



# Monthly Operating Report

December 2016

0217327.00

So. Sangamon

January 17, 2017

**woodardcurran.com**  
COMMITMENT & INTEGRITY DRIVE RESULTS

# TABLE OF CONTENTS



SECTION	PAGE NO.
<b>Executive Summary.....</b>	<b>ES-1</b>
<b>1. SAFETY .....</b>	<b>1-1</b>
1.1 Safety Training .....	1-1
1.2 Lost time Accidents .....	1-1
1.3 Safety Audit .....	1-1
1.4 Miscellaneous Safety.....	1-1
<b>2. COMPLIANCE, FLOWS AND LOADINGS .....</b>	<b>2-2</b>
2.1 Compliance .....	2-2
2.2 Influent flows and loadings .....	2-2
2.3 Effluent Concentrations .....	2-2
2.4 Lagoon Discharge Concentrations .....	2-4
<b>3. OPERATIONS.....</b>	<b>3-1</b>
3.1 Events impacting operations .....	3-1
3.2 Emergency & Service calls .....	3-1
3.2.1 Emergency Call-outs .....	3-2
3.3 Customer Inquiries .....	3-2
<b>4. MAINTENANCE AND REPAIR.....</b>	<b>4-3</b>
4.1 Preventative and predictive maintenance.....	4-3
4.2 Corrective repairs .....	4-3
<b>5. PROJECT MANAGEMENT &amp; SUPPORT .....</b>	<b>5-1</b>
5.1 Staffing & Training.....	5-1
5.2 Corporate Support.....	5-1
5.3 Budget .....	5-2
<b>6. CAPITAL PLANNING .....</b>	<b>6-1</b>
6.1 Approved CIP Projects Current status.....	6-1
6.2 Draft Capital Improvement Plan .....	6-1

## LIST OF TABLES

TABLE	PAGE NO.
Table 2.2 Influent Concentrations and Flow.....	2-2
Table 2.3 Finished Water Quality.....	2-2
Table 2.4 Weekly Grab Sample Analysis Results.....	2-4
Table 4.1 Budget Table.....	5-2

## EXECUTIVE SUMMARY

**Safety.** Safety is the number one priority at Woodard and Curran. We continue to provide monthly training for employees at the plant, provide weekly safety updates and safety videos are assigned to all employees. The safety topic for this month was “Lock Out Tag Out”. There were no lost time accidents in the month of December 2016. Approximately 80 percent of the items identified in the safety audit performed in May 2015 have been completed.

**Compliance.** The finished water quality was within regulatory limits and all reporting and sampling requirements were met for the month.

On December 21, 2016, the village of Chatham, Crawford Murphy and Tilly, the SSWC, Mecco Engineering and Woodard and Curran met at the water treatment plant regarding water quality and operational concerns. Topics discussed were Water Quality Improvements, Conversion of Chlorine feed to Chloramines, Modifications to the Chatham Altitude Valve (at the Ground Reservoir) and Future Growth and SSWC Rate Study. The recommendation of the group was to request a higher Phosphate feed rate to see if it will improve on Lead and Copper results at a cost of \$10,000 to \$15,000 annually, determine the cost to restore the plant’s ability to feed Chloramines and the annual cost to do so, determine the cost for improvement or replacement of the Chatham altitude valve including wiring and computer controls and communications, and infrastructure necessary to keep pace with Chatham’s growth. Chatham has recently flushed the majority of the distribution system and exercised several valves, which should have a positive impact on Lead and Copper results as well. The group intends to meet at least quarterly or as needed.

The plant filtered 36.1 million gallons of finished water for the month.

We reported last month that because the plant has been in operation for almost five (5) years, we dropped the level in the East Lagoon to determine if cleaning would be needed next summer. Since that time, we have been exceeding the monthly limit for Manganese but not daily limit. All other parameters are within permit limits.

**Operations.** Wells 1, 8 and 9 failed the first Bac-T sample taken on December 5, 2016. When this happens, a second sample is required to be taken. If the second sample fails, the Well must pass two consecutive Bac-T tests that are more stringent. The tests must be 24 hours apart. Wells 1 passed the second test on December 7, 2016. Well 8 passed the second test on December 27, 2016. Well 9 failed its second test on December 12, 2016 and was immediately taken off line.

There were no emergency call outs for the month. Repair of the leak on Bank #1 Backwash line was completed on December 1, 2016. There were two customer inquiries.

