

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER LABORATORY**

USEPA Region V Drinking Water Cert. No. MI00003

P.O. Box 30270

Lansing, MI 48909

TEL: (517) 335-8184

FAX: (517) 335-8562



**Sample Number
LF96254**

Official Laboratory Report

Report To: STEVE BUSCH
525 W ALLEGAN
LANSING MI 48909

System Name/Owner:
Collection Address: HOLMES 3-6 STEM ACADEMY, FLINT
Collected By: LIANE S S & JACK S
Township/Well#/Section: //
County: Genesee
Sample Point: 01CF032 CMTY RM
Water System: Other

WSSN/Pool ID:
Source: Other
Site Code: F01
Collector: MDEQ DWRPD Staff
Date Collected: 12/12/2015 10:50
Date Received: 12/14/2015 08:06
Purpose: Other

Sample Comment LF96254 The sample was collected using a 125 ml plastic bottle.

TESTING INFORMATION			REGULATORY INFORMATION		
Analyte Name	Result (mg/L)	Date Tested	RL (mg/L)	MCL/AL (mg/L)	
Copper	0.06	12/15/2015	0.05	1.3	
Lead	0.004	12/15/2015	0.001	0.015	

Understanding Your Lead Results:

- Lead results are reported in mg/L
- To turn mg/L into parts per billion or ppb move the decimal 3 places to the right
- For example 0.019 mg/L becomes 19 ppb and 0.004 becomes 4 ppb
- Not Detected means that the amount of lead in your water was less than 1 ppb

- No matter what your lead result is, you should continue to use a filter until the Public Health Emergency Declaration has been lifted.

Call your County Health Department at the number below if you have questions

Genesee County Health Dept.

630 South Saginaw

Flint, MI 48502-1540

810 257-3603

MCL : Maximum Contaminant Level
AL : Action Level
RL : Reporting Limit

mg/L : milligrams / Liter (ppm)

From: Benzie, Richard (DEQ)
Sent: Friday, September 05, 2014 2:53 PM
To: Philip, Kris (DEQ); Cook, Pat (DEQ); Shekter, Jean (DEQ)
Subject: FW: Flint Site 5 Boil water advisory documents
Attachments: Boil PN TC detected.pdf; Flint-Site5-BWA.pdf

FYI

From: Busch, Stephen (DEQ)
Sent: Friday, September 05, 2014 2:47 PM
To: Daugherty Johnson (djohnson@cityofflnt.com); Brent Wright (bwright@cityofflnt.com); mglasgow@cityofflnt.com
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ); Prysby, Mike (DEQ); Rosenthal, Adam (DEQ)
Subject: Flint Site 5 Boil water advisory documents

Gentlemen,

Attached are the boil water advisory public notice with all required language and a map of the impacted zone. Please distribute to your media contacts immediately.

Once we have 2 sets of non-detect samples from the impacted area we can discuss lifting the advisory.

You indicated that flushing of the area has already started.

Please ensure the water system is taking investigative steps to identify a possible source

- Inspect storage facilities
- Verify pumping and treatment system remains intact and uncontaminated
- Inspect cross connection accounts in the affected area
- Survey the area for any unidentified cross connections
- Review any recent construction or maintenance in the area
- Check for building permits and with building inspectors for any recent construction in the area
- Check with fire departments and DPW for any temporary or improper hydrant use
- Review pumpage and check for breaks, leaks, or an uptick in unaccounted water loss
- Ensure any vacant properties have had the water service shutoff
- Review CI residual data, conduct additional CI monitoring, and increase disinfectant residual

I will be in contact with the County Health Department and the MDARD Food and Dairy Division.

You can reach me over the weekend at this number or Mike Prysby at his number.

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

LOCALIZED DRINKING WATER WARNING

Coliform bacteria detected in localized area of Flint water system

BOIL YOUR WATER BEFORE USING

Our water system detected the presence of coliform bacteria in the water supply on September 3, 2014. We routinely monitor for the presence of drinking water contaminants. We took routine samples for coliform bacteria during on September 2, 2014 from all sampling locations throughout the city. The location near Flushing Road and Chevrolet Avenue showed the presence of coliform bacteria. We took three repeat samples at this location and at adjacent locations on September 3 and again on September 4, 2014. Two of the three samples on the 3rd showed the presence of total coliform bacteria and three of the three samples collected on the 4th in this same area showed the presence of total coliform bacteria. All other monitoring locations in the City continue to show no presence of Coliform bacteria.

What should I do?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food. Boiling kills bacteria and other organisms in the water. **Continue using boiled or bottled water until further notice.** This boil notice is limited to the area bordered by Dayton Street (north), DuPont Street (east), Flint River (south), and LaVelle Road to Flint River (west).

If you have a severely compromised immune system, have an infant, are pregnant, or are elderly, you may be at increased risk and should seek advice from your health care providers about drinking this water.

What does this mean?

Total coliform bacteria are generally not harmful themselves. *Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.*

Usually, coliforms are a sign that there could be a problem with the treatment or distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or E. coli, are present. We did not find any of these bacteria in our subsequent testing. If we had, we would have notified you immediately. However, we are still finding coliforms in the drinking water.

What happened? What is being done?

We are still detecting coliform bacteria. We will inform you when our sampling shows that no bacteria are detected. We are flushing the system and increasing the chlorine residual within the affected area. We anticipate resolving the problem within the next two to three days. In the meantime, please continue using boiled or bottled water until we notify you otherwise.

If you have questions, you may contact Mr. Brent Wright of the City of Flint at 810-787-6537, bwright@cityofflint.com, 4500 North Dort Highway, Flint MI. 48505 or Daughtry Johnson, Utilities Administrator (810) 766-7135, ext. 2602. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

CERTIFICATION:

WSSN: [enter Water Supply Serial Number]

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

Signature

Title

Date Distributed

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

cc: [cc the local health department and the Michigan Department of Agriculture and Rural Development if the boil affects a municipal supply.]

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

This notice is being sent to you as a precautionary measure by the City of Flint.

CERTIFICATION:

WSSN: [enter Water Supply Serial Number]

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From: Benzie, Richard (DEQ)
Sent: Tuesday, September 29, 2015 3:20 PM
To: Dykema, Linda D. (DCH)
Cc: Busch, Stephen (DEQ); Philip, Kris (DEQ); Cook, Pat (DEQ); Shekter, Jean (DEQ); Shekter Smith, Liane (DEQ)
Subject: Lead Sampling Issues
Attachments: Preamble and Guidance on Excessive Stagnation.pdf; Lansing BWL briefing on invalidation for excessive stagnation.pdf

Linda,

Steve Busch asked me to provide you with any information that explains how and why the ODWMA arrived at our recommendations for sampling for lead at consumer taps as required by the Lead, Copper, Corrosion Control regulations (LCR).

Attached to this message are a couple of documents that were prepared over a decade ago that discuss excessive stagnation and sample invalidation under the LCR. They were prepared in response to questions from the Washington Post and other news media about invalidation of some samples collected in the Lansing Board of Water Light service area.

The first document is an internal memo that identifies language in the federal preamble to and in EPA guidance for the LCR that discuss the need to collect samples from homes that have experienced ***"typical residential water use during the day before the compliance sample is collected."***

The second document is a report prepared to explain why we "invalidated" samples for excessive stagnation in Lansing. It was in the aftermath of this event when EPA eliminated the ability of state programs to invalidate sample results based on excessive stagnation that led the Michigan Public Water Supply Program to develop a recommendation that communities advise residents participating in their compliance monitoring to flush the designated sampling tap 6 to 8 hours before sample collection (the night before in most cases) to ensure that this tap was not experiencing excessive periods of stagnation. We did not want subsequent regulatory requirements to be imposed based on water quality information that did not accurately reflect the regulatory intent. This briefing report also discusses the fact that the regulatory monitoring scheme was not intended to represent human intake, but was based upon sampling a statistically significant number of residences containing leaded plumbing materials ***as a measure of successful water treatment efficacy.***

If you have any questions, please contact me.

Richard

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

From: Jean Shekter
To: Kpm1177@aol.com; Kristen Philip; Pat Cook; Richard Benzie
Date: 10/6/2004 10:13:00 AM
Subject: Re: Maximum residence time

Summary

The EPA does not give specific guidance on standing times, but mentions it in the preamble of the 1991 rule and in their 1991 guidance manual. The **PREAMBLE** discusses a proposed 8-18 hour standing time and the controversy surrounding the 8 hours. The EPA settled on 6 hours, but did not discuss the upper limit further.

The **GUIDANCE MANUAL** states that water use during the previous day should be typical of daily use when occupied. It also mentions 12 hours as excessively long in a parenthetical statement. Details below.

Details

Preamble: The preamble of the original lead and copper rule (56 FR 26460 dated June 7, 1991) states, "The 1988 proposal would have required systems to collect ...sample at a consumer's tap that has been standing in the interior plumbing for 8 to 18 hours and was collected without prior flushing" (page 26518, column 3, under 2. Sample Collection). However, "numerous commenters were critical of the 8 to 18 hour standing time requirement" (page 26520, column 1 under ii. Standing Time). The EPA responded with reducing the minimum standing time to 6 hours, but no longer addressed the maximum standing time. Later in the preamble, under the public notification and system reporting and recordkeeping requirements section, the EPA notes that the final rule settled on requiring systems to certify that the first draw sample stood motionless for least 6 hours with no further mention of the 18 hours (page 26531, column 1, under a. Tap Monitoring.)

Guidance Manual: The EPA mentions excessive standing times in their guidance manual. "First Draw Tap Samples: Samples can be collected any time as long as the water has stood undisturbed in the pipes for at least 6 hours. Water use during the day before sample collection should have been typical of its daily use when occupied. PWSs should request home owners to indicate when water had last been used in the house prior to sampling and the time that the sample was collected. Estimating the stagnation period may assist PWSs in data interpretation, especially when excessively long stagnation periods are encountered (more than 12 hours)." There is no further mention of excessively long stagnation period (page 4-14 of the Lead and Copper Rule Guidance Manual, Volume I: Monitoring, dated September 1991, Drinking Water Technology Branch, Drinking Water Standards Division, Office of Ground Water and Drinking Water.)

Lead and Copper Drinking Water Rule Implementation and Invalidation of Lead Analyses in 2001 by the DEQ For Lansing Board of Water and Light Samples

Background of the Lead/Copper Standard for Drinking Water

The U.S. EPA promulgated a treatment technique rule for control of lead and copper (Lead/Copper Rule or LCR) in drinking water in 1991. The purpose of this rule was to control the corrosive properties of drinking water to minimize the amount of lead and copper that would dissolve in the water and be transported to the customer. As such, the monitoring scheme was based upon sampling a statistically significant number of residences containing leaded plumbing materials as a measure of successful water treatment efficacy. The monitoring scheme was not intended to represent human intake, and health studies undertaken in recent years do not show a direct correlation between water sampling results and the blood lead concentrations measured in children.

Michigan began implementing the LCR in 1992 under a Memo of Understanding with EPA until 1994, when we promulgated state rules and were granted primary enforcement authority for these new federal regulations. The LCR was implemented in stages, beginning with the largest water systems (including Lansing) conducting lead and copper residential monitoring from targeted high risk sites in two consecutive six month periods.

The LCR was initially adopted over objections from all parts of the waterworks industry, including the state regulatory agencies, because it was considered to be technically and legally flawed by most industry professionals. After 14 years of implementation experience, that judgment has proven correct; some requirements have been declared unconstitutional, EPA had to issue a revised regulation in 2000, and states had to make several implementation adjustments to make it function successfully. Despite these shortcomings, DEQ compliance data show significant reductions in drinking water lead achieved through a combination of lead control initiatives: corrosion control treatment; removal of lead in plumbing systems and plumbing products; reduction of lead content in plumbing materials; lead service line replacements; revision of electrical grounding codes; and application of flushing principles by customers.

Lansing Board of Water & Light - Lead Sampling & Corrosion Control

The results of the two 6-month monitoring periods during 1992 revealed that the Lansing Board of Water and Light (BWL) complied with the action levels for lead and copper. These action levels require that 90 percent of the analyses be equal to or less than 0.015 milligrams per liter (mg/l) lead and 1.3 mg/l copper. The ninetieth percentile levels for lead from these two monitoring periods were 0.011 and 0.0113 mg/l, which met the action level but were not low enough to qualify as optimal corrosion control treatment. As a result, the BWL was required to conduct an evaluation of possible treatment methods to further reduce the corrosivity of their water. The LCR allowed large systems a period of 18 months

Invalidation of Lead Analyses at BWL

9/28/2015

to complete this evaluation. In accordance with the regulation, the BWL submitted their evaluation in July of 1994 with a recommendation to add an orthophosphate compound. The state then had 6 months to review and approve this recommendation, which we did in December of 1994. Finally, large water systems had 2 years to complete the installation of the approved treatment method before resuming compliance monitoring.

Beginning in January of 1997, the BWL repeated the lead and copper tap monitoring in two consecutive six month periods to demonstrate the effectiveness of their newly installed optimal corrosion control treatment. The 90th percentile lead levels from these monitoring periods were 0.0076 and 0.0070 mg/l, which demonstrated they had achieved optimal corrosion control treatment. During the next six months, the DEQ established monitoring requirements and/or limits on pH, alkalinity, phosphate dosage and phosphate residuals that the BWL is required to meet in order to demonstrate optimal corrosion control treatment. Beginning in July of 1998, the BWL once again repeated lead and copper tap monitoring in two consecutive six month periods. The 90th percentile lead levels were even lower, at 0.0064 and 0.0055 mg/l. The BWL was then placed on an annual monitoring schedule for the next three years, beginning in 2000.

2001 Sampling & Sample Invalidation

In 2001, the BWL repeated their annual lead and copper tap monitoring. Once again, they requested participating residents to collect samples according to the instructions developed to meet the intent of the Lead and Copper Rule (LCR). Upon receiving the results of these 2001 analyses, the BWL noted several elevated lead levels from the same exact locations that had not previously reported high levels. The BWL contacted these residents to determine if anything unusual may have affected these results. They learned that one sample had been collected from a tap other than the kitchen or bathroom faucet, which does not comply with the sampling criteria established in the LCR. The BWL also learned through homeowner interviews that the results from the other three sites may have been impacted by greater periods of stagnation than specified in their sampling instructions. As a result, all four of these locations were resampled by trained staff of the BWL, this time adhering to the specified 6 to 8 hour stagnation period that represents typical overnight conditions. The results of this resampling were consistent with the historical results from these same locations, with all four results reporting levels below the action level of 0.015 mg/l.

At this point, the BWL contacted DEQ district staff by telephone to discuss the appropriate course of action. The LCR does not give specific guidance on standing times, but this subject is addressed in the preamble of the rule, and in a 1991 EPA guidance manual developed to assist states and water systems with implementation of this complex regulation. The preamble to the LCR discusses the original proposal from EPA that specified an 8-18 hour standing time and the public comments objecting to a minimum time of 8 hours. In the final rule, EPA specified a minimum standing time of 6 hours prior to a first draw sample, but did

Invalidation of Lead Analyses at BWL 9/28/2015

not include an upper limit. EPA's 1991 Guidance Manual states that first draw tap samples can be collected any time as long as the water has stood undisturbed for at least 6 hours. It also states that water use during the day before sample collection should have been typical of daily use when occupied. The guidance goes further to suggest that public water systems should request home owners to indicate when water had last been used in the house prior to sampling and the time of sample collection. This information can be used to estimate the stagnation period, which may assist in data interpretation, especially when excessively long stagnation periods are encountered (which EPA guidance mentions as being "more than 12 hours").

The original 1991 LCR did not provide for sample invalidation. EPA recognized this omission and proposed criteria for invalidation in 1996, promulgated in 2000, in the revisions to the LCR that Michigan adopted in 2002. Prior to these revisions, invalidation requests had to be judged using the best practices developed by state drinking water program managers. Notably, the decision to consider invalidating samples where water use during the day before sample collection was not representative of typical household use was made by Michigan and other states long before this situation arose in the BWL. During the initial monitoring periods of the LCR in 1992 and 1993, several utilities reported high lead levels in samples collected from customer taps that were clearly not representative of EPA's first draw sample conditions.

Several notable instances involved the use of a vacant home by an owner who forgot to collect the first draw sample from her residence before any use, so she used the vacant rental unit next door. Another example involved a resident who could not fit the sampling unit under his kitchen tap (due to dirty dishes in the sink), so he used a faucet in a basement bathroom that had not been used for days and possibly weeks. As a result of these and other similar incidents, the drinking water program instituted a practice of reviewing and approving sample invalidation requests from water utilities when the state determined that excessive stagnation no longer represented "typical water use during the previous day" as recommended in EPA's guidance manual. The decision to invalidate results was made by district staff after consultation with the water system, the district supervisor and the Field Operations Section Chief of the former Drinking Water and Radiological Protection Division.

The revisions to the LCR adopted by Michigan in 2002 allow for sample invalidation for one of the following criteria: the laboratory determines that improper sample analysis caused erroneous results; the DEQ determines the sample was taken from a site that did not meet the site selection criteria; the sample was damaged in transit; or there is reason to believe the sample was subject to tampering. None of these options for invalidation had been adopted by the state at the time the BWL was faced with this issue, although federal criteria had just been adopted. Since 1991, in the absence of federal regulations that addressed the option of invalidation, state drinking water programs were exercising best professional judgment when faced with this dilemma. The decision to accept the BWL request was based on applying EPA's guidance on

Invalidation of Lead Analyses at BWL 9/28/2015

first draw sample conditions that called for typical household use during the day prior to sample collection, and a desire to judge the sampling results on a complete set of valid samples.

As already stated, the BWL contacted their district engineer by telephone to discuss this situation and obtain DEQ concurrence. Michigan's drinking water program has a history of providing significant technical expertise and compliance assistance to the waterworks industry, and the LCR was no exception. We provide this technical assistance for all compliance monitoring programs at public water systems statewide specifically because we want valid data on which to judge compliance. This assistance assures that the public water system, the state regulatory agency and the general public can have confidence in the monitoring program and in the drinking water quality provided. When a water utility makes significant decisions to treat drinking water or make other necessary capital expenditures to comply with national drinking water standards, those decisions must be based upon valid data. The customers who pay all operating expenses for drinking water service should expect the water utility to use valid data.

Following the Washington Post article, Michigan contacted other Region V state drinking water programs to determine their practices with regard to LCR samples and excessive stagnation. Two responded. Illinois indicated they emphasize to public water systems the importance of providing residents with instructions to collect the first draw samples as soon after 6 hours of stagnation as possible, but they have not invalidated results solely on that basis. Wisconsin indicated that they too have encountered situations that clearly do not meet the intent of the regulation and guidance with regard to first draw sample collection procedures. Like us, Wisconsin has invalidated results that did not meet this intent.

Drinking Water Quality Monitoring

In all of our drinking water monitoring programs, there is an element of trust in assuming that samples will be collected in accordance with prescribed procedures. We spend considerable time training and certifying water utility personnel on proper sampling procedures, because important decisions on system operations and public health protection depend upon these procedures. **However, the LCR is the only drinking water monitoring program that requires the water supply system to rely upon untrained, nonprofessional sample collectors (residents) to provide compliance monitoring.** Despite the best efforts to instruct homeowners on proper sampling technique, problems continue to occur. As already noted, the original Lansing 2001 sample results were questioned and homes were resampled because the results were not consistent with past results. Further investigation determined that the sampling did not follow the BWL instructions, which are in agreement with DEQ recommendations. When the appropriate sampling procedure was followed during resampling of these four sites, the results confirmed that adherence to the recommended procedure resulted in lead levels consistent with historical data

Invalidation of Lead Analyses at BWL
9/28/2015

from these homes, and illustrating that the samples in question were inappropriate. A copy of the BWL sampling instructions is attached.

The Washington Post article reported a disagreement between the BWL and a private resident over the validity of a sample taken over three years ago. Given the number of times that residents have been asked to sample since 1992, as well as the several months that pass between sample collection and the time the resident was contacted to discuss the sampling conditions, it is likely that recollections may have blurred. The BWL employee recalls a discussion that led him to believe that the resident probably had not used the water for 18 to 20 hours because she had filled containers the prior day and did not need to use the tap for that period of time. The DEQ cannot resolve this dispute. We have relied on the word of a certified waterworks operator who investigated and made the judgment.

From: Dykema, Linda D. (DCH)
Sent: Tuesday, September 29, 2015 3:30 PM
To: Benzie, Richard (DEQ)
Cc: Busch, Stephen (DEQ); Philip, Kris (DEQ); Cook, Pat (DEQ); Shekter, Jean (DEQ); Shekter Smith, Liane (DEQ)
Subject: RE: Lead Sampling Issues
Attachments: MMWR lead in DW.pdf

Thanks Richard. This is really helpful.

I've attached a 2012 MMWR from CDC suggesting that, in some cases, there is a relationship between lead levels in drinking water and elevated blood lead levels. Note that, in the conclusions, the authors make the same point that regulatory testing was not designed to evaluate human exposure levels.

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If you have any questions, please contact me.

Richard

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



Morbidity and Mortality Weekly Report

Supplement / Vol. 61

August 10, 2012

Lead in Drinking Water and Human Blood Lead Levels in the United States



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

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The *MMWR* series of publications is published by the Office of Surveillance, Epidemiology and Laboratory Services, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30333.

Suggested Citation: Centers for Disease Control and Prevention. [Title]. *MMWR* 2012;61(Suppl. August 10, 2012):[inclusive page numbers].

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Lead in Drinking Water and Human Blood Lead Levels in the United States

Mary Jean Brown, ScD
Stephen Margolis, PhD

Division of Emergency and Environmental Health Services, National Center for Environmental Health

Corresponding author: Mary Jean Brown, ScD, National Center for Environmental Health, CDC, 4770 Buford Highway NE, MS F-60, Atlanta, GA 30084. Telephone: 770-488-3300; Fax: 770-488-3635; E-mail: mjb5@cdc.gov.

Introduction

Lead is a pervasive environmental contaminant. The adverse health effects of lead exposure in children and adults are well documented, and no safe blood lead threshold in children has been identified. Lead can be ingested from various sources, including lead paint and house dust contaminated by lead paint, as well as soil, drinking water, and food. The concentration of lead, total amount of lead consumed, and duration of lead exposure influence the severity of health effects. Because lead accumulates in the body, all sources of lead should be controlled or eliminated to prevent childhood lead poisoning. Beginning in the 1970s, lead concentrations in air, tap water, food, dust, and soil began to be substantially reduced, resulting in significantly reduced blood lead levels (BLLs) in children throughout the United States. However, children are still being exposed to lead, and many of these children live in housing built before the 1978 ban on lead-based residential paint. These homes might contain lead paint hazards, as well as drinking water service lines made from lead, lead solder, or plumbing materials that contain lead. Adequate corrosion control reduces the leaching of lead plumbing components or solder into drinking water. The majority of public water utilities are in compliance with the Safe Drinking Water Act Lead and Copper Rule (LCR) of 1991. However, some children are still exposed to lead in drinking water. EPA is reviewing LCR, and additional changes to the rule are expected that will further protect public health. Childhood lead poisoning prevention programs should be made aware of the results of local public water system lead monitoring measurement under LCR and consider drinking water as a potential cause of increased BLLs, especially when other sources of lead exposure are not identified.

This review describes a selection of peer-reviewed publications on childhood lead poisoning, sources of lead exposure for adults and children, particularly children aged <6 years, and LCR. What is known and unknown about tap water as a source of lead exposure is summarized, and ways that children might be exposed to lead in drinking water are identified. This report does not provide a comprehensive review of the current scientific literature but builds on other comprehensive reviews, including

the *Toxicological Profile for Lead* and the 2005 CDC statement *Preventing Lead Poisoning Among Young Children* (1,2). When investigating cases of children with BLLs at or above the reference value established as the 97.5 percentile of the distribution of BLLs in U.S. children aged 1–5 years, drinking water should be considered as a source. The recent recommendations from the CDC Advisory Committee on Childhood Lead Poisoning Prevention to reduce or eliminate lead sources for children before they are exposed underscore the need to reduce lead concentrations in drinking water as much as possible (3).

Background

Lead is a relatively corrosion-resistant, dense, ductile, and malleable metal that has been used by humans for at least 5,000 years. During this time, lead production has increased from an estimated 10 tons per year to 1,000,000 tons per year, accompanying population and economic growth (4). The estimated average BLL for Native Americans before European settlement in the Americas was calculated as 0.016 $\mu\text{g}/\text{dL}$ (5). During 1999–2004, the estimated average BLL was 1.9 $\mu\text{g}/\text{dL}$ for the noninstitutionalized population aged 1–5 years in the United States (6), approximately 100 times higher than ancient background levels, indicating that substantial sources of lead exposure exist in the environment.

BLLs of U.S. children increased sharply during 1900–1975 as increased lead use and emissions caused widespread environmental contamination across the United States. Changes in federal laws to limit the use and emissions of lead have reversed this trend. Effective regulations include reducing or eliminating lead from gasoline for on-road vehicles, foods and food packaging, house paint, water pipes, plumbing fixtures, and solder used in plumbing and drink cans.

Effects of Lead Exposure

Effects on Children

The health consequences of lead exposure depend on the cumulative dose of lead and vulnerability of the individual

person rather than the environmental media (i.e., food, water, soil, dust, or air) in which the lead exists. Compelling evidence has established the cognitive effects of childhood lead exposure since they were first described in 1943 (7). To date, no safe blood lead threshold for the adverse effects of lead on infant or child neurodevelopment has been identified (2). Recent evidence suggests that the dose-effect relationship might be supralinear, with a steeper dose response and potential risk for an adverse health effect such as IQ loss at BLLs <10 µg/dL compared with BLLs ≥10 µg/dL (8–10). The developing fetus and child are more sensitive to lead exposure than adults because of the immaturity of the blood-brain barrier, increased gastrointestinal absorption, and hand-to-mouth behaviors, all of which increase exposure (11). Comorbidities such as iron deficiency also can enhance lead absorption.

Evidence from several prospective studies suggests that the adverse effects of early childhood exposure on neurodevelopment persist into the second decade of life (12–16). The mechanisms by which low levels of lead exposure might adversely affect neurobehavioral development remain uncertain, although experimental data support the involvement of many physiological pathways.

Effects on Adults

Overall. Adults with occupational exposure to lead report more colds and influenza and exhibit suppressed secretory immunoglobulin A (IgA) levels, demonstrating lead-induced suppression of humoral immunity (17). Adults with occupational exposure also might have neurotoxic effects, including peripheral neuropathy. Motor nerve dysfunction can occur at BLLs as low as 40 µg/dL (18). Lead also is nephrotoxic and can cause progressive nephron loss leading to renal failure, gout, and hypertension. In a meta-analysis of the relationship between BLL and blood pressure, a small but statistically significant association between increased BLL and increased blood pressure was identified (19). BLLs ≥40 µg/dL have been associated with increased risk for cardiovascular, cancer, and all-cause mortality in several epidemiological studies. These effects might not be limited to adults with the long-term, high-dose exposure common in occupational settings. A study of approximately 13,000 adult participants in the third National Health and Nutrition Examination Survey (NHANES) with 12 years of follow-up found that adults in the highest tertile of BLL (≥3.6 µg/dL) were at increased risk for all-cause mortality and cardiovascular mortality but not for cancer mortality compared with those in the lowest tertile of BLL (<1.9 µg/dL) (20).

Reproductive and Prenatal Effects. Lead exposure remains a concern for pregnant and lactating women, particularly those who have an occupational exposure to lead, who are

recent immigrants, who are engaged in home renovations, or who have pica. Prenatal lead exposure resulting in maternal BLLs <10 µg/dL has measurable adverse effects on maternal and infant health, such as fertility, hypertension, and infant neurodevelopment (21). In addition, because lead persists in bone for decades, as bone stores are mobilized to meet the increased calcium needs of pregnancy and lactation, women and their infants might be exposed to lead long after external sources have been removed (22). Adverse reproductive effects are not limited to women. In males with occupational lead exposure, abnormal sperm morphology and decreased sperm count have been observed at BLLs <40 µg/dL (23).

Carcinogenic Effects

Based on limited evidence from studies in humans and sufficient evidence from animal studies, the U.S. Department of Health and Human Services (HHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens, and the U.S. Environmental Protection Agency (EPA) has determined that lead is a probable human carcinogen. The International Agency for Research on Cancer also has determined that inorganic lead is likely carcinogenic in humans (1).

Scope of Public Health Concern

In 2004, 143,000 deaths and a loss of 8,977,000 disease-adjusted life years were attributed to lead exposure worldwide, primarily from lead-associated adult cardiovascular disease and mild intellectual disability in children (24). Children represent approximately 80% of the disease impact attributed to lead, with an estimated 600,000 new cases of childhood intellectual disabilities resulting from BLLs ≥10 µg/dL each year (25).

In 1987, one study estimated that reducing water lead levels to below the maximum contaminant level for lead (which was 20 parts per billion [ppb] during 1986–1991) would save nearly \$400 million per year (1985 dollars) (26). Although estimates of the reductions in lead concentrations for various media, air, dust, soil, and water are unavailable, reductions in BLLs were observed for each subsequent cohort of children aged 2 years who were not exposed to lead at the concentrations experienced by the cohort of children aged 2 years in 1976. As a result of the overall reduction of lead in the environment, including fuel, house paint, and drinking water, there was an estimated decrease in BLLs of 15.1 µg/dL and a related estimated economic benefit of \$110–\$300 million in earnings for children born after 1976 who were not exposed to high levels of lead (27). A recent cost-benefit analysis suggested that for every dollar spent to reduce lead hazards, \$17–\$220 is saved. This cost-benefit ratio compares favorably to that of other public health interventions such as vaccines (28).

Historical Trends in Blood Lead Levels

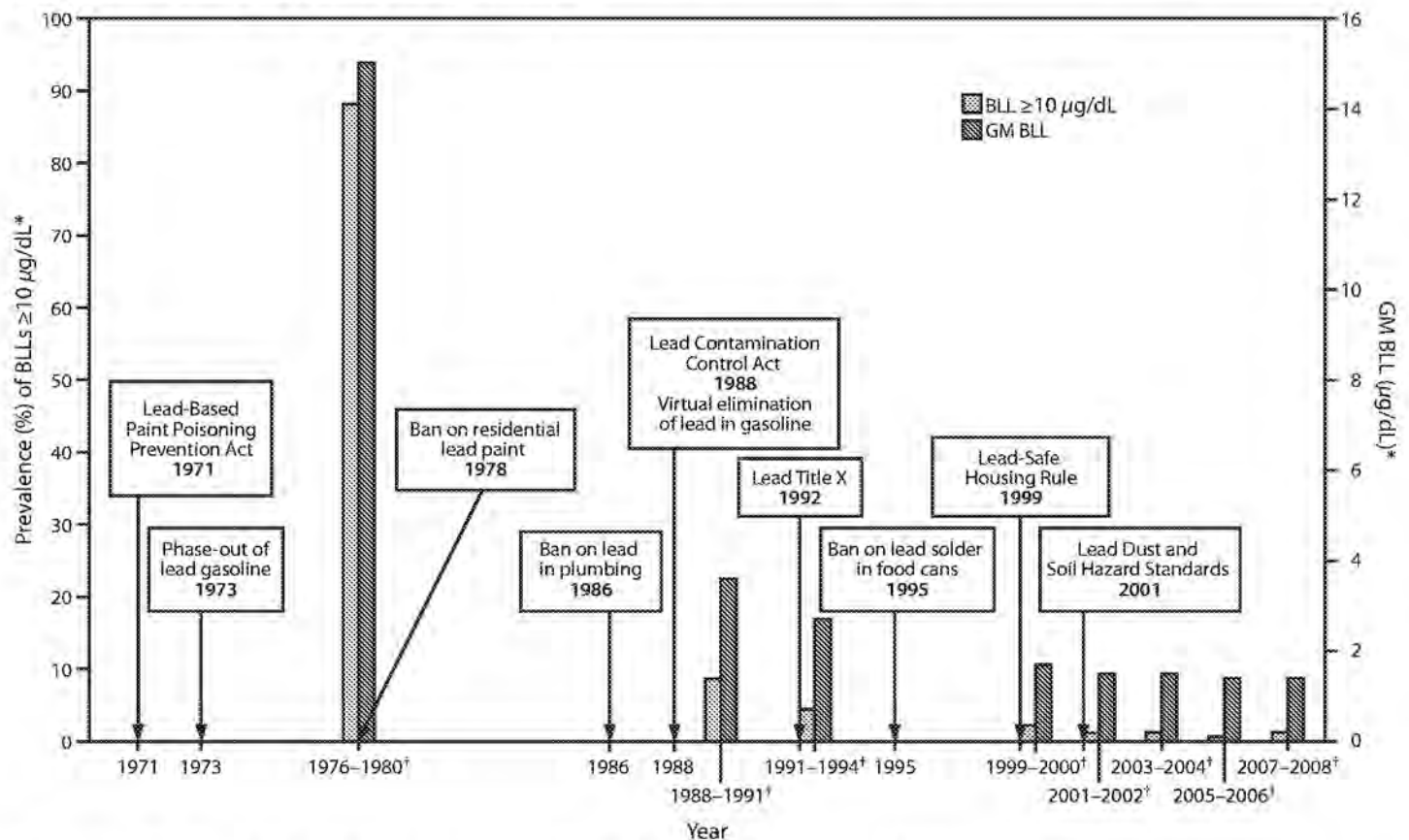
Since the 1970s, NHANES data have been used to track BLLs for the noninstitutionalized U.S. population (Figure). In 1978, approximately 13.5 million children aged 1–5 years had BLLs ≥ 10 $\mu\text{g}/\text{dL}$, which is generally considered the threshold for housing inspection, health education, and home visits (i.e., case management) by local and state public health agencies. By 2007–2008, this number had decreased to approximately 250,000 (29). In addition, in the early NHANES data from the 1970s and 1980s, 12% of black children had BLLs ≥ 30 $\mu\text{g}/\text{dL}$, compared with 2% of their counterparts who were white. Children living in low-income families also were at greater risk for BLLs ≥ 30 $\mu\text{g}/\text{dL}$ (10% of children in households earning $< \$6,000$ per year compared with 1.2% living in households

earning $> \$15,000$ per year) (30). By the 1999–2004 surveys, the percent differences in BLLs ≥ 10 $\mu\text{g}/\text{dL}$ for children aged 1–5 years, by race and family income, were no longer statistically significant, a trend that continues today at levels ≥ 10 $\mu\text{g}/\text{dL}$, demonstrating the impact of policies at the federal, state, and local levels (6).

In the 1991–1994 NHANES, the overall prevalence of BLLs ≥ 10 $\mu\text{g}/\text{dL}$ was 2.2% but decreased to 0.7% by the 1999–2002 survey. Overall, the geometric mean (GM) decreased significantly ($p < 0.05$; two-tailed t-test) from 2.3 $\mu\text{g}/\text{dL}$ to 1.6 $\mu\text{g}/\text{dL}$ during the same time period. Among children aged 6–12 years, boys had significantly higher GM BLLs than girls in all age, racial, and income groups (6).

Despite the considerable progress in decreasing BLLs, children aged < 6 years continue to be exposed to lead. Although disparities among various subpopulations of children with

FIGURE. Timeline of lead poisoning prevention policies and blood lead levels in children aged 1–5 years, by year — National Health and Nutrition Examination Survey, United States, 1971–2008



Abbreviations: BLL = blood lead level; GM = geometric mean; NHANES = National Health and Nutrition Examination Survey.

Sources: Mahaffey KR, Annett JL, Roberts J, Murphy MS. National estimates of blood lead levels: United States (1976–1980). *N Engl J Med* 1982;307:573–9.

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* National estimates for GM BLLs and prevalence of BLLs ≥ 10 $\mu\text{g}/\text{dL}$, by NHANES survey period and sample size of children aged 1–5 years: 1976–1980: N = 2,372; 1988–1991: N = 2,232; 1991–1994: N = 2,392; 1999–2000: N = 723; 2001–2002: N = 898; 2003–2004: N = 911; 2005–2006: N = 968; 2007–2008: N = 817.

† NHANES survey period.

BLLs ≥ 10 $\mu\text{g/dL}$ are no longer significant, disparities in risk for exposure have persisted over time. In addition, mean BLLs continue to be higher for children from low-income families, non-Hispanic black children, and children living in older housing (i.e., built before 1950) (6). For example, the mean BLL for non-Hispanic black children (1.9 $\mu\text{g/dL}$) was significantly higher (36%) than that of white children (1.4 $\mu\text{g/dL}$) during 2007–2008.

Although the decrease in GM BLLs in women aged 20–59 years from 1.8 $\mu\text{g/dL}$ in 1988–1994 to 1.2 in 1999–2002 was similar to that seen in children, in utero exposure is also a substantial public health issue for certain populations, particularly new immigrants (31–33). In a 2003 study conducted in New York City, New York, BLLs ≥ 5 $\mu\text{g/dL}$ were more prevalent among pregnant women who were born outside the United States than pregnant women born in the United States (odds ratio = 8.2, 95% confidence interval = 3.8–17.3) (34).

Lead in the Environments of Children

A review of the sources of lead in the environments of U.S. children discusses the contributions of various lead-contaminated media to BLLs in children (35). Deteriorating lead paint and lead in house dust and soil are the primary, and often the most concentrated, sources of lead. However, lead paint contamination is not the only source of exposure for U.S. children.

