WOODARD &CURRAN

Monthly Operating Report

September 2016

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So. Sangamon

October 18, 2016

woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

TABLE OF CONTENTS

LIST OF TABLES

TABLE **PAGE NO.**

EXECUTIVE SUMMARY

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. There were no lost time accidents in the month of May. Laura Bonk, Joanna Wallace's successor, continues to monitor the progress of the Safety Audit from Portland, Maine. Approximately 86 percent of the items identified in the safety audit performed in May 2015 have been completed.

The finished water quality was within regulatory limits and all reporting and sampling requirements were met for September.

On August 12, 2016, the Illinois Environmental Protection Agency issued the final NPDES Permit for discharge. The permit became effective August 12, 2016 and will expire on July 31, 2021. We continue to experience a slight exceedance of the maximum allowable Chlorine residual allowed by the NPDES discharge permit. Woodard and Curran staff are investigating a number of issues and is in contract with the Illinois Environmental Protection Agency on this issue.

The plant filtered 38.8 million gallons of water for the month.

For the month of September 2016, there were 5 inspections, 12 preventative and 0 corrective maintenance activities completed. There were no alarms that required personnel at the plant after normal operating hours. There were two customer inquiries for the month.

Through September 2016, the project is approximately $32,840 over budget for the second year of the three year contract.

Woodard and Curran is working with Meco 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 emailed to the plant and safety videos are assigned to all employees and are required to be completed.

1.2 LOST TIME ACCIDENTS

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

1.3 SAFETY AUDIT

To date, approximately 86 percent of the items identified have been addressed.

1.4 MISCELLANEOUS SAFETY

Chlorine that was old and were the remains of the bulk tank in the Chlorine Room were removed on September 26, 2016. Pictured below is the chlorine prior to removal:

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 August.

According to the IEPA NPDES permit, SSWC is required to have the Chlorine residual below 0.05 mg/L. The de-chlorination project went on line August 24, 2016. We pulled lagoon samples on September 12th and 21st. The results are included in the table below:

Date	pH	Iron	Mang.	Chloride	TSS	Tot. CL 2 Lab	DR 2800	TNT 867
9/12/16	7.76	0.128	0.201	304	0.00	0.235	0.030	0.089
9/21/16	7.91	0.092	0.198	266	0.00	0.220	0.040	-

While working with the new system, plant staff discovered that lagoon effluent continues to pass through the de-chlorination station due to a change in grade. Woodard and Curran SCADA personnel have installed a delay in the computer programming in an effort to neutralize this issue. Also, Woodard and Curran laboratory experts are investigating why plant testing indicate a much lower chlorine residual than what the lab gets. Prairie Analytical verified the method they're using is one of the four methods that can be used for testing.

Woodard and Curran staff are in contact with IEPA to make them aware of this issues and the steps being taken.

Lead and Copper

Lead and Copper sampling was completed during the month of September 2016. The table below illustrates the results for the year 2016.

Location	Lead Result (ug/L)	Copper Result (mg/L)
LP3R001	0.00	0.497
LP3R003	0.00	0.340
LP3R005	8.99	0.412
LP3R006	0.00	0.776
LP3R008	0.00	0.925
MCL	15 ug/L	1.3 mg/L

