



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

FEB 19 2019

REPLY TO THE ATTENTION OF

WG-15J

The Honorable Karen W. Weaver, Mayor
City of Flint
1101 South Saginaw Street
Flint, Michigan 48502

Mr. Eric Oswald, P.E., Director
Drinking Water and Municipal Assistance Division
Michigan Department of Environmental Quality
525 West Allegan Street
P.O. Box 30473
Lansing, Michigan 48909-7973

Re: City of Flint's Water Quality Assessment and Impacts to Corrosion Control Study

Dear Mayor Weaver and Mr. Oswald:

The United States Environmental Protection Agency's (EPA) November 17, 2016 First Amendment to the January 21, 2016 Safe Drinking Water Act Section 1431 Emergency Administrative Order (Amended Order) requires that "[p]rior to submittal of the New Source Treatment Plan, Respondents shall develop a corrosion control study for the new source water and submit the study to MDEQ for its review and approval, and to EPA for its review." The purpose of a corrosion control study is to help inform the City of Flint (City or Flint) and the Michigan Department of Environmental Quality (MDEQ) about the quality of Flint's proposed new source water, which will be a blend of approximately 95 percent Great Lakes Water Authority (GLWA) water and approximately 5 percent Genesee County Drainage Commission (GCDC) water. The blend is necessary because the City chose GCDC as its emergency backup source water, and flow is required to be constant in the new pipeline that will connect GCDC to Flint. Flint anticipates that the pipeline connecting it to GCDC will be completed in late 2019.

As explained in the attached Flint Technical Support Team's evaluation of the City's corrosion control study, EPA agrees that the City only must conduct Phase 1 of its study, which means the City may use GLWA water only for its required corrosion control study instead of a blended flow of GLWA/GCDC water. EPA agrees with the City and MDEQ that the technical review thus far shows that a 95 percent GLWA/5 percent GCDC blended flow has similar water chemistry when compared to a 100 percent GLWA supply.

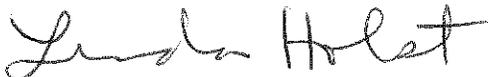
Further, as Flint prepares to begin using the new pipeline and, thus the GLWA/GCDC blended

flow, the parties must discuss an appropriate performance period. EPA's concern is that the City must demonstrate that it knows how to operate the new system. This includes Flint being able to not only identify errors and trouble-shoot problems, but also verify that the new equipment is operating properly and as designed. The Amended Order requires the development and implementation of such a performance period under paragraph 60.b.iii.D. The corrosion control study may serve as part of the performance period in terms of demonstrating that Flint can effectively treat and distribute water for consumption in compliance with SDWA and its National Primary Drinking Water Regulations (NPDWRs). However, the City shall also develop and implement standard procedures for operation and maintenance of the new pipeline and its associated flow metering system and the new chemical feed system and facilities when they are completed. The City must show that it has the capacity to properly treat and distribute water from its new source, thereby ensuring the protection of public health. MDEQ, as the primacy agency, shall ensure that Flint has met all these requirements and shall ensure that water quality from Flint's new source meets all parameters that MDEQ has determined as safe for consumption and in compliance with SDWA and NPDWRs *prior to* distribution to Flint's consumers.

Lastly, we appreciate the planning efforts that the City has made to include other sources of lead, such as internal premise plumbing (e.g., leaded fixtures, galvanized pipes), in its corrosion control study. This is very important since the City is planning to remove all lead service lines throughout the City by the end of 2019.

Please do not hesitate to contact me at (312) 886-6758 or holst.linda@epa.gov if you have any questions or concerns regarding this letter.

Sincerely,



Linda Holst
Acting Director
Water Division

Enclosure: FTF 18-2 Technical Support Team's Recommendations on Flint Corrosion Control Study

cc: (via email)
Mr. Robert Bincsik, Director of Public Works, City of Flint
Ms. Angela Wheeler, Attorney, City of Flint
Mr. Steve Branch, City Administrator, City of Flint
Mr. Tom Poy, USEPA
Mr. Anthony Ross, USEPA
Mr. Tom Speth, USEPA
Mr. Mark Pollins, USEPA



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REPLY TO THE ATTENTION OF

MEMORANDUM

SUBJECT: EPA's Flint Technical Support Team's Evaluation Regarding the City of Flint's Corrosion Control Study for its New Drinking Water Source and Performance Period

FROM: Miguel Del Toral, Darren Lytle, Michael Schock, Jeffrey Kempic, Thomas Speth
EPA's Flint Technical Support Team

THRU: Tom Poy *TP 2/12/19*
Chief, Ground Water and Drinking Water Branch
EPA's Flint Technical Support Team

TO: Linda Holst
Acting Director, Water Division

On February 1, 2017, the City of Flint (City) submitted to EPA its corrosion control study (CCS), which was based on treating raw water from Lake Huron at the City's Water Treatment Plant (WTP). EPA reviewed the CCS and provided feedback on February 24, 2017.