Lead is used in thousands of applications, each constituting a potential exposure source (36). Case reports from local and state lead programs indicate that up to 30% of children with BLLs ≥ 10 $\mu\text{g/dL}$ do not have an immediate lead paint hazard. For example, in 2004 in Arizona, lead-contaminated soil was the most commonly identified proximate exposure source, accounting for approximately 24% of increased BLLs in children, followed by paint (17%), folk remedies and pottery (17%), dust (15%), and miscellaneous other sources (19%). In 8% of cases, no lead hazard was identified (37).

In field investigations, nonpaint lead exposure sources might be insufficiently characterized and their importance underestimated. Lead program inspectors look for lead paint hazards in places where children with BLLs ≥ 10 $\mu\text{g/dL}$ spend time. Often, lead exposure sources other than paint are sought only when no lead paint hazards are found. Of 35 CDC-funded childhood lead poisoning prevention programs, only 15 reported that they routinely tested lead levels in water in homes where children have increased BLLs (CDC, unpublished data, 2009). Thus, for some children with BLLs ≥ 10 $\mu\text{g/dL}$, important nonpaint sources such as water might not be identified.

Evidence also suggests that for children with BLLs 5–9 $\mu\text{g/dL}$, no single source of exposure predominates. For these children, the contribution of multiple sources, including drinking water, seems likely, particularly for children who do not have well-established risk factors such as living in old housing or having a parent who is exposed to lead at work (38). CDC and its Advisory Committee on Childhood Lead Poisoning Prevention concur that primary prevention of lead exposure is essential to reducing high BLLs in children and that reducing water lead levels is an important step in achieving this goal.

Lead in Drinking Water

Lead is unlikely to be present in source water unless a specific source of contamination exists. However, lead has long been used in the plumbing materials and solder that are in contact with drinking water as it is transported from its source into homes. Lead leaches into tap water through the corrosion of plumbing materials that contain lead (26,39). The greater the concentration of lead in drinking water and the greater amount of lead-contaminated drinking water consumed, the greater the exposure to lead. In children, lead in drinking water has been associated both with BLLs ≥ 10 $\mu\text{g/dL}$ (40,41) as well as levels that are higher than the U.S. GM level for children (1.4 $\mu\text{g/dL}$) but are < 10 $\mu\text{g/dL}$ (42–44).

History of Studies on Lead in Water

In 1793, the Duke of Württemberg, Germany, warned against the use of lead in drinking water pipes, and in 1878, lead pipes were outlawed in the area as a result of concerns about the adverse health effects of lead in water (45). In the United States, the adverse health consequences of lead-contaminated water were recognized as early as 1845 (46). A survey conducted in 1924 in the United States indicated that lead service lines were more prevalent in New England, the Midwest, Montana, New York, Oklahoma, and Texas (47). A nationwide survey conducted in 1990 indicated that 3.3 million lead service lines were in use, and the areas where they were most likely to be used were, again, the midwestern and northeastern regions of the United States. This survey also estimated that approximately 61,000 lead service lines had been removed through voluntary programs during the previous 10 years (48).

Research on exposure to lead in water increased as concern about the topic increased, and efforts were made to establish a level of lead in water that, at the time of the studies, was considered acceptable. A 1972 study in Edinburgh, Scotland, obtained 949 first-flush water samples (i.e., samples of water from the tap that have been standing in the plumbing pipes for at least 6 hours)

matched with 949 BLLs, as well as 205 running water samples matched to 205 BLLs (49). No dose-response relationship could be determined when comparing BLLs with four levels of lead in both first-flush water and in running water ($<0.24 \mu\text{mol/L}$; $0.24\text{--}0.47 \mu\text{mol/L}$; $0.48\text{--}1.43 \mu\text{mol/L}$; and $\geq 1.44 \mu\text{mol/L}$). The study concluded that the findings challenged whether it was necessary to lower the water lead concentration to $<100 \text{ ppb}$, which at that time was the acceptable concentration established by the World Health Organization. However, the study also reported that low levels of environmental lead exposure could have adverse health effects; therefore, knowing the degree of lead exposure from household water relative to other sources is important. Another study, in 1976, of 129 randomly selected homes in Caernarvonshire, England, reported a similar finding (50), describing the relationship between blood and water lead as slight.

Comparing studies on the relationship between BLLs and lead levels in water are difficult given that the age of study participants, water sample collection methods, and duration of the exposure to high water lead levels vary considerably across studies. Quantifying the contribution of lead in water to BLLs in children can be particularly challenging because of the difficulty of collecting valid, reliable, and reproducible water lead samples. Relatively small fluctuations in factors such as temperature, pH alkalinity, and dissolved solids affect the solubility of lead (51). In addition, intake estimation is difficult because of the incomplete understanding of individual children's water intake patterns. Nonetheless, during the 1990s, an association between blood and water lead levels continued to be reported, particularly in sensitive populations such as pregnant women and children. For example, in the Glasgow Duplicate Diet Study, the correlation coefficient between infant BLLs at age 3 months and composite water samples was 0.59 (52). In a study of the association between children's BLLs and water lead levels, with a convenience sample of 320 households, water lead levels explained as much as 12% of the variance in BLLs (53). BLLs also were shown to decrease when lead lines were completely replaced. In one study comparing water lead levels in housing of low-income persons before and after lead service lines were replaced, water lead levels decreased by 50% in the 3 months after total replacement of lead pipes from the distribution systems (54).

In the 1983 British Regional Heart Study, the BLLs of 7,378 men in 24 British towns were evaluated (55). All men were categorized based on lead concentration in domestic water, water hardness, and alcohol and cigarette consumption. The findings indicated that when first-draw home tap water measured 100 ppb , BLLs of the men were $1.00 \mu\text{mol/L}$, compared with $0.7 \mu\text{mol/L}$ in men with home tap water that contained undetectable lead levels. The study recommended

that lead in water be given greater priority than in the past in any national campaign to reduce lead exposure. In a follow-up study in Glasgow, Scotland, tap water lead concentrations and maternal BLLs from 1981 were compared with water and BLLs from 1993 (56). In 1993, 17% of 1,812 homes had daytime, first-draw lead levels in 1 L of water that were $\geq 10 \text{ ppb}$, compared with 49% of 131 homes enrolled in a survey in 1981. Maternal BLLs decreased by 31% during the same period ($11.9 \mu\text{g/dL}$ in 1981 vs. $3.7 \mu\text{g/dL}$ in 1993). Despite this decrease, the study reported that even the reduced levels of lead in tap water might have presented a risk for bottle-fed infants.

The lead studies discussed above exclusively assessed lead in water, and tap water was the only source considered as the cause of the increased BLL. One landmark U.S. observational study conducted during the 1990s studied 183 urban children aged 12–31 months (37%, 12–18 months; 31%, 18–24 months; 33%, 24–31 months) (57). Of these children, 63% had BLLs $<10 \mu\text{g/dL}$, 20% had BLLs of $10\text{--}14 \mu\text{g/dL}$, 8% had BLLs of $15\text{--}19 \mu\text{g/dL}$, and 3% had BLLs $\geq 20 \mu\text{g/dL}$. The study evaluated lead in home foundation perimeter soils, potable water, paint, and house dust. Lead-contaminated house dust was the major contributor to BLLs $\geq 10 \mu\text{g/dL}$. However, the study reported that although lead-contaminated water had a statistically significant effect on children's BLLs after adjusting for other sources of lead exposure, no statistically significant contribution for drinking water could be discerned at levels below the current EPA action level of 15 ppb (57). Lead dust as a primary source of lead for children with increased BLLs was further demonstrated in a subsequent pooled analysis of 12 studies; floor dust lead levels as low as $5 \mu\text{g/ft}^2$ were associated with 5% of enrolled children having a BLL $\geq 10 \mu\text{g/dL}$ (58).

LCR and Control Measures

In 1991, EPA promulgated LCR. LCR sets an action level of 15 ppb of lead in 1 L of first-draw water taken after the water has been standing in the pipes for at least 6 hours. LCR also establishes a nonenforceable maximum contaminant level goal (MCLG) of 0, the level of lead in drinking water at which no adverse health effects are likely to occur. However, EPA has determined that MCLG is not feasible because many sources of lead in water are not under the control of public drinking water suppliers (i.e., water utilities). LCR requires water utilities to monitor lead in drinking water from a sample of customer taps in homes with plumbing materials that contain lead and copper. If $>10\%$ of the samples collected from a water utility serving $<50,000$ residents exceeds the lead action level, the utility must identify and install optimal corrosion control treatment. Utilities serving $\geq 50,000$ residents are required to have optimal corrosion control treatment regardless of level

of lead in drinking water. Any size water utility exceeding the lead action level and covered by LCR is required to educate the public about lead in drinking water until water levels are below the lead action level. Utilities that exceed the action level must distribute public education materials on lead to customers and organizations that serve consumers with populations at high risk for adverse health effects from lead (e.g., schools, pediatricians, and child-care centers). The public education materials must include information about the health effects of lead, sources of lead, and steps persons can take to reduce their exposure to lead.

LCR requires that additional action be taken when a water utility with lead service lines and optimized corrosion control treatment still exceeds the action level in >10% of samples collected. In addition to public education, these utility companies also are responsible for replacing the portion of the lead service lines (the line connecting a house to the water distribution system) that the utility company owns. Utility companies must offer to replace the section of line owned by the customer (the section from the water meter into the house). However, the utility company is not required to bear the cost of replacing the privately owned portion of the line. When a customer does not agree to replacement of the privately owned portion of the line, the utility company must notify the residents at least 45 days in advance that they might experience a temporary increase in water lead levels as the portion of the service line owned by the utility company is replaced and must provide guidance on measures to minimize their exposure to lead. A utility company also must collect a water sample within 72 hours after completion of the partial replacement, test the sample for lead, and notify the customer of the results.

Most U.S. drinking water systems are in compliance with LCR. In 2004, the Congressional Research Service reported that an EPA review of its water monitoring data conducted during 2000–2003 did not find a systemic problem of increased lead levels among water systems. For systems that serve >50,000 persons, 27 (3.6%) of these systems exceeded the action level of 15 ppb at least once in the time period. For systems that served 3,300–50,000 people, 237 (3.4%) exceeded the action level at least once since 2000 (59). However, lead service lines remain in use in neighborhoods in many cities. These pipes range in age from those installed during the late 1800s through 1986, although the preponderance of lead service line installations occurred before World War II.

Changes in water treatment and disinfection practices can substantially undermine lead corrosion control (60). In the mid-1990s in the District of Columbia (DC), high levels of free chlorine were used to decrease coliform bacteria in water, a process that inadvertently changed the type of lead mineral coating in the water lines to one with very low solubility in

the background pH of the DC drinking water. When the free chlorine was replaced with chloramines, the transformed highly insoluble lead scale minerals were no longer stable and dissolved. Therefore, a substantial level of lead was released from the lead service lines into drinking water at the tap (61). CDC reviewed the relationship between BLLs in children, the presence of a lead service line, and water disinfection practices in DC during 1998–2006 (62). The study reported that the presence of a lead service line was associated with higher BLLs in children. This relationship was most pronounced during 2001 through June 2004, when chloramines were used to disinfect the drinking water without adequate corrosion control (62). An observational study in which the BLLs of children were matched to population-based data of water lead levels during periods when water disinfection practices changed in DC concluded that the increase in water lead levels was associated with an increase in the BLLs of children (63). In a study in Wayne County, North Carolina, a unified geographic information system was used to link BLLs with water service lines made with or without lead. The use of chloramines in water predicted higher water lead levels and BLLs, controlling for well-established, known predictors of BLL (44).

Partial replacement of lead service lines might not effectively decrease the increased BLLs associated with lead service lines, as shown by one observational study in DC during July 2004–December 2006 that assessed the BLLs and type of water service line (62). Compared with children who had never had a lead service line, children having had a partial lead pipe replacement were at increased risk for increased BLLs, and BLLs of children with partial lead pipe replacement were not lower than those of children who lived in housing with a complete lead service line.

Water from systems that serve <25 persons and water from private drinking water wells is not regulated under the Safe Drinking Water Act, so LCR does not apply to these water sources, and they are not routinely tested for lead. Approximately 40–45 million people in the United States drink water that is not subject to the LCR regulations (64). The number of homes supplied by private wells or sources that serve <25 persons that have leaded plumbing, fixtures, or solder is unknown, as is the number of such homes that would benefit from appropriate corrosion control or water filtration at the point of use.

Since 1991, when LCR was finalized and enforced, tap water lead levels have substantially decreased (65). However, conditions still exist that could allow children to be exposed to water lead levels ≥ 15 ppb. Drinking water from systems with lead service lines that do not have optimized corrosion control might not be in compliance with LCR, which can result in this level of lead exposure. A system with lead service lines that is in compliance

with LCR can still expose children to lead levels ≥ 15 ppb because LCR permits $\leq 10\%$ of sampled homes to exceed the action level of 15 ppb. Optimized corrosion control also might not completely prevent lead in plumbing materials from dissolving into drinking water. Persons who drink water from these sources might be exposed to lead levels > 15 ppb.

Conclusion

Although EPA has the primary responsibility for ensuring the safety of drinking water, state and local childhood lead poisoning prevention programs are important partners in ensuring that the public is protected from lead exposure. These programs promote blood lead screening, conduct blood lead surveillance, provide clinician and public education and outreach, and provide case management for children with elevated BLLs. Because children with elevated BLLs might be exposed to many sources of lead, all sources of lead should be considered when their homes are inspected. Childhood lead poisoning prevention programs can obtain data on lead in public drinking water systems from the water suppliers (66). Drinking water in older housing should be tested as a source of lead exposure when the local drinking water system is not in compliance with LCR or when another source of lead exposure cannot be identified for children with high BLLs (67).

Data are not available to address certain issues regarding lead in drinking water. The effect of water lead levels on BLLs of children and other populations at risk for adverse effects is difficult to measure. Current water sampling protocols were designed to assess the adequacy of water treatment, not the level of human exposure to lead. Important fluctuations in water lead levels might be missed because of limitations inherent in sampling protocols developed for regulatory purposes. Future research efforts could validate the accuracy of sampling protocols for identifying fluctuations of lead concentrations, predicting exposure to lead at the individual level, and determining how best to measure lead concentrations in multifamily versus single-family homes, child-care centers, and school settings. As new alternatives to lead in plumbing are developed, they should be evaluated before being marketed. More research, surveillance, and intervention studies also are needed to determine the most effective ways to reduce the lead concentration of drinking water to meet the goal of eliminating high BLLs in children.

Childhood lead poisoning prevention programs routinely provide information on practices that minimize exposure to lead in water. This information can be updated with additional materials promoting lead-safe plumbing practices.

Training curricula for lead exposure assessment protocols and case-management guidelines for children with elevated BLLs should incorporate lead-safe water and plumbing information. Appropriate risk communication materials for water customers that are accurate and reflect specific language and cultural factors might be beneficial.

Partial lead service line replacement has been associated with short-term increases in lead levels in drinking water (65) and has not been found to decrease risk for BLLs ≥ 5 $\mu\text{g}/\text{dL}$ in children (62). These findings imply that the practice of partially replacing lead service lines as a method to comply with LCR should be reconsidered. One alternative is full replacement of lead service lines, regardless of whether the lead service line is owned by the water authority or the property owner. Lower BLLs could be achieved if plumbing components contained the lowest possible levels of lead and monitoring and enforcement activities were effective. Finally, information about lead in plumbing components, often available in tax assessor data, could be incorporated into information routinely provided to homebuyers or renters before they make the decision to buy or rent a property.

Since 1970, considerable reductions in lead concentrations have occurred in air, tap water, food, dust, and soil, which significantly reduced the BLLs of children throughout the United States. However, children are still being exposed to lead, and no safe blood lead threshold for children has been identified.

All sources of lead in the environments of children should be controlled or eliminated (2). For the many children living in housing built before 1978, lead sources include lead paint hazards as well as lead in plumbing components and fixtures. Children can still be exposed to tap water with lead levels of ≥ 15 ppb if they live in older homes that are more likely to have lead water pipes or fixtures. To prevent lead exposure from tap water, persons involved with childhood lead poisoning prevention programs should be familiar with communities having buildings at high risk for lead and monitor whether local water providers are in compliance with LCR (66). EPA is currently reviewing LCR, which provides an opportunity for continued collaboration between EPA and CDC that focuses on reducing the public health consequences of exposure to lead in water.

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From: Benzie, Richard (DEQ)
Sent: Wednesday, November 04, 2015 1:56 PM
To: Bloemker, Jon (DEQ); Busch, Stephen (DEQ); Donaldson, Kristina (DEQ); Lachance, Amy (DEQ); Philip, Kris (DEQ); Thomas, Chuck (DEQ)
Cc: Cook, Pat (DEQ); Shekter, Jean (DEQ); Gohlke, Holly (DEQ)
Subject: FW: HEADS-UP: Clarifications regarding the application of optimal corrosion control requirements of the lead and copper rule
Attachments: image2015-11-03-155158.pdf; ATT00001.txt

FYI. We can discuss this matter further at our upcoming FOS Managers meeting.

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

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

From: Hyde, Tinka [<mailto:hyde.tinka@epa.gov>]
Sent: Wednesday, November 04, 2015 11:26 AM
To: Willhite, Marcia; Dave.McMillan@illinois.gov; CLARK METTLER, MARTHA; Sygo, Jim (DEQ); Monosmith, Carrie (DEQ); Benzie, Richard (DEQ); randy.ellingboe@state.mn.us; mike.baker@epa.state.oh.us; ill.jonas@wisconsin.gov; Patrick.Stevens@Wisconsin.gov
Cc: Henry, Timothy; Poy, Thomas
Subject: HEADS-UP: Clarifications regarding the application of optimal corrosion control requirements of the lead and copper rule

Hi All - Please see the attached memo which provides important clarifications regarding the application of the optimal corrosion control requirements of the lead and copper rule when a large water system ceases to purchase treated water and switches to a new drinking water source. If you have any questions or concerns related to this memo, please contact me or have your staff contact Tom Poy, Chief of the of the Ground Water and Drinking Water Branch at poy.thomas@epa.gov. Thanks

Tinka G. Hyde
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

NOV 03 2015

MEMORANDUM

SUBJECT: Lead and Copper Rule Requirements for Optimal Corrosion Control Treatment for Large Drinking Water Systems

FROM: Peter C. Grevatt, Director
Office of Ground Water and Drinking Water 

TO: EPA Regional Water Division Directors, Regions I-X

This memorandum addresses certain concerns raised about the application of the 1991 Lead and Copper Rule, specifically the requirements pertaining to maintenance of optimal corrosion control treatment, in situations in which a large water system ceases to purchase treated water and switches to a new drinking water source. These concerns have been raised most recently in regard to the drinking water system in Flint, Michigan, where the water system was disconnected from the Detroit Water and Sewerage Department, which provided corrosion control treatment for Lake Huron source waters, and instead began distributing water from the Flint River. This type of situation rarely arises and the language of the LCR does not specifically discuss such circumstances. After reviewing the rule with our Office of General Counsel, it appears that there are differing possible interpretations of the LCR with respect to how the rule's optimal corrosion control treatment procedures apply to this situation, which may have led to some uncertainty with respect to the Flint water system. This memorandum clarifies how the LCR applies to this situation and eliminates the uncertainty for water systems and primacy agencies that may face these circumstances in the future.

It is important for large systems and primacy agencies¹ to take the steps necessary to ensure that appropriate corrosion control treatment is maintained at all times, thus ensuring that public health is protected. This memorandum focuses on those steps and clarifies, on a prospective basis, how EPA interprets the LCR corrosion control requirements and how primacy agencies should apply these requirements to large public water systems before, during and after making a significant change in source water, including switching from purchased water to a new source.

Under the LCR, all large systems (those serving more than 50,000 persons), whether purchasing water or not, must have completed a series of steps to either optimize the corrosion control treatment or be deemed to have optimal corrosion control treatment (OCCT) by 1998. 40 CFR 141.81. Key steps for

¹ The term "primacy agency" refers to the State, tribe or U.S. Environmental Protection Agency regional office having jurisdiction over, and primary enforcement responsibility for, a given public water system.

optimizing corrosion control include monitoring, corrosion control studies, installation of treatment, follow-up sampling and specification by the primacy agency of water quality parameters (WQPs) for monitoring corrosion control. The LCR requires any large system that has met the OCCT requirements through the installation of corrosion control treatment to continue operating and maintaining the treatment and to continue meeting the WQPs established by the primacy agency. 40 CFR 141.81(b) and 141.82(g). Systems deemed to have OCCT without the installation of corrosion control treatment are not subject to this requirement. However, they are required to notify the primacy agency in writing of any upcoming changes in treatment or source and request that the primacy agency modify its determination of the OCCT and WQPs applicable to the system. The primacy agency must then review and approve the change and designate OCCT and WQPs prior to its implementation by the system. 141.81(b)(3). Similarly, systems subject to reduced monitoring or monitoring waivers must notify the primacy agency of any upcoming changes in treatment or source and the primacy agency must subsequently review and approve it. EPA recommends that systems that are not subject to a notification requirement also notify the primacy agency prior to the addition of a new source or treatment and request the primacy agency to modify its determination of the optimal corrosion control and WQPs applicable to the system.

Due to the unique characteristics of each PWS (e.g., source water, existing treatment processes, distribution system materials) it is critical that public water systems, in conjunction with their primacy agencies and, if necessary, outside technical consultants, evaluate and address potential impacts resulting from treatment and/or source water changes. It is also critical for public water systems to conduct ongoing monitoring to ensure compliance with OCCT prior to, during and after a source or treatment change. The rearrangement of a system's existing configuration may trigger the need for OCCT adjustments and establishment of appropriate WQPs. Primacy agencies should work with systems that plan to disconnect from a supplier that had installed corrosion control treatment to determine the OCCT for the new source and establish WQPs for that treatment instead of using the OCCT and WQPs established for the previous source. This will allow a system that ceases to purchase treated water to stay in compliance with any applicable requirements pertaining to OCCT and ensure protection of public health during and after the change in source. EPA has developed a guidance manual² specifically focusing on evaluation of corrosion control treatment options and optimization of full-scale treatment to assist water systems and primacy agencies with these efforts. EPA is currently preparing an updated version of the manual, which we anticipate will be released in February 2016.

The key to identifying and mitigating potential problems is to ensure effective collaboration between the public water system and the primacy agency. Corrosion control treatment can come in many forms. For this reason, it is important to conduct a system-wide assessment prior to any source water and/or treatment modifications and to identify existing or anticipated water quality, treatment or operational issues that may interfere with or limit the effectiveness of corrosion control treatment optimization or re-optimization.

If you have additional questions or concerns, please contact me or have your staff contact Maria Lopez Carbo, Chief of the Protection Branch, in the Office of Ground Water and Drinking Water, at lopez-carbo.maria@epa.gov.

²U.S. Environmental Protection Agency. *Lead and Copper Rule Guidance Manual, Volume II: Corrosion Control Treatment*. Office of Water. EPA 811-B-92-002. 1992. Available at: <http://nepis.epa.gov/Exe/ZyPDF.cgi?DocId=91019DM4.txt>.

From: Shekter Smith, Liane (DEQ)
Sent: Friday, November 13, 2015 3:58 PM
To: Shekter, Jean (DEQ)
Subject: Draft sampling protocol for schools
Attachments: Working Draft - DEQ Collecting Water Samples at Schools 11-6-15.docx

FYI – as requested. Mike has a hard copy for you.

DRAFT – WORK IN PROGRESS
Protocol for Collecting Water Samples at Schools for Lead Analysis

The following is the procedure being used by the Michigan Department of Environmental Quality to ensure samples from schools on city of Flint water are collected in a systematic, consistent manner to provide meaningful results. By following the below procedures school and health officials will have information to be able to identify and correct sources that contribute lead into drinking water. The procedures being used are:

- With the assistance from Department of Licensing and Regulatory Affairs (LARA) staff, conduct an on-site assessment of the building plumbing to identify plumbing components of concern and prioritize sample sites.
- DEQ and LARA staffs collect the samples from prioritized sites and in the sequence recommended by LARA.
- Submit the samples and appropriate paperwork to the DEQ Drinking Water Laboratory.
- Laboratory performs analysis and informs DEQ (ODWMA) staff of the results.
- DEQ informs DHHS of test results, and they jointly interpret the results.
- DHHS and DEQ staff relays the results to school officials and confers on any follow-up or corrective remedies that may be needed.

Step 1 – Prepare for On-Site Assessment

In order to assist LARA staff to identify and prioritize sample sites, school staff are being asked to compile, collect, and review any records pertaining to the building plumbing. This includes building permits, plumbing permits, as built plans, and information about the service line and all potable water pipes, fixtures and appurtenances within the building. At a minimum, a diagram of each floor layout should be provided. In addition, answers to the following questions will help streamline the on-site assessment process.

- When was the facility built?
- Have new buildings or additions been added? If so, when were they added? If built since 1986, were lead-free plumbing and solder used?
- When were the most recent plumbing repairs made and where were they located?
- What are the potable water pipes in the facility made of and what is their location? Options include: lead, brass, copper, plastic, galvanized metal and other materials. What materials were used to solder the potable water pipes in the system? Are brass taps, fittings or valves used? Note the locations.
- How many of the following outlets provide water for consumption: Bubblers, ice makers, water coolers and kitchen taps. Note their location. Include taps that might be used for making coffee or preparing formula.

- What brands and models of water coolers (cooled drinking fountains) provide water in the facility and what is their location?
- Do faucets have accessible screens and have they been cleaned?
- Can you detect any signs of corrosion, such as leaks, rust-colored water or stains?
- Is any electrical equipment grounded to water pipes?
- Are there any records of previous water testing?

Step 2 – LARA Arranges for On-site Plumbing Assessment

LARA staff will contact school officials/staff and set a date and time for the assessment. A school representative familiar with the building layout and plumbing system should accompany LARA staff as they conduct the assessment. A room reserved for records review should also be available. If possible, a DEQ staff person will also accompany and assist LARA staff performing the on-site plumbing inspection.

As part of the on-site assessment, LARA staff should identify if there is any water treatment being done in the building, i.e., point of use (POU) or point of entry (POE).

Step 3 – LARA Prioritizes Sample Sites and Sampling Sequence

This protocol is for all faucets, taps and outlets that are used regularly by students and staff for drinking, cooking, making coffee or food preparation to be sampled. Sampling locations include:

- Drinking Fountains (both bubblers and water cooler style).
- Kitchen Sinks, faucets or taps.
- Breakroom, classroom, teachers' lounge or other sinks known to be or visibly used for consumption (water glasses or coffeemaker and/or cups are nearby).

LARA staff will assign a sample site Identification (ID) number for each sample site and will determine the order in which each site is to be sampled. The ID number will reflect the type of tap/outlet and location. Each sampling location will be documented with digital photos, if possible. Staff should record any model number of faucets, valves, etc. that are accessible to inspection. If potential brass devices are seen they should be noted.

To determine the sampling sequence, LARA staff will identify the site closest to the service line to be collected first. LARA staff will then determine the appropriate sequence/order to sample each outlet beginning closest to the water main and continuing out farther from the service line until the site the farthest away is sampled last. This will minimize the chance that the piping may be flushed by a downstream or other sample location prior to collecting the samples at that site.

LARA staff will also identify any water coolers that should have been removed under the Lead Contamination Control Act (LCCA) in 1988. The LCCA mandated the repair, replacement or recall and refund of drinking water coolers with lead-lined water tanks. LARA staff will confirm that there are no recalled water coolers on-site. Any coolers that should have been removed will be marked for removal or replacement.

Step 4 - Labeling the Sample Sites and Preparing Labels for the Bottles

Coding Scheme for Water Outlets

A drinking water bubbler (DW) that was the 15th outlet counted, might be coded as follows.

- DW-015
- DW= drinking water bubbler
- WC = water cooler (chiller unit)
- CF = classroom faucet
- KC = kitchen faucet, cold
- KH = kitchen faucet, hot
- EC = home economics room, cold
- EH = home economics room sink, hot
- BF = bathroom faucet
- NS = nurse's office sink
- SC = service connector

In addition to the unique outlet code, a unique sample identifier is necessary since four samples will be taken from each outlet.

For example, the first draw (P1) and flush (F01) samples taken for the above outlet would be DW-015-P1, and DW-015-F01.

- P = primary (first draw) sample – P1 and P2
- F = flush
- 01 = first flush sample at 30 seconds
- 02 = second flush sample at 2 minutes

Step 5 – Prior to Sample Collection

Once LARA staff has labeled each outlet, school personnel should ensure that the labels are maintained. Even after the initial sampling, it will be important to keep a record of each tap designation so that any future or follow-up sampling can be correlated to the correct outlet. Digital photos will assist with this if necessary.

Also, since drinking water has not been consumed from taps within the school buildings for several weeks, it is important to flush the taps the day prior to the sampling. For purposes of these sampling events, at the time of the on-site assessment LARA staff will ensure that each sampling location is run for two minutes to clear the faucet. This should be sufficient as long as the sampling teams are scheduled to arrive the next day to collect samples.

Each outlet should be labeled and posted **“DO NOT USE”** so that no water is used before sampling occurs. The sample sequence will be determined by LARA so that sampling will occur closest to the water main/service line provided by the city.

Step 6 – Collect the Samples

After the sites and order of collection have been determined by LARA staff, and the taps flushed, samples will be collected the next day by DEQ and LARA staff. School personnel will be notified to ensure water is not used in the building. (Scheduling for sampling should confirm that there are no evening activities in the building or on-site the night before sampling). In addition, no outlets or water should be used in the building until sampling is completed. Use of bathrooms, etc. could draw fresh water through the piping system and alter the effects of stagnation.

A team of 3 is used for each sample collection location. Each team consists of one DEQ staff to keep water flowing/shut off at appropriate times and maintain pencil stream flow, plus one DEQ staff to collect the water samples, and one LARA inspector to ensure the proper order of unique sample locations and to keep official time for flushing periods. DEQ staffs will ensure accurate completion of labeling sample bottles and the Request for Analysis forms.

Arrange ahead of time to utilize a rolling cart for transporting sample units and water samples during the sampling event. After sampling has been completed, transport the samples from the rolling cart to the staff vehicle and return the rolling cart to the building. Staff may need to bring a folding wheeled cart if an on-site rolling cart is not available.

Sampling containers will be provided by the DEQ Drinking Water Laboratory.

1. Four samples will be collected from each designated sample site. There will be four 125 milliliter (ml) samples collected at each outlet. Sample units for this evaluation/survey will be designated 32CC.
2. Collect all water samples before proceeding with normal use of the water supply. Ideally, the water should sit in the pipes unused for at least 8 hours but not more than 18 hours before a sample is collected.
3. Notes should be taken at each sampling location regarding any treatment device that may be present (e.g., is there an in-line filter at that location) and whether the outlet/tap has an aerator present. Document other noteworthy items for each location such as leaky faucet, rust stained sink, etc.
4. Do not remove the aerator if there is one.
5. The four samples from each site are to be collected as follows: 2 – consecutive first draw samples, after a 30 second flush, and a 2 minute flush as follows:

- a. Before beginning the sampling process, write on each sample bottle's green label an identification code according to the sample tap coding, and type of sample collected (i.e. P1, P2, F01, F02) using a black Fine Point Sharpie permanent marker. To ensure clarity for the DEQ lab data coders draw a slash mark through each zero, the number one is a straight vertical line (no hat or foot), and cross each number seven.
 - b. Next, using a red Sharpie permanent marker, write '1' on the white cap of the sample unit marked as P1; write '2' on the cap of the unit marked as P2; write '3' of the cap for the unit marked as F01, and write '4' on the cap of the unit marked as F02.
 - c. The Request for Analysis forms will be pre-populated with necessary account billing number, name of building, school or owner, address and parameter to be tested. Each team must fill in the Date Collected, Time, Sampling Point (unique outlet location code provided by LARA), and Site Code (unique sample identifier [P1, P2, F01, F02]) using a pen, pencil or black Sharpie. If the testing parameter is not already populated for Lead and Copper analyses, mark as 32CC for the 125 ml sampling units.
 - d. Make sure to collect the water samples in this order: "P1" for the very first-draw, P2 as the second first-draw, F01 immediately following a 30 second flush period, and F02 immediately following a 2 minute flush period.
 - e. After the appropriate 8 – 18 hour stagnation time, place the first bottle under the tap, open the tap to produce a slow, steady "pencil thin" flow and fill the first bottle (P1) to the appropriate level and immediately fill a second bottle (P2) without a break in stream (do not turn off the tap between the first and second bottle and do not allow water to run down the drain in between the first and second bottle).
 - f. Turn off tap. Cap each sample unit checking to make sure to match P1 unit to '1' white cap, P2 unit to '2' white cap.
 - g. Turn on tap as before and after 30 seconds, fill the third bottle marked F01.
 - h. Turn off tap. Cap the sample unit checking to make sure the lid matches the third sample.
 - i. Turn on tap as before and after 2 minutes, fill the fourth bottle marked F02.
 - j. Turn off tap. Cap the sample unit checking to make sure the lid matches the fourth sample.
6. Secure the appropriate request for water analysis form to the appropriate bottle (refer to the example bottle provided for "instructions") with a rubber band.
 7. Bundle the four samples collected at each individual sampling location (after the proper paperwork has been banded to each bottle) and secure the four samples together with a single rubber band.
 8. Place each bundle of four samples in the plastic tub.
 9. Collect the remainder of the samples from all designated sites in the pre-determined order as recommended by LARA.

How to Collect an Initial (First Draw) Sample (P1 and P2)

- Wash hands off site prior to sample collection to ensure cross contamination does not take place during the sampling event.
- Complete the Request for Analysis Form accompanying the sample units. For some events this form may have many fields already populated.
- Only use 125 milliliter (ml) Unit 32CC sample containers-labeled for use specifically for lead and copper (CCUB) supplied by the DEQ Drinking Water Laboratory.
- Make sure the 125 ml container is labeled with the same sample location information as that recorded on the Request for Analysis form.
- Record the sample collection location code and any other pertinent identification (i.e. P1, P2) on the label of the 125 ml Unit 32CC sample using a fine point black Sharpie permanent marker.
- Each sample unit should not be uncapped until it is time to collect the water sample.
- Sampling units that have been compromised in any way, e.g., by being touched on the threads or the interior surfaces, must not be used.
- Keep food and drink away from the water sample collection area and its container (sample unit). {10/24/2015 sample team rule: no food or drink during the event}
- Make sure no water has been withdrawn from the tap or water fountain before you collect the sample.
- If a sink faucet is being sampled, ensure only the cold water is allowed to flow.
- If a drinking water bubbler is being sampled, place good effort to first estimate the anticipated path of the water stream, then immediately adjust the sample catch to fill the 125 ml container after the flow begins.
- Remove the cap and place the bottle under the faucet or drinking water fountain that is being tested before water starts flowing from the tap.
- Turn on the water and fill the 125 ml bottle without allowing any water to run down the drain.
- If collecting two consecutive first draw samples (P1, P2), fill the first unit labeled as P1, and then immediately fill the second sample unit labeled as P2 without allowing any water to flow down the drain.
- Turn off water when the 125 ml sample unit has been filled to the neck and immediately secure the cap(s) to the container(s).
- If collecting multiple samples from the same sink faucet or drinking water bubbler (first draw(s), 30 second, 2 minute flushing), using a red Sharpie permanent marker, label the cap with "1" for the first first-draw sample (a.k.a P1), and a number "2" for the second first-draw sample (a.k.a P2). Subsequent samples are labeled on the caps as 3 and 4.
- Fold and then wrap the Request for Analysis form to the corresponding sample unit securing the paper around the unit with a rubber band.

- If multiple samples from the same sink faucet or drinking water bubbler are collected, group all samples from that same sample location with a rubber band.

How to Collect Flush Samples

Before the first flush sample is collected, allow the water to run down the drain for 30 seconds. Then collect a sample using the same protocol as above. Do not turn off the tap or adjust the flow of water between the "flush" and collecting the sample. Mark the cap of the sample unit "3" using a red Sharpie permanent marker.

Before the second flush sample is collected, allow the water to run down the drain for 2 minutes. Then collect a sample using the same protocol as above. Do not turn off the tap or adjust the flow of water between the "flush" and collecting the sample. Mark the cap of the sample unit "4" using a red Sharpie permanent marker.

Group all four samples together with their individual Request for Analysis forms attached using a rubber band and place in the plastic tub for transport back to the DEQ laboratory.

Step 7 – Consecutive/Sequential Samples

Once all 125 ml samples have been obtained, sampling will begin to collect ten consecutive/sequential 1 liter samples at three locations.

Depending on the number of sampling taps in the building, select three locations as follows:

1. For a location close to the water main service: choose an outlet that is within 5 taps away from the water main.
2. For a mid-point location: choose an outlet this is within +/- 5 taps in the middle of the longest pipe run. This may or may not be the mid-point of a building or floor.
3. For an endpoint tap: select an outlet that is 2 to 4 taps from the identified end of the plumbing pipe run.

Consecutive/Sequential samples should be labeled as follows:

1. Samples taken at the closest tap to the water main should be labeled using "A" along with the appropriate sample number along with the tap identifier used previously for that location. For example, the first consecutive sample at the closest location to the water main would be "A1" and the sample would be identified as CF-015-A1.
2. Samples taken at the mid-point tap location should be labeled using "B" along with the appropriate sample number along with the tap identifier. For example, the first consecutive sample taken at the mid-point location would be "B1" and the sample would be identified as CF-015-B1.
3. Samples taken at the endpoint tap location should be labeled using "C" along with the appropriate sample number along with the tap identifier. For example, the first consecutive sample taken at the mid-point location would be "C1" and the sample would be identified as CF-015-C1.

