



CITY OF FLINT

Dr. Karen W. Weaver

Mayor

February 28, 2017

Mr. Chris Korleski, Director
Water Division, Region 5
United States Environmental Protection Agency
Ralph Metcalfe Federal Building
77 West Jackson Boulevard (W-15J)
Chicago, Illinois 60604-3590

Sent via Email

Dear Mr. Korleski:

This correspondence is in response to the November 17, 2016 First Amendment to the Emergency Administrative Order ("Order"). Under the Amended Order, *Paragraph 60* was revised to require a submittal addressing a *New Source Treatment Plan* ("NSTP" (60.b.iii) by March 1, 2017. As co-responders to the Order, Mr. Bryce Feighner (Director – Drinking Water and Municipal Assistance Division, Michigan Department of Environmental Quality (MDEQ)) has reviewed this submittal on behalf of the State and concurs with the content of the document.

Paragraph 60.b.iii of the Amended Order required that a *New Source Treatment Plan* specify a schedule with completion dates for major milestones. The four specified issues to be addressed in the *Plan* are presented below:

- A. Finalize necessary standard operating procedures ("SOP") for each aspect of the water treatment plant process for the Flint WTP

The previously submitted "Flint Water Treatment Plant (WTP) Improvement Plan" report includes an extensive treatment process assessment of the existing Flint WTP facilities. This report evaluated the compatibility and effectiveness of existing treatment processes to adequately treat the proposed long-term water source – Lake Huron water. The report made the following process recommendations for the renovated Flint WTP:

- Ozone for pre-oxidation
- In-line mixing of chemicals
- Turbine flocculation
- Sedimentation with inclined plate
- Anthracite/sand filtration

Extensive improvements to the chemical feed and pumping were also proposed.

The attached “Operations & Maintenance (O&M) Manual” includes numerous SOPs for the renovated Flint WTP. While most O&M manuals are developed during the design of a facility, please note that extensive progress has been made on this document prior to the initiation of the Flint WTP improvements design. At this point in its development, the O&M manual contains many general best operating practices and guidelines. As the design of the treatment plant progresses and specific process decisions are finalized, the manual will be expanded to address all of the specific characteristics of the treatment plant. For example, issues such as use of ozone, type of rapid mix, sedimentation basin enhancements and filter media configuration still need to be refined. The manual will also be used for operator training as it continues at the treatment plant.

Flint will also retain its ability to treat purchased finished water at the interconnection of adjacent water systems. While it is anticipated that additional treatment of the purchased water source(s) may be minimal, chlorine, sodium hydroxide and/or corrosion inhibitor storage and feed equipment is required. SOPs will also be developed for these chemical feed systems as the design of this project progresses and these SOPs should be completed by the end of May, 2017.

B. Implementing infrastructure upgrades that were identified under the WTPMP

The previously submitted “Flint Water Treatment Plant Improvement Plan” includes a schedule for the design; permitting and construction of the proposed improvements (see attachment). To expedite completion of the project and minimize cost, a design/build project delivery method is proposed. Based on this approach, an August, 2019 completion date is anticipated for the treatment plant improvements. A project delivery/value engineering workshop will be scheduled for April, 2017, after the alternative water source evaluation is completed.

The WTPMP also included improvements to the chemical feed associated with purchased water source(s). The engineering design, permitting and bidding of this project has been awarded. The schedule for this project is shown below.

Project Kickoff Meeting	week of February 27
Final Design Submittal	early May
Bid Advertisement	mid-May
Contract Notice to Proceed	early August
Construction Completion	December 31, 2017

C. Conducting a corrosion control study for the new source water, including the analysis and testing of the impacts on corrosion control treatment under various circumstances to ensure a safe transition

The “Flint Corrosion Control Plan” was submitted to USEPA on February 1, 2017. This Plan has been reviewed by USEPA and general comments were received in the February 24, 2017. The comments regarding coupon studies and pipe loops will be evaluated and appropriate adjustments will be made to the project scope.