2.2 INFLUENT FLOWS AND LOADINGS

The total water produced for the month of September, 2016 was 44.012 MG and 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)
1	7.37	14.9	0.84	0.229	0.19	372	284	1.408
2	7.26	14.9	0.82	0.233	0.21	358	284	1.400
3	7.45	15.4	0.77	0.219	0.24	366	286	1.508
4	7.40	14.9	0.80	0.224	0.14	368	284	1.291
5	7.39	15.4	0.77	0.224	0.19	372	284	1.435
6	7.42	15.0	0.94	0.224	0.19	362	282	1.503
7	7.62	15.2	0.85	0.227	0.18	362	282	1.828
8	7.41	15.1	0.72	0.233	0.16	368	282	1.303
9	7.18	14.7	0.93	0.234	0.20	364	282	1.489
10	7.52	15.1	0.68	0.235	0.21	368	282	1.112
11	7.37	14.5	0.65	0.231	0.17	376	288	1.305
12	7.41	14.2	0.69	0.217	0.22	374	288	1.389
13	7.53	14.8	0.97	0.233	0.21	370	286	1.685
14	7.38	15.0	0.82	0.228	0.17	368	286	1.342
15	7.31	14.9	0.70	0.222	0.19	368	284	1.363
16	7.37	14.9	0.82	0.218	0.18	372	288	1.704
17	7.30	15.2	0.89	0.227	0.24	374	282	1.403
18	7.42	15.9	0.67	0.235	0.17	368	286	1.184
19	7.22	14.5	0.63	0.233	0.18	364	288	1.364
20	7.52	16.0	0.82	0.230	0.28	368	282	1.786
21	7.33	14.8	0.77	0.239	0.22	366	284	1.369
22	7.35	15.0	0.77	0.228	0.20	364	282	1.700
23	7.27	14.7	0.79	0.225	0.23	370	286	1.620
24	7.29	14.9	0.82	0.228	0.23	366	284	1.559
25	7.29	15.1	0.78	0.228	0.20	372	286	1.608
26	7.29	14.7	0.79	0.225	0.22	368	284	1.551
27	7.27	14.9	0.79	0.236	0.20	374	280	1.795
28	7.28	14.5	0.82	0.231	0.21	366	282	1.245
29	7.22	14.7	0.82	0.230	0.18	368	276	1.611
30	7.25	14.6	0.77	0.229	0.19	366	282	1.152
31	-	-	-	-	-	-	-	-
Max.	7.62	16.0	0.97	0.239	0.28	376	288	1.828
Min.	7.18	14.2	0.63	0.217	0.14	358	276	1.112
Avg.	7.36	14.9	0.79	0.229	0.20	368	284	1.467
Total	-	-	-	-	-	-	-	**44.012**

2.3 EFFLUENT CONCENTRATIONS

The facility filtered 38.816 MG during the month with a daily average of 1.294 MG and a min/max of 0.915/1.644 MG.

Table 2.3 Finished Water Quality

Date	Fre CL2	Total CL2	pH	Temp	Iron	Manganese	Fluoride	Hardness	Alkalinity	Phosphate
1	1.2	1.4	7.53	15.0	0.02	0.017	0.72	122	282	0.79
2	1.3	1.5	7.66	14.8	0.01	0.010	0.65	110	284	0.83
3	1.2	1.3	7.72	15.6	0.00	0.012	0.70	106	282	0.75
4	1.2	1.4	7.57	15.1	0.00	0.007	0.72	120	286	0.72
5	1.4	1.7	7.60	15.5	0.01	0.008	0.54	118	276	0.74
6	1.5	1.6	7.76	15.2	0.01	0.016	0.69	120	274	0.68
7	1.4	1.5	7.80	15.5	0.01	0.011	0.72	118	268	0.79
8	1.3	1.6	7.81	15.6	0.01	0.012	0.70	122	270	0.89
9	1.4	1.6	7.67	15.2	0.01	0.014	0.68	120	264	0.81
10	1.4	1.6	7.73	15.2	0.01	0.012	0.69	118	276	0.90
11	1.4	1.6	7.78	15.1	0.01	0.009	0.77	118	284	0.86
12	1.4	1.5	7.84	14.8	0.00	0.006	0.70	122	272	0.74
13	1.5	1.6	7.76	15.0	0.01	0.020	0.75	126	260	0.75
14	1.3	1.4	7.78	15.1	0.01	0.011	0.80	120	260	0.78
15	1.4	1.7	7.70	14.9	0.01	0.010	0.77	120	268	0.77
16	1.4	1.6	7.76	14.9	0.01	0.009	0.76	120	258	0.81
17	1.4	1.6	7.74	15.2	0.01	0.012	0.82	122	270	0.82
18	1.3	1.6	7.96	15.9	0.00	0.012	0.80	124	272	0.93
19	1.4	1.6	7.64	14.5	0.01	0.011	0.77	124	264	0.76
20	1.4	1.6	7.92	16.0	0.01	0.012	0.85	124	260	0.73
21	1.6	1.7	7.67	14.8	0.01	0.016	0.76	124	270	0.71
22	1.5	1.6	7.68	15.1	0.01	0.014	0.81	122	280	0.76
23	1.4	1.7	7.65	14.8	0.01	0.011	0.80	126	272	0.72
24	1.5	1.6	7.66	15.2	0.01	0.008	0.81	120	280	0.92
25	1.4	1.6	7.69	15.2	0.01	0.011	0.77	120	272	0.89
26	1.4	1.6	7.69	14.9	0.01	0.008	0.84	120	274	0.71
27	1.3	1.6	7.64	14.8	0.01	0.011	0.87	126	264	0.80
28	1.4	1.6	7.65	14.6	0.01	0.012	0.86	120	262	0.76
29	1.4	1.5	7.61	14.6	0.01	0.012	0.81	118	262	0.86
30	1.5	1.6	7.63	14.6	0.01	0.012	0.81	124	278	0.55
31	-	-	-	-	-	-	-	-	-	-
Max	1.6	1.7	7.96	16.0	0.02	0.020	0.87	126	286	0.93
Min	1.2	1.3	7.53	14.5	0.00	0.006	0.54	106	258	0.55
Avg	1.4	1.6	7.71	15.1	0.01	0.012	0.76	120	271	0.78