At each sampling location, the procedure to collect ten consecutive/sequential 1 liter samples is as follows. Remember to adjust the numbering protocol (A, B, or C) depending on the sampling location:

1. Assemble 10 1-liter 36CC sampling units labeling with a Sharpie marker on the neck or bottle cap to indicate order of collection (example: A1, A2, A3 A10 for the first set; B1, B2, B3 ... B10 for the second set, etc.).
2. Complete the Request for Analysis form for each bottle using test code 36CC.
3. Begin sampling the first liter bottle similar to a first draw sample.
4. Fill ten 1 liter bottles consecutively without letting the water run down the drain.
5. Wrap each request for water analysis form around the appropriate bottle and use a rubber band to secure it.
6. Place each bottle with their individual Request for Analysis forms attached in the plastic tub for transport back to the DEQ Drinking Water Laboratory.
7. Deliver the sample bottles to the DEQ Drinking Water Laboratory.

Step 8 - Laboratory Performs Analysis

Samples delivered to the DEQ Drinking Water Laboratory will be analyzed in accordance with the Laboratory Services Standard Operating Procedure Document SOP #800 Revision #4 Effective Date 10/2015.

Applicable analytical methods will be in accordance with the Method for Determination of Metals in Environmental Samples, Supplement I, U.S. Environmental Protection Agency, Method 200.8, 1999 Revision 5.5.

All Method Detection Limits shall be performed according to the Code of Federal Regulations, Title 40, Part 136, Appendix B.

Analytical quality control will be in accordance with SOP #800 Revision #4.

Step 9 – Laboratory reports results to DEQ – ODWMA and DHHS staff

From: Devereaux, Tracy Jo (DEQ)
Sent: Friday, November 20, 2015 3:52 PM
To: Shekter Smith, Liane (DEQ);Shekter, Jean (DEQ)
Cc: Philip, Kris (DEQ);Benzie, Richard (DEQ)
Subject: Resident Sampling Instructions
Attachments: Resident Sampling Instructions.docx

Latest round of residential sampling form for comments, etc.

DRINKING WATER LEAD AND COPPER SAMPLING INSTRUCTIONS

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Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. This sampling effort is required by the U.S. Environmental Protection Agency and the Michigan Department of Environmental Quality, and is being accomplished through the cooperation of homeowners and residents.

It is important that you follow these instructions so that we may collect an accurate measurement of the lead and copper in your drinking water. This sample is supposed to represent the water you would typically drink and the faucet from where you would drink the water. Call your water supply if you have any questions.

1. A sample is to be collected after water has been sitting in the pipes for an extended period of time (i.e., no water use during this period). A minimum 6-hour period during which there is no water use from that tap must be achieved prior to sampling. We do not recommend sampling if the faucet has sat idle for more than 12 hours. If the faucet has been idle more than 18 hours, the sample may not be analyzed.

Due to this requirement, either early mornings or evenings upon returning from work are the best times for collecting samples. The collection procedure is described in more detail below.

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2. Select a faucet in the **KITCHEN** or **BATHROOM** that is commonly used for drinking. **DO NOT** sample from a laundry sink or a hose spigot as these samples cannot be used by your utilitywater supply.

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3. ~~A minimum 6-hour period during which there is no water use from that tap must be achieved prior to sampling. We do not recommend sampling if the faucet has sat idle for more than 12 hours. If the faucet has been idle more than 18 hours, the sample may not be analyzed.~~

4. If you have a single handle faucet, turn it to the **COLD** side. Place the sample bottle (open) below the faucet and gently open the cold water tap. Fill the sample bottle to the neck of the bottle with the "first draw" of **COLD** water.

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5. Tightly cap the sample bottle and place in the sample kit provided. Please review the sample kit label at this time to ensure that all information contained on the label is correct.

6. Answer the questions on the back of this form and remember to sign the form.

7. Attach this form to the bottle and leave it outside your front door for pick-up.

8. Thanks you again for your help. We will send you the results within 30 days of receiving them. Information on this year's lead and copper monitoring will be printed in the Consumer Confidence Report that will be made available to you by July 1 of next year. Contact your utilitywater supply if you have any questions.

If you have any questions call:

Water Supply:

Manager or

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Water Operator: _____

Phone: _____

Or Contact:
Michigan Department of Environmental Quality

DEQ Contact: _____

Phone: _____

TO BE COMPLETED BY RESIDENT

A. Which faucet did you use to fill the bottle?

☐ Kitchen ☐ Main bathroom ☐ Other

If OTHER, please describe:

B. When was the faucet last used before sampling?

_____ Date _____ TIME _____ AM/PM

C. When did you fill the bottle?

_____ DATE _____ TIME _____ AM/PM

D. Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? YES NO

If YES, please describe:

E. If any plumbing repairs or replacement has been done in the home since the previous sampling event, please note this information here:

If YES, please describe:

I have read the Drinking Water Lead and Copper Sampling Instructions and have taken a tap sample in accordance with these directions.

Signature _____

Date _____

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From: Shekter Smith, Liane (DEQ)
Sent: Monday, November 23, 2015 9:13 AM
To: Devereaux, Tracy Jo (DEQ); Shekter, Jean (DEQ)
Cc: Philip, Kris (DEQ); Benzie, Richard (DEQ)
Subject: RE: Resident Sampling Instructions
Attachments: Resident Sampling Instructions.docx

Revised doc is attached.

From: Devereaux, Tracy Jo (DEQ)
Sent: Friday, November 20, 2015 3:52 PM
To: Shekter Smith, Liane (DEQ); Shekter, Jean (DEQ)
Cc: Philip, Kris (DEQ); Benzie, Richard (DEQ)
Subject: Resident Sampling Instructions

Latest round of residential sampling form for comments, etc.

DRINKING WATER LEAD AND COPPER SAMPLING INSTRUCTIONS

Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. This sampling effort is required by the U.S. Environmental Protection Agency and the Michigan Department of Environmental Quality, and is being accomplished through the cooperation of homeowners and residents.

It is important that you follow these instructions so that we may collect an accurate measurement of the lead and copper in your drinking water. This sample is supposed to represent the water you would typically drink and the faucet from where you would drink the water. Call your water supply if you have any questions.

1. A sample is to be collected after water has been sitting in the pipes for an extended period of time (i.e., no water use during this period). A minimum 6-hour period during which there is no water use from that tap must be achieved prior to sampling. We do not recommend sampling if the faucet has sat idle for more than 12 hours. If the faucet has been idle more than 18 hours, the sample may not be analyzed.

1. Due to this requirement, either early mornings or evenings upon returning from work are the best times for collecting samples. The collection procedure is described in more detail below.

2. Select a faucet in the **KITCHEN** or **BATHROOM** that is commonly used for drinking. **DO NOT** sample from a laundry sink or a hose spigot as these samples cannot be used by your water supply.

3. If you have a single handle faucet, turn it to the **COLD** side. Place the sample bottle (open) below the faucet and gently open the cold water tap. Fill the sample bottle to the neck of the bottle with the "first draw" of **COLD** water.

4. Tightly cap the sample bottle and place in the sample kit provided. Please review the sample kit label at this time to ensure that all information contained on the label is correct.

5. Answer the questions on the back of this form and remember to sign the form.

6. Attach this form to the bottle and leave it outside your front door for pick-up.

7. Thank you again for your help. We will send you the results within 30 days of receiving them. Information on this year's lead and copper monitoring will be printed in the Consumer Confidence Report that will be made available to you by July 1 of next year. Contact your water supply if you have any questions.

If you have any questions call:

Water Supply: _____

Manager or

Water Operator: _____

Phone: _____

Or Contact:

Michigan Department of Environmental Quality

DEQ Contact: _____

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3, ... + Start at: 1 + Alignment: Left + Aligned
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Phone: _____



TO BE COMPLETED BY RESIDENT

A. Which faucet did you use to fill the bottle?

☐ Kitchen ☐ Main bathroom ☐ Other

If OTHER, please describe:

B. When was the faucet last used before sampling?

Date _____ TIME _____ AM/PM

C. When did you fill the bottle?

DATE _____ TIME _____ AM/PM

D. Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? YES NO

If YES, please describe: _____

Note: If you have a home treatment device OR any kind of additive is used in the home, it's possible we might not analyze your sample or be able to use your sample for compliance purposes.

E. If any plumbing repairs or replacement has been done in the home since the previous sampling event, please note this information here:

If YES, please describe: _____

I have read the Drinking Water Lead and Copper Sampling Instructions and have taken a tap sample in accordance with these directions.

Signature _____

Date _____

From: Devereaux, Tracy Jo (DEQ)
Sent: Monday, November 23, 2015 10:04 AM
To: Philip, Kris (DEQ);Shekter, Jean (DEQ);Benzie, Richard (DEQ);Shekter Smith, Liane (DEQ)
Subject: Resident Sampling Instructions-11-23-2015
Attachments: Resident Sampling Instructions-11-23-2015.docx

Updated with Jean/Kris comments incorporated.

DRINKING WATER LEAD AND COPPER SAMPLING INSTRUCTIONS

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Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. This sampling effort is required by the U.S. Environmental Protection Agency and the Michigan Department of Environmental Quality, and is being accomplished through the cooperation of homeowners and residents.

It is important that you follow these instructions so that we may collect an accurate measurement of the lead and copper in your drinking water. This sample is supposed to ~~should~~ represent the water you would typically drink and the faucet from where you would drink the water. Call your water supply if you have any questions.

~~1. Water must sit idle in the pipes for an extended length of time before sampling. A sample is to be collected after water has been sitting in the pipes for an extended period of time (i.e., no water use during this period). Therefore, do not use any water for at least 6 hours before sampling. We do not recommend sampling if the water has sat idle for more than 12 hours. A minimum 6-hour period during which there is no water use from that tap must be achieved prior to sampling. We do not recommend sampling if the faucet has sat idle for more than 12 hours. If the faucet has been idle more than 18 hours, the sample may not be analyzed because it does not represent typical daily use.~~

1. The best times to sample are early morning or after returning from work. Due to this requirement, either early mornings or evenings upon returning from work are the best times for collecting samples. The collection procedure is described in more detail below.

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2. Select a faucet in the **KITCHEN** or **BATHROOM** that is commonly used for drinking. **DO NOT** sample from a laundry sink or a hose spigot as these samples cannot be used by your water supply for compliance.

3. If you have a single handle faucet, turn it to the **COLD** side. Place the open sample bottle (~~open~~) below the faucet and gently open the cold water tap. Fill the sample bottle to the neck of the bottle with the "first draw" of **COLD** water.

4. Tightly cap the sample bottle and place in the sample kit provided. Please ~~r~~Review the sample kit label at this time to ensure that all information contained on the label is correct.

5. Answer the questions on the back of this form and remember to sign the form.

6. Attach this form to the bottle and leave it outside your front door for pick-up.

7. Thank you again for your help. We will send you the results within 30 days of receiving them. Information on this year's lead and copper monitoring will be printed in the Consumer Confidence Annual Water Quality Report that will be made available to you by July 1 of next year. Contact your water supply if you have any questions.

Water Supply: _____

If you have any questions call:

Manager or
Water Operator: _____
Phone: _____
Or Contact:

Michigan Department of Environmental Quality
DEQ Contact: _____
Phone: _____



TO BE COMPLETED BY RESIDENT

A. Which faucet did you use to fill the bottle?

☐ Kitchen ☐ Main bathroom ☐ Other

If OTHER, please describe:

B. When was the faucet last used before sampling?

Date _____ TIME _____ AM/PM

C. When did you fill the bottle?

DATE _____ TIME _____ AM/PM

D. Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? YES NO

If YES, please describe: _____

Note: If you have a home treatment device OR any kind of additive is used in the home, it is possible we might not analyze your sample or be able to use your sample for compliance purposes.

E. If any plumbing repairs or replacement has been done in the home since the previous sampling event, please note this information here:

If YES, please describe: _____

I have read the Drinking Water Lead and Copper Sampling Instructions and have taken a tap sample in accordance with these directions.

Signature _____

Date

From: Shekter Smith, Liane (DEQ)
Sent: Monday, November 23, 2015 1:15 PM
To: Philip, Kris (DEQ); Shekter, Jean (DEQ); Benzie, Richard (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: FW: Flint Task Force Comments on MDEQ Residential Sampling Instructions
Attachments: Task Force Comments on MDEQ Residential Sampling Instructions 11-20-15.pdf; ATT00001.htm

FYI – we'll need to address these comments in the document that we were reviewing this morning.

From: Sygo, Jim (DEQ)
Sent: Monday, November 23, 2015 1:06 PM
To: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: Fwd: Flint Task Force Comments on MDEQ Residential Sampling Instructions

EPA comments for tomorrow's phone call.

Sent from my iPhone

Begin forwarded message:

From: "Kaplan, Robert" <kaplan.robert@epa.gov>
Date: November 23, 2015 at 12:40:59 PM EST
To: "Sygo, Jim (DEQ)" <Sygoj@michigan.gov>
Subject: Flint Task Force Comments on MDEQ Residential Sampling Instructions

Jim,

Thanks for the opportunity to comment on the MDEQ Flint Residential Sampling Instructions. Attached please find the Task Force comments.

- Bob

Flint Drinking Water Task Force (FTF 15-2)

Task Force Comments on Flint's Residential Drinking Water Lead & Copper Sampling Instructions

EPA received the draft of Flint's Residential "Drinking Water Lead & Copper Sampling Instructions" for comment from Jim Sygo, MDEQ, on November 13, 2015. Below are comments from EPA's Flint Safe Drinking Water Task Force.

General

It should be clearly stated that these sampling instructions are for LCR compliance monitoring – from now on without the pre-flushing.

Specific Comments

1. The Task Force agrees with the removal of pre-flushing.
2. In the "Dear Resident" cover paragraph, we suggest changing the text "...provide a more accurate gauge of the amount of lead exposure...", because though this is a much better representation of the water intended to be captured by the LCR, it DOES NOT REPRESENT EXPOSURE. We suggest: "The new method is designed to provide a more accurate gauge of lead levels at the tap under normal household use using the current regulatory sampling requirements." We recommend that when the residents are sent their results, that it includes an explanation that the result does not represent lead exposure and that first draw samples have been found to underestimate lead levels in direct contact with a lead service line. It is recommended that customers continue to use the water filters that have been provided to minimize lead exposure.
3. Item 1 needs to require that samples be unfiltered/untreated. Samples may be taken from either a kitchen or bathroom faucet commonly used for drinking, provided the faucet used has no filter attached or the filter has been bypassed. Instructions need to be provided on how to bypass the faucet mount filters that have been distributed. Other home treatment devices must be bypassed too. If the resident has questions about how to bypass a treatment device, they should call the water supply.

Depending on which Flint and MDEQ feel would be more easily understood by residents, the following are two potential alternatives to current Item 1 that would ensure only untreated/unfiltered samples are collected:

Alternative 1

Select an unfiltered/untreated faucet in the KITCHEN or BATHROOM that is commonly used for drinking. DO NOT use a faucet that has a filter attached to it unless you bypass the filter. DO NOT use a faucet that is connected to a home water treatment device (like a water softener, iron filter, reverse osmosis) unless you bypass the home water treatment device. DO NOT sample from a laundry sink or a hose spigot as these samples cannot be used by your utility.

Flint Drinking Water Task Force (FTF 15-2)

Alternative 2

1. Does the kitchen tap have a faucet mount filter or a reverse osmosis unit on it? If NO, go to 1a. If YES, go to 1b.
 - a) Select a faucet in the KITCHEN or BATHROOM that is commonly used for drinking. DO NOT use a faucet that is connected to a home water treatment device (like a water softener, iron filter, reverse osmosis) unless you bypass the home water treatment device. DO NOT sample from a laundry sink or hose spigot as these samples cannot be used by your utility.
 - b) Select a BATHROOM faucet that is commonly used and does not have a treatment device attached to it. DO NOT use a faucet that is connected to a home water treatment device (like a water softener, iron filter, reverse osmosis) unless you bypass the home water treatment device. DO NOT sample from a laundry sink or hose spigot as these samples cannot be used by your utility.

There should be a question on the form asking if the resident has installed a faucet mount filter, so this can be recorded (see suggested change to 4C in comment 6 below). [Note: Installing the faucet mount filter would require the removal of the faucet's aerator. Does MDEQ know if the faucet mount filters being used have an aerator screen in the unit?]

4. On Item 2, the LCR currently has no upper limit on standing time, and we have published research data showing that under normal usage conditions, lead release may not have even reached equilibrium at 12 hours. The minimum of 6 hours stagnation time is used rather than a longer time so as not to discourage people from volunteering to take lead and copper samples. Therefore, for consistency with the text of the rule, we recommend just leaving it at "Wait at least 6 hours..." We understand it's not useful to collect from totally inappropriate conditions, such as vacant houses and immediately after extended vacations, but the introductory paragraph clarifies that it represents the water they would "typically drink." If it is necessary to have a maximum stagnation time, then we recommend that you use a maximum of 24 hours which is consistent with the approach that was discussed with the National Drinking Water Advisory Council Working Group as an option in 2014.

5. Again in Item 2, there must be an instruction to not use the water anywhere in the house during the stagnation period. Depending on the house plumbing configuration and pipe inside diameter (ID), using other taps, toilets, bathtubs, dishwashers, etc. may draw water from the zone of plumbing captured in a 1 liter sample. That will usually cause a low bias to the results, by bringing in fresh water. Only rarely is LSL water brought precisely into that volume captured by the sample. So, instructions need to be clear about no water use in the house.

6. Recommended language for Item 4C (for inventory purposes and to verify that the sample was unfiltered/untreated):

- Does this faucet have a faucet mount filter such as the lead filters provided to the community? Yes/No

Flint Drinking Water Task Force (FTF 15-2)

- If Yes, was the faucet mount filter bypassed during the sampling? Yes/No
- Is this faucet connected to a reverse osmosis unit? Yes/No
 - If Yes, was the reverse osmosis unit bypassed during the sampling? Yes/No
- Does the house have a home treatment device, such as a water softener or iron removal device or any other type of water treatment? Yes/No
 - If Yes, please describe _____
 - Was this home treatment device in use during sampling or the day before sampling? Yes/No

7. In our experience, and in the experience of other utilities who try to use the LCR monitoring data to assess effectiveness of their treatment for the control of lead release, the form should ask for the resident to note the approximate time of last use of that faucet from which the sample is taken, as well as the time the bottle is filled. Since the typical 6-12 hour period is not really at equilibrium in most cases, soluble lead could differ by a substantial amount from a 6 hour standing sample to, say, a 10 or 12 hour standing sample. When interpreting the data, that is good to know.

8. Not covered by the questions, but a recommendation we need to make, is to suggest that there is good research evidence that higher flow rates are the typical conditions for when consumers turn their faucets on. More particulate lead can be eroded in some circumstances, so using a wide-mouth bottle allows a much more representative sample to be collected for the conditions of consumer use. Our understanding is that MDEQ furnishes the bottles, so we recommend to change the type of bottle provided. The furnished bottles with the smaller mouth can only be filled without splashing at flow rates that are much lower than what someone normally uses to fill glasses, coffee pots, pots for cooking, etc.

These changes should be made to all of the sampling recommendations or instructions from MDEQ to all systems, not just Flint.

From: Shekter Smith, Liane (DEQ)
Sent: Friday, December 04, 2015 8:09 AM
To: Benzie, Richard (DEQ); Busch, Stephen (DEQ); Philip, Kris (DEQ); Shekter, Jean (DEQ)
Cc: Devereaux, Tracy Jo (DEQ)
Subject: Proposed Sampling Instructions
Attachments: Resident Sampling Instructions-12-3-2015.docx

Attached are revised sampling instructions. This document would be our new recommendations for supplies to provide to homeowners. We've incorporated EPA's most recent comments. Please review and provide any comments/suggestions by 11am. Thanks.

From: Devereaux, Tracy Jo (DEQ)
Sent: Friday, December 4, 2015 8:02 AM
To: Shekter Smith, Liane (DEQ)
Subject: RE: In late...

Is that different than the resident sampling instructions you wanted edited? Those are done (attached) if you need them.

Thanks,
Tracy Jo

From: Shekter Smith, Liane (DEQ)
Sent: Friday, December 04, 2015 8:00 AM
To: Devereaux, Tracy Jo (DEQ); Shaler, Karen (DEQ); Sygo, Jim (DEQ)
Subject: In late...

I just got a phone call that my hygienist called in sick, so my dentist appointment needs to be rescheduled. Unfortunately, I'm fighting a headache. As soon as that eases I'll be on my way in. I'll text Tracy Jo as I leave the house.

Jim - we should have a new draft of the compliance monitoring sampling instructions ready for you by lunch.

DRINKING WATER LEAD AND COPPER SAMPLING INSTRUCTIONS

Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. This sampling is required by the U.S. Environmental Protection Agency and the Michigan Department of Environmental Quality, and is being accomplished through the cooperation of homeowners and residents.

It is important that you follow these instructions so we collect an accurate measurement of the lead and copper in your drinking water. This sample should represent the water you would typically drink and the faucet from where you drink the water. To best accomplish this, select a faucet for sampling that was used the day before. Call your water supply if you have questions.

1. Water must sit idle in the pipes for an extended length of time before sampling. Therefore, do not use any water in the house for at least 6 hours before sampling. If the faucet has been idle more than 18 hours, the sample might not be analyzed because it does not represent typical daily use. The best times to sample are early morning or after returning from work.
2. Select an unfiltered/untreated faucet in the **KITCHEN** or **BATHROOM** that is commonly used for drinking. **DO NOT** sample from a laundry sink or a hose spigot as these samples cannot be used for compliance. **DO NOT** use a faucet that has a filter attached to it unless you bypass the filter. **DO NOT** use a faucet that is connected to a home water treatment device (like a water softener, iron filter, reverse osmosis) unless you bypass the home water treatment device.
3. If you have a single handle faucet, turn it to the **COLD** side. Place the open sample bottle below the faucet and gently open the cold water tap. Fill the sample bottle to the neck with the "first draw" of **COLD** water.
4. Tightly cap the sample bottle and place in the sample kit provided. Review the sample kit label to ensure all information contained on the label is correct.
5. Answer the questions on the back of this form and sign the form.
6. Attach this form to the bottle and leave it outside your front door for pick-up.
7. Thank you again for your help. We will send you the results within 30 days of receiving them. Information on this year's lead and copper monitoring will be printed in the Annual Water Quality Report that will be made available to you by July 1 of next year. Contact your water supply if you have questions.

If you have questions call:
Water Supply: _____

Manager or
Water Operator: _____

Phone: _____

Or Contact:
Michigan Department of Environmental Quality

DEQ Contact: _____

Phone: _____

TO BE COMPLETED BY RESIDENT

A. Which faucet did you use to fill the bottle?

☐ Kitchen ☐ Main bathroom ☐ Other

If OTHER, please describe: _____

B. When was the faucet last used before sampling?

Date _____ TIME _____ AM/PM

C. When did you fill the bottle?

DATE _____ TIME _____ AM/PM

D. Is there a faucet mount filter? ☐ YES ☐ NO

If YES, was it bypassed? ☐ YES ☐ NO

E. Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? ☐ YES ☐ NO

If YES, please describe: _____

Note: If you have a home treatment device OR any kind of additive is used, it is possible we might not analyze your sample or be able to use your sample for compliance purposes.

F. If any plumbing repairs or replacement has been done in the home since the previous sampling event, please note this information here:

If YES, please describe: _____

I have read the Drinking Water Lead and Copper Sampling Instructions and have taken a tap sample in accordance with these directions.

Signature

Date

From: Shekter Smith, Liane (DEQ)
Sent: Wednesday, December 09, 2015 3:58 PM
To: Philip, Kris (DEQ)
Cc: Benzie, Richard (DEQ); Shekter, Jean (DEQ); Devereaux, Tracy Jo (DEQ); Sygo, Jim (DEQ)
Subject: FW: Resident Sampling Instructions-12-4-2015
Attachments: Resident Sampling Instructions-12-4-2015.docx

Kris –

Attached is the most recent version of our revised sampling recommendations/instructions for lead and copper compliance monitoring. This has been updated to no longer recommend pre-flushing of taps; rather it instructs residents/customers to use a kitchen or bathroom tap that was used the day before sampling and that has been idle for at least 6 hours. We have incorporated EPA's suggestions and they have approved this version.

Would you please share this document with community water supply district analysts so that they can provide any additional comments or constructive criticism. Comments need to be provided quickly, as the intention is to have this document available for any/all supplies to use for sampling beginning in January. However, as with all documents/forms – as we use it and there are suggestions to improve the document we can do that in the future as we need to.

Liane

DRINKING WATER LEAD AND COPPER SAMPLING INSTRUCTIONS

Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. This sampling is required by the federal and state Safe Drinking Water Acts, and is being accomplished with the cooperation of homeowners, residents, and water system customers.

It is important that you follow these instructions so we obtain an accurate measurement of the lead and copper in your drinking water. This sample should represent the water you would typically drink and the faucet from where you drink the water. To best accomplish this goal, select a faucet for sampling that was used the day before you intend to sample. Call your water supply if you have questions.

1. Water must sit idle in the pipes for an extended length of time before sampling. Therefore, do not use any water in the house for at least 6 hours before sampling. The best times to sample are early morning or after returning from work.
2. Select an unfiltered/untreated faucet in the **KITCHEN** or **BATHROOM** that is commonly used for drinking. **DO NOT** sample from a laundry sink or a hose spigot as these samples cannot be used for compliance. **DO NOT** use a faucet that has a filter attached to it unless you bypass the filter. **DO NOT** use a faucet that is connected to a home water treatment device (like a water softener, iron filter, reverse osmosis) unless you bypass the home water treatment device.
3. Place the open sample bottle below the faucet and gently open the **COLD** water tap. If you have a single handle faucet, turn it fully to the **COLD** side. Fill the sample bottle to the neck with the "first draw" of **COLD** water.
4. Tightly cap the sample bottle and place in the sample kit provided. Review the sample kit label to ensure all information contained on the label is complete and correct.
5. Answer the questions on the back of this form and sign the form.
6. Attach this form to the bottle and leave it outside your front door for pick-up.
7. Thank you again for your help. We will send you your individual results within 30 days of receiving them from the laboratory. A summary of information on this year's lead and copper monitoring will be printed in the annual water quality report that will be made available by July 1 of next year. Contact your water supply if you have questions.

If you have questions call:

Water Supply: _____

Manager or

Water Operator: _____

Phone: _____

Or Contact:

Michigan Department of Environmental Quality

DEQ Contact: _____

Phone: _____

TO BE COMPLETED BY RESIDENT/CUSTOMER

A. Which faucet did you use to fill the bottle?

☐ Kitchen ☐ Main bathroom ☐ Other

If OTHER, please describe: _____

B. When was the faucet last used before sampling?

Date _____ TIME _____ AM/PM

Note: If the faucet has been idle more than 24 hours, we might not analyze your sample or be able to use your sample for compliance purposes.

C. When did you fill the bottle?

DATE _____ TIME _____ AM/PM

D. Is there a faucet mount filter? ☐ YES ☐ NO

If YES, was it bypassed? ☐ YES ☐ NO

E. Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? ☐ YES ☐ NO

If YES, please describe: _____

Note: If you have a home treatment device OR any kind of additive is used, it is possible we might not analyze your sample or be able to use your sample for compliance purposes.

F. If any plumbing repairs or replacement has been done in the home since the previous sampling event, please note this information here:

If YES, please describe: _____

I have read the Drinking Water Lead and Copper Sampling Instructions and have taken a tap sample in accordance with these directions.

Signature

From: Shekter, Jean (DEQ)
Sent: Monday, November 23, 2015 9:57 AM
To: Shekter Smith, Liane (DEQ); Devereaux, Tracy Jo (DEQ)
Cc: Philip, Kris (DEQ); Benzie, Richard (DEQ)
Subject: RE: Resident Sampling Instructions
Attachments: Resident Sampling Instructions Jean's Comment.docx

I tweaked one paragraph that I thought read awkwardly. My intent is to clarify, not to change.

From: Shekter Smith, Liane (DEQ)
Sent: Monday, November 23, 2015 9:13 AM
To: Devereaux, Tracy Jo (DEQ); Shekter, Jean (DEQ)
Cc: Philip, Kris (DEQ); Benzie, Richard (DEQ)
Subject: RE: Resident Sampling Instructions

Revised doc is attached.

From: Devereaux, Tracy Jo (DEQ)
Sent: Friday, November 20, 2015 3:52 PM
To: Shekter Smith, Liane (DEQ); Shekter, Jean (DEQ)
Cc: Philip, Kris (DEQ); Benzie, Richard (DEQ)
Subject: Resident Sampling Instructions

Latest round of residential sampling form for comments, etc.

DRINKING WATER LEAD AND COPPER SAMPLING INSTRUCTIONS

Dear Resident:

Thank you for helping to monitor for lead and copper in your drinking water. This sampling effort is required by the U.S. Environmental Protection Agency and the Michigan Department of Environmental Quality, and is being accomplished through the cooperation of homeowners and residents.

It is important that you follow these instructions so that we may collect an accurate measurement of the lead and copper in your drinking water. This sample is supposed to represent the water you would typically drink and the faucet from where you would drink the water. Call your water supply if you have any questions.

~~1. Water must sit idle in the pipes for an extended length of time before sampling. Therefore, do not use any water for at least 6 hours before sampling. We do not recommend sampling if the water has sat idle for more than 12 hours. The sample might not be analyzed if the water sat idle for more than 18 hours. The best times to sample are early morning or after returning from work. A sample is to be collected after water has been sitting in the pipes for an extended period of time (i.e., no water use during this period). A minimum 6-hour period during which there is no water use from that tap must be achieved prior to sampling. We do not recommend sampling if the faucet has sat idle for more than 12 hours. If the faucet has been idle more than 18 hours, the sample may not be analyzed.~~

~~1. Due to this requirement, either early mornings or evenings upon returning from work are the best times for collecting samples. The collection procedure is described in more detail below.~~

Formatted: List Paragraph, Indent: Left: 0", Numbered + Level: 1 + Numbering Style: 1, 2, 3, ... + Start at: 1 + Alignment: Left + Aligned at: 0.06" + Indent at: 0.31"

2. Select a faucet in the **KITCHEN** or **BATHROOM** that is commonly used for drinking. **DO NOT** sample from a laundry sink or a hose spigot as these samples cannot be used by your water supply.

3. If you have a single handle faucet, turn it to the **COLD** side. Place the sample bottle (open) below the faucet and gently open the cold water tap. Fill the sample bottle to the neck of the bottle with the "first draw" of **COLD** water.

4. Tightly cap the sample bottle and place in the sample kit provided. Please review the sample kit label at this time to ensure that all information contained on the label is correct.

5. Answer the questions on the back of this form and remember to sign the form.

6. Attach this form to the bottle and leave it outside your front door for pick-up.

7. Thank you again for your help. We will send you the results within 30 days of receiving them. Information on this year's lead and copper monitoring will be printed in the Consumer Confidence Report that will be made available to you by July 1 of next year. Contact your water supply if you have any questions.

If you have any questions call:

Water Supply: _____

Manager or

Water Operator: _____

Phone: _____

Or Contact:
Michigan Department of Environmental Quality

DEQ Contact: _____

Phone: _____



TO BE COMPLETED BY RESIDENT

A. Which faucet did you use to fill the bottle?

☐ Kitchen ☐ Main bathroom ☐ Other

If OTHER, please describe:

B. When was the faucet last used before sampling?

Date _____ TIME _____ AM/PM

C. When did you fill the bottle?

DATE _____ TIME _____ AM/PM

D. Is this faucet connected to a home treatment device such as a water softener, a reverse osmosis unit, an iron removal device OR is any kind of additive used in the home? YES NO

If YES, please describe: _____

Note: If you have a home treatment device OR any kind of additive is used in the home, it's possible we might not analyze your sample or be able to use your sample for compliance purposes.

E. If any plumbing repairs or replacement has been done in the home since the previous sampling event, please note this information here:

If YES, please describe: _____

I have read the Drinking Water Lead and Copper Sampling Instructions and have taken a tap sample in accordance with these directions.

Signature _____

Date _____

From: Busch, Stephen (DEQ)
Sent: Thursday, February 06, 2014 3:35 PM
To: Craig, John (DEQ); Arduin, Jim (DEQ); Brim, Richard (DEQ)
Subject: RE: update regarding Bray Road consent order
Attachments: Flint 2-11.docx

Thanks John.

I believe the City will want to add the attached language or something similar as a new paragraph/subsection under the findings (Section 2). If we could add it now to the draft that would be helpful, but we can try to negotiate it on Monday if necessary.

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

From: Craig, John (DEQ)
Sent: Thursday, February 06, 2014 2:42 PM
To: Busch, Stephen (DEQ); Arduin, Jim (DEQ); Brim, Richard (DEQ)
Subject: FW: update regarding Bray Road consent order
Importance: High

Steve and Jim, I have attached a draft consent order related to the city of Flint Bray Road site pursuant to Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451. This is a rough draft based on the information available to the Office of Waste Management and Radiological Protection, but is a good starting point for development of the consent order. This draft has not been internally distributed for review and comment by DEQ staff, OWMRP and ODWMA management, or the Department of Attorney General, so it is subject to additional changes. However, in the interest in moving the project along, you may share it with the City and their representatives, with the above caveat, in order to continue what I hope will be fruitful discussions next Monday.

Unfortunately, I will be out of the office tomorrow, Friday, February 7th, so I will not be available to discuss my revisions or respond to questions you may have. I'll be back in the office on Monday at 10:00 AM. Thanks. John

John Craig, Chief,
 Enforcement Section* | Office of Waste Management and Radiological Protection | Department of Environmental Quality | Constitution Hall – Lansing
 ☎ Phone: 517-284-6546 | 📠 Facsimile 517-373-4797

** Supporting the Office of Drinking Water and Municipal Assistance | Office of Oil, Gas, and Minerals | Office of Waste Management and Radiological Protection*

From: Robinson, Michael [<mailto:MRobinson@wnj.com>]
Sent: Thursday, February 06, 2014 10:42 AM
To: Busch, Stephen (DEQ)
Cc: Arduin, Jim (DEQ); Brim, Richard (DEQ); Craig, John (DEQ)
Subject: Re: update regarding Bray Road consent order

Great. I think we can make progress even without a " final" draft. Thanks

Sent from my iPhone

On Feb 6, 2014, at 7:25 AM, "Busch, Stephen (DEQ)" <BUSCHS@michigan.gov> wrote:

I agree on Monday. It will be the only day next week I will be available to meet on this.

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

From: Robinson, Michael [<mailto:MRobinson@wnj.com>]
Sent: Thursday, February 06, 2014 9:26 AM
To: Arduin, Jim (DEQ)
Cc: Busch, Stephen (DEQ); Brim, Richard (DEQ); Craig, John (DEQ)
Subject: Re: update regarding Bray Road consent order

We need to keep our meeting on Monday. Please send me what you have with the understanding that it still needs review within the DEQ. Can you also briefly identify any issues in an email to me today? We really must move things along. I appreciate your efforts. Thanks, mike

Sent from my iPhone

On Feb 6, 2014, at 4:11 AM, "Arduin, Jim (DEQ)" <ARDUINJ@michigan.gov> wrote:

Mike,

Due to the fact that this order significantly involves two divisions within the DEQ, it is taking longer to coordinate and incorporate internal comments and concerns. In addition, as I understand it, you have asked Steve Busch to add in additional stipulations/findings which are apparently going through appropriate staff review within the Drinking Water Division and have yet to work their way back to me for incorporation into the order. I honestly don't have a timeframe for you, as much of what is happening in this process is no longer in my control. I will forward the draft to you as soon as I can.

I will be out in the field all day today but will make the rounds around the office tomorrow to see where things stand. Even if we get you a copy tomorrow, it leaves you little time to prepare for Mondays meeting. We may need to reschedule.

Jim

James Arduin
Senior Geologist
Michigan Department of Environmental Quality
Office of Waste Management and Radiological Protection
(517) 284-6652

Please note the new phone number.

From: Robinson, Michael [<mailto:MRobinson@wnj.com>]
Sent: Wednesday, February 05, 2014 11:35 PM
To: Arduin, Jim (DEQ)
Subject: RE: update regarding Bray Road consent order

Any chance you can send me a draft on Thursday?

From: Arduin, Jim (DEQ) [<mailto:ARDUINJ@michigan.gov>]
Sent: Monday, February 03, 2014 8:48 AM
To: Robinson, Michael
Cc: Busch, Stephen (DEQ)
Subject: update regarding Bray Road consent order

Mike,

We are still addressing several comments that were made during our review process.

I hope to get you a copy of the draft order later today.

Jim

James Arduin
Senior Geologist
Michigan Department of Environmental Quality
Office of Waste Management and Radiological Protection
(517) 284-6652

Please note the new phone number.

2.11

COF is planning on participating in the Karegnondi Water Authority (KWA) to receive water from Lake Huron for its drinking water supply and using its water treatment plant to meet treatment requirements under Act 399. It will be approximately four years before the KWA infrastructure is built and water is available to the COF from KWA. The COF plans to use the Flint River as its water supply until KWA water is fully available. Public improvement projects under Act 399 are required to be completed for COF to receive water from KWA.

From: Craig, John (DEQ)
Sent: Thursday, February 06, 2014 4:06 PM
To: Busch, Stephen (DEQ); Arduin, Jim (DEQ); Brim, Richard (DEQ)
Subject: RE: update regarding Bray Road consent order
Attachments: city-of-flint-bray-road-co-2014-02-06b-draft.docx

Steve, I have integrated the City's proposed language into the last paragraph of the Statement of Purpose. Attached is a revise draft. However, I am uncertain as to the meaning of the City's last sentence which states: "Public improvement projects under Act 399 are required to be completed for [Respondent] to receive water from the KWA." What do they mean by "public improvement projects" and what "requires" such to be completed.

