

Summary of City of Flint (City) Actions In Response to the EPA Emergency Administrative Order Updated: June 9, 2016

Chapters 52, 57, 59a & 59b: Weekly Conference Call Regarding Flint Water Plant Operations June 9, 2016.

EPA Order Due Date: Weekly

MDEQ and the Flint Water Treatment Plant staff held the weekly conference call to review and discuss the weekly summary of water quality and corrosion control parameters that are reported on both the city's June operation report completed to date, and a summary of water quality parameters collected in the distribution system during the week of June 5th. These reports are being used to monitor the city's corrosion control treatment.

The following observations were noted:

- The supplemental phosphate dosage was consistent and ranged between 2.61 and 2.70 milligrams per liter. Included with this submission are the daily worksheets for the phosphoric acid feed system documenting the city's hourly oversight of this corrosion control treatment.
- On June 8th, the phosphate feed system at Control Station #2 was converted to a flow-paced feed system that automatically adjusts dosage to remain proportional with changes in flows from GLWA.
- All of the phosphate residuals in the distribution system at the sites monitored weekly were above the minimum of 3.1 milligrams per liter, ranging between 3.42 and 3.83 milligrams per liter.
- 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 7.33 to 7.49 in the water received from Great Lakes Water Authority and from 7.32 to 7.49 at the distribution system sites.
- In addition to the automatic flushing devices installed at distribution locations to reduce water age and increase chlorine residuals, the city has modified standard practices by once again lowering the levels in storage reservoirs to further reduce retention times and enhance water quality throughout the distribution system.
- Iron levels ranged between 0.01 and 0.10 milligrams per liter at all EWQM sites. Plant tap iron concentrations ranged from 0.01 to 0.10 in the last week.
- All the lead samples collected from the EWQM sites reported no lead detected, providing additional indication that water quality is stabilizing in the distribution system.
- The city is proceeding with installation of chemical feed systems for supplemental chlorination and pH adjustment using caustic soda. These treatment systems should be online Friday, June 10th. They will allow the city to better control chlorine residuals and maintain corrosion control throughout the distribution system.
- The city of Flint is working with Bob London to prepare and submit an up to date disinfection byproducts monitoring plan and a Revised Total Coliform site sampling plan.

Overall, the corrosion control treatment is meeting expectations as demonstrated from the water quality monitoring submitted this week.

24hr Record of Ortho-Phosphate Used

| Date: 6-2-16 | | | | | | Location of PO ₄ | | |
|--------------------|-----------------|-------|-----------------|-------------------------------------|--------|-----------------------------|------------|----------|
| | PO ₄ | CS 2 | PO ₄ | Pump Setting | | CS 2 | Train Shed | Operator |
| | ml/min | MGD | PPM | Speed | Stroke | Gallons on Hand | | |
| 0:00 | 85 | 14.0 | 2.73 | 45 | 60 | 192 | 798 | MW |
| 1:00 | 85 | 14.2 | 2.69 | 45 | 60 | | | MW |
| 2:00 | 85 | 14.5 | 2.64 | 45 | 60 | | | MW |
| 3:00 | 85 | 14.3 | 2.67 | 45 | 60 | | | MW |
| 4:00 | 85 | 14.5 | 2.64 | 45 | 60 | | | MW |
| 5:00 | 85 | 14.5 | 2.64 | 45 | 60 | | | MW |
| 6:00 | 85 | 14.6 | 2.61 | 45 | 60 | | | MW |
| 7:00 | 85 | 14.5 | 2.64 | 45 | 60 | 181 | 798 | MW |
| 8:00 | 85 | 13.7 | 2.78 | 45 | 60 | 179 | 798 | AG |
| 9:00 | 85 | 14.5 | 2.63 | 45 ⁴⁶ | 60 | | | TC |
| 10:00 | 85 | 14.1 | 2.71 | 46 | 60 | | | AG |
| 11:00 | 85 | 14.5 | 2.68 | 46 | 60 | | | AG |
| 12:00 | 70 | 12.0 | 2.62 | 40 | 60 | | | AG |
| 13:00 | 70 | 11.6 | 2.71 | 40 | 60 | | | AG |
| 14:00 | 70 | 11.6 | 2.71 | 40 | 60 | | | TB |
| 15:00 | 70 | 11.5 | 2.73 | 40 | 60 | 173 | 798 | TB |
| 16:00 | 70 | 11.7 | 2.69 | 40 | 60 | 172 | 798 | ET |
| 17:00 | 70 | 11.7 | 2.69 | 40 | 60 | | | ET |
| 18:00 | 70 | 12.1 | 2.60 | 40 | 60 | | | ET |
| 19:00 | 70 | 12.1 | 2.60 | 40 | 60 | | | ET |
| 20:00 | 70 | 11.9 | 2.64 | 40 | 60 | | | ET |
| 21:00 | 70 | 11.8 | 2.66 | 40 | 60 | | | ET |
| 22:00 | 85 | 14.3 | 2.77 | 46 | 60 | | | ET |
| 23:00 | 95 | 15.5 | 2.75 | 52 | 60 | 165 | 798 | ET |
| ml/min average : | | 79.17 | | Total gallons PO ₄ Used: | | 27 | | |
| MGD average : | | 13.3 | | | | | | |
| PPM average : | | 2.67 | | Days of PO ₄ on Hand: | | 35.66 | | |
| (Train Shed + CS2) | | | | | | | | |

