

**Summary of City of Flint (City) Actions
In Response to the
EPA Emergency Administrative Order
Updated: September 1, 2016**

Chapters 52, 57, 59a & 59b: Weekly Conference Call Regarding Flint Water Plant Operations September 1, 2016.

EPA Order Due Date: Weekly

MDEQ and the Flint Water Treatment Plant staff held the weekly call on September 1st to review and discuss the summary of water quality and corrosion control parameters reported on the City's August operation report completed to date, a summary of water quality parameters collected the week of August 28th in the distribution system, and some other matters pertaining to operation of the City's water supply.

The following observations were noted:

- The supplemental phosphate dosage was consistent and ranged between 2.25 and 2.28 milligrams per liter (mg/l). The phosphate residuals measured at the plant tap ranged from 3.30 to 3.53 mg/l entering the distribution system.
- All but one of the established weekly distribution system sites reported a phosphate residual above 3.1 mg/l, ranging between 3.1 and 3.3 mg/l of phosphate. The one site (#6) below 3.1 was at 3.0 mg/l.
- All pH measurements were greater than 7.0 at the Enhanced Water Quality Monitoring (EWQM) sites and the Point of Entry (Control Station #2) to the system. The pH levels ranged from 7.47 to 7.56 in the water received from Great Lakes Water Authority (GLWA) and from 7.38 to 7.44 at the 10 distribution system sites.
- An investigation into why site #6 has lower phosphate residuals than other distribution systems has been launched. There may be some hydraulic limitations heretofore unrecognized that is resulting in a more circuitous flow pattern for water to reach this site. The preliminary investigation is summarized on attached documents.
- Guidance in the form of standard operating procedures is being developed with input from all involved parties that will establish response protocols that include resampling and other possible remedial actions.
- Iron levels at EWQM sites ranged from 0.01 to 0.10 mg/l. Plant tap iron concentrations were all measured at 0.01 mg/l or below in the last week.
- Lead samples taken at the EWQM sites during the week of August 23rd all reported no lead detected.
- The supplemental chlorine feed at Control Station #2 ranged from 0.82 to 1.01 mg/l and the plant tap free chlorine residuals ranged from 1.3 to 1.6 mg/l.
- The free chlorine residuals at the 10 EWQM sites in the distribution system ranged from 0.20 to 1.45 mg/l. The low residuals are always at site #6, Salem Housing. The free chlorine levels at the other 9 EWQM sites range from 0.83 to 1.45 mg/l.
- WTP staff continues to work with DEQ staff to improve data evaluation and inform operational decisions.

The following information was provided through daily operation summary reports prepared by DEQ staff during the week of August 29th and in discussions with Flint staff.

- On August 30th, the sodium hypochlorite feed systems were operational and had been used at both Cedar Street and West Side reservoirs. According to feedback from the Operations staff, both systems are working very well. The second (reservoir side) chlorine analyzer at West Side cannot be installed yet. A previously-existing tap, which was going to be used for the analyzer feed, was determined to not be in an acceptable location. A new pipe tap will be made for the analyzer.
- Six totes of sodium hypochlorite arrived at the plant on August 30th for use at CS-2.
- On August 30th, city operators took appropriate corrective action to increase the chlorine residual entering, and subsequently leaving, Cedar Street and are now within the target residual range. Residuals will continue to be watched to ensure the corrective action was fully successful.
- Discussions took place with the Water Plant Supervisor on August 30th regarding the DWRP Project Plan deficiencies and how to address them, as well as general discussions on ongoing projects.
- On August 31st, the city of Flint noticed a significant increase in the chlorine residuals they were receiving from the Lake Huron WTP. The free chlorine residuals varied from 0.78 to 1.22 mg/l. A plant tap residual of 1.55 mg/l or greater was maintained.
- The free chlorine residual fell in the Cedar Street reservoir to 1.38 mg/l on August 31st. Due to the drop in the residual, pumping from the Cedar Street reservoir ceased and pumping at Westside was started, and the reported residual was 1.35mg/l. Conversations about feeding chlorine from both reservoirs as water is pumped ensued instead of just applying chlorine during the fill cycle. The chlorine residuals were manually checked at both reservoirs. The two readings for the measured residual at Cedar were 1.38 and 1.40 mg/l confirming the accuracy of the continuous reading unit. At Westside, the measured residual was 1.48 indicating the continuous reading analyzer needed to be recalibrated.
- On August 31st, the City was in the process of installing a caustic feed line at Westside Reservoir.
- The calcium hypochlorite feeder from Cedar Street was brought to the treatment plant for maintenance on August 31st. After it is cleaned and repaired, it will be returned to the reservoir to act as a backup feeder.
- On September 1st, the city of Flint is seeing more stable chlorine residuals in the water it's receiving from the Lake Huron WTP - around 0.9 mg/l today. The augmented plant tap residual of ~1.5 mg/l was maintained.
- The free chlorine residual leaving Cedar Street during pumping operations on September 1st was also ~1.5 mg/l. The downstream analyzer at this site is not reading correctly. This may be due to inadequate mixing between the injection point and the sampling point. The City has been advised to add a booster pump loop to its permanent

chemical feed design that will promote better mixing of the hypochlorite solution as it is injected into this large diameter main.

- The downstream chlorinator at West Side has not yet been installed as of September 1st. City employees are still investigating installation locations.
- City staff reported that the Thursday, September 8, 2016 meeting with ARCADIS has been confirmed. City accounting staff reported the contract has been finalized by both ARCADIS and City Legal teams. The contract is planned to be signed by Mayor Weaver on September 2, 2016 and will be transmitted to ARCADIS electronically on September 2, 2016.