



Monthly Operating Report

October 2016



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So. Sangamon

November 15, 2016

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

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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 for the month. Laura Bonk, Joanna Wallace's successor, continues to monitor the progress of the Safety Audit from Portland, Maine. Approximately 87 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 October 2016.

The lagoon effluent was within all regulatory limits for the month of October, 2016.

Joel Sanders, Marc Thomas, Dan Held and Keith Sommers met with Mr. David Cook on October 21, 2016 regarding the new Special Exemption Permit. Attached to this report in Appendix A is a copy of a memorandum forwarded to the commissioners summarizing the results of the meeting.

The plant filtered 39.1 million gallons of water for the month.

For the month of October 2016, there were was 1 inspection, 10 preventative and 2 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.

No budget table available at the time the Monthly Operating Report was submitted for review. A table will be provided at the December 2016 meeting scheduled for December 20, 2016.

Woodard and Curran is working with Mecor 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 October, 2016.

1.3 SAFETY AUDIT

To date, approximately 87 percent of the items identified have been addressed.

1.4 MISCELLANEOUS SAFETY

There are 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 October, 2016

Joel Sanders, Marc Thomas, Dan Held and Keith Sommers met with Mr. David Cook on October 21, 2016 regarding the new Special Exemption Permit. The purpose of the meeting was to submit the additional sampling information requested the IEPA. Attached in Appendix A is a copy of a memorandum forwarded to the commissioners summarizing the results of the meeting.

The lagoon effluent was within all regulatory limits for the month of October, 2016. As you may recall, Woodard and Curran engineered a solution to this issue. Construction was completed in mid-August 2016. The SCADA system now controls the Sodium Bi-Sulfite pump which includes a timer which allows the operators to pump Sodium Bi-Sulfite at specified times. Since the timer was added to the lagoon effluent, chlorine samples have been below the 0.05 mg/L threshold required by IEPA.

2.2 INFLUENT FLOWS AND LOADINGS

The total water produced for the month of October, 2016 was 43.853 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	7.26	14.8	0.88	0.238	0.23	368	282	1.278
2	7.25	14.6	0.97	0.234	0.16	364	286	1.185
3	7.31	14.8	0.75	0.239	0.23	364	284	1.303
4	7.27	15.1	0.93	0.235	0.24	372	280	1.621
5	7.45	15.0	0.79	0.228	0.17	368	288	1.580
6	7.37	15.1	0.90	0.231	0.14	372	286	1.534
7	7.34	14.9	1.02	0.247	0.26	370	288	1.519
8	7.24	14.4	0.96	0.238	0.24	374	286	1.320
9	7.37	14.9	0.82	0.233	0.21	376	288	1.294
10	7.39	14.9	0.73	0.215	0.20	372	288	1.353
11	7.34	15.0	0.91	0.236	0.20	370	288	1.624
12	7.30	14.8	0.87	0.235	0.23	368	280	1.131
13	7.28	14.4	0.99	0.234	0.20	374	284	1.529
14	7.29	14.3	0.64	0.228	0.19	374	290	1.095
15	7.28	14.9	0.93	0.241	0.22	370	286	1.588
16	7.28	14.8	0.94	0.227	0.24	374	288	1.528
17	7.30	15.1	0.95	0.251	0.22	370	288	1.250
18	7.29	15.1	0.86	0.237	0.22	370	288	1.563
19	7.28	14.6	0.86	0.224	0.20	374	282	1.662
20	7.33	14.7	0.86	0.219	0.21	376	288	1.795
21	7.35	14.4	0.80	0.232	0.22	378	282	1.739
22	7.33	14.7	0.96	0.231	0.18	370	290	1.138
23	7.50	14.8	0.49	0.225	0.19	378	288	1.163
24	7.28	14.5	0.73	0.232	0.22	370	284	1.536
25	7.33	14.2	0.88	0.237	0.15	368	282	1.468
26	7.33	14.6	0.77	0.231	0.22	370	286	1.419
27	7.29	14.1	0.78	0.231	0.15	370	282	1.138
28	7.37	14.1	0.75	0.232	0.18	364	282	1.226
29	7.26	15.2	0.82	0.237	0.15	364	284	1.510
30	7.31	14.7	0.75	0.223	0.20	360	280	1.152
31	7.39	14.9	0.71	0.236	0.19	366	284	1.618
Max.	7.50	15.2	1.02	0.251	0.26	378	290	1.795
Min.	7.24	14.1	0.49	0.215	0.14	360	280	1.095
Avg.	7.32	14.7	0.84	0.233	0.20	370	285	1.415
Total	-	-	-	-	-	-	-	43,859

2.3 EFFLUENT CONCENTRATIONS

The facility filtered 39.1 MG during the of October, 2016 with a daily average of 1.262 MG and a min/max of 0.970/1.625 MG.