Based on the original project scope, the first phase of the study was to be initiated during the second week in March. The proposed coupon study was to be completed by the end of April. Specific recommendations regarding adjustments to orthophosphate doses and pH were scheduled to be made by

mid-May. However, this schedule will need to be significantly modified to accommodate pipe loop analysis.

The second phase of the study will be initiated when the alternative water source evaluation is completed in late March. It is likely that Genesee County Drainage Commission (GCDC) finished water will be used as either a primary and/or back-up source. However, treated water from their new water treatment plant will not be available for blending until October, 2017. Therefore, portions of the second phase study may not be initiated until then.

The study of corrosion optimization for the Flint WTP and determining its compatibility with potential back-up water sources will not start until processed water is available from the renovated Flint WTP. Obviously, the corrosion optimization will be completed before the WTP is delivering water to the distribution system in late 2019. The methodology for undertaking the Flint WTP corrosion optimization is discussed in section "D." of this letter (below).

- D. Developing and implementing a "performance period" which shall begin after the completion of the KWA pipeline connection to the Flint WTP, addressed in Paragraph 60(b)(i), and after the completion and implementation of all applicable requirements in Paragraph 60(b)(ii) and (iii). The performance period shall last as long as necessary, but not less than three months, to allow for the demonstration of the adequacy of the treatment of the new water source to meet all SDWA and NPDWRs before it can distribute to customers.

The construction sequence of the Flint WTP improvements has been specifically designed to provide a "performance period" to evaluate and optimize plant performance while allowing an extended time for the corrosion optimization study. As shown in the attached schedule, the plant improvement construction will be undertaken in two phases. Phase 1 will include the process modifications necessary to upgrade the ozone facilities, chemical mixing, flocculation, sedimentation and filtration. Because of the past challenges with reliable operation of the ozone facilities, the ozone improvements will be completed first to provide approximately three months to start-up and troubleshoot these facilities. Once reliable operation of the ozone facilities is confirmed and the other Phase 1 process modifications are complete, KWA water will be processed through the filters. Temporary chemical feed facilities will be provided to allow the operators to experience full-scale treatment of water through the filtration process. Because of the time required to complete the Phase 2 construction (primarily permanent chemical feed and pumping), a "performance period" of at least 4 months (or longer) would be available for optimizing performance and training operators. During the Phase 1 "performance period", the majority of the filtered water will be discharged to waste and no processed water will be introduced to the Flint distribution system.

During the Phase 1 "performance period", a small portion of the filtered water will be used for corrosion optimization. This filtered water would be treated with post-treatment chemicals and used in the loop and coupon studies, as described in the Flint Corrosion Control Plan. The corrosion study could extend for up to one year and be completed before the plant is operational.

When Phase 2 of the construction is completed, a second "performance period" would begin. This "performance period" would focus on the permanent chemical feed facilities, process controls and pumping, since the other unit processes had been refined during the first "performance period". The second "performance period" is scheduled for three months. MDEQ is developing performance criteria that will be used to assess the individual process and overall plant performance prior to the delivery of finished water to the system.

The two remaining elements included in *Paragraph 60 b. iii.* of the Amended Order were addressed in the City's February 8, 2017 letter to USEPA and USEPA's response on February 21, 2017. The City has and will continue to communicate to the public that a water source evaluation is in progress and the selection process will consider public health, social and economic issues. When the alternative water source evaluation is complete, the City supports proactively soliciting input regarding the water source recommendation. The attached "Public Participation Plan (PPP)" outlines the approach that is proposed to receive this valuable input.

Regarding public participation and the DWRP process, Flint's current project plan was presented in a public hearing on June 13, 2016. The project plan included the scope, cost and alternatives for water main and service line replacement projects. The public participated in this hearing. While the DWRP process will require the same process for public input to the water plant improvements and metering projects, significant additional public input will be obtained for both of the projects through the "Public Participation Plan". The water plant improvements will be the primary focus of the PPP if it is the selected water source and the metering project is a critical component of the rate study (see below).