79
12

24hr Record of Ortho-Phosphate Used

| Date: <u>6-3-16</u> | | | | | | Location of PO ₄ | | |
|------------------------|-----------------|------|-----------------|--------------|--------|--|------------|----------|
| | PO ₄ | CS 2 | PO ₄ | Pump Setting | | CS 2 | Train Shed | Operator |
| | ml/min | MGD | PPM | Speed | Stroke | Gallons on Hand | | |
| 0:00 | 95 | 15.4 | 3.82 | 52 | 60 | 164 | 798 | BE |
| 1:00 | 95 | 15.4 | 2.77 | 52 | 60 | | | BE |
| 2:00 | 95 | 15.5 | 2.75 | 52 | 60 | | | BE |
| 3:00 | 90 | 14.6 | 2.77 | 49 | 60 | | | BE |
| 4:00 | 85 | 14.1 | 2.71 | 45 | 60 | | | BE |
| 5:00 | 85 | 14.3 | 2.67 | 45 | 60 | | | BE |
| 6:00 | 80 | 12.5 | 2.87 | 43 | 60 | | | BE |
| 7:00 | 75 | 12.5 | 2.69 | 41 | 60 | 153 | 798 | BE |
| 8:00 | 80 | 13.5 | 2.66 | 43 | 60 | 152 | 798 | AG |
| 9:00 | 80 | 13.6 | 2.64 | 43 | 60 | | | TB |
| 10:00 | 80 | 13.7 | 2.62 | 43 | 60 | | | TB |
| 11:00 | 80 | 13.4 | 2.68 | 43 | 60 | | | TB |
| 12:00 | 70 | 11.9 | 2.64 | 39 | 60 | | | AG |
| 13:00 | 70 | 11.7 | 2.69 | 39 | 60 | | | K |
| 14:00 | 70 | 11.7 | 2.69 | 39 | 60 | | | TB |
| 15:00 | 70 | 11.8 | 2.67 | 39 | 60 | 143 | | |
| 16:00 | 70 | 11.8 | 2.66 | 39 | 60 | 142 | 798 | ⊖ |
| 17:00 | 70 | 11.7 | 2.69 | 39 | 60 | | | ⊖ |
| 18:00 | 70 | 12.4 | 2.54 | 39 | 60 | | | ⊖ |
| 19:00 | 80 | 13.0 | 2.76 | 43 | 60 | | | ⊖ |
| 20:00 | 80 | 13.0 | 2.76 | 43 | 60 | | | de |
| 21:00 | 80 | 13.6 | 2.64 | 43 | 60 | | | BE |
| 22:00 | 80 | 13.8 | 2.60 | 43 | 60 | | | BE |
| 23:00 | 85 | 14.4 | 2.65 | 45 | 60 | 133 | 798 | BE |
| ml/min average : 79.79 | | | | | | Total gallons PO ₄ Used: 31 gal | | |
| MGD average : 13.3 | | | | | | | | |
| PPM average : 2.70 | | | | | | Days of PO ₄ on Hand: 30.03 | | |
| (Train Shed + CS2) | | | | | | | | |

