



# WILMETTE WATER MANAGEMENT DEPARTMENT MONTHLY REPORT

*March 2016*

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# Wilmette Water Management Department Monthly Report

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## **Introduction**

The Water Management Department manages the operation and maintenance of the following infrastructure facilities:

### **Drinking Water**

- The 44 MGD Carbon P. Dubbs Water Treatment Plant.
- Water Meter shop operations.
- 4.0 MG standpipe.
- 3.0 MG reservoir and booster pumping station.
- Two master metering Vaults with Glenview.

### **Storm and Sanitary Water**

- 377 MGD capacity Storm Water Pumping Station (SWPS) serving the west side of Wilmette.
- Princeton outfall sanitary vault.
- 5.0 MG West Park sanitary storage and pumping station.
- 1.0 MG pump-over sanitary lift station (starting April 2016).

This monthly report is divided into four major categories (based on ANSI/AWWA G100-05 standard of Plant Operation and Management): regulatory compliance, water quality management, operational management practices and plant-real property management.

## **1. Compliance With Regulatory Requirements**

The Wilmette water plant satisfied all the federal and state requirements that apply to the operation of the treatment plant in the month of March. All required regulatory monthly reports were submitted to all appropriate regulatory agencies. Some of the reports submitted for the month of March to the regulatory agencies include:

- Pumping Operations report to the IEPA.
- Chemical Operations report to the IEPA.
- Turbidity Monitoring Form A to the IEPA.
- Turbidity Monitoring Form B to the IEPA.
- RDC (residual disinfectant) distribution to the IEPA.
- RDC entry point to the IEPA.
- Monthly Ct- Calculations report (effectiveness of disinfection) to the IEPA.

- Distribution System Sampling report to the IEPA.
- Bacteriological test results of distribution and finished water samples to IEPA.
- Monthly Water Audit report to IDNR.

Also, all additional required water quality sampling under the Safe Drinking Water Act (SDWA) were collected and sent to a certified laboratory for analysis. Additional sampling in the month of March included:

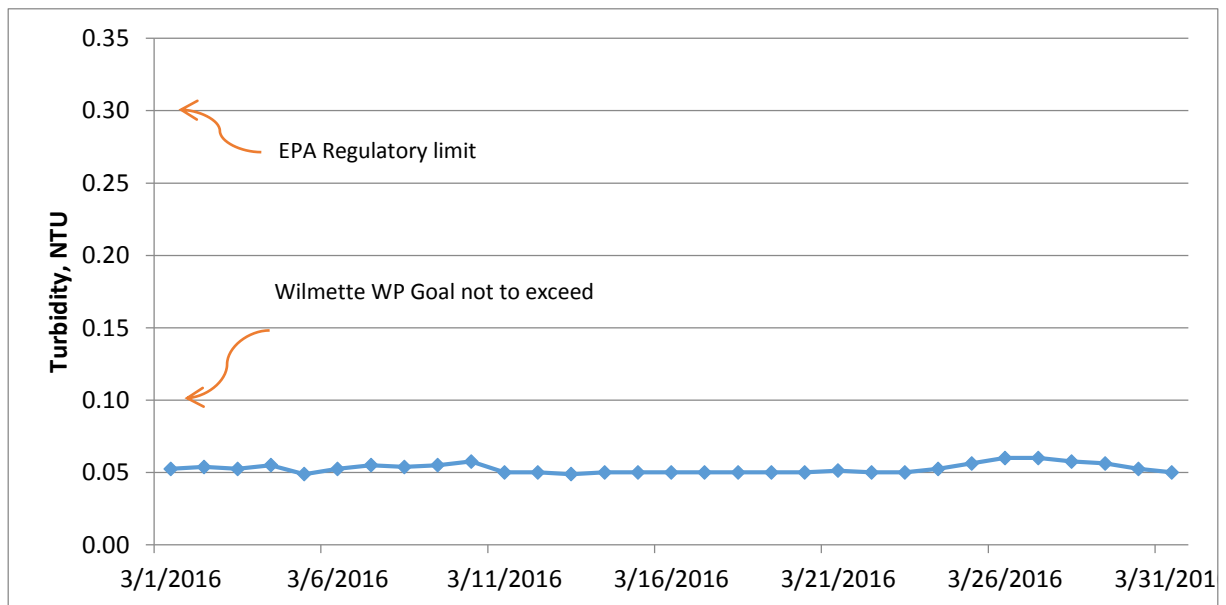
- Total Organic Carbon (TOC) sampling for finished and raw water under the Stage 2 Disinfection-By-Products (DBP) Rules.
- Fluoride sample.
- LT 2 ESWTR (Long Term 2 Enhanced Surface Water Treatment Rule) sampling for *Cryptosporidium*, *E. coli* and turbidity in the raw water.