**Maintenance and Repair.** For the month of December 2016, there were 0 inspections, 11 preventative and 0 corrective maintenance activities completed. There were no alarms that required personnel at the plant after normal operating hours. There were 2 customer inquiries for the month.

**Budget.** After 12 months, financial summaries indicate costs are \$61,273 over budget through December 30, 2016.

**Capital Planning.** Woodard and Curran is working with Mecco Engineering to update and prioritize the Capital Improvement Plan. The CIP is a planning document that includes all projects anticipated to exceed \$5,000 in cost over the next five years. The CIP is an ongoing process and will be refined from time to time as projects are completed and new issues are identified.

## **1. SAFETY**

### **1.1 SAFETY TRAINING**

Woodard and Curran continues to provide safety training for personnel at the plant. This is accomplished by requiring daily safety meetings, weekly safety updates are available to the plant, and safety videos are assigned to all employees and are required to be completed. The December 2016 safety training topic was “Lock Out Tag Out”.

### **1.2 LOST TIME ACCIDENTS**

There were no lost time accidents in the month of December, 2016.

### **1.3 SAFETY AUDIT**

To date, approximately 86 percent of the items identified in the May 2015 Safety Audit have been addressed. On November 7, 2016, Laura Bonk, Health and Safety Manager for Woodard and Curran, was on-site to inspect the plant and grounds. Only a few minor issues were noted.

### **1.4 MISCELLANEOUS SAFETY**

There were no miscellaneous safety items for the month.

## 2. COMPLIANCE, FLOWS AND LOADINGS

### 2.1 COMPLIANCE

The finished water quality was within regulatory limits and all reporting and sampling requirements were met for December. A copy of the Operations Report to the Illinois Environmental Protection Agency (IEPA) is included in Attachment A of this report

### 2.2 INFLUENT FLOWS AND LOADINGS

The total gallons pumped from the well field was 40.2 MG. The influent parameters were all within the normal range.

The influent flow and loadings are summarized below in Table 2.2

Table 2.2 Influent Concentrations and Flow								
Day	pH	Temp	FE	Mn	Fluoride	Hardness	Alkalinity	Well Flow Gals (k)
Max.	7.54	15.2	1.36	0.255	-	378	292	1,573
Min.	7.25	12.9	0.57	0.201	-	356	280	0.985
Avg.	7.35	13.7	0.88	0.226	-	369	287	1.298
Total	-	-	-	-	-	-	-	40.223

### 2.3 EFFLUENT CONCENTRATIONS

The facility filtered 36.1 MG during the month with a daily average of 1.16 MG and a min/max of 0.9/1.4 MG.

Table 2.3 Finished Water Quality										
Date	Free CL2	Total CL2	pH	Temp	Iron	Manganese	Fluoride	Hardness	Alkalinity	Phosphate
Max	1.5	1.7	7.82	14.5	0.01	0.020	1.36	126	290	1.41
Min	1.1	1.2	7.56	12.7	0.00	0.000	0.54	104	262	0.30
Avg	1.3	1.4	7.66	13.6	0.01	0.013	0.83	120	273	0.87
MCL	-	-	-	-	1.00	-	4.00	-	-	-
SMCL	-	-	-	-	0.30	0.050	2.00	-	-	-

On December 21, 2016, the village of Chatham, Crawford Murphy and Tilly, the SSWC, Meco Engineering and Woodard and Curran met at the water treatment plant regarding water quality and operational concerns.

**Water Quality Improvements.** Results of the RTW model show the average Langelier Index for the water at the Chatham Reservoir to be -0.2. The target range for the Langelier Index is 1.0 to -1.0. Therefore, the water is only slightly corrosive leaving the plant. CMT representatives noted Copper rates, although still well below the 1.3 mg/L threshold, are higher than previous years when water was received from CWLP. This was also noted in the MCPE with a recommendation to raise the phosphate residual in the distribution system. CMT suggested raising the phosphate feed rate to achieve a 1.4 mg/L residual in the distribution system. The group concurred with this recommendation as well as Water Solutions Inc. However, budget impacts require approval of the SSWC board. The estimated total cost to maintain a 1.4 mg/L residual in the distribution system is approximately \$20,000 to \$25,000 annually. This is a \$10,000 to \$15,000 increase annually.