I would prefer language that says: The KWA requires the Respondent's waterworks system to be in full compliance with Act 399 before KWA delivers source water to the Respondent." This seems to be more straightforward to me. Hopefully, this is what the City is getting at. You'll have to discuss this issue with the City.

John Craig, Chief,
 Enforcement Section* | Office of Waste Management and Radiological Protection | Department of Environmental Quality | Constitution Hall – Lansing
 ☎ Phone: 517-284-6546 | 📠 Facsimile 517-373-4797

** Supporting the Office of Drinking Water and Municipal Assistance | Office of Oil, Gas, and Minerals | Office of Waste Management and Radiological Protection*

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Stephen Busch, P.E.
 Lansing and Jackson District Supervisor
 Office of Drinking Water and Municipal Assistance
 MDEQ
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Subject: FW: update regarding Bray Road consent order
Importance: High

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Lansing and Jackson District Supervisor
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517-643-2314

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Subject: Re: update regarding Bray Road consent order

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into the order. I honestly don't have a timeframe for you, as much of what is happening in this process is no longer in my control. I will forward the draft to you as soon as I can.

I will be out in the field all day today but will make the rounds around the office tomorrow to see where things stand. Even if we get you a copy tomorrow, it leaves you little time to prepare for Mondays meeting. We may need to reschedule.

Jim

James Arduin
Senior Geologist
Michigan Department of Environmental Quality
Office of Waste Management and Radiological Protection
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Please note the new phone number.

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To: Robinson, Michael
Cc: Busch, Stephen (DEQ)
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Jim

James Arduin
Senior Geologist
Michigan Department of Environmental Quality
Office of Waste Management and Radiological Protection
(517) 284-6652

Please note the new phone number.

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Privileged and Confidential Settlement Communication

This document is for the purpose of settlement and is subject to the privilege that applies to communications made in settlement negotiations. It is provided solely for the consideration and use of the intended recipient(s), their principals, and their legal counsel. It should not be disclosed to any other person without the express consent of the Department of Environmental Quality.

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF WASTE MANAGEMENT AND RADIOLOGICAL PROTECTION

In the matter of the
administrative proceedings against
City of Flint, doing business at
5200 Bray Road, Genesee Township,
Genesee County, Michigan

OWMRP Order No. 115- -14

/

CONSENT ORDER

This proceeding results from unresolved allegations specified in the Letters of Warning, (LOWs) issued on April 9, 2001, and February 14, 2002, by the Department of Environmental Quality ("DEQ"), Waste Management Division, and the Compliance Communication, dated January 18, 2011, issued by the DEQ, Environmental Resource Management Division, both now known as the DEQ, Office of Waste Management and Radiological Protection ("OWMRP") (Attachment 1). The DEQ alleges that the city of Flint ("Respondent") at 5200 Bray Road, Genesee Township, Genesee County, Michigan (the "Site"), placed or allowed the placement of solid waste in an open dump and/or abandoned solid waste in place of other disposal in violation of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, Michigan Compiled Laws ("MCL") 324.101 *et seq.* ("NREPA"), and the administrative rules promulgated under Part 115. The Respondent and the DEQ agree to resolve the alleged violations set forth in the above-referenced LOWs and Compliance Communication by entry of this Consent Order.

STATEMENT OF PURPOSE

In entering into this Consent Order, the mutual objectives of the Respondent and the DEQ are to address the open dump created at the Site, eliminate the surface water discharge from the Site to the Cornwell Drain, and allow the Respondent to reconstruct the system at the Site used to manage drinking water treatment plant (WTP) residuals.

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Privileged and Confidential Settlement Communication

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To accomplish these objectives, the Respondent will determine the areal extent and character of any solid waste historically disposed of at the Site, including, but not limited to, the WTP residuals and any solid wastes identified as being disposed of in the above-referenced LOWs and Compliance Communication. Consistent with the waste characterization and other investigation data, the Respondent will either remove and dispose of the waste at a disposal area that is permitted and licensed by the DEQ or, if acceptable, leave the solid waste in place and place final cover over it in accordance with the requirements of Part 115 and this Order. In addition, the Respondent will determine, by conducting a remedial investigation, whether any response activities must be taken to address contamination caused by the unauthorized disposal of solid waste at the Site.

Finally, if the Respondent proposes to reconstruct the system for the non-mechanical dewatering of its WTP residuals at the Site, then the Respondent will submit plans and specifications and secure from the DEQ, Office of Drinking Water and Municipal Assistance ("ODWMP"), a public water supply construction permit issued under Section 4 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), MCL 325.1001 *et seq.*, and the administrative rules under Act 399 prior to initiating any construction, alteration, addition, or improvement to such system. A residuals management plan for the historical disposal of lime sludge and other WTP residuals, as well as lime sludge and any other WTP residuals generated in the future, must also be included as part of the construction permit application. The Respondent's proposal is based on its participation in the Karegnondi Water Authority (KWA) to receive source water from Lake Huron for its drinking water supply and the use of its water treatment plant to meet treatment requirements under Act 399. It will be approximately four years before the KWA infrastructure is built and water is available to the Respondent from KWA. The Respondent plans to use the Flint River as its source water supply until KWA water is fully available. Public improvement projects under Act 399 are required to be completed for Respondent to receive water from the KWA.

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Privileged and Confidential Settlement Communication

This document is for the purpose of settlement and is subject to the privilege that applies to communications made in settlement negotiations. It is provided solely for the consideration and use of the intended recipient(s), their principals, and their legal counsel. It should not be disclosed to any other person without the express consent of the Department of Environmental Quality.

I. DEFINITIONS

- 1.1 "Act 399" means the Safe Drinking Water Act, 1976 PA 399, as amended, MCL 325.1001 *et seq.*
- 1.2 "FAM" means the financial assurance mechanism acceptable to the DEQ to pay for monitoring, operation and maintenance, oversight, and other costs determined by the DEQ to be necessary to ensure the effectiveness and integrity of the remedial action. The FAM is a component of a Remedial Action Plan.
- 1.3 "NREPA" means the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 *et seq.*
- 1.4 "Open dump" means any area, place, or property where solid waste has been illegally disposed of or abandoned in place of other disposal.
- 1.5 "Part 115" means Part 115, Solid Waste Management, of the NREPA, MCL 324.11501 *et seq.*, and the Part 115 Administrative Rules.
- 1.6 "Part 115 Rules" means the administrative rules promulgated under Part 115.
- 1.7 "Part 201" means Part 201, Environmental Remediation, of the NREPA, MCL 324.20101 *et seq.*, and the Part 201 Administrative Rules.
- 1.8 "Residuals Management Plan" means a DEQ-approved plan to remove both historical and future accumulations of lime sludge and other WTP residuals from the Site.
- 1.9 "Site" means the property located at 5200 Bray Road, Genesee Township, Genesee County, Michigan.

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- 1.10 "Solid Waste" as used in this Consent Order means "solid waste" as defined in Part 115 of the NREPA, MCL 324.11506(1), including any waste that has been disposed of at the Site, including lime sludge from WTP operations conducted by the Respondent.

II. STIPULATIONS

The Respondent and the DEQ stipulate as follows:

- 2.1 Pursuant to its authority under Part 115, the DEQ promulgated administrative rules necessary to implement Part 115. These rules are set forth in the 2005 *Annual Administrative Code Supplement (AACS)*, R 299.4101 *et seq.* ("Part 115 Rules").
- 2.2 Pursuant to its authority under Act 399, the DEQ promulgated administrative rules necessary to implement Act 399. These rules set are set forth in the 2009 AACS, R 325.10101 *et seq.*
- 2.3 Pursuant to the NREPA and Executive Order No. 2011-1, the Director of the DEQ ("Director") is the state official and the DEQ is the state agency charged with the administration and enforcement of Part 115 and Act 399. This Consent Order is authorized under MCL 324.11519(2) and MCL 325.1022.
- 2.4 The Respondent is a "person" as defined by MCL 324.301(g) and MCL 325.1002(m).
- 2.5 The Respondent owns and operates the Site located at 5200 Bray Road, Genesee Township, Genesee County. The Respondent is a state of Michigan municipality.
- 2.6 The Site occupies approximately 76 acres of land adjacent to the Cornwell Drain on its northern boundary. The Cornwell Drain is a tributary to the Flint River. The Site consists of a WTP residuals storage area and contains various water level control structures and discharge points to the Cornwell Drain, and an area of where solid waste has been disposed in an open dump ("Open Dump"). Attachment 2 is an aerial

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schematic of the Site and shows the approximate boundaries of the WTP residuals storage area and the Open Dump.

- 2.7 The Respondent stipulates that the issuance and entry of this Consent Order is proper and acceptable. This Consent Order shall be considered a final order of the DEQ and shall become effective on the date it is signed by the Chief of the OWMRP ("Office Chief"), designee of the Director, pursuant to MCL 324.301(b) of the NREPA.
- 2.8 The Respondent agrees to fully and strictly comply with all provisions of Part 115 and Act 399, the Part 115 Rules, the Act 399 Rules, and all other applicable state and federal statutes.
- 2.9 The Respondent and the DEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Respondent of the allegations contained in the above-referenced LOWs and Compliance Communication or that the law has been violated.
- 2.10 The Respondent, all Respondent's successors and assigns, and the DEQ agree to and shall be bound by the requirements of this Consent Order.

III. COMPLIANCE PROGRAM

In order to resolve the violations alleged in the above-referenced LOWs and Compliance Communication, the Respondent shall achieve and maintain compliance with the requirements specified below in accordance with the following schedule:

- 3.1 On and after the effective date of this Consent Order, the Respondent shall ensure that the Site is secure and that, pursuant to R 299.4128(1), illegal dumping does not occur at the Site.
- 3.2 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall locate groundwater monitoring well MW-04. If MW-04 is found to be located

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within the footprint of the non-mechanical dewatering system identified in the construction plans referenced in Paragraph 3.4, MW-04 will be properly abandoned/removed within a mutually agreed upon schedule.

- 3.3 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall permanently cap the outlet tower identified in Attachment ____ and take all necessary actions to identify and terminate surface water discharges to the Cornwell Drain.
- 3.4 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall submit to the ODWMP for review and approval, an administratively complete Act 399 construction permit application for the reconstruction of the non-mechanical dewatering system for WTP residuals at the Site, including the physical barrier that will separate the WTP filter backwash, including lime sludge, from the other solid waste located on the Site. The permit application will clearly identify any areas that will not be used as part of the reconstructed non-mechanical dewatering system and identify any slurry inlet points located outside the system footprint so such inlet points can be permanently capped by the Respondent. The permit application will also include a basis of design for the management of solid WTP residuals within the system.
- 3.5 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall submit to the OWMRP for review and approval, any portion of the dewatering system residuals management plan submitted to the ODWMA that is required to comply with Part 115.
- 3.6 Within thirty (30) days of the effective date of this Consent Order, the Respondent shall submit to the DEQ for review and approval, a hydrogeologic monitoring plan ("Hydrogeologic Monitoring Plan") for the Open Dump that complies with R 299.4904, R 299.4905, R 299.4906, R 299.4907, and R 299.4908 of the Part 115 Rules. Upon approval by the DEQ, the Respondent shall implement the Hydrogeologic Monitoring Plan in accordance with the schedule contained therein.

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- 3.7 Within sixty (60) days after the effective date of this Consent Order, the Respondent shall submit to the DEQ for review and approval, a remedial investigation work plan ("Remedial Investigation Work Plan") for the Open Dump. Upon approval by the DEQ, the Respondent shall implement the Remedial Investigation Work Plan in accordance with the schedule contained therein. If the Respondent believes that sufficient data already exists to define the environmental conditions at the Open Dump, then the Respondent can submit, in lieu of the Remedial Investigation Work Plan, the Remedial Investigation Report identified in Paragraph 3.8 of this Consent Order.
- 3.8 Within thirty (30) days of completing the remedial investigation, the Respondent shall submit to the DEQ for review and approval, the final results and conclusions of the remedial investigation, including all data, charts, maps, aquifer and soil cross-sections, contaminant concentration contours, diagrams, and other interpretive drawings, in the form of a written report ("Remedial Investigation Report").
- 3.9 If the Remedial Investigation Report fails to delineate the horizontal and vertical extent of the Open Dump or any contamination attributable to the Open Dump, the Respondent shall develop and implement a Phase II remedial investigation. If applicable, a complete and technically adequate work plan for a Phase II remedial investigation ("Phase II Remedial Investigation Work Plan") shall be submitted to the DEQ within sixty (60) days of the DEQ's notification that the Phase II Remedial Investigation Work Plan is necessary. Upon approval by the DEQ, the Respondent shall implement the Phase II Remedial Investigation Work Plan in accordance with the schedule contained therein. The Respondent shall submit final results and conclusions of the Phase II remedial investigation in the form of a written report within thirty (30) days of completion of the Phase II remedial investigation.
- 3.10 If the remedial investigation verifies and/or reveals contamination above criteria established pursuant to Part 201, the Respondent shall submit to the DEQ, within ninety (90) days of written DEQ approval of the Remedial Investigation Report(s)

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required by Paragraphs 3.7 and 3.8, an assessment of corrective measures ("Assessment of Corrective Measures") that is in accordance with R 299.4443. The Assessment of Corrective Measures shall include an analysis of each potential remedy considered. In addition, the Assessment of Corrective Measures shall identify the final remedial action proposed by the Respondent and provide an explanation of how that action will meet applicable cleanup criteria of Part 201 and be in compliance with Part 115.

- 3.11 Within one hundred twenty (120) days of receipt of written approval of the Assessment of Corrective Measures from the DEQ, the Respondent shall submit to the DEQ for review and approval, a complete and technically adequate remedial action plan ("Remedial Action Plan") for the Open Dump that is in compliance with the requirements of R 299.4444. The Remedial Action Plan shall include a detailed schedule for implementation. The Remedial Action Plan shall be consistent with the results of the remedial investigation and any other monitoring data collected, reports submitted, and/or investigations conducted prior to submittal of the Remedial Action Plan. The Remedial Action Plan, when implemented, shall comply with the applicable cleanup criteria of Part 201 and, upon approval of the plan by the DEQ, the Respondent shall implement the approved Remedial Action Plan in accordance with the schedule contained therein.
- 3.12 If, in accordance with an approved Assessment of Corrective Measures, the Respondent elects to cap and close in-place the solid waste identified at the Site, the Respondent must, as part of the Remedial Action Plan, submit to the DEQ for review and approval, a capping and cell closure plan and schedule ("Capping and Cell Closure Plan") and a post closure plan ("Post Closure Plan") for the Open Dump that are in compliance with the requirements of R 299.4425, R 299.4447, respectively, and Part 115. Upon DEQ approval of the Capping and Cell Closure Plan and the Post Closure Plan, the Respondent shall implement the plans in accordance with the schedules contained therein. If the Respondent lacks the expertise and/or manpower to conduct the work in accordance with the DEQ-approved Capping and Cell Closure

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Plan, the Post Closure Plan, and the Part 115 Rules, the Respondent shall contract the work to be performed by a contractor experienced with landfill construction work.

- 3.13 The Respondent shall provide financial assurance as required under Part 115.

IV. DEQ APPROVAL OF SUBMITTALS

- 4.1 For any work plan, proposal, or other document, excluding applications for permits or licenses, that are required by this Consent Order to be submitted to the DEQ by the Respondent, the following process and terms of approval shall apply.
- 4.2 To be approved by the DEQ, any work plan, proposal, or other document required to be submitted by this Consent Order shall include all of the information required by the applicable statute and/or rule and all of the information required by the applicable paragraph(s) of this Consent Order.
- 4.3 Upon DEQ approval, or approval with modifications, of a work plan, proposal, or other document, such work plan, proposal, or other document shall be incorporated by reference into this Consent Order and shall be enforceable in accordance with the provisions of this Consent Order.
- 4.4 In the event the DEQ disapproves a work plan, proposal, or other document, it shall notify the Respondent, in writing, of the specific reasons for such disapproval. The Respondent shall submit, within thirty (30) days of receipt of such disapproval, a revised work plan, proposal, or other document that adequately addresses the reasons for the DEQ's disapproval.
- 4.5 In the event the DEQ approves with specific modifications, a work plan, proposal, or other document, it shall notify the Respondent, in writing, of the specific modifications required to be made to such work plan, proposal, or other document prior to its implementation and the specific reasons for such modifications. The DEQ may require

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the Respondent to submit, prior to implementation and within thirty (30) days of receipt of such approval with specific modifications, a revised work plan, proposal, or other document that adequately addresses such modifications.

- 4.6 A finding of approval or approval with modification of a submission shall not be construed to mean that the DEQ concurs with any of the conclusions, methods, or statements in the submission or warrants that the submission comports with law.
- 4.7 Failure by the Respondent to submit an approvable work plan, proposal, or other document within the applicable time period specified above shall subject the Respondent to the enforcement provisions of this Consent Order including, but not limited to, the stipulated penalty provisions commencing on the date the revised work plan, proposal, or other document was due and accumulating until an approvable work plan, proposal, or other document is submitted.
- 4.8 Any delays caused by the Respondent's failure to submit an approvable work plan, proposal, or other document when due shall in no way affect or alter the Respondent's responsibility to comply with any other deadline(s) specified in this Consent Order.
- 4.9 No informal advice, guidance, suggestions, or comments by staff of the DEQ regarding reports, work plans, proposals, plans, specifications, schedules, or any other writing submitted by the Respondent will be construed as relieving the Respondent of its obligation to obtain written approval of the DEQ if and when required by this Consent Order.

V. MODIFICATIONS AND EXTENSIONS

- 5.1 At the request of the Respondent, a work plan, proposal, or other document approved or approved with specific modifications by the DEQ, with the exclusion of the specified deadlines set forth in Section II, Compliance Program, of this Consent Order, may be modified by the OWMRP District Supervisor ("District Supervisor").

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- 5.2 The Respondent and the DEQ agree that the Office Chief may, but in no circumstances is obligated to, grant the Respondent an extension of the specified deadlines set forth in this Consent Order. Any extension shall be preceded by a timely written request, received by the DEQ no later than ten (10) business days prior to the pertinent deadline, which shall include:
- a. An identification of the specific deadline(s) of this Consent Order that will not be met.
 - b. A detailed description of what will prevent the Respondent from meeting the deadline(s).
 - c. A description of the measures the Respondent has taken and/or intends to take to meet the required deadline(s).
 - d. The length of the extension requested and the specific date(s) on which the obligation(s) will be met.
- 5.3 The Office Chief shall respond promptly to such requests and shall not unreasonably withhold approval for such requests.
- 5.4 Any extension of the specified deadlines or other modifications and amendments of this Consent Order shall require a formal written amendment of this Consent Order, shall be signed by the Respondent and the DEQ ("Parties"), shall have as their effective date the date on which they are signed by the Office Chief, and shall be incorporated into and become an enforceable part of this Consent Order.

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VI. REPORTING

- 6.1 The Respondent shall submit all items required in Section II, Compliance Program, to the Lansing District Supervisor, OWMRP, DEQ, P.O Box 30241 Lansing, Michigan 48909-7742, unless specifically directed otherwise within this Consent Order. The cover letter with each submittal shall identify the specific paragraph and requirement of this Consent Order that the submittal is intended to satisfy. If the address of the District Supervisor changes, the Respondent will be notified and shall make all subsequent submittals to any new address of which they are notified.
- 6.2 The Respondent shall verbally report any violation(s) of the terms and conditions of this Consent Order to the District Supervisor by no later than the close of the next business day following detection of such violation(s) and shall follow such notification with a written report within five (5) business days following detection of such violation(s). The written report shall include a detailed description of the violation(s), the precise cause or causes of the violation(s), a detailed description of any action(s) taken or proposed to correct the violation(s), and a schedule for the implementation of any proposed corrective action(s). The Respondent shall report any anticipated violation(s) of this Consent Order to the District Supervisor in advance of the relevant deadlines, whenever possible.

VII. RETENTION OF RECORDS

- 7.1 Upon request by an authorized representative of the DEQ, the Respondent shall make available to the DEQ all records, plans, logs, and other documents required to be maintained under this Consent Order, or pursuant to Part 115 and the Part 115 Rules and Act 399 and the Act 399 Rules. All such documents shall be retained at the Disposal Area for at least a period of three (3) years from the date of generation of the record unless a longer period of record retention is required by Part 115 and the Part 115 Rules and Act 399 and the Act 399 Rules.

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VIII. RIGHT OF ENTRY

- 8.2 The Respondent shall allow any authorized representative or contractor of the DEQ, upon presentation of proper credentials, to enter upon the premises of the Site at all reasonable times for the purpose of monitoring compliance with the provisions of this Consent Order. This paragraph in no way limits the authority of the DEQ to conduct tests and inspections pursuant to the NREPA and its rules or any other applicable statutory provision.

IX. FINES, COSTS, AND PENALTIES

- 9.1 Within thirty (30) days of the effective date of this Consent Order, the Respondent shall pay the sum of \$ to the State of Michigan in settlement of the DEQ's claim for civil fines arising from the violations alleged in the above-referenced LOWs and Compliance Communication.
- 9.2 For each failure to comply with the provisions of Section II, Compliance Program, of this Consent Order, the Respondent shall pay to the State of Michigan stipulated penalties in an amount of \$250 per violation per day for one (1) through seven (7) days of violation; \$500 per violation per day for eight (8) through fourteen (14) days of violation; and \$750 per violation per day for each day of violation thereafter. Stipulated penalties shall be paid within thirty (30) days after receiving a written demand made by the DEQ.
- 9.3 To ensure timely payment of any civil fines, penalties, and costs due under this Consent Order, the Respondent shall pay an interest penalty to the State of Michigan each time the Respondent fails to make a complete or timely payment. This interest penalty shall be based on the rate set forth at Section 6013(6) of the Revised Judicature Act, 1961 PA 236, as amended, MCL 600.6013(6), using the full increment of amount due as principal, and calculated from the due date for the payment until the delinquent payment is finally made in full.

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- 9.4 The Respondent shall make all payments due under this Consent Order by certified or cashier's check made payable to the "State of Michigan" and mailed to the DEQ, Revenue Control Unit, P.O. Box 30657, Lansing, Michigan 48909-8157, or hand delivered to the DEQ, Revenue Control Unit, 1st Floor, Van Wagoner Building, 425 West Ottawa Street, Lansing, Michigan 48933. To ensure proper credit, all payments made pursuant to this Consent Order must include Payment Identification Number OWMRP_____ on the front of the check and/or in the cover letter with the payment.
- 9.5 The Respondent agrees not to contest the legality of the civil fine or the costs of surveillance and enforcement paid pursuant to this section. The Respondent further agrees not to contest the legality of any stipulated penalties or interest penalties assessed pursuant to this section but reserves the right to dispute the factual basis upon which a demand by the DEQ for stipulated penalties or interest penalties is made.
- 9.6 Liability for or payment of stipulated penalties pursuant to this Consent Order shall not preclude the State of Michigan from seeking injunctive relief or other relief for the Respondent's failure to comply with the requirements of this Consent Order and/or any permit(s) or license(s) required to comply with this Consent Order.
- X. **DISPUTE RESOLUTION** 10.1 Unless otherwise provided in this Consent Order, the dispute resolution procedures of this section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Order and shall apply to all provisions of this Consent Order. However, the procedures set forth in this section shall not apply to actions by the state of Michigan to enforce obligations of the Respondent that have not been disputed in accordance with this section. Engagement of a dispute resolution between the Parties shall not be cause for the Respondent to delay the performance of any compliance requirements or response activity. Any dispute that arises under this Consent Order shall in the first instance be the subject of informal negotiations between the Parties. The period of negotiations shall not exceed twenty (20) days from the date of written notice by any Party that a dispute has arisen, unless

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the time period for negotiations is modified by written agreement between the Parties.

The dispute shall be considered to have arisen when one Party sends the other Party a written notice of dispute. If agreement cannot be reached on any issue within this twenty- (20-) day period, the DEQ shall provide a written statement of its decision to the Respondent and, in the absence of initiation of formal dispute resolution by the Respondent under Paragraph 10.3, the DEQ position, as outlined in its written statement of decision, shall be binding on the Parties.

10.2 If the Respondent and DEQ cannot informally resolve a dispute under Paragraph 9.1, the Respondent may initiate formal dispute resolution by requesting a review of the disputed issues by the Office Chief. This written request must be filed with the Office Chief within fifteen (15) days of the Respondent's receipt of the DEQ's statement of decision that is issued at the conclusion of the informal dispute resolution procedure set forth in Paragraph 9.1. The Respondent's request shall state the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting its position; and all supporting documentation upon which the Respondent bases its position. Within fourteen (14) days of the Office Chief's receipt of the Respondent's request for a review of disputed issues, the Office Chief will provide a written statement of decision to the Respondent, which will include a statement of his/her understanding of the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting her/his position; and all supporting documentation relied upon by the Office Chief's review of the disputed issues. The Office Chief's review of the disputed issues may be extended by written agreement of the Parties.

10.3 The written statement of the Office Chief issued under Paragraph 10.3 shall be binding on the Parties unless, within fifteen (15) days after receipt of the DEQ's written statement of decision, the Respondent files a petition for judicial review in a court of competent jurisdiction that shall set forth a description of the matter in dispute, the efforts made by the Parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this

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Consent Order. Nothing in this Consent Order affects the limitations on the timing of judicial review of the DEQ decision regarding the selection, extent, or adequacy of any response activity as provided for in Part 201.

- 10.4 An administrative record of the dispute shall be maintained by the DEQ. The administrative record shall include all of the information provided by the Respondent pursuant to Paragraph 9.3, as well as any other documents relied upon by the DEQ in making its final decision pursuant to Paragraph 10.3. Where appropriate, the DEQ shall allow submission of supplemental statements of position by the Parties to the dispute.
- 10.5 In proceeding on any dispute, the Respondent shall have the burden of demonstrating on the administrative record that the position of the DEQ is arbitrary and capricious or otherwise not in accordance with law. In proceedings on any dispute initiated by the Respondent, the Respondent shall bear the burden of persuasion on factual issues.
- 10.6 Notwithstanding the invocation of dispute resolution proceedings, stipulated penalties shall accrue from the first day of any failure or refusal to comply with any term or condition of this Consent Order, but payment shall be stayed pending resolution of the dispute. Stipulated penalties shall be paid within thirty (30) days after the resolution of the dispute. The Respondent shall pay that portion of a demand for payment of stipulated penalties that is not subject to dispute resolution procedures in accordance with and in the manner provided in Section IX, Fines, Costs, and Penalties.

XI. FORCE MAJEURE

- 11.1 The Respondent shall perform the requirements of this Consent Order within the time limits established herein unless performance is prevented or delayed by events that constitute a "Force Majeure." Any delay in the performance attributable to a "Force Majeure" shall not be deemed a violation of the Respondent's obligations under this Consent Order in accordance with this section.
- 11.2 For the purpose of this Consent Order, "Force Majeure" means an occurrence or

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nonoccurrence arising from causes not foreseeable, beyond the control of, and without the fault of the Respondent, such as: an Act of God, untimely review of permit applications or submissions by the DEQ or other applicable authority, and acts or omissions of third parties that could not have been avoided or overcome by the Respondent's diligence and that delay the performance of an obligation under this Consent Order. "Force Majeure" does not include, among other things, unanticipated or increased costs, changed financial circumstances, or failure to obtain a permit or license as a result of the Respondent's actions or omissions.

- 11.3 The Respondent shall notify the DEQ, by telephone, within forty-eight (48) hours of discovering any event that causes a delay in its compliance with any provision of this Consent Order. Verbal notice shall be followed by written notice within ten (10) calendar days and shall describe, in detail, the anticipated length of delay, the precise cause or causes of delay, the measures taken by the Respondent to prevent or minimize the delay, and the timetable by which those measures shall be implemented. The Respondent shall adopt all reasonable measures to avoid or minimize any such delay.
- 11.4 Failure of the Respondent to comply with the notice requirements of Paragraph 10.3, above, shall render this section void and of no force and effect as to the particular incident involved. The DEQ may, at its sole discretion and in appropriate circumstances, waive the notice requirements of Paragraph 10.3.
- 11.5 If the Parties to this Consent Order agree that the delay or anticipated delay was beyond the control of the Respondent, this may be so stipulated and the parties to this Consent Order may agree upon an appropriate modification of this Consent Order. If the Parties to this Consent Order are unable to reach such agreement, the dispute shall be resolved in accordance with Section X, Dispute Resolution, of this Consent Order. The burden of proving that any delay was beyond the reasonable control of the Respondent, and that all the requirements of this section have been met by the Respondent, is on the Respondent.

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- 11.6 An extension of any given compliance date based upon a particular incident does not necessarily mean that the Respondent qualifies for an extension of a subsequent compliance date without providing proof regarding each incremental step or other requirement for which an extension is sought.

XII. GENERAL PROVISIONS

- 12.1 With respect to any violations not specifically addressed and resolved by this Consent Order, the DEQ reserves the right to pursue any other remedies to which it is entitled for any failure on the part of the Respondent to comply with the requirements of any state or federal law, including the NREPA and its rules.
- 12.2 Execution of the schedule contained in this Consent Order shall not be construed to waive, estop, or otherwise diminish the DEQ's right to seek or impose civil liability upon, and seek appropriate relief from, the Respondent for degradation of waters of the State and the designated uses thereof arising out of the failure of the Respondent to achieve a proper cleanup pursuant to this Consent Order.
- 12.3 This Consent Order does not constitute a warranty or representation of any kind by the DEQ that the response activities performed in accordance with this Consent Order or DEQ-approved work plans will result in the achievement of the remedial criteria established by law, or that the response activities will ensure protection of public health, safety, or the environment.
- 12.4 This Consent Order in no way affects the Respondent's responsibility to comply with any other applicable state, federal, or local laws or regulations including, without limitation, any corrective action or similar requirements applicable to the Site pursuant to the NREPA and its rules.
- 12.5 Nothing in this Consent Order is or shall be considered to affect any liability the Respondent may have for natural resources damages caused by the Respondent's ownership and/or operation of the Site. The State of Michigan does not waive any rights

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to bring an appropriate action to recover such damages to the natural resources.

- 12.6 The Parties agree that the terms and conditions of this Consent Order will be enforceable in circuit court. The Parties further agree that the appropriate venue for the enforcement of this Consent Order shall be the Circuit Court for Genesee County or Ingham County, State of Michigan, which courts shall also be appropriate for dispute resolution.
- 12.7 If any provision or authority of this Consent Order or the application of this Consent Order to any Party or circumstances is held by any judicial or administrative authority to be invalid, the application of such provisions to other Parties or circumstances and the remainder of the Consent Order shall remain in force and shall not be affected thereby.
- 12.8 The provisions of this Consent Order shall be binding on the Respondent, the DEQ, and their successors and assigns. The Respondent shall give notice of this Consent Order to any prospective successor in interest prior to transfer of ownership of the Site property or any portion thereof and shall notify the DEQ of such proposed sale or transfer.

XIII. TERMINATION

- 13.1 This Consent Order shall remain in full force and effect until expressly terminated by a written Notice of Termination issued by the Office Chief. The Respondent may request that the Office Chief issue a written Notice of Termination at any time after achieving full compliance with this Consent Order. Such a request shall consist of a written certification that the Respondent has fully complied with all of the requirements of this Consent Order and has made payment of any fines, penalties, and costs required under this Consent Order. Specifically, this certification shall include:
- a. The date of compliance with each provision of the compliance program in Section II of this Consent Order and the date any fines, penalties, or costs were paid;

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Privileged and Confidential Settlement Communication

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- b. a statement that all required information has been reported to the District Supervisor;
- c. confirmation that all records required to be maintained pursuant to this Consent Order are being maintained by the City; and
- d. additional relevant information requested by the Office Chief.

13.2 The Office Chief shall issue a written Notice of Termination unless the DEQ determines that the Respondent has not submitted the certification required under this section, has failed to submit the information specifically requested by the Office Chief, or has failed to comply with, or complete, all of the requirements of this Consent Order.

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XIII. SIGNATORIES

The undersigned CERTIFY they are fully authorized by the party they represent to enter into this Consent Order to comply by consent and to EXECUTE and LEGALLY BIND that party to it.

{OWNER/OPERATOR'S FULL LEGAL NAME}DEPARTMENT OF ENVIRONMENTAL
QUALITY

By: _____

Dan Wyant
Director

Name: _____

Title: _____

Date: _____

By: _____
Elizabeth M. Browne, Chief
Office of Waste Management and
Radiological Protection

Date: _____

APPROVED AS TO FORM:

Bill Schuette
Attorney General

{INSERT NAME OF AAG ASSIGNED} {P_____}
 Assistant Attorney General
 Environment, Natural Resources, and
 Agriculture Division
 Department of Attorney General
 Constitution Hall, 5th Floor, South Tower
 525 West Allegan Street
 Lansing, Michigan 48933

Date: _____

From: Busch, Stephen (DEQ)
Sent: Tuesday, February 18, 2014 11:40 AM
To: Brim, Richard (DEQ)
Cc: Craig, John (DEQ); Arduin, Jim (DEQ)
Subject: Flint ACO DW Statement of Purpose revision

Revised language for the last paragraph of the statement of purpose is shown below.

Finally, if the Respondent proposes to reconstruct the system for the non-mechanical dewatering of its WTP residuals at the Site, then the Respondent will submit plans and specifications and secure from the DEQ, Office of Drinking Water and Municipal Assistance ("ODWMP"), a public water supply construction permit issued under Section 4 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), MCL 325.1001 *et seq.*, and the administrative rules under Act 399 prior to initiating any construction, alteration, addition, or improvement to such system. A residuals management plan for the historical disposal of lime sludge and other WTP residuals, as well as lime sludge and any other WTP residuals generated in the future, must also be included as part of the construction permit application. The Respondent's proposal is based on its participation in the Karegnondi Water Authority (KWA) to receive source water from Lake Huron for its drinking water supply and the use of its water treatment plant to meet treatment requirements under Act 399. It will be approximately four years before the KWA infrastructure is built and water is available to the Respondent from KWA. The respondent plans to use the Flint River as its temporary source of untreated water supply until KWA water is available. The respondent must undertake the KWA public improvement project or undertake other public improvement projects to continue to use the Flint River, such as additional water treatment plant public improvements, source water protection public improvements and public improvements to obtain back-up water supply in order to comply with Act 399.

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

From: Brim, Richard (DEQ)
Sent: Thursday, February 20, 2014 10:25 AM
To: Busch, Stephen (DEQ); Craig, John (DEQ); Arduin, Jim (DEQ)
Subject: Newest Draft of the Bray Road Consent Order
Attachments: city-of-flint-bray-road-co-2-19-2014 (2).docx

All, attached is the latest version of the Consent Order for your review. When comments are received from you I will send the Order to Cheryl Bartley and Nicole for them to comment. After they comment I will send a draft to Mike Robinson, Rich.

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STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF WASTE MANAGEMENT AND RADIOLOGICAL PROTECTION

In the matter of the
administrative proceedings against
City of Flint, doing business at
5200 Bray Road, Genesee Township,
Genesee County, Michigan

OWMRP Order No. 115- -14

/

CONSENT ORDER

This proceeding results from unresolved allegations specified in the Letters of Warning, (LOWs) issued on April 9, 2001, and February 14, 2002, by the Department of Environmental Quality ("DEQ"), and in Compliance Communications, dated April 15, 1997, April 19, 2002, September 8, 2003, October 28, 2003 and January 18, 2011. (Attachment 1). The DEQ, Office of Waste Management and Radiological Protection ("OWMRP") alleges that the city of Flint ("Respondent") at 5200 Bray Road, Genesee Township, Genesee County, Michigan (the "Site"), placed or allowed the placement of solid waste in an open dump and/or abandoned solid waste in place of other disposal in violation of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, Michigan Compiled Laws ("MCL") 324.101 *et seq.* ("NREPA"), and the administrative rules promulgated under Part 115. The Respondent and the DEQ agree to resolve the alleged violations set forth in the above-referenced LOWs and Compliance Communications by entry of this Consent Order.

STATEMENT OF PURPOSE

In entering into this Consent Order, the mutual objectives of the Respondent and the DEQ are to address the open dump created at the Site, eliminate the surface water discharge from the Site to the Cornwell Drain, and allow the Respondent to reconstruct the system at the Site used to manage drinking water treatment plant (WTP) residuals.

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To accomplish these objectives, the Respondent will determine the areal extent and character of any solid waste historically disposed of at the Site, including, but not limited to, the WTP residuals and any solid wastes identified as being disposed of in the above-referenced LOWs and Compliance Communications. Consistent with the waste characterization and other investigation data, the Respondent will either remove and dispose of the waste at a disposal area that is permitted and licensed by the DEQ, leave the solid waste in place and place final cover over it in accordance with the requirements of Part 115 and this Order. In addition, the Respondent will determine, by conducting a remedial investigation, whether any response activities must be taken to address contamination caused by the unauthorized disposal of solid waste at the Site. The Respondent shall also manage the historical lime sludge at the site as solid waste and dispose of it in accordance with Part 115 requirements, unless it is determined by proper characterization that the historical lime sludge can be used on farm land at appropriate agronomic rates. The Respondent shall include a plan for removal of the historical lime sludge as a condition of this Order. The Respondent plans to use the Flint River as its temporary source of untreated water supply until KWA water is available. The Respondent must undertake the KWA public improvement project or undertake other public improvement projects to continue to use the Flint River, such as additional water treatment plant public improvements, source water protection public improvements and public improvements to obtain back-up water supply, in order to comply with Act 399.