## 2. Water Quality Management

The water plant conducted over 200 bacteriological tests (distribution and water plant) and over 2,400 grab samples tested for various water quality parameters in the month of March.

Turbidity, measurement of cloudiness of water caused by suspended solids, is the key parameter used to assess the effectiveness of the treatment process and the water quality produced. Below is a graph for the average daily turbidity of the Wilmette finished water in the month of March.

Figure 2.1 Average Daily Turbidity of Finished Water in March



Other water quality parameters of interest are listed in the table below for the month of March.

Table 2.1 Average daily of some water quality parameters in the month of March

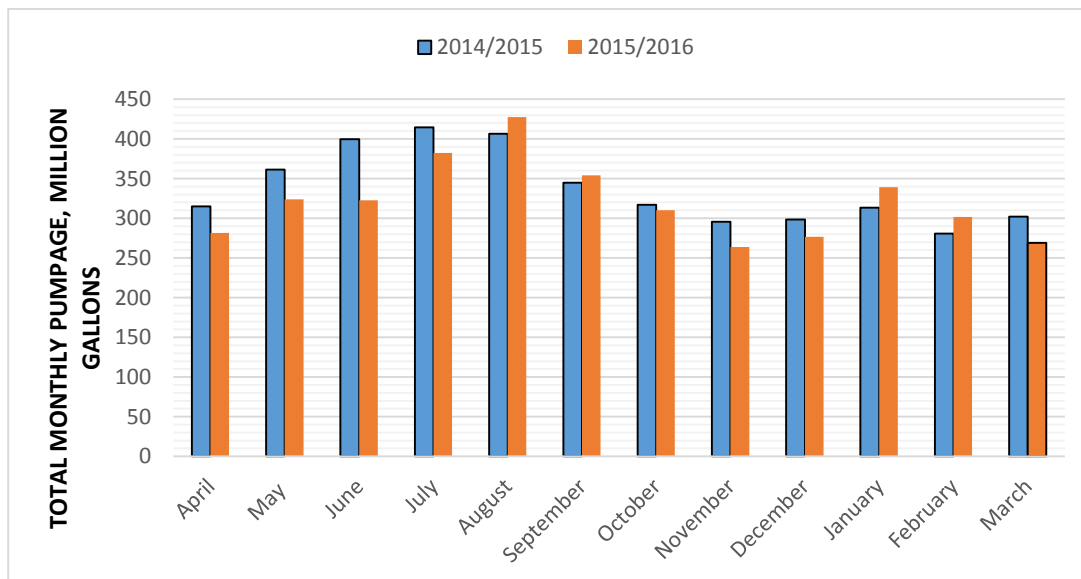
Parameter	Finished Water	EPA Standard
Chlorine	1.02 ppm	0.2 – 4.0 ppm
Fluoride	0.73 ppm	0.70 ppm goal (IDPH)
Phosphate	0.37 ppm	0.15 – 0.55 ppm
Turbidity	0.05 NTU	< 0.30 NTU 95%
pH	8.08	> 7.0
Avg Temp	4.97 °C	No standard
Coliform Bacteria	0/100 mL	0

### 3. Operational Management

#### 3.1 Drinking Water Production

The total treated water pumped was 268.8 MG (Million Gallons) for the month of March or 8.7 MGD (Million Gallons per Day). This compares to 302.2 MG in March 2015 or 11.1 % reduction. Please see the graph below for total treated water pumped in comparison to last 12 months:

Figure 3.1.1 Total monthly pumpage comparison for the last 12 months.



#### 3.2 Treatment Chemicals

All chemicals added to water in the treatment process meet ANSI/AWWA or NSF/ANSI 60 standard for use in portable water. Below is a summary of treatment chemicals dose in the month of March.

