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

JUN 03 2016

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

The Honorable Karen Williams Weaver
Mayor of Flint
1101 South Saginaw Street
Flint, Michigan 48502

Mr. Keith Creagh
Director
Michigan Department of Environmental Quality
Constitution Hall
525 West Allegan Street
P.O. Box 30473
Lansing, Michigan 48909-7973

Dear Mayor Weaver and Director Creagh:

The purpose of this letter is to reinforce the concern of the United States Environmental Protection Agency (EPA) about residual chlorine levels in the drinking water distribution system in Flint, Michigan. As you know, EPA's Safe Drinking Water Task Force (Task Force) has been concerned about chlorine residual levels in Flint's water since meeting with the Utilities Administrator in January 2016. While Great Lakes Water Authority water arrives in Flint with a chlorine residual, it is necessary for the City of Flint (City) to have the capability to boost the level of chlorine in the water to maintain a residual throughout their distribution system.

Because of this concern about chlorine residuals, EPA has been engaged with Michigan Department of Environmental Quality (MDEQ) and the City for many months on ensuring the maintenance of chlorine levels. This effort includes EPA's identification and chlorine monitoring of 24 locations geographically spread throughout Flint's distribution system and covering a wide range of residence times that supplements the 10 locations routinely sampled by the City. Also, as part of EPA's field sampling response in Flint, over 800 chlorine residual samples have been taken at residences from January 2016 to May 2016. In addition, EPA worked with the City to install 13 automated flushers on hydrants in areas with lower chlorine residual levels to help move water through the distribution system and to improve chlorine levels.

It is encouraging that EPA sampling this week has shown adequate chlorine residuals at each of the 24 sites we tested. However, as chlorine decay increases with warmer water temperatures, EPA is concerned that the Respondents will not be capable of maintaining chlorine residuals that follow best practices and are protective of public health. In particular, we are concerned that while the City can add chlorine at its Cedar Street and West Side Reservoirs, this additional

chlorine does not reach the entire distribution system. The City does not currently have the equipment or means of adding additional chlorine or caustic at the Flint Water Treatment Plant (WTP) to consistently protect public health throughout the distribution system.

With the onset of warmer weather, the situation is urgent. The need to expedite the ability to boost chlorine in the distribution system was discussed at the technical meeting held with Respondents at the Flint WTP on May 26, 2016. We believe that the City and State must take immediate action to implement a temporary solution even as a long-term treatment system is developed and put in place.

Based on our recent discussions, EPA understands Respondents intend to ensure that a temporary chlorine feed is installed at the Flint WTP as soon as possible. On June 1, 2016, MDEQ approved the City's temporary sodium hypochlorite and sodium hydroxide feed system approach and are awaiting the submittal of final plans for permit issuance. The approval letter did not provide an estimated date of installation, but we understand from our call on June 2, 2016 with the City and MDEQ that a June 10, 2016 target date for the temporary feed system can be met. In addition, EPA suggests that the City purchase backup chemical feed systems in case of failure of current and future systems operated by the utility. Loss of disinfection and loss of phosphate feed may result in adverse water quality reactions that can take place rapidly.

In addition, as referenced in the EPA Task Force recommendation of May 16, 2016, maintaining target pH levels in the distribution system is important to ensure that orthophosphate treatment is effective. EPA expects the chemical feed installation to include both the ability to add sodium hypochlorite to boost chlorine residual and to add caustic soda to address and correct low pH levels in the distribution system in order to ensure that orthophosphate treatment is effective and lead release is minimized. As discussed during the June 1, 2016 technical call with the City, MDEQ, and the City's engineering contractor, the chemical feed system for sodium hypochlorite addition should be designed to boost chlorine residual by at least 1.0 mg/L and the chemical feed system for caustic soda to raise pH should be designed to maintain a target pH range of 7.5 to 7.8 leaving the water treatment plant and a target pH within the distribution system of 7.5±0.3. We recommend that upon installation of the chlorine dosing system, the City immediately begin boosting the chlorine residual by 0.3 mg/L for a test period to gain experience in operating the new system and to assess the effects in the distribution system. Following the test period, the City can work with EPA to determine ideal chlorine residuals throughout the distribution system.

In the interim, and as may be necessary after installation of chemical feed capacity, it is important that the City continues to identify areas in the distribution system where flushing should be implemented to increase chlorine residual levels and immediately take steps necessary to implement an augmented flushing program in those areas.

To formalize these understandings, EPA is requiring that both the MDEQ and the City expedite their planning, permitting, and installation of the chemical feed equipment. Pursuant to Paragraph 57 of the January 21, 2016 Safe Drinking Water Act § 1431 Emergency Order (Order), "Respondents shall maintain chlorine residual in the distribution system in accordance with [Safe Drinking Water Act] SDWA and National Primary Drinking Water Regulations (NPDWRs)." EPA believes chemical feed equipment can be installed quickly, and therefore

expects that it will be installed and operational no later than June 10, 2016 so that Respondents have the ability to increase chlorine residuals throughout the distribution system.

We appreciate the commitments Respondents have made to address the chlorine feed issue at the Flint WTP to ensure chlorine residual and target pH levels are maintained throughout the distribution system during the warmer months. EPA will continue to monitor Respondents' progress implementing the Order and may take further action under the Safe Drinking Water Act if Respondents do not comply with the Order.

Sincerely,

Mark Pollins
Director
Water Enforcement Division