24hr Record of Ortho-Phosphate Used

Date: 6-4-16

Location of PO₄

| | PO ₄ | CS 2 | PO ₄ | Pump Setting | | CS 2 | Train Shed | Operator |
|-------|-----------------|------|-----------------|--------------|--------|-----------------|------------|----------|
| | ml/min | MGD | PPM | Speed | Stroke | Gallons on Hand | | |
| 0:00 | 85 | 14.4 | 2.65 | 45 | 60 | 132 | 798 | BE |
| 1:00 | 85 | 14.6 | 2.61 | 45 | 60 | | | BE |
| 2:00 | 85 | 14.5 | 2.63 | 45 | 60 | | | BE |
| 3:00 | 85 | 14.5 | 2.63 | 45 | 60 | | | BE |
| 4:00 | 85 | 14.6 | 2.61 | 45 | 60 | | | BE |
| 5:00 | 85 | 14.5 | 2.63 | 45 | 60 | | | BE |
| 6:00 | 85 | 14.4 | 2.65 | 45 | 60 | | | BE |
| 7:00 | 80 | 13.4 | 2.68 | 43 | 60 | 124 | 798 | BE |
| 8:00 | 80 | 13.4 | 2.68 | 43 | 60 | 123 | 798 | TB |
| 9:00 | 80 | 13.6 | 2.64 | 43 | 60 | 264 | 654 | TL |
| 10:00 | 70 | 11.7 | 2.69 | 39 | 60 | | | TL |
| 11:00 | 70 | 12.0 | 2.62 | 39 | 60 | | | TL |
| 12:00 | 70 | 12.0 | 2.62 | 39 | 60 | | | TB |
| 13:00 | 70 | 11.9 | 2.64 | 39 | 60 | | | TL |
| 14:00 | 70 | 11.9 | 2.64 | 38 | 60 | | | TL |
| 15:00 | 70 | 11.6 | 2.71 | 38 | 60 | 255 | 654 | TB |
| 16:00 | 70 | 11.7 | 2.69 | 38 | 60 | 254 | 654 | CW |
| 17:00 | 60 | 10.1 | 2.67 | 33 | 60 | | | CW |
| 18:00 | 60 | 10.5 | 2.57 | 33 | 60 | | | CW |
| 19:00 | 60 | 9.1 | 2.96 | 33 | 60 | | | CW |
| 20:00 | 5 | 1.7 | 1.32 | 4 | 60 | | | CW |
| 21:00 | 60 | 10.0 | 2.70 | 33 | 60 | | | CW |
| 22:00 | 85 | 14.4 | 2.65 | 45 | 60 | | | CW |
| 23:00 | 85 | 14.1 | 2.71 | 45 | 60 | 246 | 654 | CW |

Booster pump check

✓
✓
✓
✓
✓
✓
✓
✓
✓
✓
✓
✓
✓

ml/min average : 72.5 ml/min
 MGD average : 12.3
 PPM average : 2.61

Total gallons PO₄ Used: 26 gal
 Days of PO₄ on Hand: 34 days
 (Train Shed + CS2)