**Conversion of Chlorine feed to Chloramines.** The village of Chatham would like SSWC to resume using Chloramines for disinfection rather than free Chlorine. The reason for this request is Chatham is using Springfield as a back-up water supply and they use Chloramines. When CWLP water is utilized, Chlorine residuals drop. However, Chatham residents who routinely attend SSWC monthly meetings have voiced opposition to the use of Chloramines. As part of the Chemical Feed Pump project, a portion of the plant's infrastructure for feeding Ammonia was removed in order to store and pump Sodium Permanganate safely. The recommendation of the group was to develop a cost estimate for the installation of an Ammonia feed system and the annual operating cost impact for the SSWC board to review. Another option considered during the meeting was the installation of the ammonia feed system in Chatham. It should be noted that New Berlin uses Curran Gardner as a back-up water supply. Curran Gardner feeds Free Chlorine.

**Modifications of Chatham's Altitude Valve.** A number of options have been explored to aid in preventing future boil orders, provide automation to make more timely adjustments to flows and pressures. CMT is suggesting a new valve be installed versus using the existing Ross Valve. Revised proposals including a new valve and rebuilding the existing valve and the appropriate communications for the necessary controls and wiring. Once the proposal addresses the teams concerns, the proposal will be forwarded to the SSWC board and Pat McCarthy for consideration.

**Future Growth and the SSWC Rate Study.** Pat McCarthy gave a brief overview of the 750 to 1,000 homes and apartments proposed and under way in the village of Chatham. In addition to this information, EJ Water plans to increase the number of users on its systems as well. This information will be forwarded to the SSWC and Curry and Associates so it can be included in the rate study currently underway. The Capital Improvement Program for SSWC will be updated as well.

Future meetings are tentatively planned on a quarterly basis or as need.

## 2.4 LAGOON DISCHARGE CONCENTRATIONS

The results for the NPDES lagoon discharge permit are summarized below.

**Table 2.4 Weekly Grab Sample Analysis Results**

<b>Lagoon Effluent Results</b>						
<b>Date</b>	<b>Fe (mg/l)</b>	<b>Mn (mg/l)</b>	<b>Chloride (mg/l)</b>	<b>Cl<sup>2</sup> (mg/l)</b>	<b>pH (S.U.)</b>	<b>TSS (mg/l)</b>
12/05/2016	-	-	265	0.00	7.73	0.00
12/12/2016	1.18	1.07	-	-	-	-
Minimum	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Average	-	-	-	-	-	-
<b>Monthly Avg Limit</b>	<b>2.0</b>	<b>1.0</b>	-	-	-	<b>15</b>
<b>Daily Limit</b>	<b>4.0</b>	<b>2.0</b>	<b>500</b>	<b>0.05</b>	<b>6.0-9.0</b>	<b>30</b>

The Chloride sample for the month of December 2016, performed by the Springfield Metropolitan Sanitary District, was 24,200 mg/L. The limit for chloride discharge to the sanitary district is 30,000 mg/L

Note: Because the plant has been in operation for almost five (5) years, we dropped the level in the East Lagoon to determine if cleaning would be needed next summer. Since that time, we have been exceeding the monthly limit for Manganese but not daily limit as illustrated in the table above. All other parameters fall within permit limits.



