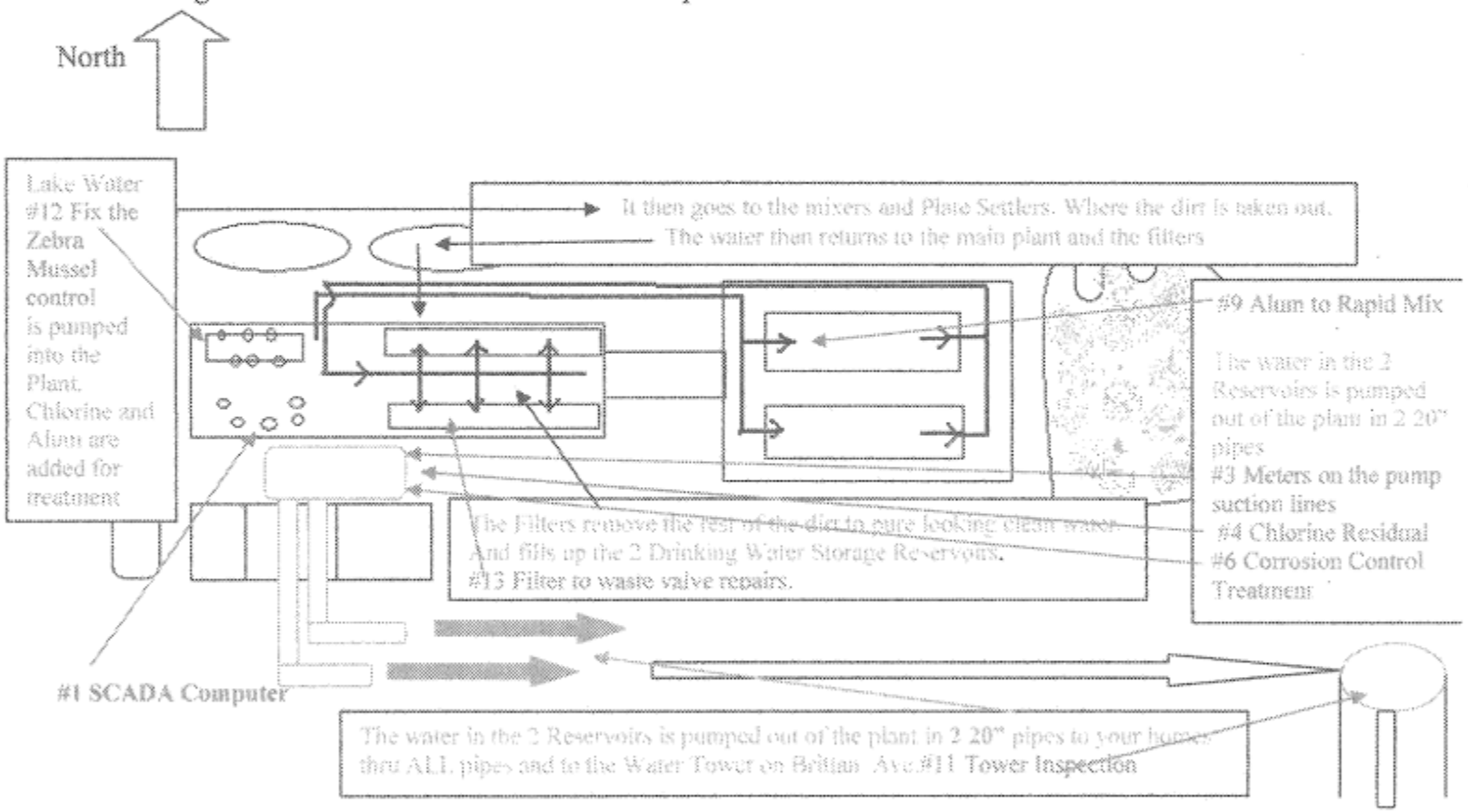
13. Repair the filter to waste valves.

Another useful tool for operators, that we really never had for a Very Long Time. When it was installed, it took advantage of the old with the new and the old components do not want to function as intended. As funds come available, we will restore these valves to proper operation.

Fortunately, for all of the new Plate Settler technology does an awesome job at removing all suspended matter from Lake Michigan water and subsequently the filters work GREAT.

A diagram of the equipment and how we make Lake Michigan Safe for Drinking at the Benton Harbor Water Plant. The ACO changes are marked in red.

For your bearings: The Benton Harbor Water Plant was built in the 1950s. The City took advantage of the only Lake Michigan water access available to them. The plant is located in the Southwest corner of the Park.



The new Corrosion Treatment is added to the Water Pumped out to the community. This treatment started March 26, 2019 and should reduce the lead and other heavy metals like Iron in the resident's tap water.