24hr Record of Ortho-Phosphate Used

| Date: 6-5-16 | | | | | | Location of PO ₄ | | |
|--------------------|----------------------|-------------------------|-------------------------|--------------|--------|--|------------|----------|
| | PO ₄ | CS 2 | PO ₄ | Pump Setting | | CS 2 | Train Shed | Operator |
| | ml/min | MGD | PPM | Speed | Stroke | Gallons on Hand | | |
| 0:00 | 85 | 14.5 | 2.63 | 45 | 60 | 245 | 654 | MW |
| 1:00 | 85 | 14.7 | 2.60 | 45 | 60 | | | MW |
| 2:00 | 90 | 15.2 | 2.66 | 48 | 60 | | | MW |
| 3:00 | 90 | 15.1 | 2.68 | 48 | 60 | | | MW |
| 4:00 | 90 | 14.9 | 2.71 | 48 | 60 | | | MW |
| 5:00 | 90 | 14.9 | 2.71 | 48 | 60 | | | MW |
| 6:00 | 90 | 15.0 | 2.69 | 48 | 60 | | | MW |
| 7:00 | 90 | 15.3 | 2.64 | 48 | 60 | 235 | 654 | MW |
| 8:00 | 85 | 14.9 | 2.56 | 45 | 60 | 238 | 654 | BE |
| 9:00 | 85 | 14.2 | 2.69 | 45 | 60 | | | BE |
| 10:00 | 85 | 14.4 | 2.65 | 45 | 60 | | | BE |
| 11:00 | 85 | 14.5 | 2.63 | 45 | 60 | | | BE |
| 12:00 | 70 | 11.6 | 2.71 | 38 | 60 | | | BE |
| 13:00 | 70 ⁶⁻⁵⁻¹⁶ | 12.1 12.1 | 2.60 2.60 | 38 | 60 | | | BE |
| 14:00 | 70 | 12.1 | 2.60 | 38 | 60 | 227 | 654 | BE |
| 15:00 | 70 ⁶⁻⁵⁻¹⁶ | 11.6 11.6 | 2.71 2.71 | 38 | 60 | 226 | 654 | BE |
| 16:00 | 70 | 11.6 | 2.71 | 38 | 60 | 225 | 654 | MW |
| 17:00 | 70 | 11.6 | 2.71 | 38 | 60 | | | MW |
| 18:00 | 70 | 11.5 | 2.73 | 38 | 60 | | | MW |
| 19:00 | 70 | 11.1 | 2.83 | 38 | 60 | | | MW |
| 20:00 | 70 | 11.3 | 2.78 | 38 | 60 | | | MW |
| 21:00 | 70 | 11.5 | 2.73 | 38 | 60 | | | MW |
| 22:00 | 80 | 13.0 | 2.77 | 43 | 60 | | | MW |
| 23:00 | 80 | 14.0 | 2.57 | 43 | 60 | 216 | 654 | MW |
| ml/min average : | | 79.58 | | | | Total gallons PO ₄ Used: 29 gal | | |
| MGD average : | | 12.75 | | | | | | |
| PPM average : | | 2.68 | | | | Days of PO ₄ on Hand: 30 days | | |
| (Train Shed + CS2) | | | | | | | | |

24hr Record of Ortho-Phosphate Used

| Date: 6-6-16 | | | | | | Location of PO ₄ | | | |
|--------------------|---|------|-----------------|--------------------------------|--------|--|------------|----------|--|
| | PO ₄ | CS 2 | PO ₄ | Pump Setting | | CS 2 | Train Shed | Operator | |
| | ml/min | MGD | PPM | Speed | Stroke | Gallons on Hand | | | |
| 0:00 | 85 | 14.1 | 2.71 | 45 | 60 | 215 | 654 | MW | |
| 1:00 | 85 | 14.2 | 2.69 | 45 | 60 | | | MW | |
| 2:00 | 85 | 14.1 | 2.71 | 45 | 60 | | | MW | |
| 3:00 | 85 | 15.2 | 2.51 | 45 | 60 | | | MW | |
| 4:00 | 85 | 14.6 | 2.61 | 45 | 60 | | | MW | |
| 5:00 | 85 | 14.2 | 2.69 | 45 | 60 | | | MW | |
| 6:00 | 85 | 14.4 | 2.65 | 45 | 60 | | | MW | |
| 7:00 | 80 | 14.9 | 2.41 | 43 | 60 | 204 | 654 | MW | |
| 8:00 | Shut down!! | | | off | off | 208 | 654 | BE | |
| 9:00 | ← | off | Line | → | | | | BE | |
| 10:00 | 60 | 10.0 | 2.69 | 32 | 60 | | | BE | |
| 11:00 | 65 | 10.8 | 2.71 | 35 | 60 | | | SD | |
| 12:00 | 65 | 10.9 | 2.68 | 35 | 60 | | | BE | |
| 13:00 | 65 | 10.9 | 2.68 | 35 | 60 | | | BE | |
| 14:00 | 65 | 11.1 | 2.63 | 35 | 60 | | | BE | |
| 15:00 | 65 | 11.0 | 2.65 | 35 | 60 | 203 | 654 | BE | |
| 16:00 | 65 | 10.9 | 2.68 | 36 | 60 | 203 | 654 | SD | |
| 17:00 | 65 | 11.0 | 2.65 | 36 | 60 | | | ↓ | |
| 18:00 | 65 | 10.9 | 2.68 | 41 ³⁶ _{SD} | 60 | | | | |
| 19:00 | 75 | 10.8 | 2.70 | 41 | 60 | | | | |
| 20:00 | 75 | 12.7 | 2.65 | 41 | 60 | | | | |
| 21:00 | 80 ⁷⁵ _{SD} | 12.5 | 2.69 | 41 | 60 | | | | |
| 22:00 | 80 | 13.9 | 2.74 | 45 | 60 | 192 | 654 | | |
| 23:00 | 85 | 14.3 | 2.67 | 45 | 60 | | | | |
| ml/min average : | | | | 74.77 | | Total gallons PO ₄ Used: 23 gal | | | |
| MGD average : | | | | 12.61 | | | | | |
| PPM average : | | | | 2.65 | | Days of PO ₄ on Hand: 37 Days | | | |
| (Train Shed + CS2) | | | | | | | | | |