Finally, if the Respondent proposes to reconstruct the system for the non-mechanical dewatering of its WTP residuals at the Site, then the Respondent will submit plans and specifications and secure from the DEQ, Office of Drinking Water and Municipal Assistance ("ODWMA"), a public water supply construction permit issued under Section 4 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), MCL 325.1001 *et seq.*, and the administrative rules under Act 399 prior to initiating any construction, alteration, addition, or improvement to such system. In lieu of disposal as solid waste residuals management plan for the historical disposal of lime sludge and other WTP residuals, as well as lime sludge and any other WTP residuals generated in the future, must also be included as part of the construction permit application. The Respondent's plans to participate in the Karegnondi Water Authority (KWA) to receive source water from Lake Huron for its drinking water supply and the use of its

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water treatment plant to meet treatment requirements under Act 399. It will be approximately four years before the KWA infrastructure is built and water is available to the Respondent from KWA. The Respondent plans to use the Flint River as its source water supply until KWA water is fully available. Public improvement projects under Act 399 are required to be completed for Respondent to receive water from the KWA.

I. DEFINITIONS

- 1.1 "Act 399" means the Safe Drinking Water Act, 1976 PA 399, as amended, MCL 325.1001 *et seq.*
- 1.2 "FAM" means the financial assurance mechanism acceptable to the DEQ to pay for monitoring, operation and maintenance, oversight, and other costs determined by the DEQ to be necessary to ensure the effectiveness and integrity of the remedial action. The FAM is a component of a Remedial Action Plan.
- 1.3 "NREPA" means the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 *et seq.*
- 1.4 "Open dump" means any area, place, or property where solid waste has been illegally disposed of or abandoned in place of other disposal.
- 1.5 "Part 115" means Part 115, Solid Waste Management, of the NREPA, MCL 324.11501 *et seq.*, and the Part 115 Administrative Rules.
- 1.6 "Part 115 Rules" means the administrative rules promulgated under Part 115.
- 1.7 "Part 201" means Part 201, Environmental Remediation, of the NREPA, MCL 324.20101 *et seq.*, and the Part 201 Administrative Rules.

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- 1.8 "Residuals Management Plan" means a DEQ-approved plan to remove both historical and future accumulations of lime sludge and other WTP residuals from the Site.
- 1.9 "Site" means the property located at 5200 Bray Road, Genesee Township, Genesee County, Michigan.
- 1.10 "Solid Waste" as used in this Consent Order means "solid waste" as defined in Part 115 of the NREPA, MCL 324.11506(1), including any waste that has been disposed of at the Site, including lime sludge from WTP operations conducted by the Respondent.

II. STIPULATIONS

The Respondent and the DEQ stipulate as follows:

- 2.1 Pursuant to its authority under Part 115, the DEQ promulgated administrative rules necessary to implement Part 115. These rules are set forth in the 2005 *Annual Administrative Code Supplement* (AACS), R 299.4101 *et seq.* ("Part 115 Rules").
- 2.2 Pursuant to its authority under Act 399, the DEQ promulgated administrative rules necessary to implement Act 399. These rules are set forth in the 2009 AACS, R 325.10101 *et seq.*
- 2.3 Pursuant to the NREPA and Executive Order No. 2011-1, the Director of the DEQ ("Director") is the state official and the DEQ is the state agency charged with the administration and enforcement of Part 115 and Act 399. This Consent Order is authorized under MCL 324.11519(2) and MCL 325.1022.
- 2.4 The Respondent is a "person" as defined by MCL 324.301(g) and MCL 325.1002(m).

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- 2.5 The Respondent owns and operates the Site located at 5200 Bray Road, Genesee Township, Genesee County. The Respondent is a state of Michigan municipality.
- 2.6 The Site occupies approximately 76 acres of land adjacent to the Cornwell Drain on its northern boundary. The Cornwell Drain is a tributary to the Flint River. The Site consists of a WTP residuals storage area and contains various water level control structures and discharge points to the Cornwell Drain, and an area of where solid waste has been disposed in an open dump ("Open Dump"). Attachment 2 is an aerial schematic of the Site and shows the approximate boundaries of the WTP residuals storage area and the Open Dump.
- 2.7 The Respondent stipulates that the issuance and entry of this Consent Order is proper and acceptable. This Consent Order shall be considered a final order of the DEQ and shall become effective on the date it is signed by the Chief of the Office of Waste Management and Radiological Protection "(Office Chief)", designee of the Director, pursuant to MCL 324.301(b) of the NREPA.
- 2.8 The Respondent agrees to fully and strictly comply with all provisions of Part 115 and Act 399, the Part 115 Rules, the Act 399 Rules, and all other applicable state and federal statutes.
- 2.9 The Respondent and the DEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Respondent of the allegations contained in the above-referenced LOWs and Compliance Communication or that the law has been violated.
- 2.10 The Respondent, all Respondent's successors and assigns, and the DEQ agree to and shall be bound by the requirements of this Consent Order.

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III. COMPLIANCE PROGRAM

In order to resolve the violations alleged in the above-referenced LOWs and Compliance Communication, the Respondent shall achieve and maintain compliance with the requirements specified below in accordance with the following schedule:

- 3.1 On and after the effective date of this Consent Order, the Respondent shall ensure that the Site is secure and that, pursuant to R 299.4128(1), illegal dumping does not occur at the Site.
- 3.2 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall plug or cap the outlet tower identified in Attachment ____ and take all necessary actions to terminate any surface water discharge to the Cornwell Drain. Respondent will not place the outlet tower back into service unless proper permits are acquired.
- 3.3 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall submit to the ODWMP for review and approval, an administratively complete Act 399 construction permit application for the reconstruction of the non-mechanical dewatering system for WTP residuals at the Site, including the physical barrier that will separate the WTP filter backwash, including lime sludge, from the other solid waste located on the Site. The permit application will clearly identify any areas that will not be used as part of the reconstructed non-mechanical dewatering system and identify any slurry inlet points located outside the system footprint so such inlet points can be permanently capped by the Respondent. The permit application will also include a basis of design for the management of WTP residuals within the system.
- 3.4 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall submit to the OWMRP for review and approval, any portion of the dewatering system residuals management plan submitted to the ODWMA that is required to comply with Part 115.

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3.5 Within two hundred and forty (240) days of the effective date of this Consent Order, the Respondent shall submit to the DEQ for review and approval, a report that summarizes the site conditions ("Site Conditions Summary Report") "(SCSR)" at the Bray Road Open Dump site. This SCSR shall include, at a minimum, the following:

- Identification of the horizontal and vertical extent of solid waste at the site.
- Estimates, in cubic yards, of the volumes of un-impacted concrete, lime, and other solid waste at the site.
- Characterization of the solid wastes at the site including data to support the characterizations,
- Identification, characterization, and delineation of any environmental impacts at the site.
- Identification of general geologic and hydrogeologic site conditions.
- Copies of DEQ approved inertness designations and/or DEQ approved "other beneficial reuse" authorizations obtained by Respondent

The SCSR should include information that is typically found in a remedial investigation report.

If the SCSR identifies that no environmental impacts exist at the site and the only issue to address is the solid waste identified at the site, Respondent may submit a "Solid Waste Removal Plan" as identified in paragraph 3.12. Otherwise, Respondent shall proceed with paragraphs 3.6 through 3.11.

3.6 If the SCSR fails to delineate the horizontal and vertical extent of solid waste, or fails to delineate any contamination identified at the site, or fails to support conclusions identified in the report, or is dis-approved for other specified deficiencies, the Respondent shall develop and implement a remedial investigation. A complete and technically adequate work plan for a remedial investigation Remedial Investigation Work Plan "(RIWP)" shall be submitted by Respondent to the DEQ within sixty (60) days of the DEQ's notification to Respondent that the RIWP is necessary. Upon approval by the DEQ, the Respondent shall implement the RIWP in accordance with the schedule contained therein. The Respondent shall submit, for review and approval

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- by DEQ, final results and conclusions of the remedial investigation in the form of a written report Remedial Investigation Report "(RIR)" within thirty (30) days of completion of the remedial investigation.
- 3.7 Within ninety (90) days of written DEQ approval of the RIR required by Paragraph 3.6, or written DEQ approval of the SCSR required by Paragraph 3.5, the Respondent shall submit to the DEQ, an Assessment of Corrective Measures "(ACM)" that is in accordance with R 299.4443. The ACM shall include an analysis of each potential remedy considered. In addition, the ACM shall identify the final remedial action proposed by the Respondent and provide an explanation of how that action will meet applicable cleanup criteria of Part 201 and be in compliance with Part 115.
- 3.8 Within one hundred twenty (120) days of receipt of written approval of the ACM from the DEQ, the Respondent shall submit to the DEQ for review and approval, a complete and technically adequate remedial action plan Remedial Action Plan "(RAP)" for the Open Dump that is in compliance with the requirements of R 299.4444. The RAP shall include a detailed schedule for implementation. The RAP shall be consistent with the results of the remedial investigation and any other monitoring data collected, reports submitted, and/or investigations conducted prior to submittal of the RAP. The RAP, when implemented, shall comply with the applicable cleanup criteria of Part 201 and, upon approval of the plan by the DEQ, the Respondent shall implement the approved RAP in accordance with the schedule contained therein.
- 3.9 If, in accordance with an approved ACM, the Respondent elects to cap and close in-place the solid waste identified at the Site, the Respondent must, as part of the RAP, submit to the DEQ for review and approval, a capping and cell closure plan and schedule Capping and Cell Closure Plan "(CCCP)" and a post closure plan Post Closure Plan "(PCP)" for the Site that are in compliance with the requirements of R 299.4425, R 299.4447, respectively, and Part 115. Upon DEQ approval of the CCCP and the PCP, the Respondent shall implement the plans in accordance with the schedules contained therein. If the Respondent lacks the expertise and/or manpower

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to conduct the work in accordance with the DEQ-approved CCCP, the PCP, and the Part 115 Rules, the Respondent shall contract the work to be performed by a contractor experienced with landfill construction work.

- 3.10 If, in accordance with an approved ACM, the Respondent elects to cap and close in-place the solid waste identified at the Site, the Respondent must, as part of the RAP, submit to the DEQ for review and approval, a hydrogeologic monitoring plan ("Hydrogeologic Monitoring Plan") for the Site that complies with R 299.4904, R 299.4905, R 299.4906, R 299.4907, and R 299.4908 of the Part 115 Rules. Upon approval by the DEQ, the Respondent shall implement the Hydrogeologic Monitoring Plan in accordance with the schedule contained therein.
- 3.11 If the Respondent gains approval from the OWMRP to leave solid waste at the site in accordance with Part 115, then Respondent shall be required to provide appropriate financial assurance as required by Part 115.
- 3.12 Within thirty (30) days of receipt of written approval of the SCSR from the DEQ, the Respondent shall submit to the DEQ for review and approval, a Solid Waste Removal Plan "(SWRP)" for the Site. This plan will provide details regarding the proposed removal, and legal disposal, of solid waste identified at the site. In addition, the plan shall include a proposed schedule for waste removal, and a proposed waste removal confirmation sampling plan.
- 3.13 Within sixty (60) days of completion of the SWRP, Respondent shall submit to the DEQ for review and approval, a Solid Waste Removal Report for the Site. This report will contain summaries of waste volumes, final disposition of wastes, copies of landfill receipts, copies of paperwork required by "other beneficial reuse" authorizations and waste removal confirmation sampling results.

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IV. DEQ APPROVAL OF SUBMITTALS

- 4.1 For any work plan, proposal, or other document, excluding applications for permits or licenses, that are required by this Consent Order to be submitted to the DEQ by the Respondent, the following process and terms of approval shall apply.
- 4.2 To be approved by the DEQ, any work plan, proposal, or other document required to be submitted by this Consent Order shall include all of the information required by the applicable statute and/or rule and all of the information required by the applicable paragraph(s) of this Consent Order.
- 4.3 Upon DEQ approval, or approval with modifications, of a work plan, proposal, or other document, such work plan, proposal, or other document shall be incorporated by reference into this Consent Order and shall be enforceable in accordance with the provisions of this Consent Order.
- 4.4 In the event the DEQ disapproves a work plan, proposal, or other document, it shall notify the Respondent, in writing, of the specific reasons for such disapproval. The Respondent shall submit, within thirty (30) days of receipt of such disapproval, a revised work plan, proposal, or other document that adequately addresses the reasons for the DEQ's disapproval.
- 4.5 In the event the DEQ approves with specific modifications, a work plan, proposal, or other document, it shall notify the Respondent, in writing, of the specific modifications required to be made to such work plan, proposal, or other document prior to its implementation and the specific reasons for such modifications. The DEQ may require the Respondent to submit, prior to implementation and within thirty (30) days of receipt of such approval with specific modifications, a revised work plan, proposal, or other document that adequately addresses such modifications.

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- 4.6 A finding of approval or approval with modification of a submission shall not be construed to mean that the DEQ concurs with any of the conclusions, methods, or statements in the submission or warrants that the submission comports with law.
- 4.7 Failure by the Respondent to submit an approvable work plan, proposal, or other document within the applicable time period specified above shall subject the Respondent to the enforcement provisions of this Consent Order including, but not limited to, the stipulated penalty provisions commencing on the date the revised work plan, proposal, or other document was due and accumulating until an approvable work plan, proposal, or other document is submitted.
- 4.8 Any delays caused by the Respondent's failure to submit an approvable work plan, proposal, or other document when due shall in no way affect or alter the Respondent's responsibility to comply with any other deadline(s) specified in this Consent Order.
- 4.9 No informal advice, guidance, suggestions, or comments by staff of the DEQ regarding reports, work plans, proposals, plans, specifications, schedules, or any other writing submitted by the Respondent will be construed as relieving the Respondent of its obligation to obtain written approval of the DEQ if and when required by this Consent Order.

V. MODIFICATIONS AND EXTENSIONS

- 5.1 At the request of the Respondent, a work plan, proposal, or other document approved or approved with specific modifications by the DEQ, with the exclusion of the specified deadlines set forth in Section II, Compliance Program, of this Consent Order, may be modified by the OWMRP Lansing District Supervisor. Any modifications or extensions in regard to the Act 399 construction permit must be approved by the ODWMA Lansing District Supervisor

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5.2 The Respondent and the DEQ agree that the Office Chief may, but in no circumstances is obligated to, grant the Respondent an extension of the specified deadlines set forth in this Consent Order. Any extension shall be preceded by a timely written request, received by the DEQ no later than ten (10) business days prior to the pertinent deadline, which shall include:

- a. An identification of the specific deadline(s) of this Consent Order that will not be met.
- b. A detailed description of what will prevent the Respondent from meeting the deadline(s).
- c. A description of the measures the Respondent has taken and/or intends to take to meet the required deadline(s).
- d. The length of the extension requested and the specific date(s) on which the obligation(s) will be met.

5.3 The Office Chief shall respond promptly to such requests and shall not unreasonably withhold approval for such requests.

5.4 Any extension of the specified deadlines or other modifications and amendments of this Consent Order shall require a formal written amendment of this Consent Order, shall be signed by the Respondent and the DEQ ("Parties"), shall have as their effective date the date on which they are signed by the Office Chief, and shall be incorporated into and become an enforceable part of this Consent Order.

VI. REPORTING

6.1 The Respondent shall submit all items required in Section II, Compliance Program, to the Lansing District Supervisor, OWMRP, DEQ, P.O Box 30241 Lansing, Michigan

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48909-7742, unless specifically directed otherwise within this Consent Order. The cover letter with each submittal shall identify the specific paragraph and requirement of this Consent Order that the submittal is intended to satisfy. If the address of the District Supervisor changes, the Respondent will be notified and shall make all subsequent submittals to any new address of which they are notified.

- 6.2 The Respondent shall verbally report any violation(s) of the terms and conditions of this Consent Order to the District Supervisor by no later than the close of the next business day following detection of such violation(s) and shall follow such notification with a written report within five (5) business days following detection of such violation(s). The written report shall include a detailed description of the violation(s), the precise cause or causes of the violation(s), a detailed description of any action(s) taken or proposed to correct the violation(s), and a schedule for the implementation of any proposed corrective action(s). The Respondent shall report any anticipated violation(s) of this Consent Order to the District Supervisor in advance of the relevant deadlines, whenever possible.

VII. RETENTION OF RECORDS

- 7.1 Upon request by an authorized representative of the DEQ, the Respondent shall make available to the DEQ all records, plans, logs, and other documents required to be maintained under this Consent Order, or pursuant to Part 115 and the Part 115 Rules and Act 399 and the Act 399 Rules. All such documents shall be retained at a site that the city of Flint designates, in writing that is accessible to staff of the DEQ within normal business hours, for at least a period of three (3) years from the date of generation of the record unless a longer period of record retention is required by Part 115 and the Part 115 Rules and Act 399 and the Act 399 Rules.

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VIII. RIGHT OF ENTRY

- 8.2 The Respondent shall allow any authorized representative or contractor of the DEQ, upon presentation of proper credentials, to enter upon the premises of the Site at all reasonable times for the purpose of monitoring compliance with the provisions of this Consent Order. This paragraph in no way limits the authority of the DEQ to conduct tests and inspections pursuant to the NREPA and its rules or any other applicable statutory provision.

IX. FINES, COSTS, AND PENALTIES

- 9.1 Within thirty (30) days of the effective date of this Consent Order, the Respondent shall pay the sum of \$ to the State of Michigan in settlement of the DEQ's claim for civil fines arising from the violations alleged in the above-referenced LOWs and Compliance Communication.
- 9.2 For each failure to comply with the provisions of Section II, Compliance Program, of this Consent Order, the Respondent shall pay to the State of Michigan stipulated penalties in an amount of \$250 per violation per day for one (1) through seven (7) days of violation; \$500 per violation per day for eight (8) through fourteen (14) days of violation; and \$750 per violation per day for each day of violation thereafter. Stipulated penalties shall be paid within thirty (30) days after receiving a written demand made by the DEQ.
- 9.3 To ensure timely payment of any civil fines, penalties, and costs due under this Consent Order, the Respondent shall pay an interest penalty to the State of Michigan each time the Respondent fails to make a complete or timely payment. This interest penalty shall be based on the rate set forth at Section 6013(6) of the Revised Judicature Act, 1961 PA 236, as amended, MCL 600.6013(6), using the full increment of amount due as principal, and calculated from the due date for the payment until the delinquent payment is finally made in full.

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- 9.4 The Respondent shall make all payments due under this Consent Order by certified or cashier's check made payable to the "State of Michigan" and mailed to the DEQ, Revenue Control Unit, P.O. Box 30657, Lansing, Michigan 48909-8157, or hand delivered to the DEQ, Revenue Control Unit, 1st Floor, Van Wagoner Building, 425 West Ottawa Street, Lansing, Michigan 48933. To ensure proper credit, all payments made pursuant to this Consent Order must include Payment Identification Number OWMRP_____ on the front of the check and/or in the cover letter with the payment.
- 9.5 The Respondent agrees not to contest the legality of the civil fine or the costs of surveillance and enforcement paid pursuant to this section. The Respondent further agrees not to contest the legality of any stipulated penalties or interest penalties assessed pursuant to this section but reserves the right to dispute the factual basis upon which a demand by the DEQ for stipulated penalties or interest penalties is made.
- 9.6 Liability for or payment of stipulated penalties pursuant to this Consent Order shall not preclude the State of Michigan from seeking injunctive relief or other relief for the Respondent's failure to comply with the requirements of this Consent Order and/or any permit(s) or license(s) required to comply with this Consent Order.

X. DISPUTE RESOLUTION

- 10.1 Unless otherwise provided in this Consent Order, the dispute resolution procedures of this section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Order and shall apply to all provisions of this Consent Order. However, the procedures set forth in this section shall not apply to actions by the state of Michigan to enforce obligations of the Respondent that have not been disputed in accordance with this section. Engagement of a dispute resolution between the Parties shall not be cause for the Respondent to delay the performance of any compliance requirements or response activity. Any dispute that arises under this Consent Order shall in the first instance be the subject of informal negotiations between the Parties.

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The period of negotiations shall not exceed twenty (20) days from the date of written notice by any Party that a dispute has arisen, unless the time period for negotiations is modified by written agreement between the Parties. The dispute shall be considered to have arisen when one Party sends the other Party a written notice of dispute. If agreement cannot be reached on any issue within this twenty- (20-) day period, the DEQ shall provide a written statement of its decision to the Respondent and, in the absence of initiation of formal dispute resolution by the Respondent under Paragraph 10.3, the DEQ position, as outlined in its written statement of decision, shall be binding on the Parties.

10.2 If the Respondent and DEQ cannot informally resolve a dispute under Paragraph 9.1, the Respondent may initiate formal dispute resolution by requesting a review of the disputed issues by the Office Chief. This written request must be filed with the Office Chief within fifteen (15) days of the Respondent's receipt of the DEQ's statement of decision that is issued at the conclusion of the informal dispute resolution procedure set forth in Paragraph 9.1. The Respondent's request shall state the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting its position; and all supporting documentation upon which the Respondent bases its position. Within fourteen (14) days of the Office Chief's receipt of the Respondent's request for a review of disputed issues, the Office Chief will provide a written statement of decision to the Respondent, which will include a statement of his/her understanding of the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting her/his position; and all supporting documentation relied upon by the Office Chief's review of the disputed issues. The Office Chief's review of the disputed issues may be extended by written agreement of the Parties.

10.3 The written statement of the Office Chief issued under Paragraph 10.3 shall be binding on the Parties unless, within fifteen (15) days after receipt of the DEQ's written statement of decision, the Respondent files a petition for judicial review in a court of competent jurisdiction that shall set forth a description of the matter in dispute, the

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efforts made by the Parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Order. Nothing in this Consent Order affects the limitations on the timing of judicial review of the DEQ decision regarding the selection, extent, or adequacy of any response activity.

- 10.4 An administrative record of the dispute shall be maintained by the DEQ. The administrative record shall include all of the information provided by the Respondent pursuant to Paragraph 9.3, as well as any other documents relied upon by the DEQ in making its final decision pursuant to Paragraph 10.3. Where appropriate, the DEQ shall allow submission of supplemental statements of position by the Parties to the dispute.
- 10.5 In proceeding on any dispute, the Respondent shall have the burden of demonstrating on the administrative record that the position of the DEQ is arbitrary and capricious or otherwise not in accordance with law. In proceedings on any dispute initiated by the Respondent, the Respondent shall bear the burden of persuasion on factual issues.
- 10.6 Notwithstanding the invocation of dispute resolution proceedings, stipulated penalties shall accrue from the first day of any failure or refusal to comply with any term or condition of this Consent Order, but payment shall be stayed pending resolution of the dispute. Stipulated penalties shall be paid within thirty (30) days after the resolution of the dispute. The Respondent shall pay that portion of a demand for payment of stipulated penalties that is not subject to dispute resolution procedures in accordance with and in the manner provided in Section IX, Fines, Costs, and Penalties.

XI. FORCE MAJEURE

- 11.1 The Respondent shall perform the requirements of this Consent Order within the time limits established herein unless performance is prevented or delayed by events that constitute a "Force Majeure." Any delay in the performance attributable to a "Force Majeure" shall not be deemed a violation of the Respondent's obligations under this

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Consent Order in accordance with this section.

- 11.2 For the purpose of this Consent Order, "Force Majeure" means an occurrence or nonoccurrence arising from causes not foreseeable, beyond the control of, and without the fault of the Respondent, such as: an Act of God, untimely review of permit applications or submissions by the DEQ or other applicable authority, and acts or omissions of third parties that could not have been avoided or overcome by the Respondent's diligence and that delay the performance of an obligation under this Consent Order. "Force Majeure" does not include, among other things, unanticipated or increased costs, changed financial circumstances, or failure to obtain a permit or license as a result of the Respondent's actions or omissions.
- 11.3 The Respondent shall notify the DEQ, by telephone, within forty-eight (48) hours of discovering any event that causes a delay in its compliance with any provision of this Consent Order. Verbal notice shall be followed by written notice within ten (10) calendar days and shall describe, in detail, the anticipated length of delay, the precise cause or causes of delay, the measures taken by the Respondent to prevent or minimize the delay, and the timetable by which those measures shall be implemented. The Respondent shall adopt all reasonable measures to avoid or minimize any such delay.
- 11.4 Failure of the Respondent to comply with the notice requirements of Paragraph 10.3, above, shall render this section void and of no force and effect as to the particular incident involved. The DEQ may, at its sole discretion and in appropriate circumstances, waive the notice requirements of Paragraph 10.3.
- 11.5 If the Parties to this Consent Order agree that the delay or anticipated delay was beyond the control of the Respondent, this may be so stipulated and the parties to this Consent Order may agree upon an appropriate modification of this Consent Order. If the Parties to this Consent Order are unable to reach such agreement, the dispute shall be resolved in accordance with Section X, Dispute Resolution, of this Consent Order. The burden of proving that any delay was beyond the reasonable control of the Respondent, and that

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all the requirements of this section have been met by the Respondent, is on the Respondent.

- 11.6 An extension of any given compliance date based upon a particular incident does not necessarily mean that the Respondent qualifies for an extension of a subsequent compliance date without providing proof regarding each incremental step or other requirement for which an extension is sought.

XII. GENERAL PROVISIONS

- 12.1 With respect to any violations not specifically addressed and resolved by this Consent Order, the DEQ reserves the right to pursue any other remedies to which it is entitled for any failure on the part of the Respondent to comply with the requirements of any state or federal law, including the NREPA and its rules.
- 12.2 Execution of the schedule contained in this Consent Order shall not be construed to waive, estop, or otherwise diminish the DEQ's right to seek or impose civil liability upon, and seek appropriate relief from, the Respondent for degradation of waters of the State and the designated uses thereof arising out of the failure of the Respondent to achieve a proper cleanup pursuant to this Consent Order.
- 12.3 This Consent Order does not constitute a warranty or representation of any kind by the DEQ that the response activities performed in accordance with this Consent Order or DEQ-approved work plans will result in the achievement of the remedial criteria established by law, or that the response activities will ensure protection of public health, safety, or the environment.
- 12.4 This Consent Order in no way affects the Respondent's responsibility to comply with any other applicable state, federal, or local laws or regulations including, without limitation, any corrective action or similar requirements applicable to the Site pursuant to the NREPA and its rules.

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- 12.5 Nothing in this Consent Order is or shall be considered to affect any liability the Respondent may have for natural resources damages caused by the Respondent's ownership and/or operation of the Site. The State of Michigan does not waive any rights to bring an appropriate action to recover such damages to the natural resources.
- 12.6 The Parties agree that the terms and conditions of this Consent Order will be enforceable in circuit court. The Parties further agree that the appropriate venue for the enforcement of this Consent Order shall be the Circuit Court for Genesee County or Ingham County, State of Michigan, which courts shall also be appropriate for dispute resolution.
- 12.7 If any provision or authority of this Consent Order or the application of this Consent Order to any Party or circumstances is held by any judicial or administrative authority to be invalid, the application of such provisions to other Parties or circumstances and the remainder of the Consent Order shall remain in force and shall not be affected thereby.
- 12.8 The provisions of this Consent Order shall be binding on the Respondent, the DEQ, and their successors and assigns. The Respondent shall give notice of this Consent Order to any prospective successor in interest prior to transfer of ownership of the Site property or any portion thereof and shall notify the DEQ of such proposed sale or transfer.

XIII. TERMINATION

- 13.1 This Consent Order shall remain in full force and effect until expressly terminated by a written Notice of Termination issued by the Office Chief. The Respondent may request that the Office Chief issue a written Notice of Termination at any time after achieving full compliance with this Consent Order. Such a request shall consist of a written certification that the Respondent has fully complied with all of the requirements of this Consent Order and has made payment of any fines, penalties, and costs required under this Consent Order. Specifically, this certification shall include:

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- a. The date of compliance with each provision of the compliance program in Section II of this Consent Order and the date any fines, penalties, or costs were paid;
 - b. a statement that all required information has been reported to the District Supervisor;
 - c. confirmation that all records required to be maintained pursuant to this Consent Order are being maintained by the City; and
 - d. additional relevant information requested by the Office Chief.
- 13.2 The Office Chief shall issue a written Notice of Termination unless the DEQ determines that the Respondent has not submitted the certification required under this section, has failed to submit the information specifically requested by the Office Chief, or has failed to comply with, or complete, all of the requirements of this Consent Order.

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XIII. SIGNATORIES

The undersigned CERTIFY they are fully authorized by the party they represent to enter into this Consent Order to comply by consent and to EXECUTE and LEGALLY BIND that party to it.

{OWNER/OPERATOR'S FULL LEGAL NAME}DEPARTMENT OF ENVIRONMENTAL
QUALITY

By: _____

Dan Wyant
Director

Name: _____

Title: _____

Date: _____

By: _____
Elizabeth M. Browne, Chief
Office of Waste Management and
Radiological Protection

Date: _____

APPROVED AS TO FORM:

Bill Schuette
Attorney General

{INSERT NAME OF AAG ASSIGNED} {P_____}
 Assistant Attorney General
 Environment, Natural Resources, and
 Agriculture Division
 Department of Attorney General
 Constitution Hall, 5th Floor, South Tower
 525 West Allegan Street
 Lansing, Michigan 48933

Date: _____

From: Busch, Stephen (DEQ)
Sent: Thursday, February 20, 2014 12:46 PM
To: Brim, Richard (DEQ); Craig, John (DEQ); Arduin, Jim (DEQ)
Subject: RE: Newest Draft of the Bray Road Consent Order
Attachments: Flint ACO DW Statement of Purpose revision

My Drinking water modifications were put into the wrong paragraph. It should have been at the very end of the statement of purpose.

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

From: Brim, Richard (DEQ)
Sent: Thursday, February 20, 2014 10:25 AM
To: Busch, Stephen (DEQ); Craig, John (DEQ); Arduin, Jim (DEQ)
Subject: Newest Draft of the Bray Road Consent Order

All, attached is the latest version of the Consent Order for your review. When comments are received from you I will send the Order to Cheryl Bartley and Nicole for them to comment. After they comment I will send a draft to Mike Robinson, Rich.

From: Busch, Stephen (DEQ)
Sent: Tuesday, February 18, 2014 11:40 AM
To: Brim, Richard (DEQ)
Cc: Craig, John (DEQ); Arduin, Jim (DEQ)
Subject: Flint ACO DW Statement of Purpose revision

Revised language for the last paragraph of the statement of purpose is shown below.

Finally, if the Respondent proposes to reconstruct the system for the non-mechanical dewatering of its WTP residuals at the Site, then the Respondent will submit plans and specifications and secure from the DEQ, Office of Drinking Water and Municipal Assistance ("ODWMP"), a public water supply construction permit issued under Section 4 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), MCL 325.1001 *et seq.*, and the administrative rules under Act 399 prior to initiating any construction, alteration, addition, or improvement to such system. A residuals management plan for the historical disposal of lime sludge and other WTP residuals, as well as lime sludge and any other WTP residuals generated in the future, must also be included as part of the construction permit application. The Respondent's proposal is based on its participation in the Karegnondi Water Authority (KWA) to receive source water from Lake Huron for its drinking water supply and the use of its water treatment plant to meet treatment requirements under Act 399. It will be approximately four years before the KWA infrastructure is built and water is available to the Respondent from KWA. The respondent plans to use the Flint River as its temporary source of untreated water supply until KWA water is available. The respondent must undertake the KWA public improvement project or undertake other public improvement projects to continue to use the Flint River, such as additional water treatment plant public improvements, source water protection public improvements and public improvements to obtain back-up water supply, in order to comply with Act 399.

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

From: Matta, Samir <SFMatta@lan-inc.com>
Sent: Tuesday, March 25, 2014 11:17 AM
To: Prysby, Mike (DEQ)
Cc: Busch, Stephen (DEQ); Arduin, Jim (DEQ)
Subject: RE: Bray Road Lagoon Improvements - MDEQ Comments
Attachments: Bray Road Basis of Design.pdf

Hi Mike,

I thought we shared the basis of design information with you but it seems I did not so here it is.

The City would like to have a sit down meeting tomorrow or Thursday afternoon either at your place or City Hall. Are you guys available?

Please let me know.

Thanks.

Samir F. Matta
 Senior Project Manager



**Lockwood, Andrews
& Newnam, Inc.**

D 517.819.2367 C PPI
www.lan-inc.com • sfmatta@lan-inc.com

From: Prysby, Mike (DEQ) [mailto:PRYSBYM@michigan.gov]
Sent: Friday, March 21, 2014 2:33 PM
To: Matta, Samir
Cc: Busch, Stephen (DEQ); Arduin, Jim (DEQ)
Subject: Bray Road Lagoon Improvements - MDEQ Comments

Samir,

Attached are MDEQ's comments regarding the proposed work at the Bray Road site to allow re-use of the site for the disposal of WTP lime sludge. Please contact me at your earliest convenience if you have questions regarding our comments or wish to schedule a meeting.

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

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From: Shekter, Jean (DEQ)
Sent: Tuesday, January 13, 2015 8:08 AM
To: Benzie, Richard (DEQ)
Subject: RE: FOS Update

I appreciate the update. Thank you.

From: Benzie, Richard (DEQ)
Sent: Monday, January 12, 2015 7:44 PM
To: Bolf, Michael (DEQ); Dehtiar, Luke (DEQ); Esparsa, Brian (DEQ); Klein, Jeremy (DEQ); Sarkipato, Ernest (DEQ); Walstrom, Kimberly (DEQ); Howell, Sherri (DEQ); Peterman, Tammy (DEQ); Antil, Jeffrey (DEQ); Brennan, Patrick (DEQ); Doyle, Mark (DEQ); Drake, Jerry (DEQ); DuMont, Ralph (DEQ); Rennaker, Joanne (DEQ); Chooi, Wood (DEQ); Einhardt, Nancy (DEQ); Lachance, Amy (DEQ); Ostrander, Debbie (DEQ); Reyes, Katelyn (DEQ); Wozniak, Gary (DEQ); Busch, Stephen (DEQ); Joseph, Mark (DEQ); Prysby, Mike (DEQ); Rennaker, Joanne (DEQ); Rosenthal, Adam (DEQ); Skinker, Bethel (DEQ); Brookens, Todd (DEQ); Gotham, Daryl (DEQ); Howell, Sherri (DEQ); Kaiser, Rebecca (DEQ); London, Bob (DEQ); Peterman, Tammy (DEQ); Reinke, Joseph (DEQ); Bridges, Jeriesha (DEQ); Donaldson, Kristina (DEQ); Islam, Abuzoha (DEQ); Johnson, Stephanie (DEQ); Lopez, Amber (DEQ); Stieb, Melody (DEQ); Beauchamp, Karen (DEQ); Bushong, Kathleen (DEQ); Clark, John (DEQ); Pascoe, Doug (DEQ); Swenor, Scott (DEQ); Thomas, Chuck (DEQ); Wolfe, Rob (DEQ); Berndt, Jason (DEQ); Brun Del Re, Paul (DEQ); Comage, Renee (DEQ); Cook, Pat (DEQ); Fisher, Brant (DEQ); Koenigsnecht, John (DEQ); Kukuk, Wayne (DEQ); McDermott, Kristine (DEQ); Philip, Kris (DEQ); Schmidt, Scott (DEQ); Shekter, Jean (DEQ); Bloemker, Jon (DEQ); Conradson, Scott (DEQ); Howell, Sherri (DEQ); Peterman, Tammy (DEQ); Robinson, Krista (DEQ); Slater, Brad (DEQ); Thurston, Brian (DEQ); Graham, Lois (DEQ); Deyoung, David (DEQ)
Cc: Shekter Smith, Liane (DEQ)
Subject: RE: FOS Update

Greetings,

Well it's been four weeks since my last update, but like a lot of you, I was out for two of those weeks over the holidays. I spent one of them in the U.P., where the snow-covered evergreens on bright sunny days (yes there were several) and the outdoor Christmas tree on the neighbors deck that lit up every night provided beautiful winter scenes, almost like postcards. But the air temperatures in the morning (-19, -14, etc.) were ridiculous. I told my Dad I would already be packing for somewhere warm if I lived there all winter.

Since my last update, we have been working on a number of issues and projects. I have finally begun to update the Internal Controls Evaluation (ICE) forms for the Community PWSS Program that I mentioned in my previous message. They are due by the end of this week, so I'm on my usual schedule. I'm hoping I don't have to change much from 2012. After I complete that obligation, I hope to finish putting together a hiring package for the vacant CDWU Chief position.

I have also been working with some of the SRF staff (Isabel Hartman, Eric Pohan, and David Worthington) on developing an agenda for training the less experienced district engineers on the review of DWRF Project Plans. The 6 or so engineers that have been hired in the last few years were sent an appointment for this training session last month, as their participation is expected. Others are welcome if they wish to refresh their knowledge, or despite their length of service, have not had a lot of experience with DWRF program responsibilities. I'm sorry for the late notice, but I just didn't get a chance to publicize this opportunity until last week, and it slipped my mind until I was on my way home last Friday night.

If you would like to attend this training, the meeting is next Thursday, January 22nd, at 9:30 in the Hale-Brake Conference Room, Atrium level. Our plan is to spend the morning providing a brief review of the DWRF program, then explain what is expected in a final Project Plan, outline the roles and responsibilities of Project Managers and District Engineers, cover some of the problem areas we have experienced, review the typical timeline to complete a project plan, etc. In the afternoon, I plan to review the scoring system. I see this

training as very informal with a lot of time for questions and answers. If you were not invited but would like to attend, please get supervisory approval and let me know so we have enough materials available for attendees. Right now, I am expecting Jeriesha Bridges, Ernie Sarkipato, Katelyn Reyes, Stephanie Johnson, Joe Reinke, Pat Brennan and maybe Amy Lachance. But more are welcome.