Additionally, *Paragraph 60.b.iii* states that "The NSTP shall address the City's technical, managerial and financial capacity to operate its PWS in compliance with the SDWA and NPDWRs". Since the competencies necessary to meet this goal will vary based on the water source alternative selected, it was requested that this requirement be extended until after the water source evaluation is complete. A schedule for the alternative water source evaluation is also attached. This timeline shows that the public will be presented a recommended water source(s) by the week of March 27.

The financial capacity of the system will be achieved by maintaining utility revenues at a level at least equal to the cost of service. Therefore, once the water source recommendation is finalized, compatible operating and capital costs will be developed. A Cost of Service/Rate Study will then be initiated to determine the proper level of water rates associated with the water source option selected. The cost of service/revenue requirement should be established by the end of June and the rate design will be completed by the end of July. During that period of time, staff training will continue.

If you have clarifying questions and/or need additional information, please contact me at (810) 237-2035 or via email at kweaver@cityofflint.com.

Respectfully submitted,

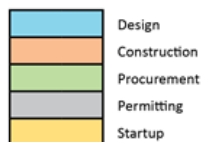
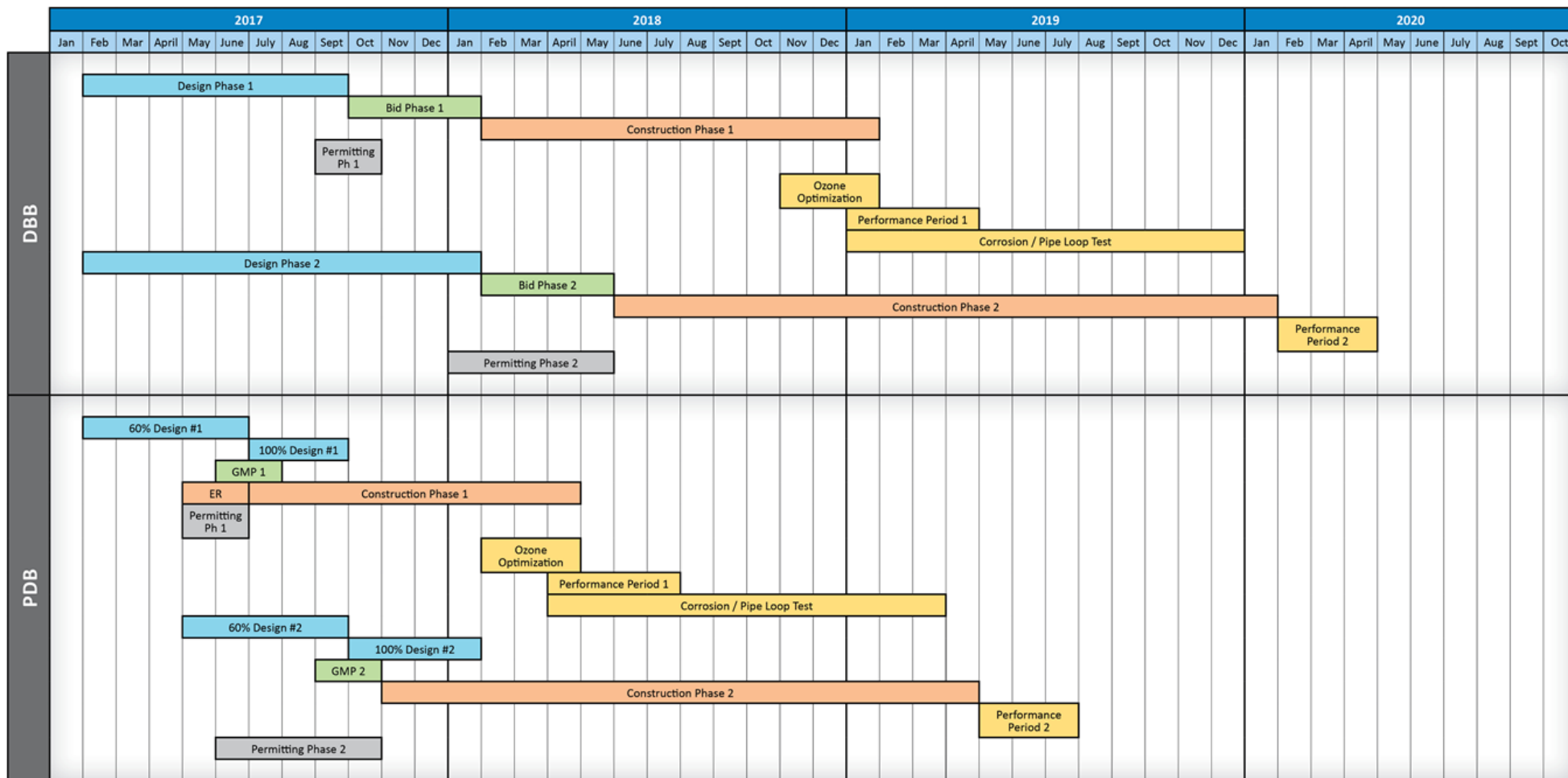