Table 3.2.1 Treatment chemicals dose in pounds per million gallon (lb/MG) in March

Chemical	2016 (lb/MG)	2015 (lb/MG)	% Change*	Purpose
DeIPAC 2020	82.0	87.2	-6.0%	Coagulation and removal of turbidity
Chlorine	15.9	15.0	6.0%	Disinfection
Fluoride	28.7	36.7	-21.8%**	To reduce tooth decay
Carbon	-0-	-0-	n/a	Taste and Odor
Phosphate	11.2	11.0	1.8%	Corrosion control

\* The change is mostly due to change in the raw water quality

\*\* The reduction is due to a change in the regulatory requirement of the fluoride residual

### 3.3 Meter Shop Operation

Below is a summary of some of the service work performed by the meter shop staff in the month of March:

Service Work Type	Amount
Meters replaced	66
Demolition/remodeling	9
Collections	29
Finals	68
New home meters	9
Consultation of residents	7
Low pressure investigation	0
B-Box activities	9

### 3.4 Storm Water Pumping Station (SWPS) Operation

The station is unmanned and automated to run. When the level in the wet well rises above 5 feet, it triggers a call back of the on-call person to man and operate the station. Below is a summary of any call-back event in the month of March:

Date	Rain Amount	Hours of overtime
3/24/2016	0.59"	1.5
3/31/2016	0.49"	0

### 3.5 Facilities Process Reliability

- All basins 1-6 were in use.
- All filters 1-10 were in use, except filters 5-7 during the repainting project.
- All reservoirs were in use.

- The 1971 low lift station was in use during March, the 1933 low lift station was on stand-by.
- All high lift pumps were available for use.
- All SWPS pumps were available for use
- All reservoir boosting station pumps were available for use.

### **3.6 Emergency Preparedness**

During the month of March, the water plant staff conducted under load tests for the following generators:

- 800 kW backup generator at the SWPS.
- 250 kW backup generator at West Park.

Please note that other generators are also tested on a weekly basis but not under load.

### **3.7 Capital Improvement Projects**

#### **Water System Assessment Study**

On May 26, 2015, the VB approved a contract with CDM Smith in the amount of \$136,209 for engineering services associated with Water System Assessment Study. This study had two tasks:

#### Task 1 – Condition assessment of water treatment and production

The goal of this task is to perform a condition assessment of the water plant and provide risk assessment methodology to prioritize recommendations for future improvements. This study will provide cost estimates for large asset replacement and will help the Village develop short and long term plans for capital improvements.

#### Task 2 – Distribution system study

The primary goals of the water distribution study are to upgrade the hydraulic model to newer software, perform field tests on the distribution system and to recommend a water main replacement program based on need and criticality criteria. This task will provide cost estimates for the various projects in the recommended rehabilitation and replacement program.

The final report for the water plant task was received in March and the distribution task is expected in April. The study is expected to be on budget.

#### **Building Renovations and Painting Project**

On December 8, 2015, the VB approved a contract with Tecorp Inc. in the amount of \$163,560 for the work associated with the water plant painting project. The scope of this project is to sandblast and repaint the beams and pipes located in the 1956 filters area. The project started in early March and was completed by the end of the month.

Another portion of this year's renovation will be to water proof the south east corner of the 1933 building which is anticipated to be done in the latter part of the year.

#### **Water Plant Filter Valve Improvements**

In February 2016, the Village Board approved the purchase of new motorized actuators in the amount of \$34,955. The scope of this project is to replace the motorized filter effluent valve actuators on filters one through seven, as well as one motorized actuator and gearbox on the filter backwash rate valve. These actuators are essential to the filtration process as they control the filtration and backwash through each filter. The lead time on delivery of the actuators is eight to nine weeks. Replacement will be performed by the Water Plant staff and should conclude by this fall.

#### **Water Meters Replacement Program**

On January 12, 2016, the VB approved the purchase of water meters in the amount of \$88,000 for the meter replacement program. In 2016, it will be the first year of a five year accelerated program of meters replacement to clear the backlog of old meters. In order to continue replacement of old meters, approximately 1,000 new meters must be purchased and installed in the next five years to accomplish a 15-year replacement cycle. In March, 66 old meters were replaced.

### **4. Facilities Maintenance Management**

The following is a summary highlight of maintenance activities in March:

- Completed 13 preventative maintenance routes that included weekly maintenance of equipment at the water plant, SWPS, the 3.0 MG reservoir and meter vaults.
- Performed maintenance on the SCADA servers.
- Rebuild the chlorine feeding pump at the reservoir.
- Repaired and re-installed one of the 1956 building sump pumps.
- Performed maintenance on the hypo feeding system by repairing some pipe headers and leaky couplers.
- Installed new Tagout/Lockout and eye wash safety stations at West Park station.
- Repaired pump #4 in the coagulant feeding system and performed maintenance on various segments of this system.
- Performed improvements on the hypo feeding system by replacing the feeding line of the 1956 filters with new NSF line for better feeding control.
- Replaced 3 Variable Frequency Drives (VFDs) in the mixing bases and performed the required programming to integrate them into SCADA.
- Conducted a training on back safety in coordination with the Public Works department.