I also spent quite a bit of time last week dealing with the violation of the drinking water standard for disinfection byproducts in Flint, but not as much time as the Lansing District staff of Mike Prysby, Adam Rosenthal, and Steve Busch. Flint residents were already on edge over the recurring total coliform MCL violations last summer that occurred shortly after the city switched from purchasing Detroit water to relying upon the Flint River. And they remembered the low or no pressure problems created last winter by the extreme cold and unusual depth of frost penetration that caused more water mains than usual to burst. So when the city issued the public notification for exceeding the TTHM standard, the telephones began to ring. Fortunately, the Lansing District had forewarned management, which had forewarned the executive office. As a result, advance notification was also provided to legislators that cover the Flint area. Nonetheless, Mike and I along with Sarah Howes (assistant to the legislative liaison) found ourselves in a hastily arranged meeting in the House of Representatives office building last Tuesday afternoon to explain the problem and answer questions to the Flint area representatives.

This exceedance has several possible contributing factors, not the least of which is the much higher organic loading of the Flint River compared to Lake Huron. But it was also caused in part by Flint's historic storage tank operating practices where they maintained high levels with narrow operating ranges resulting in high residence times and little tank turnover. They may have operated in that manner to provide the most volume possible in case the DWSD pipeline burst. However, doing so after converting to the river resulted in greater TTHM formation. It is also possible that the city was not optimizing their ozonation system to reduce the TTHM precursors. Changes made in their operation before the city exceeded the MCL but after significantly elevated quarterly results were available last summer reduced the TTHM levels significantly in the latest round of monitoring. But it will take multiple rounds of monitoring to return the running annual average to compliance. Mike, Steve and Adam have continued to deal with this issue throughout the last week, and I know Mike is now preparing a Log Letter on this issue for the Director or Governor to sign. Today we learned that the city is planning an evening meeting next week to improve their communication with customers and hopefully, restore some customer confidence. The Lansing District will be participating in this event.

Some of the other activities FOS staff here in Lansing and/or I worked on since my last message include:

1. Dealing with a state audit of the DWRF program, particularly the set aside uses;
2. Getting the operator examination grades for the fall exams completed and disseminated;
3. Addressing several operator certification issues resulting from unsuccessful attempts by operators to obtain the proper license;
4. Continuing efforts to ensure drinking water is an integral part of a proposed statewide, water strategy;
5. Discussions with EPA on possible funding of a source water protection seminar in Michigan to enhance cross program integration;
6. Dealing with cross connection control issues and a legislative bill to establish an inspection frequency for residential irrigation systems (more on that to come when the deadline for Governor action passes);
7. Once again explaining to other agencies the drinking water program's history and position with respect to 1,4-Dioxane contamination and a possible standard or Health Advisory Level; and
8. A successful open house and heartfelt goodbye for Diane Reck;

We have our monthly managers meeting this Thursday. Be sure to let your supervisor know if you have any issues they should raise. I hope to discuss and then start scheduling district visits after that meeting.

Finally, as I often did for the staff in the Community Drinking Water Unit, I wanted to thank you all for the great job you have been doing in working to ensure Michigan residents and visitors have safe drinking water. In appreciation of your efforts, feel free to stay home next Monday.

Richard

From: Arduin, Jim (DEQ)
Sent: Friday, February 07, 2014 9:34 AM
To: Robinson, Michael
Cc: Brim, Richard (DEQ); Craig, John (DEQ); Busch, Stephen (DEQ); Prysby, Mike (DEQ); Monosmith, Carrie (DEQ)
Subject: RE: update regarding Bray Road consent order
Attachments: city-of-flint-bray-road-co-2014-02-06b-draft.docx

Mike,

Attached a draft consent order related to the city of Flint Bray Road site pursuant to Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451. This is a rough draft based on the information available to the Office of Waste Management and Radiological Protection, but is a good starting point for development of the consent order. This draft has not been internally distributed for review and comment by DEQ staff, OWMRP and ODWMA management, or the Department of Attorney General, so it is subject to additional changes.

See you on Monday to discuss.

Jim

James Arduin
 Senior Geologist
 Michigan Department of Environmental Quality
 Office of Waste Management and Radiological Protection
 (517) 284-6652

From: Robinson, Michael [<mailto:MRobinson@wnj.com>]
Sent: Thursday, February 06, 2014 10:42 AM
To: Busch, Stephen (DEQ)
Cc: Arduin, Jim (DEQ); Brim, Richard (DEQ); Craig, John (DEQ)
Subject: Re: update regarding Bray Road consent order

Great. I think we can make progress even without a "final" draft. Thanks

Sent from my iPhone

On Feb 6, 2014, at 7:25 AM, "Busch, Stephen (DEQ)" <BUSCHS@michigan.gov> wrote:

I agree on Monday. It will be the only day next week I will be available to meet on this.

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

From: Robinson, Michael [<mailto:MRobinson@wnj.com>]
Sent: Thursday, February 06, 2014 9:26 AM

To: Arduin, Jim (DEQ)
Cc: Busch, Stephen (DEQ); Brim, Richard (DEQ); Craig, John (DEQ)
Subject: Re: update regarding Bray Road consent order

We need to keep our meeting on Monday. Please send me what you have with the understanding that it still needs review within the DEQ. Can you also briefly identify any issues in an email to me today? We really must move things along. I appreciate your efforts. Thanks, mike

Sent from my iPhone

On Feb 6, 2014, at 4:11 AM, "Arduin, Jim (DEQ)" <ARDUINJ@michigan.gov> wrote:

Mike,

Due to the fact that this order significantly involves two divisions within the DEQ, it is taking longer to coordinate and incorporate internal comments and concerns. In addition, as I understand it, you have asked Steve Busch to add in additional stipulations/findings which are apparently going through appropriate staff review within the Drinking Water Division and have yet to work their way back to me for incorporation into the order. I honestly don't have a timeframe for you, as much of what is happening in this process is no longer in my control. I will forward the draft to you as soon as I can.

I will be out in the field all day today but will make the rounds around the office tomorrow to see where things stand. Even if we get you a copy tomorrow, it leaves you little time to prepare for Mondays meeting. We may need to reschedule.

Jim

James Arduin
 Senior Geologist
 Michigan Department of Environmental Quality
 Office of Waste Management and Radiological Protection
 (517) 284-6652

Please note the new phone number.

From: Robinson, Michael [mailto:MRobinson@wnj.com]
Sent: Wednesday, February 05, 2014 11:35 PM
To: Arduin, Jim (DEQ)
Subject: RE: update regarding Bray Road consent order

Any chance you can send me a draft on Thursday?

From: Arduin, Jim (DEQ) [mailto:ARDUINJ@michigan.gov]
Sent: Monday, February 03, 2014 8:48 AM
To: Robinson, Michael
Cc: Busch, Stephen (DEQ)
Subject: update regarding Bray Road consent order

Mike,

We are still addressing several comments that were made during our review process.

I hope to get you a copy of the draft order later today.

Jim

James Arduin

Senior Geologist

Michigan Department of Environmental Quality

Office of Waste Management and Radiological Protection

(517) 284-6652

Please note the new phone number.

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STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF WASTE MANAGAEMENT AND RADIOLOGICAL PROTECTION

In the matter of the
administrative proceedings against
City of Flint, doing business at
5200 Bray Road, Genesee Township,
Genesee County, Michigan

OWMRP Order No. 115- -14

/

CONSENT ORDER

This proceeding results from unresolved allegations specified in the Letters of Warning, (LOWs) issued on April 9, 2001, and February 14, 2002, by the Department of Environmental Quality ("DEQ"), Waste Management Division, and the Compliance Communication, dated January 18, 2011, issued by the DEQ, Environmental Resource Management Division, both now known as the DEQ, Office of Waste Management and Radiological Protection ("OWMRP") (Attachment 1). The DEQ alleges that the city of Flint ("Respondent") at 5200 Bray Road, Genesee Township, Genesee County, Michigan (the "Site"), placed or allowed the placement of solid waste in an open dump and/or abandoned solid waste in place of other disposal in violation of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, Michigan Compiled Laws ("MCL") 324.101 *et seq.* ("NREPA"), and the administrative rules promulgated under Part 115. The Respondent and the DEQ agree to resolve the alleged violations set forth in the above-referenced LOWs and Compliance Communication by entry of this Consent Order.

STATEMENT OF PURPOSE

In entering into this Consent Order, the mutual objectives of the Respondent and the DEQ are to address the open dump created at the Site, eliminate the surface water discharge from the Site to the Cornwell Drain, and allow the Respondent to reconstruct the system at the Site used to manage drinking water treatment plant (WTP) residuals.

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To accomplish these objectives, the Respondent will determine the areal extent and character of any solid waste historically disposed of at the Site, including, but not limited to, the WTP residuals and any solid wastes identified as being disposed of in the above-referenced LOWs and Compliance Communication. Consistent with the waste characterization and other investigation data, the Respondent will either remove and dispose of the waste at a disposal area that is permitted and licensed by the DEQ or, if acceptable, leave the solid waste in place and place final cover over it in accordance with the requirements of Part 115 and this Order. In addition, the Respondent will determine, by conducting a remedial investigation, whether any response activities must be taken to address contamination caused by the unauthorized disposal of solid waste at the Site.

Finally, if the Respondent proposes to reconstruct the system for the non-mechanical dewatering of its WTP residuals at the Site, then the Respondent will submit plans and specifications and secure from the DEQ, Office of Drinking Water and Municipal Assistance ("ODWMP"), a public water supply construction permit issued under Section 4 of the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), MCL 325.1001 *et seq.*, and the administrative rules under Act 399 prior to initiating any construction, alteration, addition, or improvement to such system. A residuals management plan for the historical disposal of lime sludge and other WTP residuals, as well as lime sludge and any other WTP residuals generated in the future, must also be included as part of the construction permit application. The Respondent's proposal is based on its participation in the Karegnondi Water Authority (KWA) to receive source water from Lake Huron for its drinking water supply and the use of its water treatment plant to meet treatment requirements under Act 399. It will be approximately four years before the KWA infrastructure is built and water is available to the Respondent from KWA. The Respondent plans to use the Flint River as its source water supply until KWA water is fully available. Public improvement projects under Act 399 are required to be completed for Respondent to receive water from the KWA.

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I. DEFINITIONS

- 1.1 "Act 399" means the Safe Drinking Water Act, 1976 PA 399, as amended, MCL 325.1001 *et seq.*
- 1.2 "FAM" means the financial assurance mechanism acceptable to the DEQ to pay for monitoring, operation and maintenance, oversight, and other costs determined by the DEQ to be necessary to ensure the effectiveness and integrity of the remedial action. The FAM is a component of a Remedial Action Plan.
- 1.3 "NREPA" means the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 *et seq.*
- 1.4 "Open dump" means any area, place, or property where solid waste has been illegally disposed of or abandoned in place of other disposal.
- 1.5 "Part 115" means Part 115, Solid Waste Management, of the NREPA, MCL 324.11501 *et seq.*, and the Part 115 Administrative Rules.
- 1.6 "Part 115 Rules" means the administrative rules promulgated under Part 115.
- 1.7 "Part 201" means Part 201, Environmental Remediation, of the NREPA, MCL 324.20101 *et seq.*, and the Part 201 Administrative Rules.
- 1.8 "Residuals Management Plan" means a DEQ-approved plan to remove both historical and future accumulations of lime sludge and other WTP residuals from the Site.
- 1.9 "Site" means the property located at 5200 Bray Road, Genesee Township, Genesee County, Michigan.

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- 1.10 "Solid Waste" as used in this Consent Order means "solid waste" as defined in Part 115 of the NREPA, MCL 324.11506(1), including any waste that has been disposed of at the Site, including lime sludge from WTP operations conducted by the Respondent.

II. STIPULATIONS

The Respondent and the DEQ stipulate as follows:

- 2.1 Pursuant to its authority under Part 115, the DEQ promulgated administrative rules necessary to implement Part 115. These rules are set forth in the 2005 *Annual Administrative Code Supplement (AACS)*, R 299.4101 *et seq.* ("Part 115 Rules").
- 2.2 Pursuant to its authority under Act 399, the DEQ promulgated administrative rules necessary to implement Act 399. These rules set are set forth in the 2009 AACS, R 325.10101 *et seq.*
- 2.3 Pursuant to the NREPA and Executive Order No. 2011-1, the Director of the DEQ ("Director") is the state official and the DEQ is the state agency charged with the administration and enforcement of Part 115 and Act 399. This Consent Order is authorized under MCL 324.11519(2) and MCL 325.1022.
- 2.4 The Respondent is a "person" as defined by MCL 324.301(g) and MCL 325.1002(m).
- 2.5 The Respondent owns and operates the Site located at 5200 Bray Road, Genesee Township, Genesee County. The Respondent is a state of Michigan municipality.
- 2.6 The Site occupies approximately 76 acres of land adjacent to the Cornwell Drain on its northern boundary. The Cornwell Drain is a tributary to the Flint River. The Site consists of a WTP residuals storage area and contains various water level control structures and discharge points to the Cornwell Drain, and an area of where solid waste has been disposed in an open dump ("Open Dump"). Attachment 2 is an aerial

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schematic of the Site and shows the approximate boundaries of the WTP residuals storage area and the Open Dump.

- 2.7 The Respondent stipulates that the issuance and entry of this Consent Order is proper and acceptable. This Consent Order shall be considered a final order of the DEQ and shall become effective on the date it is signed by the Chief of the OWMRP ("Office Chief"), designee of the Director, pursuant to MCL 324.301(b) of the NREPA.
- 2.8 The Respondent agrees to fully and strictly comply with all provisions of Part 115 and Act 399, the Part 115 Rules, the Act 399 Rules, and all other applicable state and federal statutes.
- 2.9 The Respondent and the DEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Respondent of the allegations contained in the above-referenced LOWs and Compliance Communication or that the law has been violated.
- 2.10 The Respondent, all Respondent's successors and assigns, and the DEQ agree to and shall be bound by the requirements of this Consent Order.

III. COMPLIANCE PROGRAM

In order to resolve the violations alleged in the above-referenced LOWs and Compliance Communication, the Respondent shall achieve and maintain compliance with the requirements specified below in accordance with the following schedule:

- 3.1 On and after the effective date of this Consent Order, the Respondent shall ensure that the Site is secure and that, pursuant to R 299.4128(1), illegal dumping does not occur at the Site.
- 3.2 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall locate groundwater monitoring well MW-04. If MW-04 is found to be located

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within the footprint of the non-mechanical dewatering system identified in the construction plans referenced in Paragraph 3.4, MW-04 will be properly abandoned/removed within a mutually agreed upon schedule.

- 3.3 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall permanently cap the outlet tower identified in Attachment ____ and take all necessary actions to identify and terminate surface water discharges to the Cornwell Drain.
- 3.4 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall submit to the ODWMP for review and approval, an administratively complete Act 399 construction permit application for the reconstruction of the non-mechanical dewatering system for WTP residuals at the Site, including the physical barrier that will separate the WTP filter backwash, including lime sludge, from the other solid waste located on the Site. The permit application will clearly identify any areas that will not be used as part of the reconstructed non-mechanical dewatering system and identify any slurry inlet points located outside the system footprint so such inlet points can be permanently capped by the Respondent. The permit application will also include a basis of design for the management of solid WTP residuals within the system.
- 3.5 Within thirty (30) days after the effective date of this Consent Order, the Respondent shall submit to the OWMRP for review and approval, any portion of the dewatering system residuals management plan submitted to the ODWMA that is required to comply with Part 115.
- 3.6 Within thirty (30) days of the effective date of this Consent Order, the Respondent shall submit to the DEQ for review and approval, a hydrogeologic monitoring plan ("Hydrogeologic Monitoring Plan") for the Open Dump that complies with R 299.4904, R 299.4905, R 299.4906, R 299.4907, and R 299.4908 of the Part 115 Rules. Upon approval by the DEQ, the Respondent shall implement the Hydrogeologic Monitoring Plan in accordance with the schedule contained therein.

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- 3.7 Within sixty (60) days after the effective date of this Consent Order, the Respondent shall submit to the DEQ for review and approval, a remedial investigation work plan ("Remedial Investigation Work Plan") for the Open Dump. Upon approval by the DEQ, the Respondent shall implement the Remedial Investigation Work Plan in accordance with the schedule contained therein. If the Respondent believes that sufficient data already exists to define the environmental conditions at the Open Dump, then the Respondent can submit, in lieu of the Remedial Investigation Work Plan, the Remedial Investigation Report identified in Paragraph 3.8 of this Consent Order.
- 3.8 Within thirty (30) days of completing the remedial investigation, the Respondent shall submit to the DEQ for review and approval, the final results and conclusions of the remedial investigation, including all data, charts, maps, aquifer and soil cross-sections, contaminant concentration contours, diagrams, and other interpretive drawings, in the form of a written report ("Remedial Investigation Report").
- 3.9 If the Remedial Investigation Report fails to delineate the horizontal and vertical extent of the Open Dump or any contamination attributable to the Open Dump, the Respondent shall develop and implement a Phase II remedial investigation. If applicable, a complete and technically adequate work plan for a Phase II remedial investigation ("Phase II Remedial Investigation Work Plan") shall be submitted to the DEQ within sixty (60) days of the DEQ's notification that the Phase II Remedial Investigation Work Plan is necessary. Upon approval by the DEQ, the Respondent shall implement the Phase II Remedial Investigation Work Plan in accordance with the schedule contained therein. The Respondent shall submit final results and conclusions of the Phase II remedial investigation in the form of a written report within thirty (30) days of completion of the Phase II remedial investigation.
- 3.10 The Respondent shall submit to the DEQ, within ninety (90) days of written DEQ approval of the Remedial Investigation Report(s) required by Paragraphs 3.7 and 3.8, an assessment of corrective measures ("Assessment of Corrective Measures") that is in

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accordance with R 299.4443. The Assessment of Corrective Measures shall include an analysis of each potential remedy considered. In addition, the Assessment of Corrective Measures shall identify the final remedial action proposed by the Respondent and provide an explanation of how that action will meet applicable cleanup criteria of Part 201 and be in compliance with Part 115.

- 3.11 Within one hundred twenty (120) days of receipt of written approval of the Assessment of Corrective Measures from the DEQ, the Respondent shall submit to the DEQ for review and approval, a complete and technically adequate remedial action plan ("Remedial Action Plan") for the Open Dump that is in compliance with the requirements of R 299.4444. The Remedial Action Plan shall include a detailed schedule for implementation. The Remedial Action Plan shall be consistent with the results of the remedial investigation and any other monitoring data collected, reports submitted, and/or investigations conducted prior to submittal of the Remedial Action Plan. The Remedial Action Plan, when implemented, shall comply with the applicable cleanup criteria of Part 201 and, upon approval of the plan by the DEQ, the Respondent shall implement the approved Remedial Action Plan in accordance with the schedule contained therein.
- 3.12 If, in accordance with an approved Assessment of Corrective Measures, the Respondent elects to cap and close in-place the solid waste identified at the Site, the Respondent must, as part of the Remedial Action Plan, submit to the DEQ for review and approval, a capping and cell closure plan and schedule ("Capping and Cell Closure Plan") and a post closure plan ("Post Closure Plan") for the Open Dump that are in compliance with the requirements of R 299.4425, R 299.4447, respectively, and Part 115. Upon DEQ approval of the Capping and Cell Closure Plan and the Post Closure Plan, the Respondent shall implement the plans in accordance with the schedules contained therein. If the Respondent lacks the expertise and/or manpower to conduct the work in accordance with the DEQ-approved Capping and Cell Closure Plan, the Post Closure Plan, and the Part 115 Rules, the Respondent shall contract the work to be performed by a contractor experienced with landfill construction work.

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- 3.13 The Respondent shall provide financial assurance as required under Part 115.

IV. DEQ APPROVAL OF SUBMITTALS

- 4.1 For any work plan, proposal, or other document, excluding applications for permits or licenses, that are required by this Consent Order to be submitted to the DEQ by the Respondent, the following process and terms of approval shall apply.
- 4.2 To be approved by the DEQ, any work plan, proposal, or other document required to be submitted by this Consent Order shall include all of the information required by the applicable statute and/or rule and all of the information required by the applicable paragraph(s) of this Consent Order.
- 4.3 Upon DEQ approval, or approval with modifications, of a work plan, proposal, or other document, such work plan, proposal, or other document shall be incorporated by reference into this Consent Order and shall be enforceable in accordance with the provisions of this Consent Order.
- 4.4 In the event the DEQ disapproves a work plan, proposal, or other document, it shall notify the Respondent, in writing, of the specific reasons for such disapproval. The Respondent shall submit, within thirty (30) days of receipt of such disapproval, a revised work plan, proposal, or other document that adequately addresses the reasons for the DEQ's disapproval.
- 4.5 In the event the DEQ approves with specific modifications, a work plan, proposal, or other document, it shall notify the Respondent, in writing, of the specific modifications required to be made to such work plan, proposal, or other document prior to its implementation and the specific reasons for such modifications. The DEQ may require the Respondent to submit, prior to implementation and within thirty (30) days of receipt

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- of such approval with specific modifications, a revised work plan, proposal, or other document that adequately addresses such modifications.
- 4.6 A finding of approval or approval with modification of a submission shall not be construed to mean that the DEQ concurs with any of the conclusions, methods, or statements in the submission or warrants that the submission comports with law.
- 4.7 Failure by the Respondent to submit an approvable work plan, proposal, or other document within the applicable time period specified above shall subject the Respondent to the enforcement provisions of this Consent Order including, but not limited to, the stipulated penalty provisions commencing on the date the revised work plan, proposal, or other document was due and accumulating until an approvable work plan, proposal, or other document is submitted.
- 4.8 Any delays caused by the Respondent's failure to submit an approvable work plan, proposal, or other document when due shall in no way affect or alter the Respondent's responsibility to comply with any other deadline(s) specified in this Consent Order.
- 4.9 No informal advice, guidance, suggestions, or comments by staff of the DEQ regarding reports, work plans, proposals, plans, specifications, schedules, or any other writing submitted by the Respondent will be construed as relieving the Respondent of its obligation to obtain written approval of the DEQ if and when required by this Consent Order.

V. MODIFICATIONS AND EXTENSIONS

- 5.1 At the request of the Respondent, a work plan, proposal, or other document approved or approved with specific modifications by the DEQ, with the exclusion of the specified deadlines set forth in Section II, Compliance Program, of this Consent Order, may be modified by the OWMRP District Supervisor ("District Supervisor").

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5.2 The Respondent and the DEQ agree that the Office Chief may, but in no circumstances is obligated to, grant the Respondent an extension of the specified deadlines set forth in this Consent Order. Any extension shall be preceded by a timely written request, received by the DEQ no later than ten (10) business days prior to the pertinent deadline, which shall include:

- a. An identification of the specific deadline(s) of this Consent Order that will not be met.
- b. A detailed description of what will prevent the Respondent from meeting the deadline(s).
- c. A description of the measures the Respondent has taken and/or intends to take to meet the required deadline(s).
- d. The length of the extension requested and the specific date(s) on which the obligation(s) will be met.

5.3 The Office Chief shall respond promptly to such requests and shall not unreasonably withhold approval for such requests.

5.4 Any extension of the specified deadlines or other modifications and amendments of this Consent Order shall require a formal written amendment of this Consent Order, shall be signed by the Respondent and the DEQ ("Parties"), shall have as their effective date the date on which they are signed by the Office Chief, and shall be incorporated into and become an enforceable part of this Consent Order.

VI. REPORTING

6.1 The Respondent shall submit all items required in Section II, Compliance Program, to the Lansing District Supervisor, OWMRP, DEQ, P.O Box 30241 Lansing, Michigan

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48909-7742, unless specifically directed otherwise within this Consent Order. The cover letter with each submittal shall identify the specific paragraph and requirement of this Consent Order that the submittal is intended to satisfy. If the address of the District Supervisor changes, the Respondent will be notified and shall make all subsequent submittals to any new address of which they are notified.

- 6.2 The Respondent shall verbally report any violation(s) of the terms and conditions of this Consent Order to the District Supervisor by no later than the close of the next business day following detection of such violation(s) and shall follow such notification with a written report within five (5) business days following detection of such violation(s). The written report shall include a detailed description of the violation(s), the precise cause or causes of the violation(s), a detailed description of any action(s) taken or proposed to correct the violation(s), and a schedule for the implementation of any proposed corrective action(s). The Respondent shall report any anticipated violation(s) of this Consent Order to the District Supervisor in advance of the relevant deadlines, whenever possible.

VII. RETENTION OF RECORDS

- 7.1 Upon request by an authorized representative of the DEQ, the Respondent shall make available to the DEQ all records, plans, logs, and other documents required to be maintained under this Consent Order, or pursuant to Part 115 and the Part 115 Rules and Act 399 and the Act 399 Rules. All such documents shall be retained at the Disposal Area for at least a period of three (3) years from the date of generation of the record unless a longer period of record retention is required by Part 115 and the Part 115 Rules and Act 399 and the Act 399 Rules.

VIII. RIGHT OF ENTRY

- 8.2 The Respondent shall allow any authorized representative or contractor of the DEQ, upon presentation of proper credentials, to enter upon the premises of the Site at all

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reasonable times for the purpose of monitoring compliance with the provisions of this Consent Order. This paragraph in no way limits the authority of the DEQ to conduct tests and inspections pursuant to the NREPA and its rules or any other applicable statutory provision.

IX. FINES, COSTS, AND PENALTIES

- 9.1 Within thirty (30) days of the effective date of this Consent Order, the Respondent shall pay the sum of \$ to the State of Michigan in settlement of the DEQ's claim for civil fines arising from the violations alleged in the above-referenced LOWs and Compliance Communication.
- 9.2 For each failure to comply with the provisions of Section II, Compliance Program, of this Consent Order, the Respondent shall pay to the State of Michigan stipulated penalties in an amount of \$250 per violation per day for one (1) through seven (7) days of violation; \$500 per violation per day for eight (8) through fourteen (14) days of violation; and \$750 per violation per day for each day of violation thereafter. Stipulated penalties shall be paid within thirty (30) days after receiving a written demand made by the DEQ.
- 9.3 To ensure timely payment of any civil fines, penalties, and costs due under this Consent Order, the Respondent shall pay an interest penalty to the State of Michigan each time the Respondent fails to make a complete or timely payment. This interest penalty shall be based on the rate set forth at Section 6013(6) of the Revised Judicature Act, 1961 PA 236, as amended, MCL 600.6013(6), using the full increment of amount due as principal, and calculated from the due date for the payment until the delinquent payment is finally made in full.
- 9.4 The Respondent shall make all payments due under this Consent Order by certified or cashier's check made payable to the "State of Michigan" and mailed to the DEQ, Revenue Control Unit, P.O. Box 30657, Lansing, Michigan 48909-8157, or hand

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delivered to the DEQ, Revenue Control Unit, 1st Floor, Van Wagoner Building, 425 West Ottawa Street, Lansing, Michigan 48933. To ensure proper credit, all payments made pursuant to this Consent Order must include Payment Identification Number OWMRP _____ on the front of the check and/or in the cover letter with the payment.

- 9.5 The Respondent agrees not to contest the legality of the civil fine or the costs of surveillance and enforcement paid pursuant to this section. The Respondent further agrees not to contest the legality of any stipulated penalties or interest penalties assessed pursuant to this section but reserves the right to dispute the factual basis upon which a demand by the DEQ for stipulated penalties or interest penalties is made.
- 9.6 Liability for or payment of stipulated penalties pursuant to this Consent Order shall not preclude the State of Michigan from seeking injunctive relief or other relief for the Respondent's failure to comply with the requirements of this Consent Order and/or any permit(s) or license(s) required to comply with this Consent Order.

- X. **DISPUTE RESOLUTION** 10.1 Unless otherwise provided in this Consent Order, the dispute resolution procedures of this section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Order and shall apply to all provisions of this Consent Order. However, the procedures set forth in this section shall not apply to actions by the state of Michigan to enforce obligations of the Respondent that have not been disputed in accordance with this section. Engagement of a dispute resolution between the Parties shall not be cause for the Respondent to delay the performance of any compliance requirements or response activity. Any dispute that arises under this Consent Order shall in the first instance be the subject of informal negotiations between the Parties. The period of negotiations shall not exceed twenty (20) days from the date of written notice by any Party that a dispute has arisen, unless the time period for negotiations is modified by written agreement between the Parties. The dispute shall be considered to have arisen when one Party sends the other Party a written notice of dispute. If agreement cannot be reached on any issue within this

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twenty- (20-) day period, the DEQ shall provide a written statement of its decision to the Respondent and, in the absence of initiation of formal dispute resolution by the Respondent under Paragraph 10.3, the DEQ position, as outlined in its written statement of decision, shall be binding on the Parties.

10.2 If the Respondent and DEQ cannot informally resolve a dispute under Paragraph 9.1, the Respondent may initiate formal dispute resolution by requesting a review of the disputed issues by the Office Chief. This written request must be filed with the Office Chief within fifteen (15) days of the Respondent's receipt of the DEQ's statement of decision that is issued at the conclusion of the informal dispute resolution procedure set forth in Paragraph 9.1. The Respondent's request shall state the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting its position; and all supporting documentation upon which the Respondent bases its position. Within fourteen (14) days of the Office Chief's receipt of the Respondent's request for a review of disputed issues, the Office Chief will provide a written statement of decision to the Respondent, which will include a statement of his/her understanding of the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting her/his position; and all supporting documentation relied upon by the Office Chief's review of the disputed issues. The Office Chief's review of the disputed issues may be extended by written agreement of the Parties.

10.3 The written statement of the Office Chief issued under Paragraph 10.3 shall be binding on the Parties unless, within fifteen (15) days after receipt of the DEQ's written statement of decision, the Respondent files a petition for judicial review in a court of competent jurisdiction that shall set forth a description of the matter in dispute, the efforts made by the Parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Order. Nothing in this Consent Order affects the limitations on the timing of judicial review of the DEQ decision regarding the selection, extent, or adequacy of any response activity as provided for in Part 201.

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- 10.4 An administrative record of the dispute shall be maintained by the DEQ. The administrative record shall include all of the information provided by the Respondent pursuant to Paragraph 9.3, as well as any other documents relied upon by the DEQ in making its final decision pursuant to Paragraph 10.3. Where appropriate, the DEQ shall allow submission of supplemental statements of position by the Parties to the dispute.
- 10.5 In proceeding on any dispute, the Respondent shall have the burden of demonstrating on the administrative record that the position of the DEQ is arbitrary and capricious or otherwise not in accordance with law. In proceedings on any dispute initiated by the Respondent, the Respondent shall bear the burden of persuasion on factual issues.
- 10.6 Notwithstanding the invocation of dispute resolution proceedings, stipulated penalties shall accrue from the first day of any failure or refusal to comply with any term or condition of this Consent Order, but payment shall be stayed pending resolution of the dispute. Stipulated penalties shall be paid within thirty (30) days after the resolution of the dispute. The Respondent shall pay that portion of a demand for payment of stipulated penalties that is not subject to dispute resolution procedures in accordance with and in the manner provided in Section IX, Fines, Costs, and Penalties.

XI. FORCE MAJEURE

- 11.1 The Respondent shall perform the requirements of this Consent Order within the time limits established herein unless performance is prevented or delayed by events that constitute a "Force Majeure." Any delay in the performance attributable to a "Force Majeure" shall not be deemed a violation of the Respondent's obligations under this Consent Order in accordance with this section.
- 11.2 For the purpose of this Consent Order, "Force Majeure" means an occurrence or nonoccurrence arising from causes not foreseeable, beyond the control of, and without the fault of the Respondent, such as: an Act of God, untimely review of permit applications or submissions by the DEQ or other applicable authority, and acts or

<< AUTO PATH >>

Privileged and Confidential Settlement Communication

This document is for the purpose of settlement and is subject to the privilege that applies to communications made in settlement negotiations. It is provided solely for the consideration and use of the intended recipient(s), their principals, and their legal counsel. It should not be disclosed to any other person without the express consent of the Department of Environmental Quality.

omissions of third parties that could not have been avoided or overcome by the Respondent's diligence and that delay the performance of an obligation under this Consent Order. "Force Majeure" does not include, among other things, unanticipated or increased costs, changed financial circumstances, or failure to obtain a permit or license as a result of the Respondent's actions or omissions.

- 11.3 The Respondent shall notify the DEQ, by telephone, within forty-eight (48) hours of discovering any event that causes a delay in its compliance with any provision of this Consent Order. Verbal notice shall be followed by written notice within ten (10) calendar days and shall describe, in detail, the anticipated length of delay, the precise cause or causes of delay, the measures taken by the Respondent to prevent or minimize the delay, and the timetable by which those measures shall be implemented. The Respondent shall adopt all reasonable measures to avoid or minimize any such delay.
- 11.4 Failure of the Respondent to comply with the notice requirements of Paragraph 10.3, above, shall render this section void and of no force and effect as to the particular incident involved. The DEQ may, at its sole discretion and in appropriate circumstances, waive the notice requirements of Paragraph 10.3.
- 11.5 If the Parties to this Consent Order agree that the delay or anticipated delay was beyond the control of the Respondent, this may be so stipulated and the parties to this Consent Order may agree upon an appropriate modification of this Consent Order. If the Parties to this Consent Order are unable to reach such agreement, the dispute shall be resolved in accordance with Section X, Dispute Resolution, of this Consent Order. The burden of proving that any delay was beyond the reasonable control of the Respondent, and that all the requirements of this section have been met by the Respondent, is on the Respondent.
- 11.6 An extension of any given compliance date based upon a particular incident does not necessarily mean that the Respondent qualifies for an extension of a subsequent compliance date without providing proof regarding each incremental step or other

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requirement for which an extension is sought.

XII. GENERAL PROVISIONS

- 12.1 With respect to any violations not specifically addressed and resolved by this Consent Order, the DEQ reserves the right to pursue any other remedies to which it is entitled for any failure on the part of the Respondent to comply with the requirements of any state or federal law, including the NREPA and its rules.
- 12.2 Execution of the schedule contained in this Consent Order shall not be construed to waive, estop, or otherwise diminish the DEQ's right to seek or impose civil liability upon, and seek appropriate relief from, the Respondent for degradation of waters of the State and the designated uses thereof arising out of the failure of the Respondent to achieve a proper cleanup pursuant to this Consent Order.
- 12.3 This Consent Order does not constitute a warranty or representation of any kind by the DEQ that the response activities performed in accordance with this Consent Order or DEQ-approved work plans will result in the achievement of the remedial criteria established by law, or that the response activities will ensure protection of public health, safety, or the environment.
- 12.4 This Consent Order in no way affects the Respondent's responsibility to comply with any other applicable state, federal, or local laws or regulations including, without limitation, any corrective action or similar requirements applicable to the Site pursuant to the NREPA and its rules.
- 12.5 Nothing in this Consent Order is or shall be considered to affect any liability the Respondent may have for natural resources damages caused by the Respondent's ownership and/or operation of the Site. The State of Michigan does not waive any rights to bring an appropriate action to recover such damages to the natural resources.
- 12.6 The Parties agree that the terms and conditions of this Consent Order will be

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enforceable in circuit court. The Parties further agree that the appropriate venue for the enforcement of this Consent Order shall be the Circuit Court for Genesee County or Ingham County, State of Michigan, which courts shall also be appropriate for dispute resolution.

12.7 If any provision or authority of this Consent Order or the application of this Consent Order to any Party or circumstances is held by any judicial or administrative authority to be invalid, the application of such provisions to other Parties or circumstances and the remainder of the Consent Order shall remain in force and shall not be affected thereby.

12.8 The provisions of this Consent Order shall be binding on the Respondent, the DEQ, and their successors and assigns. The Respondent shall give notice of this Consent Order to any prospective successor in interest prior to transfer of ownership of the Site property or any portion thereof and shall notify the DEQ of such proposed sale or transfer.

XIII. TERMINATION

13.1 This Consent Order shall remain in full force and effect until expressly terminated by a written Notice of Termination issued by the Office Chief. The Respondent may request that the Office Chief issue a written Notice of Termination at any time after achieving full compliance with this Consent Order. Such a request shall consist of a written certification that the Respondent has fully complied with all of the requirements of this Consent Order and has made payment of any fines, penalties, and costs required under this Consent Order. Specifically, this certification shall include:

- a. The date of compliance with each provision of the compliance program in Section II of this Consent Order and the date any fines, penalties, or costs were paid;
- b. a statement that all required information has been reported to the District Supervisor;

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- c. confirmation that all records required to be maintained pursuant to this Consent Order are being maintained by the City; and
- d. additional relevant information requested by the Office Chief.

13.2 The Office Chief shall issue a written Notice of Termination unless the DEQ determines that the Respondent has not submitted the certification required under this section, has failed to submit the information specifically requested by the Office Chief, or has failed to comply with, or complete, all of the requirements of this Consent Order.

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Privileged and Confidential Settlement Communication

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XIII. SIGNATORIES

The undersigned CERTIFY they are fully authorized by the party they represent to enter into this Consent Order to comply by consent and to EXECUTE and LEGALLY BIND that party to it.