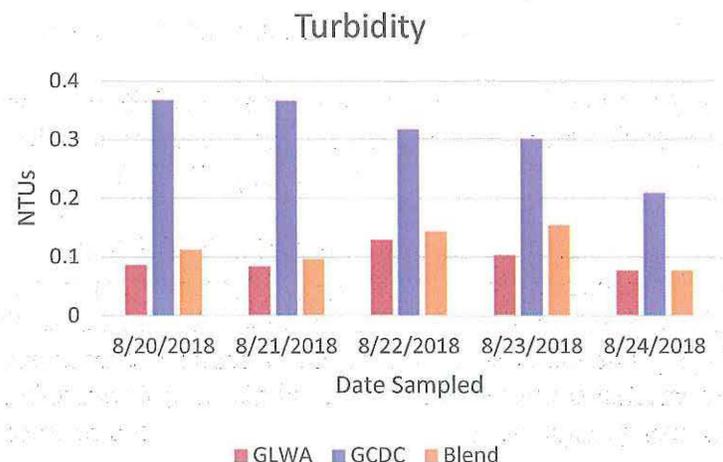
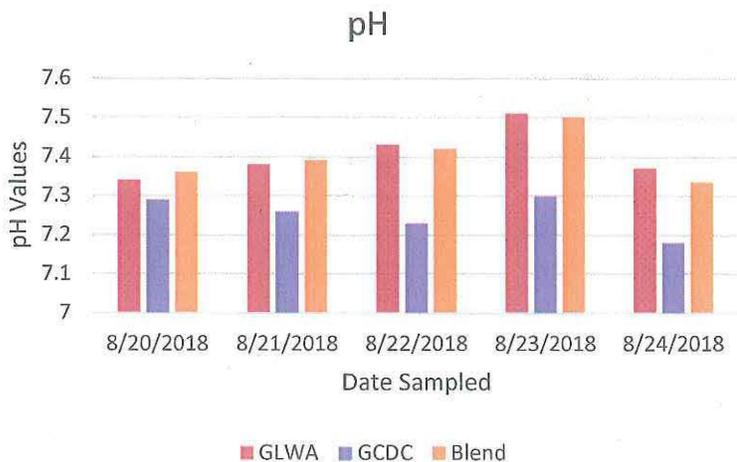
On April 19, 2017, the City notified EPA that it had changed its decision regarding its new water source. For its primary source of water, the City decided to continue utilizing a majority (an estimated 95 percent) of treated water from the Great Lakes Water Authority (GLWA), but also to start blending GLWA water with a small amount (approximately 5 percent) of treated water from the Genesee County Drainage Commission (GCDC). GCDC would also serve as the City's emergency backup source of water.

To have an emergency backup source of water, the City entered into an agreement with GCDC to build a connection between the two public water systems. The schedule for pipeline completion is late 2019. The City claims, and EPA and MDEQ agree, that blending is necessary to maintain fresh water in the new connecting pipeline.

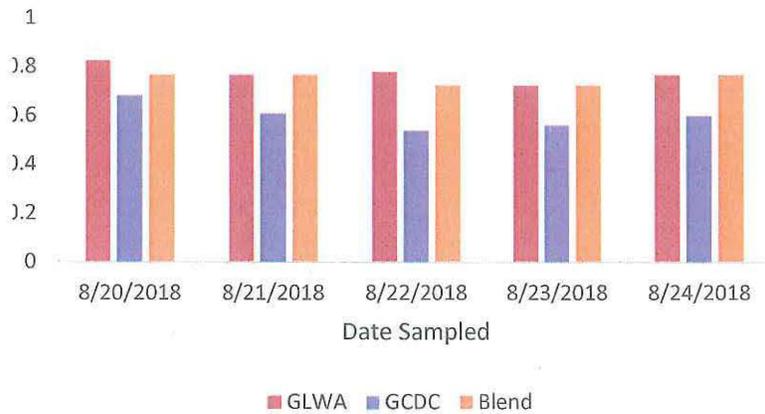
In February of 2018, the City submitted its new CCS to EPA for review. The City proposed a two-phased approach. Phase 1 would take nine months and include a study of the current GLWA source. Phase 2 would include a three-month study of the GLWA/GCDC blended water. EPA recommended that the City focus on Phase 2 of the study. After EPA provided its recommendation, the City requested to only implement Phase 1 of the study. The City raised various concerns with the Phase 2 study, including: (1) the need to physically transport GCDC water to the Flint Water Treatment Plant (WTP) multiple times a week since the connecting pipeline is still under construction; (2) water quality issues associated with water age and changes in chemical composition as the water idles in the storage containers both during and

after transport; and (3) the estimated high cost to implement both phases of the study. The City argued that the chemical composition of the treated GLWA water is similar to the chemical composition of the GCDC water, and that GCDC water will be a small percentage of the blend. Accordingly, the City continues to claim it only needs to perform a CCS on the GLWA water while still showing it could effectively treat the blended waters the same way.