### 3. OPERATIONS

#### 3.1 EVENTS IMPACTING OPERATIONS

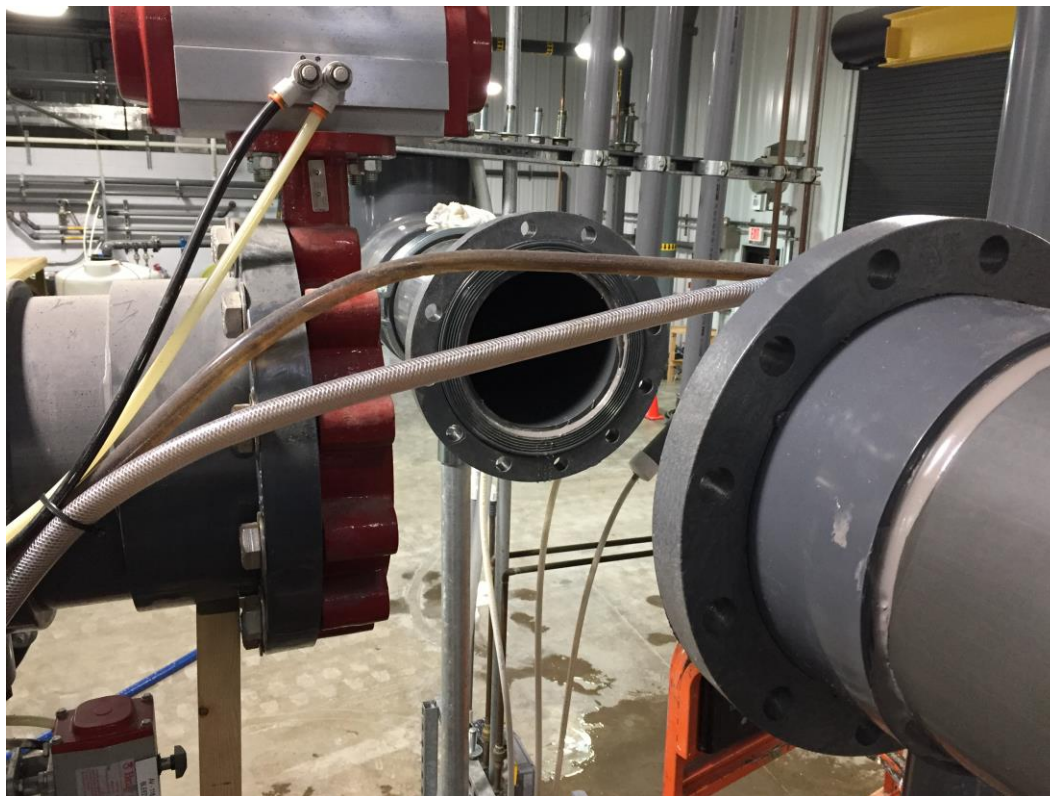
Wells 1, 8 and 9 failed the first Bac-T sample taken on December 5, 2016. When this happens, a second sample is required to be taken. If the second sample fails, the Well must pass two consecutive Bac-T tests that are more stringent. The tests must be 24 hours apart. Wells 1 passed the second test on December 7, 2016. Well 8 passed the second test on December 27, 2016. Well 9 failed its second test on December 12, 2016 and was immediately taken off line.

We chlorinated the sample station and let it sit over the week end and tested it again on December 27, 2016. We will pull another sample in early January and check it again. There may be a hole in the piping that connects the sample station to the well. Further investigation will be required to determine if this is the case.

#### 3.2 EMERGENCY & SERVICE CALLS

##### Service Calls:

- Henson Robinson was on site December 1, 2016 to repair the leak on Bank 1 of the WesTech Filters. The plant was off-line for approximately 3 hours while the repairs were made.



### 3.2.1 Emergency Call-outs

- There were no emergency call-outs for the month of December 2016.

### 3.3 CUSTOMER INQUIRIES

There were two customer inquiries for the month of December:

- Dustin Patterson called on December 12, 2016 to ask if we had made any changes at the plant. We informed him the chlorine concentration was slightly lowered. The village of Chatham has requested a 1.0 mg/L chlorine residual at the Chatham Reservoir.
- Laura VanProyen emailed a request for a copy of the July and August 2015 IEPA monthly Operations Report to comply with a FOIA request.

## **4. MAINTENANCE AND REPAIR**

### **4.1 PREVENTATIVE AND PREDICTIVE MAINTENANCE**

For the month of December 2016, there were 0 inspections, 11 preventative and 0 predictive maintenance activities completed.

### **4.2 CORRECTIVE REPAIRS**

Two air expellers on New City Road were repaired by Henson Robinson.

.

## 5. PROJECT MANAGEMENT & SUPPORT

### 5.1 STAFFING & TRAINING

- Woodard and Curran continues to train and provide staffing to the plant as needed.
- Woodard and Curran IT staff are working with plant personnel on Hach Wims. Hach Wims is the programmed utilized by Woodard and Curran for developing IEPA Monthly Operating Reports and storage of test data. We are working through the issues discovered with the reporting earlier in the year as time allows.

### 5.2 CORPORATE SUPPORT

The following individuals, either on-site or remotely, provided assistance in operation and/or maintenance of the plant in December 2016.

- |               |                 |
|---------------|-----------------|
| • Marc Thomas | • Laura Bonk    |
| • Joe Hurley  | • Shannon Eyler |
| • Ray Giguere |                 |

### 5.3 BUDGET

Table 5.3 below is a breakdown of the current budget as of December 30, 2016.