{OWNER/OPERATOR'S FULL LEGAL NAME}DEPARTMENT OF ENVIRONMENTAL
QUALITY

By: _____

Dan Wyant
Director

Name: _____

Title: _____

Date: _____

By: _____
Elizabeth M. Browne, Chief
Office of Waste Management and
Radiological Protection

Date: _____

APPROVED AS TO FORM:

Bill Schuette
Attorney General

{INSERT NAME OF AAG ASSIGNED} {P_____}
 Assistant Attorney General
 Environment, Natural Resources, and
 Agriculture Division
 Department of Attorney General
 Constitution Hall, 5th Floor, South Tower
 525 West Allegan Street
 Lansing, Michigan 48933

Date: _____

From: Gutting, Karen (DEQ)
Sent: Thursday, February 05, 2015 8:46 AM
To: Prysby, Mike (DEQ)
Subject: RE: Email Inquiry

Thanks Mike.

Karen Gutting
Department of Environmental Quality
Office of Environmental Assistance
Environmental Assistance Center
800-662-9278

From: Prysby, Mike (DEQ)
Sent: Thursday, February 05, 2015 8:38 AM
To: Gutting, Karen (DEQ)
Cc: Busch, Stephen (DEQ)
Subject: FW: Email Inquiry

Karen,

I responded to Sheila....see below

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

From: Prysby, Mike (DEQ)
Sent: Thursday, February 05, 2015 8:36 AM
To: 'sheila.bw@hotmail.com'
Subject: RE: Email Inquiry

Sheila,

The water supplied to residents in Genesee County (outside the city of Flint) is supplied to Genesee County from Detroit. Genesee County purchases drinking water from Detroit and this water is treated at the Detroit-Lake Huron Water Treatment Plant (WTP) and is conveyed to Genesee County through approximately 60 miles of 72-inch transmission main. The drinking water supplied to Genesee County from Detroit via the Detroit Lake Huron WTP and the transmission main meets all applicable state and federal drinking water standards. If you have

any additional questions concerning water quality in Genesee County and/or the city of Flint, please don't hesitate to call me at the number provided below.

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

From: BadAddress
Sent: Saturday, January 31, 2015 2:30 PM
To: deq-assist
Subject: Email Inquiry

CompanyName:

FirstName: Sheila
LastName: Bailey-Waddell
Email: sheila.bw@hotmail.com
DayPhone: 810-259-3056
AltPhone:
Address:
City:
State:
ZipCode:

County: Genesee

YourMessage: Why are there continuous misconceptions that the quality of water in Genesee County are safe? This is misinformation and false. http://www.minbcnews.com/news/story.aspx?id=1157184#_VM0sXvmzGSo

From: Busch, Stephen (DEQ)
Sent: Monday, March 11, 2013 9:40 AM
To: Bean, Lawrence (DEQ)
Cc: Shekter Smith, Liane (DEQ)
Subject: RE: Lansing District Newsletter
Attachments: KWA for LDO Newsletter.doc

Larry,

Attached is a write-up for the Lansing District Legislative Newsletter for ODWMA. Let me know if you have any questions.

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

From: Bean, Lawrence (DEQ)
Sent: Monday, March 04, 2013 2:37 PM
To: Ballard-Atkins, Tina (DEQ); McClellan, Michael (DEQ); Busch, Stephen (DEQ); Schineman, Louis (DEQ); Shirey, Kathleen (DEQ); Vanderlaan, Mary (DEQ); Bartley, Cheryl (DEQ)
Subject: Lansing District Newsletter

Per Jim Sygo, every DEQ office is expected to produce a district newsletter on a quarterly basis. The newsletter is intended to be e-mailed to district legislators and possibly other external stakeholders and District staff.

I have volunteered to coordinate and edit the Lansing District's newsletter since I have an article that I have proposed for inclusion from OWMRP. I am asking the District Supervisors to select a project/site, at least one per division/office (or solicit input from staff to select a high-profile or controversial site or project) and write a brief summary on the subject. See the attached newsletter for suggested format. The articles should be written for a non-technical reader, since that is the intended audience.

I will share the draft newsletter with the authors and supervisors before sending it up to the front office for review. Any write-ups you can provide by March 18 for a Spring 2013 newsletter would be greatly appreciated.

We can discuss the newsletter at the DS meeting on March 11.

Larry Bean
 Jackson & Lansing District Supervisor
 Office of Waste Management and Radiological Protection
 Michigan Department of Environmental Quality
 Phone 517-416-4375
BEANL@michigan.gov

ODWMA - Karegnondi Water Authority Moves Forward with Intake Project

The Karegnondi Water Authority (KWA), which includes Genesee, Lapeer, and Sanilac Counties, along with the City of Flint and City of Lapeer, is moving forward with the construction of a water intake in Lake Huron after obtaining a competitive low bid of \$24.6 million, below the consulting engineer's estimate of \$27 million. The 78 inch diameter intake pipe will lay one mile out into Lake Huron, with a capacity of 85 million gallons per day (MGD).

As this project impacts numerous communities within a large region, it has required a multijurisdictional approach by the DEQ, Office of Drinking Water and Municipal Assistance, Lansing and Saginaw Bay District Offices, and coordination with the communities, their staff, and engineering consultants. While the intake facility is under construction, Lansing District staff are also working with the Genesee County Drain Commission on the design of a new 36 (MGD) water treatment plant which will utilize this intake as its source. Lansing District staff are also in discussions with the City of Flint for the potential use of the KWA intake as a source for its existing water treatment plant.

Completion of the full project is anticipated by 2016. Additional components of the KWA system include raw water pumping facilities, raw water transmission pipelines, and a 620 million gallon raw water reservoir.

For questions or additional information regarding this project, please contact Mr. Michael Prysby, P.E., Lansing District Office, 517-335-6122.

From: Prysby, Mike (DEQ)
Sent: Wednesday, October 07, 2015 10:37 AM
To: Bean, Lawrence (DEQ)
Subject: RE: PEAS-13537: Caller upset about how DEQ is handling City of Flint Drinking water, Genesee County

Spoke with the caller on 10/1 and answered his questions.

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

From: Bean, Lawrence (DEQ)
Sent: Thursday, October 01, 2015 4:25 PM
To: Henney, Autumn (DEQ); DEQ-PEAS-Lansing
Cc: Prysby, Mike (DEQ)
Subject: RE: PEAS-13537: Caller upset about how DEQ is handling City of Flint Drinking water, Genesee County

File
Mike Prysby will call this person back to answer questions.

Larry Bean
Jackson & Lansing District Supervisor
Office of Waste Management and Radiological Protection
Michigan Department of Environmental Quality
Phone 517-416-4375
BEANL@michigan.gov

From: Henney, Autumn (DEQ)
Sent: Thursday, October 01, 2015 4:04 PM
To: DEQ-PEAS-Lansing
Subject: PEAS-13537: Caller upset about how DEQ is handling City of Flint Drinking water, Genesee County

Please confirm receipt and advise who is lead agency. Caller expects a call right back.

Autumn B. Henney
Lansing District Office
Remediation and Redevelopment Division
Phone: 517-284-5125
HenneyA@michigan.gov

From: Adelman, Mitch (DEQ)
Sent: Monday, February 09, 2015 1:02 PM
To: Brown, Angela (DEQ); Campbell, Mary Jo (DEQ); Bean, Lawrence (DEQ); Busch, Stephen (DEQ); Miller, Scott (DEQ); Russell, Jon (DEQ); Schineman, Louis (DEQ); Seibenick, Jeff (DEQ)
Cc: Sygo, Jim (DEQ); Shaler, Karen (DEQ)
Subject: Agenda for Tomorrow's Jackson DS Meeting
Attachments: SMTAgenda 02092015 with MA notes.docx

For our 1:00 meeting I propose the following tentative agenda:

1. Review SMT meeting notes for any issues/questions (see attachment with my notes)
2. Enforcement Case Update
3. Division/Office Roundtable
4. Reminder that Employee Appreciation Day is Thursday March 12, Mitch will arrange for pizza/salad

Other suggestions welcome before or at the meeting.

See you tomorrow afternoon.

Mitch

Senior Management Team Meeting
February 9, 2015
8:30 a.m. – 10:00 a.m.
Great Lakes Conference Room
AGENDA

Call-In No. for District Coordinators: PPI Access Code: PPI
 Phil, Heidi, Andy, Chris, Fred, Larry, Mitch

- I. Director's Report
 Will work with Hal OOGM on oil & gas; Flint & Drinking water; budget coming out this week; Director is doing presentation to House NR Comm & Senate, he'll share with SMT.
- II. Deputy Director's Report
 Jim – draft #9 of TNORM report, hopes to wrap it up soon; TSG is looking at 1,4-D report back to TERA presentation. Want to work with Brad on how to release once it's finalized.

- III. Action Learning Team Presentations Schedule
- Presentations will be held from **8:40 – 9:00** in the Great Lakes Conference Room
 - Attendees for each presentation are the members of the respective team
- Sylvia, Emily Freeman, Matt Lincoln, Pat Cisco, Brenda Moore
 Questions included: Did they look at gender? (no); Why do they think there's the lack of diversity? Did they compare to academics? STEM, etc.

Date	Team Name
December 1, 2014	Incident Management Teams
December 15, 2014	Appreciative Inquiry
January 12, 2015	Water Conservation
January 26, 2015	Linking Trails
February 9, 2015	Building a Diverse Candidate Pool

- IV. AQD's Priorities and Issues – Lynn Fiedler **9:00 – 9:20**

- V. *ONE VOICE* Issue Triage
- Issues to be added
 - Issues to be removed
 - Updates on existing issues
 - Aquaculture update – Dave Fiedler

Fiedler talked about "status reports" as a better way to identify info about the issue.

- VI. Division Updates – Division Chiefs
- Creal – met with Oakland Co Water Resources Comm. Re: funding stormwater & pollution control will meet again in ~ 1 month; favorable supreme court ruling on Hedlee; met with Aron on zebra and quagga mussel control, now need to work with Ohio; and Drain Commissioners winter meeting this week, including presentation by Kim F., et.al.; also invited to their board meeting to discuss their

5 year strategic plan; EPA announced and rescinded the agricultural interpretive rule.

RRD-Wagner-set up 1 voice meeting for tomorrow @ 1 pm on 201 amendments and will identify where there are cross office/division implementation issues.

Received letter from locals in AA re: 1,4-D and efforts with PLS, Bob thanks JRRD crew.

Bryce-TNORM public comment this week; recommends current std of 50pc/g existing is recommended in the paper, thanks to Ken Yale. Solid Waste annual report will be finalized this week, increased by ~4.7%, good/bad news; some attributed to debris from flooding in e.g. SEMI. Struggling with recycling measurement legislation, having trouble getting groups together on this.

Liane – in addition to continued efforts on Flint; this week Mfg Housing bill reintroduced; backflow preventer bill follow-up; hope to finish efforts on Water Strategy;

Hal – urban drilling instruction this week; integrated assessment on high volume hydraulic frac'ing rpt on Friday. Taking austerity measures on budget, met with some staff in offices recently;

Amy – 2/11 budget release; 2pm SMT – maintaining last year's strategic initiatives, no staff reductions anticipated; Thursday meeting with Rep. Victory; Senate next week, hop not to need Division Chief meeting with Senate since they're familiar

Rich – busy with webinars and workshops over next couple months, will be letting staff know ; Admin 101 will be recorded

Roger

VII. District Office Updates – District Coordinators

Jackson – GLNOSB (WRD & RRD + ODWMA in Lansing); PPA signed for YAM; AQD Kudos from Anderson Development (Sersena White, JAQD, along with AQD Permits Section staff Jeremy Hoeh and Jeff Rathbun); thanks for offering Budget 101 via webinar;

Hartz - Following demo of Marysville power plan and asbestos issue; Expansion of vector pipeline is being reduced;

VIII. Miscellaneous/Other

IDP due this week for managers

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 08, 2015 6:13 PM
To: Myott, Brad (DEQ); Eagle, Dennis (DEQ); Kammer, Stephanie (DEQ); Vanderlaan, Mary (DEQ); Bean, Lawrence (DEQ); Schineman, Louis (DEQ); Ballard-Atkins, Tina (DEQ)
Subject: 11/9 E-Clips
Attachments: E-Clips for week of November 9, 2015; E-Clips for week of November 9, 2015

Both E-clips groups for 11/9 attached.

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

From: Devereaux, Tracy Jo (DEQ)
Sent: Monday, November 16, 2015 9:03 AM
To: DEQ-ODWMA-All
Subject: E-Clips for week of November 9, 2015

FYI

Thanks,
Tracy Jo

Subject: E-Clips for week of November 9, 2015



Week of November 9, 2015

Flint and Other Water Stories

ABC12: DEQ says lead exposure at Freeman Elementary limited to fixtures within the school
<http://www.abc12.com/home/headlines/DEQ-says-lead-exposure-at-Freeman-Elementary-limited-to-fixtures-within-the-school-344018552.html?device=phone&c=y>

CBSDetroit: State Urges Water Tests At Flint Homes, Businesses, Schools
<http://detroit.cbslocal.com/2015/11/10/state-urges-water-tests-at-flint-homes-businesses-schools/>

MLive: Flint students can be tested for lead after toxic levels found in schools
http://www.mlive.com/news/flint/index.ssf/2015/11/education_program_to_provide_t.html#incart_river

Michigan Radio: Source of high lead levels in drinking water at one Flint school identified
<http://michiganradio.org/post/source-high-lead-levels-drinking-water-one-flint-school-identified#stream/0>

U.S. EPA will audit Michigan safe drinking water program, in wake of Flint's problems
<http://michiganradio.org/post/us-epa-will-audit-michigan-safe-drinking-water-program-wake-flints-problems>

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 08, 2015 6:15 PM
To: Myott, Brad (DEQ);Eagle, Dennis (DEQ);Kammer, Stephanie (DEQ);Vanderlaan, Mary (DEQ);Bean, Lawrence (DEQ);Schineman, Louis (DEQ);Ballard-Atkins, Tina (DEQ)
Subject: E-Clips 11/16
Attachments: E-Clips for week of November 16, 2015; Flint E-Clips for week of November 16, 2015

11/16 Both sets of e-clips attached.

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

From: Devereaux, Tracy Jo (DEQ)
Sent: Friday, November 20, 2015 1:59 PM
To: DEQ-ODWMA-All
Subject: Flint E-Clips for week of November 16, 2015
Attachments: Week of 111615 Flint Water E-Clips.pdf

FYI

Thanks,

Tracy Jo

From: Olszewski, Rosemarie (DEQ)



Week of November 16, 2015

Flint and Other Water Stories

ABC12: Poor record keeping to blame for inaccurate water testing

<http://www.abc12.com/home/headlines/Poor-record-keeping-to-blame-for-inaccurate-water-testing-347878051.html>

Detroit Free Press: Flint lead problems raised at national water hearing

<http://www.freep.com/story/news/local/michigan/2015/11/18/flint-lead-problems-raised-national-water-hearing/75990848/>

Detroit News: Flint may have failed to follow US water testing rules

<http://www.detroitnews.com/story/news/politics/2015/11/12/flint-lead-federal-water-testing-rules/75671550/>

Flint officials, experts hit lead contamination law

<http://www.detroitnews.com/story/news/politics/2015/11/18/flint-water/75987558/>

Huffington Post: Flint Residents Suing Over Toxic Tap Water

http://www.huffingtonpost.com/entry/flint-michigan-water-crisis_5649f574e4b08cda34899a94

MLive: County Health Department, state partner to educate Flint area on lead

http://www.mlive.com/news/flint/index.ssf/2015/11/county_health_department_state.html

Report: Families file lawsuit in Flint water crisis

http://www.mlive.com/news/flint/index.ssf/2015/11/report_families_file_lawsuit_i.html#incart_river_ind_ex

ACLU, national activists intend to sue Gov. Snyder, Flint over lead in water

http://www.mlive.com/news/flint/index.ssf/2015/11/nrdc_aclu_file_notice_to_sue_s.html

Lead-exposed Flint kids need better nutrition now, Stabenow says

http://www.mlive.com/news/flint/index.ssf/2015/11/stabenow_says_shes_working_to.html#incart_story_package

EPA group to take testimony on Flint water crisis as it weighs rule changes

http://www.mlive.com/news/flint/index.ssf/2015/11/kildee_scheduled_to_testify_on.html#incart_story_package

'Water is a human right,' Democrats say with new bills addressing Flint crisis, Detroit shutoffs

http://www.mlive.com/lansing-news/index.ssf/2015/11/water_is_a_human_right_democra.html

Class action lawsuit claims Snyder, Flint put water cost above safety

http://www.mlive.com/news/flint/index.ssf/2015/11/class_action_lawsuit_claims_sn.html#incart_river_home

Refund Flint \$2 million for cost of Detroit water, Kildee tells Gov. Snyder

http://www.mlive.com/news/flint/index.ssf/2015/11/kildee_asks_gov_snyder_for_pay.html#incart_m-rpt-2

Story of Flint water crisis, 'failure of government,' unfolds in Washington

http://www.mlive.com/news/flint/index.ssf/2015/11/story_of_flint_water_crisis_fa.html#incart_river_home

Michigan Radio: Flint water crisis prompts more scrutiny of federal drinking water rules

<http://michiganradio.org/post/flint-water-crisis-prompts-more-scrutiny-federal-drinking-water-rules#stream/0>

State's instructions for sampling drinking water for lead "not best practice"

<http://michiganradio.org/post/states-instructions-sampling-drinking-water-lead-not-best-practice#stream/0>

After news reports, state asks Flint for lead service line info

<http://michiganradio.org/post/after-news-reports-state-asks-flint-lead-service-line-info#stream/0>

Week of November 16, 2015

Flint and Other Water Stories

ABC12: Poor record keeping to blame for inaccurate water testing

<http://www.abc12.com/home/headlines/Poor-record-keeping-to-blame-for-inaccurate-water-testing-347878051.html>

Detroit Free Press: Flint lead problems raised at national water hearing

<http://www.freep.com/story/news/local/michigan/2015/11/18/flint-lead-problems-raised-national-water-hearing/75990848/>

Detroit News: Flint may have failed to follow US water testing rules

<http://www.detroitnews.com/story/news/politics/2015/11/12/flint-lead-federal-water-testing-rules/75671550/>

Flint officials, experts hit lead contamination law

<http://www.detroitnews.com/story/news/politics/2015/11/18/flint-water/75987558/>

Huffington Post: Flint Residents Suing Over Toxic Tap Water

http://www.huffingtonpost.com/entry/flint-michigan-water-crisis_5649f574e4b08cda34899a94

MLive: County Health Department, state partner to educate Flint area on lead

http://www.mlive.com/news/flint/index.ssf/2015/11/county_health_department_state.html

Report: Families file lawsuit in Flint water crisis

http://www.mlive.com/news/flint/index.ssf/2015/11/report_families_file_lawsuit_i.html#incart_river_ind ex

ACLU, national activists intend to sue Gov. Snyder, Flint over lead in water

http://www.mlive.com/news/flint/index.ssf/2015/11/nrdc_aclu_file_notice_to_sue_s.html

Lead-exposed Flint kids need better nutrition now, Stabenow says

http://www.mlive.com/news/flint/index.ssf/2015/11/stabenow_says_shes_working_to.html#incart_story_package

EPA group to take testimony on Flint water crisis as it weighs rule changes

http://www.mlive.com/news/flint/index.ssf/2015/11/kildee_scheduled_to_testify_on.html#incart_story_package

'Water is a human right,' Democrats say with new bills addressing Flint crisis, Detroit shutoffs

http://www.mlive.com/lansing-news/index.ssf/2015/11/water_is_a_human_right_democra.html

Class action lawsuit claims Snyder, Flint put water cost above safety

http://www.mlive.com/news/flint/index.ssf/2015/11/class_action_lawsuit_claims_sn.html#incart_river_home

Refund Flint \$2 million for cost of Detroit water, Kildee tells Gov. Snyder

http://www.mlive.com/news/flint/index.ssf/2015/11/kildee_asks_gov_snyder_for_pay.html#incart_m-rpt-2

Story of Flint water crisis, 'failure of government,' unfolds in Washington

http://www.mlive.com/news/flint/index.ssf/2015/11/story_of_flint_water_crisis_fa.html#incart_river_home

Michigan Radio: Flint water crisis prompts more scrutiny of federal drinking water rules

<http://michiganradio.org/post/flint-water-crisis-prompts-more-scrutiny-federal-drinking-water-rules#stream/0>

State's instructions for sampling drinking water for lead "not best practice"

<http://michiganradio.org/post/states-instructions-sampling-drinking-water-lead-not-best-practice#stream/0>

After news reports, state asks Flint for lead service line info

<http://michiganradio.org/post/after-news-reports-state-asks-flint-lead-service-line-info#stream/0>

From: Busch, Stephen (DEQ)
Sent: Tuesday, December 08, 2015 6:17 PM
To: Myott, Brad (DEQ); Eagle, Dennis (DEQ); Kammer, Stephanie (DEQ); Vanderlaan, Mary (DEQ); Bean, Lawrence (DEQ); Schineman, Louis (DEQ); Ballard-Atkins, Tina (DEQ)
Subject: E-clips 11/30
Attachments: Flint E-Clips for week of November 30, 2015; E-Clips for week of November 30, 2015

E-Clips 11/30 both sets attached.

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

From: Devereaux, Tracy Jo (DEQ)
Sent: Friday, December 04, 2015 2:28 PM
To: DEQ-ODWMA-All
Subject: Flint E-Clips for week of November 30, 2015
Attachments: Week of 113015 Flint Water E-Clips.pdf

Flint E-clips

Thanks,

Tracy Jo



e-clips

Week of November 30, 2015

Flint and Other Water Stories

Detroit Free Press: Flint water mystery: How was decision made?

<http://www.freep.com/story/news/politics/2015/11/21/snyders-top-aide-talked-flint-water-supply-alternatives/76037130/>

Detroit News: State: 30 Flint residents have elevated lead levels

<http://www.detroitnews.com/story/news/politics/2015/12/03/state-flint-residents-elevated-lead-levels/76739392/>

MLive: Flint water still unsafe without lead filters, professor says

http://www.mlive.com/news/flint/index.ssf/2015/12/lead_levels_in_flints_water_st.html

New tests show toxic lead in plumbing at Flint elementary schools

http://www.mlive.com/news/flint/index.ssf/2015/12/18/faucets_at_flints_eisenhowe.html#incart_river_index

Michigan Radio: The water is still not safe in Flint. Powerful community forum discusses road ahead.

<http://michiganradio.org/post/water-still-not-safe-flint-powerful-community-forum-discusses-road-ahead#stream/0>

Flint tap water "still not safe" says Virginia Tech researcher

<http://michiganradio.org/post/flint-tap-water-still-not-safe-says-virginia-tech-researcher>

Next City: Where Can a City Turn When the Tap Water Is Poisonous?

<https://nextcity.org/daily/entry/city-tap-water-lead-poisonous-flint-michigan>

The Michigan Daily: In Flint, lead contamination spurs fight for clean water

<https://www.michigandaily.com/section/news/water-and-all-flints-ghosts>

Rosemarie Olszewski

General Office Assistant - Executive Division

Department of Environmental Quality

Ph: 517-284-6700

Fax: 517-241-7401

Email: olszewskir@michigan.gov



Week of November 30, 2015

Flint and Other Water Stories

Detroit Free Press: Flint water mystery: How was decision made?

<http://www.freep.com/story/news/politics/2015/11/21/snyders-top-aide-talked-flint-water-supply-alternatives/76037130/>

Detroit News: State: 30 Flint residents have elevated lead levels

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MLive: Flint water still unsafe without lead filters, professor says

http://www.mlive.com/news/flint/index.ssf/2015/12/lead_levels_in_flints_water_st.html

New tests show toxic lead in plumbing at Flint elementary schools

http://www.mlive.com/news/flint/index.ssf/2015/12/18/faucets_at_flints_eisenhowe.html#incart_river_index

Michigan Radio: The water is still not safe in Flint. Powerful community forum discusses road ahead.

<http://michiganradio.org/post/water-still-not-safe-flint-powerful-community-forum-discusses-road-ahead#stream/0>

Flint tap water "still not safe" says Virginia Tech researcher

<http://michiganradio.org/post/flint-tap-water-still-not-safe-says-virginia-tech-researcher>

Next City: Where Can a City Turn When the Tap Water Is Poisonous?

<https://nextcity.org/daily/entry/city-tap-water-lead-poisonous-flint-michigan>

The Michigan Daily: In Flint, lead contamination spurs fight for clean water

<https://www.michigandaily.com/section/news/water-and-all-flints-ghosts>

From: Busch, Stephen (DEQ)
Sent: Monday, December 14, 2015 12:15 PM
To: Eagle, Dennis (DEQ); Kammer, Stephanie (DEQ); Myott, Brad (DEQ); Vanderlaan, Mary (DEQ); Bean, Lawrence (DEQ); Schineman, Louis (DEQ); Erlandson, Janet (DEQ); Ballard-Atkins, Tina (DEQ)
Subject: E-clips 12/7
Attachments: E-Clips for week of December 7, 2015; Flint E-Clips for week of December 7, 2015

Both sets of E-clips from the week of 12/7 are attached.

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

From: Devereaux, Tracy Jo (DEQ)
Sent: Friday, December 11, 2015 1:35 PM
To: DEQ-ODWMA-All
Subject: Flint E-Clips for week of December 7, 2015
Attachments: Week of 120715 Flint Water E-Clips.pdf

FYI

Thanks,
Tracy Jo

From: Olszewski, Rosemarie (DEQ)



Week of December 7, 2015

Flint and Other Water Stories

Detroit News: Loan forgiveness sought for Flint to replace lead pipes

<http://www.detroitnews.com/story/news/politics/2015/12/06/loan-forgiveness-sought-flint-replace-lead-pipes/76845170/>

MLive: Water tests conducted at Flint homes by Wayne State University researchers

http://www.mlive.com/news/flint/index.ssf/2015/12/water_tests_conducted_at_flint.html#incart_river_index

Kildee: Forget firings and apologies in water crisis, take care of Flint kids

http://www.mlive.com/news/flint/index.ssf/2015/12/kildee_says_firings_apologies.html

Crusading Flint doctor says 'we're not done' fighting fallout of lead in water

http://www.mlive.com/news/flint/index.ssf/2015/12/crusading_flint_doctor_says_we.html#incart_river_index

More lead in plumbing found at Flint's Brownell school, state report says

http://www.mlive.com/news/flint/index.ssf/2015/12/state_report_identifies_more_l.html



Week of December 7, 2015

Flint and Other Water Stories

Detroit News: Loan forgiveness sought for Flint to replace lead pipes

<http://www.detroitnews.com/story/news/politics/2015/12/06/loan-forgiveness-sought-flint-replace-lead-pipes/76845170/>

MLive: Water tests conducted at Flint homes by Wayne State University researchers

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Kildee: Forget firings and apologies in water crisis, take care of Flint kids

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Crusading Flint doctor says 'we're not done' fighting fallout of lead in water

http://www.mlive.com/news/flint/index.ssf/2015/12/crusading_flint_doctor_says_we.html#incart_river_index

More lead in plumbing found at Flint's Brownell school, state report says

http://www.mlive.com/news/flint/index.ssf/2015/12/state_report_identifies_more_l.html

From: Howard Croft <hcroft@cityofflint.com>
Sent: Wednesday, September 17, 2014 2:53 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: Boil Water Advisory Report
Attachments: Boil Water Overview_Memorandum.pdf

Mike,

I wanted you to have a copy of the report I sent to the Mayor and EM today as an overview of the recent boil water advisory. Please let me know if anything here appears amiss.

Thanks,

--

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



Dayne Walling
Mayor

CITY OF FLINT
Department of Public Works

Darnell Earley, ICMA-CM, MPA
Emergency Manager

Howard Croft
Director

MEMORANDUM

TO: Darnell Earley, Emergency Manager
Dayne Walling, Mayor

FROM: Howard Croft, Public Works Director

DATE: September 16, 2014

RE: Recent Boil Water Advisory

Mr. Earley,

I have compiled a bullet point list of the pertinent events surrounding the recent boil water advisory in the City of Flint. I have separated the events into five categories and attempted to condense them into a comprehensive sequence for your review.

OVERVIEW

- On Friday September 5, 2014 the City of Flint issued a boil water advisory to residents in two of ten test areas around the city.
- The advisory was due to multiple positive tests for "total coliform" and the area covered approximately 9 square miles.
- On Sunday September 7, 2014 the City expanded the advisory to include another of the ten test areas due to a subsequent positive total coliform test.
- The boil water advisories were lifted on Tuesday September 9th at 5:00pm after consultation with the DEQ.

BACKGROUND

- State of Michigan Regulations requires that the City of Flint Water Treatment Plant perform testing of its water distribution system on a routine basis in ten different locations around the City.
- The tests take twenty four hours to produce valid results and are sent directly to the Department of Environmental Quality for review.
- Test results which show positive for "E.coli" or "fecal coliform" trigger boil water notices for the test area and the advisories usually remain in effect until three consecutive tests return negative results.
- A single positive test for "total coliform" does not generally result in a boil water advisory, rather it indicates that the environment is conducive for bacteria.
- Typically, investigation into possible causes followed by corrective measures such as flushing the affected area with open hydrants will cleanse the system.
- This process is overseen by an employee who is required to hold an F-1 State License and is listed as the Operator in Charge of the Water Plant and an employee who holds an S-1 State License which is required to maintain distribution systems of this municipal size.
- The City of Flint has over 500 miles of pipe in its distribution system, much of which is over 70 years old.
- The City of Flint has over ten-thousand valves throughout its distribution system.
- The City of Flint has a professional reliability study of its system which was updated in December 2013.

PROBLEM

- ❖ After detecting the initial positive test for total coliform, normal procedures did not clear the condition and multiple positive tests ensued.
- ❖ The continued positive total coliform tests were the cause for issuing the boil water notice.
- ❖ Additional discoveries showed that residual chlorine levels in the affected area were considerably lower than normal.

SOLUTION

- ✓ On Monday September 8, 2014 the City convened all licensed personnel, Utility Supervisors, and DPW Director to a single meeting location and held a brainstorming session with the DEQ on conference call.
- ✓ It was agreed that while not totally isolated, the concern was mainly present in a specific large transmission line that ran through all positive testing areas.
- ✓ It was determined to expand the hydrant flushing outside of the immediate impact area.
- ✓ It was found that a 24" valve which feeds this transition main was broken in the OFF position outside of the immediate impact area.
- ✓ The broken valve was preventing fresh water from being pushed directly into the impacted area while causing water to travel from the water plant around the entire city and preventing adequate circulation of fresh water.
- ✓ After repairing the broken valve, virtually all of the symptoms were erased over a 24 hour period and the chlorine count has steadily risen back to normal levels throughout the transmission main.

CONCLUSION

- ✓ It was determined that the broken valve was not the single cause of the problem but was a significant factor in the development of the problem.
- ✓ Other possible factors include:
 - Low usage in the area
 - Pipe size in relation to volume of usage
 - Temperature change of surface water
 - Water Pressure in the area
- ✓ It was determined that the broken valve was the main reason that normal remedies were ineffective.
- ✓ Throughout the event, the City was in direct contact with DEQ personnel daily.
- ✓ The positive tests were for "total coliform" only.
- ✓ The following statement about total coliform was approved by the DEQ and distributed to the public as part of the recent boil water advisory:

Total coliform bacteria are generally not harmful themselves. Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.

Usually, coliforms are a sign that there could be a problem with the treatment or

distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or E. coli, are present. We did not find any of these bacteria in our subsequent testing. If we had, we would have notified you immediately. However, we are still finding coliforms in the drinking water.

- ✓ The City of Flint is in the first year of strategic budgetary investment in an infrastructure strategy.
- ✓ The City of Flint infrastructure strategy has been, and will continue to be developed with state licensed employees, industry experts, and proven experienced consultants.

Howard D. Croft
Public Works Director

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

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

We can get you the full info tomorrow

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

Sent from my iPhone

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

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

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

Jen

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

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

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

Richard

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

Cc: Poy, Thomas
Subject: RE: question

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

Jen

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

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

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

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

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

Jen

From: Bennett, Charles (DEQ)
Sent: Thursday, January 22, 2015 1:29 PM
To: Prysby, Mike (DEQ)
Cc: Rosenthal, Adam (DEQ)
Subject: flint water

article from last night's meeting!

http://www.mlive.com/news/flint/index.ssf/2015/01/state_water_officials_tell_fli.html#incart_2box

From: Benzie, Richard (DEQ)
Sent: Friday, January 30, 2015 10:14 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Subject: FW: Gillie's Coney Island offers up free well water for Flint residents | MLive.com

FYI – I hope they find out the well is safe and below the arsenic standard.

From: DeBruyn, Dana (DEQ)
Sent: Friday, January 30, 2015 8:46 AM
To: Ladouceur, Anita (DEQ)
Cc: Monosmith, Carrie (DEQ); Dettweiler, Dan (DEQ); Benzie, Richard (DEQ)
Subject: FW: Gillie's Coney Island offers up free well water for Flint residents | MLive.com

Anita,
Can you check watertrack on the sampling history of these good folks on Monday?
Dana

From: Dana DeBruyn [<mailto:dlwils@yahoo.com>]
Sent: Thursday, January 29, 2015 8:17 PM
To: DeBruyn, Dana (DEQ)
Subject: Gillie's Coney Island offers up free well water for Flint residents | MLive.com

http://www.mlive.com/news/flint/index.ssf/2015/01/gillies_coney_island_offers_up.html#incart_river_default

Sent from my Verizon Wireless 4G LTE DROID

From: Busch, Stephen (DEQ)
Sent: Tuesday, February 03, 2015 9:34 AM
To: Benzie, Richard (DEQ); Prysby, Mike (DEQ)
Subject: FW: Flint event on Tuesday
Attachments: 2 FDCVT Grant Awards draft.docx; ATT00001.htm; Briefing Flint grant announcement.docx; ATT00002.htm; RELEASE Flint water grants.docx; ATT00003.htm

FYI.

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

From: Wurfel, Brad (DEQ)
Sent: Monday, February 02, 2015 4:35 PM
To: Wyant, Dan (DEQ); Datema, Maggie (DEQ); Tommasulo, Karen (DEQ); Thelen, Mary Beth (DEQ)
Cc: Shekter Smith, Liane (DEQ); Busch, Stephen (DEQ)
Subject: Fwd: Flint event on Tuesday

All,
 Here is some early information about the event tomorrow in Flint. State leaders, including director Wyant, Will announce \$2 million in distress community grants. Based on what little I know so far, it sounds a little bit like SAW grants.

Will share more details when I get them.

b

Sent from my iPhone

Begin forwarded message:

From: "Murray, David (GOV)" <MurrayD1@michigan.gov>
Date: February 2, 2015 at 1:34:21 PM EST
To: "Agen, Jarrod (GOV)" <AgenJ@michigan.gov>, "Stanton, Terry A. (Treasury)" <StantonT@michigan.gov>, "Wurfel, Sara (GOV)" <Wurfels@michigan.gov>, "Wurfel, Brad (DEQ)" <WurfelB@michigan.gov>, "Biehl, Laura (GOV)" <BiehlL@michigan.gov>, "Hollins, Harvey (GOV)" <hollinsh@michigan.gov>, "Clayton, Stacie (GOV)" <claytons3@michigan.gov>, "Walsh, John (GOV)" <WalshJ@michigan.gov>, "Brownfield, Michael (GOV)" <BrownfieldM2@michigan.gov>, "Allard, Claire (GOV)" <allardc1@michigan.gov>, "Rexford, Tori (GOV)" <rexfordt@michigan.gov>
Subject: Flint event on Tuesday

Good afternoon team,

Just wanted to touch base on Tuesday's event in Flint. Unless told otherwise, I'm continuing to prepare for the event.

I touched base with Harvey and Stacie, who recommended we proceed. Harvey is approaching some stakeholders about appearing at the event, and will forward those names to me later today.

I left a message with Dick Posthumus to see if he has any concerns about proceeding.

The Senate Democrats said Sen. Ananich will want to appear. Katie Carey from the House said she would forward information to Rep. Neeley and Phelps. I have not heard back from her yet.

I've attached the backgrounder and the draft releases from Governor's Communications and Treasury. I've sent a message to the mayor's office about a quote, but have not heard back yet.

Brad and I spoke about Director Wyant's role and potential comments. He will point out that there are things the state can do to help monitor the situation, but also will note that the city's water infrastructure is aging, which contributes to the problems.

We need some direction on an advisory. Should this be listed on a typical advisory from the governor's office, or come from Treasury? Do we even issue an advisory in favor of just contacting media directly in the morning?

Please give the draft releases a read for potential changes, or let me know of other concerns.

Thank you!

Dave

Dave Murray

Deputy Press Secretary | Executive Office of Governor Rick Snyder

MurrayD1@michigan.gov

517-335-6397, office

517-449-8343, **PPI**

Twitter: @michigandmurray



STATE OF MICHIGAN
DEPARTMENT OF TREASURY
LANSING

RICK SNYDER
GOVERNOR

R. KEVIN CLINTON
STATE TREASURER

February 3, 2015

FOR IMMEDIATE RELEASE

www.michigan.gov/treasury

Contact: Terry Stanton, Treasury
(517) 335-2167

Dave Murray, Governor
(517) 335-6397

draft

Gov. Rick Snyder announces grants helping distressed municipalities with water, public safety, appraisal issues

\$8 million awarded for projects aimed at improving services, quality of life

LANSING, Mich. -- Gov. Rick Snyder today awarded \$8 million to six municipalities to fund various improvement projects, including water system and street lighting enhancements and technology upgrades through the Financially Distressed Cities, Villages, and Townships Grant Program.