9:30
10:30
14:30
BACK

8⁴⁰ Am Shutdown of the 36" water main at CS II
for inspection installation of Sodium Hydroxide & Sodium Hypochlorite

No problems were observed in the reenergizing of the water supply line.

24hr Record of Ortho-Phosphate Used

| Date: 6-7-16 | | | | | | Location of PO ₄ | | Operator |
|------------------------|-----------------|------|----------------------|--------------|--------|--|------------|----------|
| | PO ₄ | CS 2 | PO ₄ | Pump Setting | | CS 2 | Train Shed | |
| | ml/min | MGD | PPM | Speed | Stroke | Gallons on Hand | | |
| 0:00 | 85 | 14.1 | 2.71 | 45 | 60 | 190 | 654 | MW |
| 1:00 | 85 | 14.7 | 2.60 | 45 | 60 | | | MW |
| 2:00 | 85 | 14.6 | 2.61 | 45 | 60 | | | MW |
| 3:00 | 85 | 14.3 | 2.67 | 45 | 60 | | | MW |
| 4:00 | 85 | 13.6 | 2.81 | 45 | 60 | | | MW |
| 5:00 | 85 | 13.9 | 2.74 | 45 | 60 | | | MW |
| 6:00 | 75 | 13.4 | 2.51 | 42 | 60 | | | MW |
| 7:00 | 75 | 12.4 | 2.72 | 42 | 60 | 180 | 654 | MW |
| 8:00 | 75 | 12.7 | 2.65 | 42 | 60 | 179 | 654 | TB |
| 9:00 | 75 | 12.5 | 2.69 | 42 | 60 | | | TB |
| 10:00 | 75 | 12.7 | 2.65 | 42 | 60 | | | TB |
| 11:00 | 75 | 12.6 | 2.67 | 42 | 60 | | | TB |
| 12:00 | 75 | 12.8 | 2.63 | 42 | 60 | | | TB |
| 13:00 | 75 | 12.5 | 2.65 2.69 | 42 | 60 | | | TB |
| 14:00 | 75 | 12.6 | 2.67 | 42 | 60 | | | TB |
| 15:00 | 75 | 12.9 | 2.61 | 42 | 60 | 174 | 654 | TB |
| 16:00 | 70 | 12.1 | 2.60 | 39 | 60 | 173 | 654 | TB |
| 17:00 | 70 | 12.0 | 2.62 | 39 | 60 | | | TB |
| 18:00 | 70 | 11.5 | 2.73 | 39 | 60 | | | TB |
| 19:00 | 70 | 11.4 | 2.75 | 39 | 60 | | | TB |
| 20:00 | 70 | 11.5 | 2.73 | 39 | 60 | | | TB |
| 21:00 | 70 | 11.2 | 2.80 | 39 | 60 | | | TB |
| 22:00 | 70 | 11.4 | 2.75 | 39 | 60 | | | TB |
| 23:00 | 85 | 14.0 | 2.72 | 45 | 60 | 164 | 654 | TB |
| ml/min average : 76.45 | | | | | | Total gallons PO ₄ Used: 26 gal | | |
| MGD average : 12.80 | | | | | | | | |
| PPM average : 2.68 | | | | | | Days of PO ₄ on Hand: 31 days | | |
| (Train Shed + CS2) | | | | | | | | |