Date	Free CL2	Total CL2	pH	Temp	Iron	Manganese	Fluoride	Hardness	Alkalinity	Phosphate
1	1.3	1.5	7.65	15.0	0.01	0.012	0.87	120	282	0.88
2	1.3	1.6	7.66	14.8	0.01	0.010	0.90	124	272	0.84
3	1.4	1.6	7.62	14.7	0.01	0.009	0.88	118	267	0.87
4	1.4	1.6	7.58	14.8	0.01	0.006	0.83	122	260	0.74
5	1.4	1.6	7.79	15.2	0.00	0.011	0.92	104	270	0.90
6	1.4	1.6	7.63	15.5	0.00	0.010	0.86	120	282	0.86
7	1.4	1.5	7.62	15.3	0.00	0.009	0.87	118	272	0.94
8	1.4	1.6	7.59	14.6	0.01	0.009	1.10	124	282	0.82
9	1.4	1.6	7.61	14.8	0.01	0.011	0.95	122	272	0.84
10	1.4	1.5	7.49	14.8	0.00	0.000	0.84	120	266	0.86
11	1.3	1.5	7.76	15.3	0.01	0.014	0.86	120	258	0.89
12	1.4	1.6	7.61	14.8	0.01	0.017	0.90	122	264	0.81
13	1.3	1.5	7.63	14.8	0.01	0.010	0.95	122	262	0.90
14	1.4	1.5	7.65	14.3	0.01	0.005	1.06	124	264	0.80
15	1.2	1.5	7.66	14.9	0.01	0.014	1.11	120	266	1.25
16	1.2	1.4	7.68	14.8	0.01	0.011	1.17	114	280	0.64
17	1.2	1.5	7.59	15.1	0.01	0.015	1.24	120	280	0.80
18	1.3	1.5	7.60	15.2	0.01	0.008	1.03	120	284	0.80
19	1.2	1.5	7.57	14.7	0.02	0.013	1.19	124	286	0.81
20	1.3	1.5	7.60	14.7	0.01	0.009	1.15	120	278	0.79
21	1.4	1.5	7.66	14.4	0.01	0.012	1.10	120	274	0.70
22	1.3	1.5	7.60	14.7	0.01	0.014	1.08	120	266	0.80
23	1.2	1.6	7.83	15.0	0.00	0.007	1.08	122	280	0.85
24	1.4	1.5	7.63	14.6	0.01	0.006	0.98	122	262	1.03
25	1.3	1.6	7.63	14.3	0.01	0.015	0.93	128	262	0.96
26	1.3	1.5	7.59	14.5	0.01	0.009	1.03	120	260	0.81
27	1.3	1.4	7.59	14.6	0.01	0.011	1.00	124	266	0.77
28	1.3	1.5	7.60	14.1	0.01	0.013	1.01	124	262	0.83
29	1.1	1.3	7.59	15.2	0.01	0.013	1.03	118	250	1.07
30	1.3	1.6	7.62	14.8	0.01	0.010	1.11	112	260	0.74
31	1.3	1.5	7.64	14.9	0.01	0.012	1.12	122	262	0.94
Max	1.4	1.6	7.83	15.5	0.02	0.017	1.24	128	286	1.25
Min	1.1	1.3	7.49	14.1	0.00	0.000	0.83	104	250	0.64
Avg	1.3	1.5	7.63	14.8	0.01	0.010	1.00	120	269	0.86

2.4 LAGOON DISCHARGE CONCENTRATIONS

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.

The current NPDES permit requires sampling once per month. The results for the NPDES lagoon discharge permit for October 2016 are summarized below.

Table 2.4 Weekly Grab Sample Analysis Results

Lagoon Effluent Results						
Date	Fe (mg/l)	Mn (mg/l)	Chloride (mg/l)	Cl² (mg/l)	pH (S.U.)	TSS (mg/l)
October 24, 2016	.240	.313	271	.02	7.87	0.0
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 October 2016, performed by the Springfield Metropolitan Sanitary District, was 6,330 mg/L. The limit for chloride discharge to the sanitary district is 30,000 mg/L.

3. OPERATIONS

3.1 EVENTS IMPACTING OPERATIONS

The leak at 5210 New City Road was repaired on October 7, 2016. It appears that when county maintenance mowing took place the service line to the residence was



Brine Tank #1 was cleaned on October 5, 2016 by Bodine Environmental of Decatur. The material removed from the tank is disposed of at Waste Management. Pictures below are the lateral lines that were cleaned and the sand on the ground that was in the laterals.



A Pre-construction meeting was held on October 27, 2016 on Hydro-Pneumatic storage tank project. Construction of the concrete base for the tank and the compressors is anticipated to begin in mid-November 2016. The actual tank is anticipated to arrive at the plant on the week of December 22, 2016. Construction should be completed by the end of January, 2017.