2.4 LAGOON DISCHARGE CONCENTRATIONS

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

On August 12, 2016, the Illinois Environmental Protection Agency issued the final NPDES Permit for discharge. The permit became effective August 12, 2016 and will expire on July 31, 2021. With the new permit comes a considerable more relaxed sampling schedule. The prior permit required sampling weekly at a cost of $88.00 per sample. The new permit requires sampling once per month. The result is a savings of $3,520.00 per year.

Table 2.4 Weekly Grab Sample Analysis Results

Lagoon Effluent Results						
Date	**Fe (mg/l)**	**Mn (mg/l)**	**Chloride (mg/l)**	**Cl^2 (mg/l)**	**pH (S.U.)**	**TSS (mg/l)**
09/12/2016	0.128	0.201	304	0.235	7.76	0.00
09/21/2016	0.092	0.198	266	0.220	7.91	0.00
n/a	-	-	-	-	-	-
n/a	-	-	-	-	-	-
n/a	-	-	-	-	-	-
Minimum	0.092	0.198	266	0.220	7.76	0.00
Maximum	0.128	0.201	304	0.235	7.91	0.00
Average	0.110	0.199	285	0.227	7.84	0.00
Monthly Avg Limit	***2.0***	***1.0***	***-***	***-***	***-***	***15***
Daily Limit	***4.0***	***2.0***	***500***	***0.05***	***6.0-9.0***	***30***

The Chloride sample for the month of September 2016, performed by the Springfield Metropolitan Sanitary District, was 11,100 mg/L. The limit for chloride discharge to the sanitary district is 30,000 mg/L.

3. OPERATIONS

3.1 EVENTS IMPACTING OPERATIONS

Henson Robinson was on-site September 13, 2016 to begin work on Priority #1 Project (Projects E, F and G on the Capital Improvements Cost Matrix 2016). The scope of this project was installation of two new Sodium Permanganate pumps, relocation of the existing Sodium Hypochlorite pumps to pump Fluoride and installation of two new Sodium Hypochlorite pumps. This project provides the appropriate size and type of pump to deliver precise amount of chemicals to optimize water quality. The estimated cost of this project is $42,000. Completion is anticipated in mid-October 2016.

On September 27, 2016, Woodard and Curran plant staff received a "UF B1 Loss of Comms" alarm. Upon investigation it was found on CB1 breaker in the junction box on Bank 1. It should be noted that despite this alarm, Bank 1 was not removed from service. Woodard and Curran staff will be contacting WesTech, the manufacturer of the membrane system, to see what will need to be done to prevent this from happening in the future. A complete copy of Woodard and Curran's plant staff is included in Attachment A at the end of this report.

EJ Water continues to install water main extensions in the area. Do date, they have tapped SSWC mains at five different locations:

Cardinal Hill Road at Waldmire Road
New City Road at Vigal Road
Old Route 54 and Loami Bates Road
Cardinal Hill at Hunter Road
Loami Bates Road at Irish Road

Below are pictures of the mains just after they were tapped by C & S Construction

3.2 EMERGENCY & SERVICE CALLS

Service Calls:

- There was no service call for the month of September 2016.

3.2.1 Emergency Call-outs

- There was no emergency call-outs for September 2016.

3.3 CUSTOMER INQUIRIES

- Patrick McCarthy from the village of Chatham contacted Woodard and Curran plant staff on September 23, 2016 and said the village anticipated starting to flush their distribution mains in the next week or so.

- Laura VanProyen contacted Woodard and Curran plant staff on September 28, 2016 with regard to an invoice from Advanced Automation Controls.

4. MAINTENANCE AND REPAIR

4.1 PREVENTATIVE AND PREDICTIVE MAINTENANCE

For the month of August 2016, there were 5 inspections, 12 preventative and 0 corrective maintenance activities for the month.