Municipalities are eligible for the grants if they are experiencing one or more conditions indicative of "probable financial stress," as defined by Public Act 436 of 2012, the Local Financial Stability and Choice Act.

"Municipalities receiving this special funding are some of the areas hardest hit by the Great Recession," Snyder said. "I am pleased we can offer funding assistance to help these local governments improve various public services their taxpayers and residents expect and deserve."

Under the grant program, funding may be used to pay for specific projects, services, or strategies that move a city, village, or township toward financial stability. There was \$8 million appropriated for the program with a \$2 million cap, per local unit.

The following communities will receive funding this year, with projects and amounts noted (alphabetical order):

Local Unit	Project Description	Amount
City of Benton Harbor	Complete a property reappraisal to provide updated and accurate assessing records. Additionally, community enhancement through blight management and sidewalk replacement.	\$475,000
City of Benton Harbor	Water system enhancement through water main replacements and fire hydrant repairs.	\$434,960
City of Ecorse	Public safety enhancement through improved street lighting.	\$350,000

City of Flint	Water system enhancement through improved waste management.	\$1,100,000
City of Flint	Water system enhancement through leak detection and pipe assessments.	\$900,000
City of Hamtramck	Complete a property reappraisal to provide updated and accurate assessing records.	\$167,860
City of Hamtramck	Upgrade City Hall security.	\$50,000
City of Hamtramck	Public safety enhancement through improved street lighting.	\$404,600
City of Highland Park	Water system enhancement through meter replacement, leak detection, and system repairs.	\$2,000,000
City of Inkster	Complete a property reappraisal to provide updated and accurate assessing records.	\$73,460
City of Inkster	Water system enhancement through fire hydrant repairs.	\$150,000
City of Inkster	Provide a backup power source for public safety.	\$30,000
City of Inkster	Public safety enhancement through the creation of a multi-jurisdictional narcotic team.	\$240,000
City of Inkster	Public safety enhancement through police officer training.	\$41,970
City of Inkster	Public safety enhancement through the deployment of an additional police officer.	\$320,000
City of Lincoln Park	Public safety enhancement through updated technology.	\$143,490
City of Melvindale	Public safety enhancement through fleet replacement of police vehicles and updated technology.	\$88,000
City of Pontiac	Community enhancement through blight management.	\$125,000
City of River Rouge	Public safety enhancement through improved street lighting. Additionally, infrastructure replacements to City Hall.	\$591,508
Royal Oak Township	Public safety enhancement through improved street lighting.	\$86,559
Royal Oak Township	Public safety enhancement of police services.	\$217,593

Applications for the next round of Financially Distressed Cities, Villages, and Townships Grant Program will be available on the Department of Treasury website this spring. Applications must be submitted to Treasury by the close of business on XXX, XXX 31, 2015.

Preference is generally given to applicants from local units in which:

- A financial emergency has been declared in the past five years;
- An approved deficit elimination plan for the general fund is currently in place; or,
- Two or more conditions indicating “probable financial distress” currently exist.

For more information about FDCVT grants, including an application for cities, villages, and townships, visit www.michigan.gov/revenuesharing.

####

*Conditions of “probable financial distress” relating solely to school districts are not included as conditions for FDCVT, as school districts are not eligible.

Briefing: Grant announcement in Flint

Tuesday, Feb. 3, 2015, 3-4 p.m.

Haskell Community Center, 2201 Forest Hills Ave. Flint

Governor's communications: Dave Murray, murrayd1@michigan.gov, 517-449-8343

DEQ communications: Brad Wurfel, wurfelb@michigan.gov, 517-230-8006

Treasury communications: Terry Stanton, stantont@michigan.gov, 517-830-5807

Purpose

The state government is providing support for the Flint government as it addresses issues with its water system. The state on Tuesday is announcing that Flint is receiving two grants totaling \$2 million related to water system improvements through the Financially Distressed Cities, Villages and Townships grant program. DEQ Director Dan Wyant will address ongoing efforts with his agency to test Flint water and explain why the city is facing some of its problems. Senate Minority Leader Jim Ananich, D-Flint, will discuss his appreciation for the ongoing support for the city and its residents.

Attending

- Harvey Hollins, director of the Michigan Office of Urban Initiatives
- Dan Wyant, director of the Michigan Department of Environmental Quality
- Wayne Workman, deputy treasurer, Michigan Department of Treasury
- Jerry Ambrose, Flint emergency manager
- Dayne Walling, Flint mayor
- State Sen. Jim Ananich
- State Rep. Sheldon Neeley
- State Rep. Phil Phelps

Agenda

- | | |
|--------------------|--|
| 3:00 PM – 3:05 PM: | Harvey Hollins announces that Flint has received two grants totaling \$2 million. |
| 3:05 PM – 3:10 PM: | Dan Wyant discusses the state's ongoing role in monitoring Flint's water and any assistance that has been provided and will continue to be provided. |
| 3:10 PM – 3:15 PM: | Mayor Dayne Walling remarks about appreciation for state assistance. |
| 3:15 PM – 3:20 PM: | Sen. Jim Ananich remarks about appreciation for state assistance. |
| 3:20 PM – 3:25 PM: | Rep. Neeley remarks. |
| 3:25 PM – 3:35 PM: | Harvey Hollins closing remarks, opens floor to media questions. |
| 3:35 PM | Event ends, though this might be optimistic. |

Background

- The quality of Flint water has been a high-profile concern in recent weeks, with residents complaining about the color, taste and smell of tap water since a switch to Flint River water as a temporary source as a pipeline is built to Lake Huron as a water source starting in 2016.
 - Residents have attended meetings with jugs of brownish water.
 - U.S. Kildee has worked with labor and community groups to distribute bottled water.
- Mayor Walling has issued a letter (included below) calling for state and federal assistance for the city, including forgiveness of some \$20 million in debt through the Drinking Water Revolving Loan Fund and calling for the governor to come to Flint personally.
 - Walling also submitted a guest column to the Flint Journal with similar requests.

- He said the loan forgiveness is needed for the city to upgrade its water treatment process.
- Governor and Mayor Walling had a telephone conversation on Friday, and the mayor has pledged to work together on solutions.
- Rep. Sheldon Neeley also has sent the governor a letter, saying that his constituents “are on the verge of civil unrest.”
- The Department of Environmental Quality has been monitoring the water situation, with a detailed backgrounder and talking points attached below.
- The Treasury Department is announcing Tuesday that Flint is among the cities receiving a combined \$8 million the Financially Distressed Cities, Villages and Townships grant program.
 - The announcement of the other grants will follow the Flint announcement.
 - The Flint grants are \$1.1 million to allow the city to replace the functions of the old incinerator with new water pollution control facility allowing for the disposal of waste to landfills.
 - The other is \$900,000 to allow the city to hire a contractor to perform a leak detection survey, which will lead to prioritizing repairs.
 - A breakdown of the grants is included below.

Treasury breakdown of Flint grants

Flint Incinerator: The grant project entails shutting down the current Water Pollution Control Facility Incinerator (due to the incinerator not being up to new EPA standards). In order to meet EPA standards, it would cost roughly \$8.8M in upgrades to the current incinerator. The grant funding will allow them to replace the functions of the old incinerator by constructing new facilities which will allow for the disposal of waste to landfills.

Budget Breakdown

Construction Contractor	\$1,050,000
Project Management	<u>\$50,000</u>
Total	\$1,100,000

Flint Leak Detection: The grant project will allow the city to hire a contractor to perform a leak detection survey of the city water lines. The city will receive a map of leak locations and an assessment of leak severity. This data will allow the city to prioritize leak repair. The project also covers the expense of conducting a water pipe line wall thickness condition assessment on a portion of the city's pipes. The assessment will guide the city's water main replacement program.

Budget Breakdown

Project Planning	\$90,000
Mobilization of Crew to Site	\$27,000
Leak Detection < 16" diameter	\$378,000
Leak Detection 16" diameter or >	\$270,000
Pipe Condition Assessments	<u>\$135,000</u>
Total	\$900,000

DEQ backgrounder on Flint water

Following the formal approval of Flint into the KWA in 2012, DWSD sent Flint a letter saying their contract was thereby terminated (by early 2013).

Genesee County has been using DWSD water without a contract since May 2014. But Flint took the letter to imply a water cutoff, and promptly turned to DEQ with a proposal to use the Flint River (their historic backup system).

This proposed shift was pitched primarily as a money saver. But it put the city in the business of water production, where they historically had been in the business of water transmission. DEQ approved the use of the river as a source, based on the treatment plant's past performance as a standby facility and the improvements we outlined prior to a switchover.

Several municipalities around the state use surface water supplies (rivers): Blissfield near Monroe, Manistique, and Alma to name a few.

The city completed the upgrades at the water plant the facility and DEQ approved it April 2014.

There were some initial hiccups. Last summer, there were a couple of 'boil water' notices issued. One for a water test that showed e. coli, one for a break in the water main.

The challenge to using the Flint River as a source is that the condition of the water is variable and changes with season and weather. It has substantially more organic matter than deep lake sources like Lake Huron. This organic matter is mobilized by high water events, and warm weather also can account for more organic material in the water.

The treatment of the organic matter is done with chlorine. One might conclude that the continual answer is just to use more chlorine to achieve water safety. However, at some point on the continuum, the chlorine and organic matter create TTHM – total trihalomethanes – as a byproduct. When the standard for those is exceeded over several consecutive quarters of testing, the supply is required by law to issue public notice and submit an approved plan for addressing the situation.

You'll note that this regulatory approach means TTHM testing is done quarterly. That means people who use the system are exposed to TTHM for several months before the public notice is required. It's because TTHM is a chronic health threat. Over the long term (measured in decades), continued exposure can contribute to some known health problems. If this were an immediate health threat, customers would receive immediate notification to boil their water or not use it.

Put in context, the EPA (which established the standard and the rule) estimates the existence of the TTHM standard prevents an estimated 280 bladder cancer cases each year ... out of more than 330 million people who use public water supplies around the country.

It's not "nothing." State and federal law requires quarterly testing for TTHM and that the public be informed of it when the annual average of four quarters' worth of consecutive testing shows TTHM levels exceeding 80 parts per billion. Flint's results managed to exceed the annual average in three quarters, and they must develop a plan to address it.

But it's not like an eminent threat to public health. Unlike an e. Coli or even total coliform bacteria maximum contaminant level, which require immediate public notification and response and are part of daily / hourly testing of public water supplies, TTHMs pose a public health concern with chronic, long-term exposure.

It's clear the nature of the threat was communicated poorly. It's also clear that folks in Flint are concerned about other aspects of their water – taste, smell and color being among the top complaints.

The Safe Drinking Water Act requires public water supplies be tested for more than 90 regulated contaminants, including microbial contaminants. The act, and the program here in Michigan, work to ensure that water is safe to drink. The act does not regulate aesthetic values of water. Here are some factors affecting the aesthetics of water in Flint.

1. It's the Flint River. The water supplied by DWSD historically came from Lake Huron. It's softer. With hard water, you get a different flavor and feel. It's why General Motors suspended use of Flint Water – it was rusting their parts. Also, there's the 'organics' factor (discussed previously).
2. The system is old. Flint has more than 500 miles of water pipes. More than half of those pipe miles are more than 75 years old. Much of it is cast iron. Hard water can react with cast iron and exacerbates the rusty factor, which creates that brown water that angry residents were holding up in jugs for the media cameras last week. Valve failure has also been a key challenge. The system has an estimated 7,500+ valves. When they stick open or stick shut, it affects the hydraulics of the system and increase areas of stagnation. The city has a backlog of valves that need to be addressed. They've done half a dozen or so since November.
3. Flint is old. Many of the homes served by the system are old. Brown water complaints may also be attributable to cast iron pipes in customers' service connection to the city lines. The DEQ has been encouraging people with water coloration concerns to contact the city and see whether it is the service line or the City's line causing the issue. Again, discoloration is not an indicator of water quality or water safety, but we recognize that nobody likes it.

In summary, the City of Flint has tremendous need to address its water delivery system. We are not aware that they have any capital improvement funds for preventative maintenance in place, much less line replacement project monies that will require hundreds of millions.

The City was approved for a Revolving Fund loan in 2008 or 2009. As a Distressed Community, they qualified for flexible terms and 2 percent interest rate Revolving Fund Loan. After they were notified they were approved for the loan, they declined it. Previous SRF loans from the state to Flint bear an outstanding balance of \$20.7 million today.

The DEQ continues working with the city to address the TTHM issue. They can take interim steps – from scrubbing the insides of transmission lines to carefully monitoring the hydraulic challenges in their system – to address customers' aesthetic concerns. Their TTHM numbers already are showing dramatic improvement; the November testing showed only one of seven sample points exceeding the standard.

The key now is that the standard is an average of three quarters' worth of results. It will be some time before they are officially "not in violation." However, depending on weather in 2015, it's not unforeseeable that we will be having this conversation again by next Christmas.

The key to the conversation is that TTHM is not a top health concern. That's key because residents need to understand TTHM in context, and it is key because it appears the mayor has seized on the public panic (sparked, frankly, by their poor communication of the violation notice) to ask the state for loan forgiveness and more money for their infrastructure improvement.

Another key thing to remember is that once the city connects to the new KWA system in 2016, this issue will fade in the rearview.

Key messages:

1. The DEQ Drinking Water program works with communities around the state to ensure that municipalities provide customers with clean, safe drinking water.
2. Municipal water supplies are tested rigorously and regularly for more than 90 regulated contaminants, including microbial contaminants that pose an immediate public health concern.

3. Flint's exceedance of the TTHM standard should reassure residents that the testing program is effective.
4. TTHM is not an immediate health threat. It is a chronic concern, one that can be problematic over the course of several decades of exposure. The public was notified because the law requires the city to make public notification, so that everyone can make informed decisions. This is particularly true for people with infants or those with compromised immune systems.
5. The DEQ is working with the City to address the situation. Recent tests show the TTHM numbers dropping rapidly. The department will continue working with the city in the months ahead, and residents should feel confident that their water is safe to drink unless the DEQ or City notifies them otherwise.
6. The discoloration and odor issues some Flint residents are experiencing are separate issues from the TTHM issue. TTHM is odorless, colorless and measured in parts per billion.
7. Flint water customers who have questions or concerns about their water should first contact the city to get answers and help. They also can contact the Michigan DEQ.

Mayor Walling's Facebook post

Friend,

Access to clean, safe, affordable water is a basic human right.

That's why I just sent Gov. Snyder my Flint Water Improvement Plan. It focuses on the areas of safety, quality, access, investment and education. My letter urges the governor to quickly implement these ideas so that Flint's water is 100% safe.

Please contact Gov. Snyder by calling (517) 335-6397 (or by clicking [here](#)) and ask him to take action immediately to implement my plan and ensure Flint's water is safe.

My plan offers new ideas and also builds on successful models of utility, energy and assistance programs at the state and federal levels. Here is my plan:

Safety & Quality

- 100% Safety is the standard
- City of Flint releases testing data to assure safety and expands testing to households with support from the Michigan Department of Environmental Quality
- Support alternatives for those advised not to drink the water by their doctors through the Michigan Health Endowment Fund and community partners to protect the vulnerable like seniors and infants
- Bring on experienced river water treatment operational management in the City of Flint
- Require water testing data to be released quarterly by law in all Michigan communities

Access

- Announce an amnesty program for turn-ons and reduce the turn-on cost in Flint
- Develop a revised payment plan policy to allow customers to come back on to the Flint system
- New Federal and State partnership to establish new Drinking Water Emergency Assistance Fund for customers (modeled on Federal and State energy utility programs: Low Income Home Energy Assistance Program; Michigan Energy Assistance Program; State Emergency Relief)

Investment

- Accelerate water system improvements outlined in the City of Flint Capital Improvement Plan through Federal and State Investments
- State approves City of Flint's Distressed Cities Fund applications
- Federal and State forgiveness of payment to Drinking Water Revolving Loan Fund

- Federal and State financing for future improvements
- City Water Department implements budgeted FY15 projects including leak detection, valve repairs, new pipes and meter replacements

Education

- Develop a community partnership to provide household and business customers with information on testing and conservation
- Ongoing partnership with Michigan Department of Human Services, United Way, Salvation Army and community organizations to provide information on water assistance
- Expand youth energy initiative to assist households with conservation and efficiency (piloted in summer 2014 with Northwestern High School students, EcoWorks and Consumers Energy)

The struggle with our water has gone on for too long. The state must take action and do its part. Please ask Gov. Snyder to take action immediately to implement my plan and ensure Flint's water is safe. Thank you for your ongoing support.

Links to coverage

- [Mayor, governor have 'long, productive' talk about Flint's water problems](#), Jan. 30
- [2,000 more gallons of water headed to Flint for giveaway](#), Jan. 30, 2015
- [Flint emergency manager says there are two big reasons not to reconnect Detroit water](#), Jan. 29
- [Flint Democracy Defense League plans four meetings on city's water problems](#), Jan. 29
- [Environmentalist sends out new warnings about Flint water](#), NBC, Jan. 27
- [Erin Brockovich says on Facebook she's prepared to come to Flint](#), MLive, Jan. 27
- [Mott Community College not waiting for Flint to ensure safe water](#), MLive, Jan. 26
- [Detroit water chief says she's willing to sell emergency water to Flint -- no strings attached](#), Jan. 26
- [Mayor says governor needs to visit Flint to see water crisis first hand](#), MLive, Jan. 26
- [Need water? Flint groups collect 600 cases, plan distribution this week](#), MLive, Jan. 26
- [Incoming Flint water expert would have 'continual oversight' until new pipeline connected](#), Jan. 25
- [Looking back at Flint's water problems \(photo gallery\)](#), MLive, Jan. 25
- [Flint water problems: Switch aimed to save \\$5 million -- but at what cost?](#), MLive, Jan. 23
- [State says its already 'working diligently' on Flint's water problems](#), MLive, Jan. 22
- [Officials say Flint water is getting better, but many residents unsatisfied](#), MLive, Jan. 21



STATE OF MICHIGAN
EXECUTIVE OFFICE
LANSING

RICK SNYDER
GOVERNOR

BRIAN CALLEY
LT. GOVERNOR

CONTACTS:

Sara Wurfel or Dave Murray, Governor's Office
517-335-6397
Terry Stanton, Department of Treasury
517-335-2167

FOR IMMEDIATE RELEASE

<< AUTODATE >>

Gov. Rick Snyder awards Flint \$2 million in Distressed Cities grants for water system infrastructure improvements

Funding to be used for leak detection, waste incinerator replacement

LANSING, Mich. — Gov. Rick Snyder today awarded Flint \$2 million in grants for water system infrastructure improvements, part of an overall \$8 million plan to help cities through the Financially Distressed Cities, Villages, and Townships Grant Program.

Flint is among six municipalities receiving grants through the program. The city will use the funding to detect leaks in its water lines and replace its Water Pollution Control Facility Incinerator.

"There are opportunities for the state government to assist Flint city leaders as they address issues related to the city's water system," Snyder said. "These grants will help recovering cities improve public services and infrastructure, improving the quality of life for all residents."

The grants to Flint were announced today at the Haskell Community Center by Harvey Hollins, director of the state's Office of Urban Initiatives and Wayne Workman, the state's deputy treasurer. They were joined by Dan Wyant, director of the Michigan Department of Environmental Quality, Flint Emergency Manager Jerry Ambrose, Mayor Dayne Walling, state Senate Minority Leader Jim Ananich, state Reps. Sheldon Neeley and Phil Phelps.

Flint was awarded \$900,000 to allow the city to hire a contractor to perform a leak detection survey of the city water lines. The city will receive a map of leak locations and an assessment of leak severity, allowing the city to prioritize leak repair. The project also covers the expense of conducting a water pipe line wall thickness condition assessment on a portion of the city's pipes. The assessment will guide the city's water main replacement program.

The city also was awarded \$1.1 million to shut down its current Water Pollution Control Facility incinerator and replace it with new facilities which will allow for the disposal of waste in landfills. The existing facilities are not up to federal Environmental Protection Agency standards.

Municipalities are eligible for the grants if they are experiencing one or more conditions indicative of "probable financial stress," as defined by Public Act 436 of 2012, the Local Financial Stability and Choice Act.

Under the grant program, funding may be used to pay for specific projects, services, or strategies that move a city, village, or township toward financial stability. There was \$8 million appropriated for the program with a \$2 million cap, per local unit.

##

From: Bennett, Charles (DEQ)
Sent: Monday, February 09, 2015 1:28 PM
To: Rosenthal, Adam (DEQ); Prysby, Mike (DEQ)
Subject: more Flint news

Salvation is near! Erin Brockovitch will be sending her "water expert" to Flint to "make sure you get honest answers..."!

http://www.mlive.com/news/flint/index.ssf/2015/02/erin_brockovich_advisor_headin.html#incart_river

Charles Bennett, PE
DEQ Water Resources Division
Lansing District Office
BennettC4@michigan.gov
ph 517-284-6659; fax 517-241-3571

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Monday, February 09, 2015 2:30 PM
To: Benzie, Richard (DEQ); Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: RE: question on flushing/water rates in MI

Thank you, Richard. Yes, Steve B explained to me this morning, that the commodity charge is based upon the amount of water the resident is using; however, the base rate/service charge would include operation and maintenance costs, including flushing.

Jen

From: Benzie, Richard (DEQ) [mailto:BENZIER@michigan.gov]
Sent: Monday, February 09, 2015 12:57 PM
To: Crooks, Jennifer; Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: RE: question on flushing/water rates in MI

There currently is no regulatory oversight of rates in Michigan.

But be careful about saying residents aren't paying for water used for flushing -- as the overall costs of operating the water system have to be reflected in the revenue stream somewhere. The rates probably reflect the cost of producing "lost" water, just not in an accountable manner. If you say they are paying for it (even directly), it may still generate a negative reaction if they realize the costs are "hidden" and being borne by all customers.

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Monday, February 09, 2015 12:12 PM
To: Benzie, Richard (DEQ); Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: question on flushing/water rates in MI

Richard---I have a couple of questions for you regarding the citizen complaint on Flint, that I'm responding to.

Regarding the water rates part of this email, "Flint river. runs right through the city of flint. they have been opening the hydrants and letting water pour out of them to "purge" the system, **then charging consumers double for their mistake**"

I was going to remind the citizen that they are only charged based upon what the water meter reads at individual connection (home). The citizens aren't directly paying for what is being flushed. I was going to say that the flushing program removes stagnant water in the system, which can increase levels of trihalomethanes and increase bacteria growth, among other activities.

Also, who regulates water rates in Michigan? I don't think MI has a rate commission, right? Any oversight on individual water supply rates?

Jennifer

From: Crooks, Jennifer
Sent: Monday, February 09, 2015 8:22 AM
To: Richard Benzie; Prysby, Mike (DEQ); Busch, Stephen (DEQ)
Subject: FYI: (CWA - FY15-124819-3709-CV) Referred to Region - Michigan

Forgot to cc you all, Jen

From: Crooks, Jennifer
Sent: Monday, February 09, 2015 8:09 AM
To: Dee, Rhiannon
Cc: Poy, Thomas
Subject: RE: (CWA - FY15-124819-3709-CV) Referred to Region - Michigan

Rhiannon—Let me tell you, this Flint situation is a nasty issue—I've had people call me 4 letter words over the phone, yell at me, and call me a crook—yes, the last one was a play on my last name—I didn't think it was funny, though I'm developing a thick skin ☺.

I can respond to the Flint drinking water issue, and the water rate issue, and refer them back to the State if they have further questions. But I cannot respond to the sewerage dump (who receives the report when there is a sewer overflow?) or the chemical—though Richard is probably right—the 'toxic chemical' is probably chlorine—and that's what I'll say in my response. One citizen was confused about 'chlorides' being 'chlorine'....

Let me know if you would like me to respond to this citizen complaint as I explained above.

Jennifer

From: Dee, Rhiannon
Sent: Friday, February 06, 2015 10:50 AM
To: Benzie, Richard (DEQ)
Cc: ostlundp@michigan.gov; Busch, Stephen (DEQ); Prysby, Mike (DEQ); Crooks, Jennifer; Poy, Thomas; Vantil, Barbara
Subject: RE: (CWA - FY15-124819-3709-CV) Referred to Region - Michigan

Richard,

While I understand this complaint conflates various issues, my intention of forwarding it on to Pete and Barry was to relay the potential NPDES impacts of the complainants allegations.

Best,

Rhiannon Dee
 Program Analyst
 U.S. Environmental Protection Agency
 Water Division, WC-15J
 (312) 886-4882
dee.rhiannon@epa.gov

From: Benzie, Richard (DEQ) [<mailto:BENZIER@michigan.gov>]
Sent: Friday, February 06, 2015 9:38 AM
To: Dee, Rhiannon
Cc: ostlundp@michigan.gov; Busch, Stephen (DEQ); Prysby, Mike (DEQ); Crooks, Jennifer; Poy, Thomas
Subject: RE: (CWA - FY15-124819-3709-CV) Referred to Region - Michigan

I'm not sure what this complainant is alleging. Do you want Michigan to respond to the allegation that a "company or individual dumped millions of gallons of raw sewage into the city of Flint drinking water" or the allegation that "they(?) have dumped a potential cancer causing chemical into the city's drinking water" or the allegation that the city of Flint is flushing hydrants and charging customers double? The Office of Drinking Water and Municipal Assistance cannot address the issue surrounding the dumping of raw sewage and we don't interfere with water rates, but maybe an explanation of the issues that have confronted the city of Flint and their public water supply will help you understand the overall problem.

Last spring, the city of Flint decided to begin relying upon the Flint River as their source of drinking water using a treatment plant that was designed to do so. Last summer, they experienced difficulties with stagnation in some areas of the distribution system due to significantly reduced demands as a result of the loss of a significant percentage of their residential and industrial demands that accelerated over the last decade. During the summer of 2014, they also had a couple of monitoring periods where they detected total coliform at monitoring sites in these stagnant areas, and one time they detected E.coli present. The ensuing boil water advisories and public notification heightened customer concern about the quality of drinking water as a result of the switch from Detroit to the Flint River. Detroit supplied Flint with drinking water from Lake Huron, a much higher quality source than the Flint River. However, monitoring of the Flint water treatment plant tap has never indicated unacceptable water entering the distribution system. In response to these coliform detections and in an effort to prevent a recurrence, the city also increased flushing water mains in low flow areas and they have attempted to ensure the presence of a chlorine residual throughout the distribution system (is this the "potential cancer causing chemical" the complainant mentions?).

Compounding the problem of customer confidence was the initial monitoring for disinfection byproducts conducted by Flint under the Stage 2 DBR after their switch to the Flint River. The initial monitoring reported significantly elevated levels of total trihalomethane (TTHM) compounds throughout the city's distribution system. Our district office advised the city that they needed to immediately implement operational techniques at the treatment plant and in the distribution system to reduce the formation of these compounds. The steps the city of Flint has taken have been successful and have reduced TTHM concentrations to the point where the latest results are below the drinking water standard. However, the standard is calculated on a running annual average and it is likely to be another 3 to 6 months before the annual average at each monitoring station will (hopefully) meet the standard. Until then, the city has to continue to provide quarterly public notification, which will continue to concern residents despite the latest TTHM results.

The switch to the Flint River, the microbiological problems and the elevated TTHM concentrations experienced last year in Flint have caused a high level of customer dissatisfaction and distrust. The city is working diligently to restore that confidence, but it will not be accomplished easily or overnight. You should also know that the switch to the Flint River is an interim measure intended to last only until a 72-inch pipeline from Lake Huron to the Flint water treatment plant is completed. It is currently under construction and expected to be in operation in mid-2016. At that point, the city's drinking water should again be very similar in quality to what they were receiving from Detroit.

Although the subject(s) of this complaint are not clear to me, I suspect it is a result of the media coverage of the recent problems with the city's water supply. However, the information from your initial contact indicates a Grand Blanc, Michigan address, which is not in the city of Flint service area. As I mentioned, our Lansing district office has been dealing with city representatives on this issue. If you have further questions, feel free to contact either Michael Prysby or Steve Busch. They are receiving this message so you have their contact information. You may also wish to communicate with your Region 5 counterparts in the Office of Drinking Water & Ground Water, Jennifer Crooks or Tom Poy, who have received similar complaints and with whom we have communicated regularly on these issues.

Please let us know if someone from EPA will respond to the complainant, or if you expect Michigan DEQ to do so.

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

From: Ostlund, Peter (DEQ)
Sent: Friday, February 06, 2015 6:55 AM

To: Dee, Rhiannon
Cc: Selden, Barry (DEQ); Benzie, Richard (DEQ); Bartley, Cheryl (DEQ)
Subject: RE: (CWA - FY15-124819-3709-CV) Referred to Region - Michigan

Rhiannon, this is a drinking water complaint, not an NPDES complaint. Flint does have SSOs, and reports those. That's not the cause of this complaint.

There are public concerns with Flint's drinking water system, which switch from the city of Detroit supply to their own supply. Detroit's source water is much better, so the public may be noticing some changes.

I've copied Richard Benzie, how is the Field Operations Chief in our division that handles drinking water. If you need more follow up, he can provide it.

Thanks, Pete

Peter Ostlund
 Field Operations Section Chief
 Water Resources Division
 Michigan Dept. of Environmental Quality
 P.O. Box 30458
 Lansing, Michigan 48909-7958
 517-898-5128 (iPhone)
ostlundp@michigan.gov

From: Dee, Rhiannon [<mailto:dee.rhiannon@epa.gov>]
Sent: Thursday, February 05, 2015 5:11 PM
To: Ostlund, Peter (DEQ); Selden, Barry (DEQ)
Subject: FW: (CWA - FY15-124819-3709-CV) Referred to Region - Michigan

Hi there,

Hope all is well. We received this complaint a while back. Complainant is alleging discharges into Flint River.

Let me know if you have any questions or if I should forward this on to someone else.

Best,

Rhiannon Dee
 Program Analyst
 U.S. Environmental Protection Agency
 Water Division, WC-15J
 (312) 886-4882
dee.rhiannon@epa.gov

From: howard.donna@epa.gov [<mailto:howard.donna@epa.gov>]
Sent: Monday, January 12, 2015 11:21 AM
To: Dee, Rhiannon
Cc: Beese, Jennifer
Subject: FWD: (CWA - FY15-124819-3709-CV) Referred to Region - Michigan

01/12/2015

SUBJECT: FWD: (CWA - FY15-124819-3709-CV) Referred to Region - Michigan

FROM: howard.donna@epa.gov
TO: Dee.Rhiannon@epa.gov
CC: Beese.Jennifer@epa.gov

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

1/11/2015 10:55 AM

HQ LEAD NUMBER: FY15-124819-3709-CV

SUBJECT: Referred to Region - Michigan

FROM: sargent

TO:

Name: PPI

Address: PPI

City: grand blanc

State: Michigan

Zip: 48480

Phone: PPI

Alleged Violator's Name: city of flint michigan

Alleged Violator's Address: water department

Alleged Violator's City: flint

Alleged Violator's State: Michigan

Alleged Violator's Zip: 48503

Tip or Complaint: an individual or company dumped several million gallons of raw sewage into the city of flint Michigan drinking water and now they have dumped a potential cancer causing chemical into the water to cover up their negligent act. people are getting sick and skin rashes are becoming apparent, especially in the young and elderly. we will keep going until something is done to correct this "mistake"

Specific Directions: Flint river. runs right through the city of flint. they have been opening the hydrants and letting water pour out of them to "purge" the system, then charging consumers double for their mistake.

Violation Still Occurring? Yes

State DEP/DEQ/DEM Notified? Yes

From: Crooks, Jennifer <crooks.jennifer@epa.gov>
Sent: Wednesday, February 11, 2015 3:46 PM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Subject: RE: Controlled Correspondence from citizen in Flint

Thank you for your comment, Steve; I included it as is in my letter. It's always good to provide another resource for people with questions.

Jen

From: Busch, Stephen (DEQ) [mailto:BUSCHS@michigan.gov]
Sent: Wednesday, February 11, 2015 11:39 AM
To: Crooks, Jennifer; Prysby, Mike (DEQ)
Cc: Benzie, Richard (DEQ); shekterl@michigan.gov
Subject: RE: Controlled Correspondence from citizen in Flint

Jennifer,

Regarding water rates and financial considerations, here is some additional information:

The Michigan Department of Treasury conducts annual financial audits of local units of government in accordance with US government auditing standards and Michigan Public Act 34 of 2001, the Municipal Finance Act. This includes the City of Flint and its proprietary utility funds. While these audits do not set the rate structure, they do ensure that funds generated through water rates are accounted and directed in accordance with applicable laws.

Copies of these audits can be obtained online at the following location:

<https://treas-secure.state.mi.us/LAFDocSearch/>

Everything else appears accurate.

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

From: Crooks, Jennifer [mailto:crooks.jennifer@epa.gov]
Sent: Wednesday, February 11, 2015 11:49 AM
To: Busch, Stephen (DEQ); Prysby, Mike (DEQ)
Cc: Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Subject: Controlled Correspondence from citizen in Flint
Importance: High

Hi, Steve. As we discussed, I've drafted our response and included information you gave us on Monday. Tom Poy has reviewed, so this is our final draft. If you could get back to me this afternoon with any changes, I'd appreciate it. These things are like ticking time bombs around here.

Thank you!

Jennifer

From: Busch, Stephen (DEQ)
Sent: Thursday, February 12, 2015 8:21 AM
To: Prysby, Mike (DEQ)
Subject: FW: Flint ABC 12 call

Importance: High

Mike,

Can you respond to Brad on this.

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

From: Wurfel, Brad (DEQ)
Sent: Wednesday, February 11, 2015 5:13 PM
To: Busch, Stephen (DEQ)
Subject: RE: Flint ABC 12 call

Interesting question.

Story is City of Flint's "franchise customers." They don't live in flint proper, but they do use flint water. Their water bill comes from Genesee County.

They apparently did not get the notice about the TTHM exceedance. The law says the city must notify its customers. Flint contends it notified the county and expected the county to notify the customers. County said it never got that notice ...

Not sure what was supposed to happen for 'franchise' customers or who was responsible for what. Are you familiar with how that was supposed to work? Important mostly going forward, as it is likely they'll be doing this show again in March...

She needs an answer sometime tomorrow morning. This story will air at their 11 a.m. show.

Thanks.

b

From: Busch, Stephen (DEQ)
Sent: Wednesday, February 11, 2015 4:08 PM
To: Wurfel, Brad (DEQ)
Subject: Flint ABC 12 call

Brad,

Jessica from ABC 12 in Flint left me a message. Can you please call her back. No specific reference to Flint water but I assume that's what her question is about.

Her number is PPI Thanks.

Stephen Busch, P.E.
 Lansing and Jackson District Supervisor

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

From: Robert Bincsik <rbincsik@cityofflint.com>
Sent: Thursday, February 12, 2015 4:05 PM
To: Prysby, Mike (DEQ)
Cc: bwright@cityofflint.com
Subject: Re: Residential customers

Mike here are the latest numbers from billing.
Commercial Active 4473.
Residential 24599

On Thu, Feb 12, 2015 at 11:44 AM, Prysby, Mike (DEQ) <PRYSBYM@michigan.gov> wrote:

Brent, Rob....

I need Flint's most recent number of active residential service connections as part of updating MDEQ's estimated population served. Also, add in commercial and industrial accounts; however, keep them separate. Thanks.

Michael Prysby, P.E.

District Engineer

Office of Drinking Water and Municipal Assistance

517 290-8817

—
Thank you,

*Robert Bincsik
Water Distribution and
Sewer Maintenance Supervisor
City of Flint
3310 E. Court Street
Flint, MI 48506*

Ph: 810.766.7202 ext. 3413

Fx: 810.743.5758

From: Benzie, Richard (DEQ)
Sent: Tuesday, February 24, 2015 8:58 PM
To: Prysby, Mike (DEQ); Busch, Stephen (DEQ); Shekter Smith, Liane (DEQ)
Subject: Re: Emergency Service Contract

Nice summary Mike. Thanks for the update

Sent using OWA for iPhone

From: Prysby, Mike (DEQ)
Sent: Tuesday, February 24, 2015 4:04:25 PM
To: Busch, Stephen (DEQ); Benzie, Richard (DEQ); Shekter Smith, Liane (DEQ)
Subject: Emergency Service Contract

Attached is Article 5 of the Back-Up Water Agreement between Genesee County and the City of Flint. The agreement primarily spells out emergency water service from Flint to GCDC; however Article V establishes the protocol in the event that emergency water service is provided to Flint from GCDC. The appendices (included in the attachment) lists the available interconnections on the west side of the city.

Based upon further discussion with the city....

1. The city has made some ground today – repaired several main breaks (including a large break), and adding approx 2 MGAL of water to the city's storage facilities- Westside Reservoir
2. The west-side interconnections between Flint and GCDC have not been opened; however, the city and GCDC have completed preparations and the connections can be opened at the request of the city in accordance to the criteria set forth in Article V of the Back-up Water Agreement.
3. The city has requested customers (radio announcement) do discontinue "let-runs" to help reduce demands. Today's production rate is approximately 24 MGD – down from 27 MGD noted yesterday.
4. We will be contacted, as needed, for updates or technical assistance.

I will be in the field tomorrow; however, I will remain available via my I-phone for further discussions, as needed, with Flint and Genesee County concerning this situation. Any important updates will be passed on to you.

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

From: Bennett, Charles (DEQ)
Sent: Tuesday, February 10, 2015 11:37 AM
To: Rosenthal, Adam (DEQ); Prysby, Mike (DEQ)
Subject: flint

now Ron wants your photos...

http://www.mlive.com/news/flint/index.ssf/2015/02/problems_with_flint_water_send.html#incart_river