

Status Update for Flint Distribution System Optimization

Team Activities: October - December 2016

- Spent a week in October at the Water Treatment Plant and in the distribution system evaluating facilities and operational practices, getting to know and understand the condition of the facilities and learning how the system is operated.
- Evaluated chlorine levels throughout the water distribution system to control bacteria. Now developing an updated Revised Total Coliform Rule (RTCR) monitoring plan that includes more sites than the City previously monitored. The plan will be complete by the end of 2016 and increased monitoring will begin in January 2017. The new plan provides better coverage of the entire water distribution system and will help to ensure that adequate chlorine levels are present throughout the distribution system.
- Along with the new coliform monitoring plan, we are developing a chlorine residual maintenance program. The program establishes minimum chlorine residual targets throughout the system to ensure adequate disinfection in all areas of distribution. The program includes corrective actions, such as increased flushing or increased chlorination, when small decreases in chlorine are observed in the distribution system.
- Similarly, we are developing a phosphate residual maintenance program. Like the chlorine program, the phosphate program identifies minimum phosphate residual levels for the distribution system and corrective actions if/when levels begin to drop.
- To supplement the RTCR monitoring program and the Water Quality Parameter (WQP) monitoring done by the City to ensure disinfection and corrosion control, we are determining where to strategically place permanent on-line water quality monitors throughout the City to provide continuous feedback on water quality and thus protect public health.
- We have begun preparing standard operating procedures (SOPs) for the Water Utility. The SOPs will focus on distribution system operation, maintenance of water quality, disinfection, corrosion control, pressure and water age management, and enhanced customer communication. Other SOPs will include job descriptions and qualifications, chemical addition and control, distribution system storage and pump station operation, water quality sampling and analysis, maintenance of meters, valves and hydrants, backflow prevention and cross-connection control.
- We have spent considerable time reviewing the City, US Environmental Protection Agency and Michigan Department of Environmental Quality lead data. We have analyzed data from thousands of sampling events and are working to identify factors other than the change in source water which may result in higher lead levels. These factors include water age, chlorine

residual, location and installation date. This will help us develop an effective long-term corrosion control strategy.

- We are developing a pipe loop testing protocol to identify optimal corrosion control treatment for the City as it transitions to water from KWA.
- The EPA recently provided a calibrated water distribution system hydraulic model to the team. We will be using that model to evaluate storage needs and operational strategies to improve distribution system water quality.
- We will also soon begin development of a distribution system capital improvements plan that will include a multi-year pipeline rehabilitation and replacement program. This will improve system reliability and distribution system water quality.