24hr Record of Ortho-Phosphate Used

| Date: 6-8-16 | | | | | | Location of PO ₄ | | |
|------------------------|-----------------|------|-----------------|-------------------|---------------------------------------|--|------------|---------------|
| | PO ₄ | CS 2 | PO ₄ | Pump Setting | | CS 2 | Train Shed | Operator |
| | ml/min | MGD | PPM | Speed | Stroke | Gallons on Hand | | |
| 0:00 | 85 | 14.0 | 2.73 | 45 | 60 | 163 | 654 | MW |
| 1:00 | 85 | 14.2 | 2.69 | 45 | 60 | | | MW |
| 2:00 | 85 | 14.2 | 2.69 | 45 | 60 | | | MW |
| 3:00 | 85 | 14.7 | 2.60 | 45 | 60 | | | MW |
| 4:00 | 85 | 14.0 | 2.73 | 45 | 60 | | | MW |
| 5:00 | 85 | 14.1 | 2.71 | 45 | 60 | | | MW |
| 6:00 | 85 | 14.0 | 2.73 | 45 | 60 | | | MW |
| 7:00 | 85 | 14.2 | 2.69 | 45 | 60 | 152 | 654 | MW |
| 8:00 | 85 | 13.8 | 2.74 | 45 | 60 | 155 | 654 | TB |
| 9:00 | 75 | 12.8 | 2.67 | 41 | 60 | | | TC |
| 10:00 | 75 | 13.0 | 2.59 | 41 | 60 | | | TB |
| 11:00 | 75 | 13.1 | 2.57 | 41 | 60 | | | TB |
| 12:00 | 80 | 13.6 | 2.64 | Auto | 45 ^{TB 4/8/16} 95 | | | TB |
| 13:00 | 75 | 12.9 | 2.61 | 8.3 27 | 95 | 147 | 654 | TB |
| 14:00 | 75 | 13.0 | 2.59 | 8.4 27 | 95 | | | TB |
| 15:00 | 75 | 12.8 | 2.63 | 8.3 26 | 95 | 145 | 654 | TB |
| 16:00 | 70 | 12.1 | 2.60 | 8.0 25 | 95 | 144 | 654 | ET |
| 17:00 | 60 | 10.2 | 2.64 | 7.5 22 | 95 | | | ET |
| 18:00 | 60 | 10.3 | 2.61 | 7.4 22 | 95 | | | ET |
| 19:00 | 60 | 10.5 | 2.56 | 7.5 22 | 95 | | | ET |
| 20:00 | 60 | 10.3 | 2.61 | 7.5 21 | 95 | | | ET |
| 21:00 | 60 | 10.3 | 2.61 | 7.4 22 | 95 | 139 | 532 | ET |
| 22:00 | 75 | 13.5 | 2.49 | 8.5 28 | 95 | 241 | | ET |
| 23:00 | 80 | 14.2 | 2.84 | 8.8 30 | 95 | 240 | 532 | ET |
| ml/min average : 75.83 | | | | | | Total gallons PO ₄ Used: 28 gal | | |
| MGD average : 12.90 | | | | | | | | |
| PPM average : 2.64 | | | | | | Days of PO ₄ on Hand: 27 days | | |
| (Train Shed + CS2) | | | | | | | | |

We started a new sheet at 1pm due to automation of phosphate pumps. Writing down milliamps & pulse instead of speed.