4.2 CORRECTIVE REPAIRS

There we no corrective repairs for the month of September, 2016

Work was completed on the high chloride tank load out September 9, 2016. Below are pictures of the load out prior to repair (left) and the completed repair (right).

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5. PROJECT MANAGEMENT & SUPPORT

5.1 STAFFING & TRAINING

Woodard and Curran continues to train and provide staffing to the plant as needed.

- Dan Held attended the Midwest Manager's meeting in St. Charles, Missouri on September 14th and 15th, 2016

5.2 CORPORATE SUPPORT

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

- Marc Thomas
- Joe Hurley
- Ray Giguere

5.3 BUDGET

The table below illustrates the

Table 5.3 Budget Table

Budget Category	Month Budget	Month Actual	YTD Budget	YTD Actual	Annual Budget	Over (under)	% of budget
Labor (D.L. + OH)	$22,926	$27,079	$114,631	$129,821	$275,115	$15,190	47%
Utilities	$8,113	$15,505	$40,563	$41,265	$97,350	$703	42%
Chemicals	$14,875	$22,875	$74,375	$69,875	$178,500	($4,500)	39%
Maintenance & Repair	$7,925	$4,820	$39,625	$57,735	$95,100	$18,110	61%
Chloride	$11,688	$15,105	$58,442	$55,185	$140,260	($3,257)	39%
Lab Supplies and Equipment	$1,946	$3,001	$9,731	$9,654	$23,355	($77)	41%
Office Supplies	$267	$417	$1,333	$1,947	$3,200	$614	61%
Miscellaneous Expenses	$1,243	$1,326	$6,214	$7,702	$14,914	$1,488	52%
Other Operating Costs	$339	$1,223	$1,697	$6,267	$4,072	$4,570	154%
Subtotal of Costs for Contract Year 2	**$69,322**	**$91,350**	**$346,611**	**$379,451**	**$831,866**	**$32,840**	**46%**
Fixed Fee for Contract Year 2	$6,932	$6,932	$34,661	$34,661	$83,187	$0	42%
Year One Transition	$1,366	$1,366	$6,829	$6,829	$16,389	$0	42%
Total	**$77,620**	**$99,648**	**$388,101**	**$420,941**	**$931,442**	**$32,840**	**45%**

6. CAPITAL PLANNING

6.1 APPROVED CAPITAL IMPROVEMENT PROJECTS

Construction has begun on one of the Priority #1 Projects (Projects E, F and G on the Capital Improvements Cost Matrix 2016). The scope of this project is installation of two new Sodium Permanganate pumps, relocation of the existing Sodium Hypochlorite pumps to Fluoride and installation of two new Sodium Hypochlorite pumps. The estimated cost of this project is $42,000 and completion is anticipated in mid-October 2016.

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.

WesTech Alarm "UF B1 Loss of Comms"

Keith Sommers

Tue 9/27/2016 3:44 PM

To: Ray Giguere <rgiguere@woodardcurran.com>;

Cc: Marc Thomas <mthomas@woodardcurran.com>; Dan Held <dheld@woodardcurran.com>;

Ray,

Earlier this afternoon we received the alarm "UF B1 Loss of Comms", acknowledged, studied system status from the HMI and reset the alarm. Shortly after resetting I received the alarm again. Then proceeded to better understand the issue with bank one.

Short version:
Because of bank 1 loss of comms we were down a train but it was not a disabled train, it was stuck so to speak. When the system timer went to backwash nothing on bank one adjusted so the backwash pumps were deadheading. Had this been a maintenance clean I believe acid would have been pumped into the backwash line with nowhere to go until the system cycled to the next train. Corrected the problem by resetting the cb1 breaker from the junction box on bank 1. This rest the bank 1 network switch and it went from having a solid activity light to a blinking one. Below is a more detailed process in how we got to that point .

Physically observed:
Westech PLC network switch (ES1) did not appear to have issues
Bank 1 flow meter did not match HMI
Solid network activity/link light on bank 1
During first stage of backwash bank 1 did not cycle the valves as it should
Backwash pumped against closed valves
Westech main menu, UF Bank No. 1 Panel: FALT Code 275

Adjusted plant flow setpoint to from 1350 to 900
Stopped plant production
Disabled bank 1
Started production
Ensured banks 2 and 3 we functional (all good)
Opened the junction box on bank 1 and opened breaker cb1
Paused, air valves corrected, than closed cb1
Observed network activity/link light flashing
Stopped plant production
Enabled bank 1
Started plant production
Adjusted plant flow setpoint to 1350

Thanks,

Keith