Dr. Karen W. Weaver
Mayor

cc: Mr. Robert Kaplan, US EPA
Mr. Rich Baird, Governor's Office
Mr. Keith Creagh, MDNR
Mr. Bryce Feighner, MDEQ
Mr. Sylvester Jones, City of Flint

Attachments:

Flint Water Treatment Plant Improvement Plan Schedule
Flint Operation & Maintenance Manual (with SOPs)
Flint Water Source Analysis Timeline
Public Participation Plan



CITY OF FLINT
DRINKING WATER SOURCE SELECTION
PUBLIC PARTICIPATION PLAN
March 1, 2017

Background

This Public Participation Plan has been prepared in response to the United States Environmental Protection Agency's (EPA's) November 17, 2016, First Amendment to the Emergency Administrative Order (Amended Order). Under the Amended Order, *Paragraph 60* required a submittal addressing a *New Source Treatment Plan ("NSTP" (60.b.iii))* by March 1, 2017. The Amended Order also required that, "The NSTP shall be developed in consultation with appropriate experts and the public through adequate advanced notice and opportunity for comment." This Public Participation Plan will also address the additional requirements contained in the February 21, 2017, EPA letter to City of Flint Mayor Karen W. Weaver; specifically:

- 1) *a description of how the public has been or will be engaged in the ongoing alternatives analysis process;*
- 2) *a description of how the public has been or will be engaged in the ultimate selection of the City's new water source(s);*
- 3) *a description of how the public has been or will be involved in any DWSRF-related public participation opportunities; and*
- 4) *the City's plan and timeline for vetting the relevant economic, social, political, and public health issues associated with the alternatives evaluation.*

In a letter dated November 30, 2016, Mayor Karen W. Weaver informed the EPA that Flint's long-term, primary source of drinking water would be the Flint Water Treatment Plant. The back-up source of supply would be an on-site raw water reservoir supplemented with an emergency finished water interconnection with Genesee County.

The City and its federal, state and local partners have been actively engaged in communicating with the public and seeking their input throughout this Flint water event. These public engagement activities have included numerous community conversations, mailings to organizations and individual residents, press releases, publication distribution, and presentations at Governor Rick Snyder's Flint Water Interagency Coordinating Committee meetings and Flint City Council meetings.

Regarding *DWSRF-related public participation opportunities*, a public hearing was held on June 13, 2016, at 6 p.m., in the City of Flint Council Chambers. Rowe Professional Services Company presented the project plan including costs and alternatives related to water main improvements and service line replacements to the Flint City Council and members of the public in attendance. At the conclusion of the presentation, the hearing was opened to the public for questions and numerous residents made remarks regarding the project plan and presentation. A resolution of plan adoption was passed

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by the council on June 27, 2016 and by the Receivership Transition Advisory Board on June 29, 2016. Because meter replacement procedures and water treatment plant improvements were not discussed at the public hearing there is a requirement for those items to be included in a yet to be scheduled public hearing. By law a public hearing advertisement needs to be published 30 days prior to a hearing. However, the City will wait until the alternatives analysis is complete and the drinking water source selection is made before scheduling that hearing.