**Table 5.3 Budget Table**

<b>Budget Category</b>	<b>Month Budget</b>	<b>Month Actual</b>	<b>YTD Budget</b>	<b>YTD Actual</b>	<b>Annual Budget</b>	<b>Over (under)</b>	<b>% of budget</b>
Labor (D.L. + OH)	\$22,926	\$23,338	\$183,410	\$199,106	\$275,115	\$15,696	72%
Utilities	\$8,113	\$11,382	\$64,900	\$65,138	\$97,350	\$238	67%
Chemicals	\$14,875	\$32,013	\$119,000	\$122,253	\$178,500	\$3,253	68%
Maintenance & Repair	\$7,925	\$23,395	\$63,400	\$87,939	\$95,100	\$24,539	92%
Chloride	\$11,688	\$15,726	\$93,507	\$102,086	\$140,260	\$8,579	73%
Lab Supplies and Equipment	\$1,946	\$2,207	\$15,570	\$15,259	\$23,355	(\$311)	65%
Office Supplies	\$267	\$301	\$2,133	\$2,407	\$3,200	\$274	75%
Miscellaneous Expenses	\$1,243	\$766	\$9,943	\$11,247	\$14,914	\$1,304	75%
Other Operating Costs	\$339	\$1,372	\$2,715	\$10,416	\$4,072	\$7,701	256%
<b>Subtotal of Costs for Contract Year 2</b>	<b>\$69,322</b>	<b>\$110,500</b>	<b>\$554,577</b>	<b>\$615,850</b>	<b>\$831,866</b>	<b>\$61,273</b>	<b>74%</b>
Fixed Fee for Contract Year 2	\$6,932	\$6,932	\$55,458	\$55,458	\$83,187	\$0	67%
<b>Year One Transition</b>	<b>\$1,366</b>	<b>\$1,366</b>	<b>\$10,926</b>	<b>\$10,926</b>	<b>\$16,389</b>	<b>\$0</b>	<b>67%</b>
<b>Total</b>	<b>\$77,620</b>	<b>\$118,798</b>	<b>\$620,961</b>	<b>\$682,234</b>	<b>\$931,442</b>	<b>\$61,273</b>	<b>73%</b>

## **Budget Notes**

Labor	Additional work required as part of the Modified Comprehensive Plant Evaluation, the additional testing required in the Special Exemption Permit, pinning of the membrane filters, overtime due to SCADA system conflicts and corresponding upgrades, numerous FOIA requests, distribution system taps and maintenance, implementation of the both the permanent and temporary hydro-pneumatic storage tanks projects and implementation of the new chemical feed pump projects had generated and will continue to generate significant amounts of overtime.
Maintenance & Repair	<p>As of 12/30/2016, nearly \$20,000 in work has taken place in the distribution system. This includes new taps at the Justin King residence, repair of the service on New City Road, and a new tap on Cardinal Hill Road. Hydrants have been repaired at Cardinal Hill Road and St. Hilaire, and Old Illinois 54 and Bates Loami Road. No funding was included in the budget for expenses in the distribution system.</p> <p>As of 12/30/2016, over \$22,000 in repairs have taken place on the Ultra Filtration system. They include new check valves for all 66 canisters, repairs to the air lines on all three banks and updated programming, repair of leaks on all three trains, a new stainless steel screen on the backwash line, parts for the leak on the backwash line next to Bank #1, and parts for the upper header on Bank #3. We are waiting for the bill for the labor to repair the leak on the backwash line adjacent to Bank #1 from Henson Robinson and we placed an order today for a new lower header for Bank #2 at an estimated cost of \$1,500.</p>
Chloride Waste Removal	More trips to Chatham with High Chloride Waste is causing the budgeted dollar amount for this fiscal year to be exceeded. More trips equate to more gallons dumped, which increases the discharge fees to the Sangamon County Water Reclamation District as well. This could be the result of more water pumped in the fall with Chatham's new Uni-directional flushing program.

## **6. CAPITAL PLANNING**

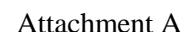
### **6.1 APPROVED CIP PROJECTS CURRENT STATUS**

Construction for the Hydro-Pneumatic Storage Tank is under way with completion anticipated near the end of January 2017. The temporary Hydro-Pneumatic Storage Tank is currently on-line. EJ Water is now setting meters and putting customers on-line.

### **6.2 DRAFT CAPITAL IMPROVEMENT PLAN**

The CIP is a planning document that includes all projects anticipated to exceed \$5,000 in cost over the next five years.

The CIP is an ongoing process and will be refined from time to time as projects are completed and new issues are identified.



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Woodard & Curran  
January 17, 2017

[illegible]



Woodard & Curran  
January 17, 2017