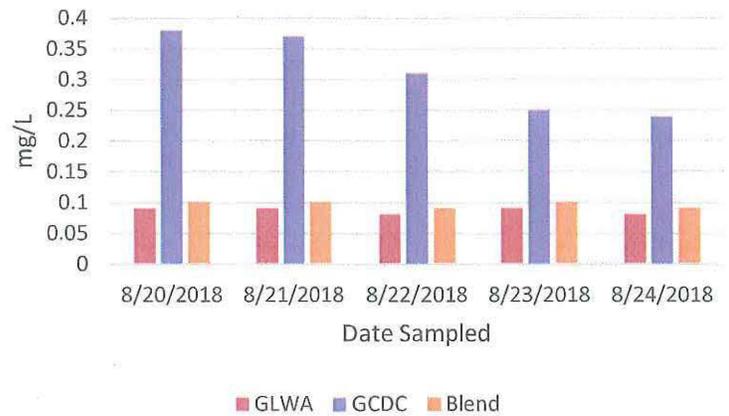
On September 6, 2018, the City submitted to EPA a report titled *Blended GLWA and GCDC Water Quality Assessment and Impacts to Corrosion Control Treatment Study*. The report recommended the following: “Based on the results of the water quality evaluation and the logistical challenges associated with using GCDC water during the CCS, it is recommended that the pipe loop study proceed using the current GLWA supply. The GCDC/GLWA blend is nearly identical in quality to the current supply due to the low proportion of GCDC water in the blend.” In its study, the City tested GLWA water as “raw” water (prior to the City adding treatment) and tested GCDC water as “domestic water” (treated by GCDC, but not the City). The study first analyzed the monthly operating reports for water samples taken at both the Flint WTP and GCDC and compared them. Then, new water samples were analyzed using each water source. The results of the new water analyses are presented as bar charts below.



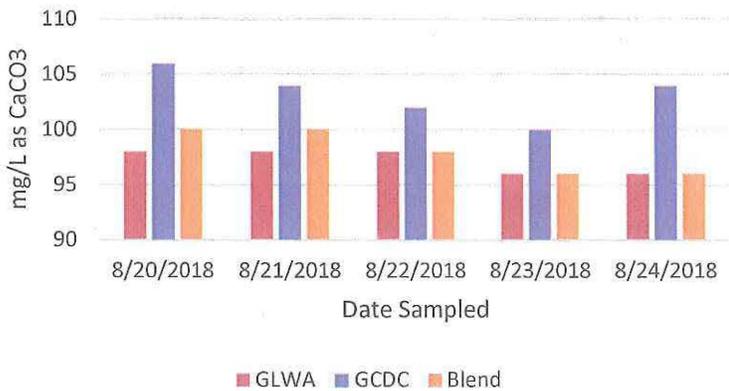
Chloride to Sulfate Mass Ratio



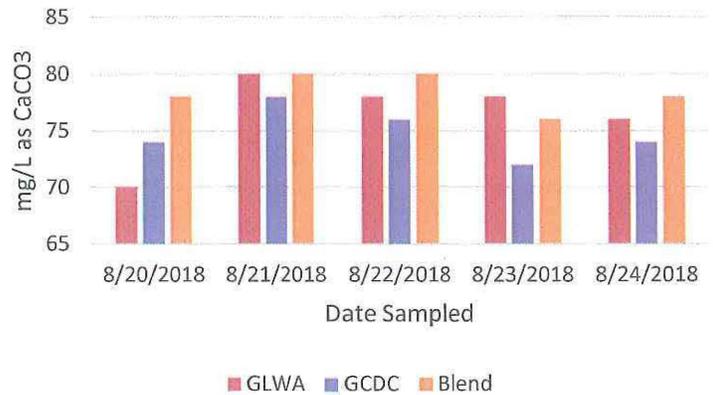
Aluminum



Hardness



Alkalinity



The average difference between GLWA water and the blended water for turbidity was 21%; for hardness was 0.8%; for alkalinity was 3.8%; for chloride to sulfate mass ratio was 2.9%; and for aluminum was 12%.

The initial CCS that the City submitted in February of 2018 proposed to calculate blends of alkalinity, hardness, and chloride values; however, in its September 2018 study, the City ultimately analyzed pH, turbidity, hardness, alkalinity, chloride, and aluminum values. The City found that the GLWA/GCDC blend is similar in terms of water chemistry to the GLWA only water. EPA also recognizes the logistical, physical, and water quality issues associated with the study that the City raised. Based on the technical findings in the City's September 2018 blended water study and the concerns expressed by the City, the Flint Technical Support Team agrees with the City's request and study recommendation that the City's CCS be limited to only the GLWA water.