Public outreach especially pertinent to this NSTP submittal included a direct mailing from the City to residents on January 3, 2017, regarding the current drinking water quality. Among other things, this mailing informed residents that the City was consulting with experts to develop standard operating procedures, corrosion control studies and performance testing for the Flint Water Treatment Plant in accordance with the March 1, 2017, NSTP submittal requirements. Further, on January 11, 2017, the City hosted a Town Hall meeting to share the latest water quality data, future plans for treating water at the Flint Water Treatment Plant, and receive input from residents.

Subsequent to the January 11, 2017, Town Hall meeting, the City and its consultants began evaluating water source alternatives as required by the Drinking Water Revolving Fund process. Since more alternatives are now being evaluated than previously presented to the public, additional public input will be sought as indicated below.

Timeline

Month of March 2017 – The City’s consultants continue to gather input from potential water source providers regarding costs and technical feasibility and perform economic analyses on the alternatives.

March 22, 2017 – Meet with Flint City Council to discuss the Public Participation Plan for drinking water source selection.

Week of March 27, 2017 - Initiate the Public Participation Plan to obtain feedback on the recommended water source solution, alternatives evaluated, and the relevant economic, social, political, and public health issues associated with the alternatives evaluated. Initiate cost of service/rate design study based on recommended water source options and projected capital and operating plans associated with those options.

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March 28, 2017 – Press conference and coordinating press release to announce that Flint City leaders have received the alternatives evaluation and recommendations on the drinking water source solutions from their consultants. At the press conference, the mayor/city officials/consultants will go through the primary alternatives considered and present the pros and cons of each alternative considering the related economic, social, and public health issues. The mayor would encourage residents to express their opinions regarding the alternatives via the upcoming Town Hall meeting, E-mail comment box, or in writing.

March 29, 2017 - Town Hall meeting for residents to learn about the water source alternatives evaluated and to provide input. City leaders will go through the primary alternatives considered and present the pros and cons of each alternative considering the related economic, social, and public health issues. Residents will be provided the opportunity to express their opinions and have their questions answered. Subsequent to the Town Hall meeting residents can continue to provide input via E-mail or in writing through April 3, 2017.

April 5, 2017 – City leadership meets with the Flint City Council to discuss the results of the public participation and to recommend a specific drinking water source.

April 6, 2017 – Press conference and coordinating press release to announce the City Council's recommended drinking water source.

Flint Alternative Water Source Analysis Timeline

January 19 - Hold initial meeting with Great Lakes Water Authority (GLWA) to provide Flint's water supply requirements and discuss purchased water options

January 20 - Hold initial meeting with Genesee County Drainage Commission (GCDC) to provide Flint's water supply requirements and discuss purchased water options

January 31 – Complete Flint Water Treatment Plant Improvement report to establish the capital costs of various plant improvement and raw water storage options

February 1 to 13 – Develop operation costs (labor, power, chemicals, residual solids disposal, maintenance, etc.) for the various plant improvement options

February 9 - Meet with GLWA to discuss their water supply proposal

February 10 - Receive GCDC's purchased water proposal

February 8 to 13 – Based on engineering analysis and proposals received, develop water source options for interim, long-term and back-up supply

February 15 – Initiate Economic (Net Present Value) model development

February 16 – Establish economic parameters (inflation and discount rates, etc.)

February 22 - Review initial model results and adjust inputs and assumptions (as appropriate)

March 1 – Review “final” model results

March 2 to 17 – Based on model results, meet with GLWA and GCDC to clarify proposals and negotiate changes

Week of March 20 - Finalize economic analysis and consider other issues (public health, social, political, etc.) impacting the water source selection

Week of March 27 - Initiate the Public Participation Plan to obtain feedback on recommended water source solution. Initiate cost of service/rate design study based on recommended water source option and projected capital and operating plans associated with that option.