A permit has been submitted to the IEPA by EJ Water for a temporary Hydro-Pneumatic storage tank that would be located inside the main building in the plant and allow the new mains installed by C&S Construction to be utilized. The status of the permit submitted by EJ Water is unknown at this time.

3.2 EMERGENCY & SERVICE CALLS

Service Calls:

- Altorfer of Springfield was on-site October 25, 2016 to do routine maintenance on the 289C Skid Steer.

3.2.1 Emergency Call-outs

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

3.3 CUSTOMER INQUIRIES

- Mr. Chuck Broers, who lives on Cardinal Hill Road, called on several occasions to coordinate the installation of new water service at this residence.
- Received an email from Jill Butler, forwarded by Laura VanProyen, requesting "A Copy of the 2001 Feasibility Study done by EMC".

4. MAINTENANCE AND REPAIR

4.1 PREVENTATIVE AND PREDICTIVE MAINTENANCE

For the month of October 2016, there was 1 inspection, 10 preventative and 2 corrective maintenance activities for the month.

On October 25, 2016, plant staff were down in the well field attempting to clean up Well's 9 & 10. Pictured below is Well 10 prior to cutting the weeds inside the fence area.



4.2 CORRECTIVE REPAIRS

There were no major corrective repairs for the month of October, 2016



5. PROJECT MANAGEMENT & SUPPORT

5.1 STAFFING & TRAINING

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

- This month's safety video was "Hazard Communications".
- Dan Held participated in the Midwest Manager's Conference Call on October 20, 2016.

5.2 CORPORATE SUPPORT

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

- Marc Thomas
- Joe Hurley
- Celina McManus
- Ray Giguere
- Jackie Smith
- Alan Fabiano
- Ray Giguere
- Jeannie Dubois
- Stephanie Crowell

5.3 BUDGET

The table below is for the first six months of Year 2.

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	\$21,832	\$137,558	\$151,653	\$275,115	\$14,095	55%
Utilities	\$8,113	\$2,791	\$48,675	\$44,056	\$97,350	(\$4,619)	45%
Chemicals	\$14,875	\$14,083	\$89,250	\$83,958	\$178,500	(\$5,292)	47%
Maintenance & Repair	\$7,925	\$2,966	\$47,550	\$60,701	\$95,100	\$13,151	64%
Chloride	\$11,688	\$17,390	\$70,130	\$72,575	\$140,260	\$2,445	52%
Lab Supplies and Equipment	\$1,946	\$2,796	\$11,678	\$12,450	\$23,355	\$773	53%
Office Supplies	\$267	\$0	\$1,600	\$1,947	\$3,200	\$347	61%
Miscellaneous Expenses	\$1,243	\$1,968	\$7,457	\$9,670	\$14,914	\$2,213	65%
Other Operating Costs	\$339	\$1,389	\$2,036	\$7,656	\$4,072	\$5,620	188%
Subtotal of Costs for Contract Year 2	\$69,322	\$65,215	\$415,933	\$444,665	\$831,866	\$28,732	53%
Fixed Fee for Contract Year 2	\$6,932	\$6,932	\$41,594	\$41,594	\$83,187	\$0	50%
Year One Transition	\$1,366	\$1,366	\$8,195	\$8,195	\$16,389	\$0	50%
Total	\$77,620	\$73,513	\$465,721	\$494,453	\$931,442	\$28,732	53%



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.

COMMITMENT & INTEGRITY
DRIVE RESULTS

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Treatment Plant
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MEMORANDUM

TO: Joel Sander, Lee Bloome, Craig Hall
FROM: Dan Held *Dan*
DATE: October 25, 2016
RE: South Sangamon Water Commission – SEP follow-up meeting

On Friday, October 21, 2016, Joel Sanders, Marc Thomas, Keith Sommers and Dan Held met with Mr. Dave Cook from the Illinois Environmental Protection Agency (IEPA) to discuss items requiring follow-up from the meeting held June 29, 2016. As you may recall, a revised Special Exemption Permit (SEP) was sent to the SSWC following the conclusion of the Comprehensive Plant Evaluation conducted by Curry and Associates in the spring of 2016. The follow-up items discussed were testing for soluble Manganese prior to ultra-filtration, Chloride levels in the finished water, and RTW testing of water in the distribution system. The items discussed are addressed below in the order presented in the meeting.

Soluble Manganese Prior to Filtration

A chart was presented containing Manganese test results since July 1, 2016 along with a summary chart. The summary chart is shown below:

	Raw Manganese	Pre-Filter Total Manganese	Pre-Filter Soluble Manganese	Total Post Filter Manganese	Finished Water Manganese
Maximum	0.240	0.476	0.041	0.027	0.020
Minimum	0.194	0.343	0.017	0.004	0.000
Average	0.226	0.412	0.029	0.034	0.011

Based on the test results, IEPA was convinced that manganese is being removed consistently below the 0.05 mg/L threshold once ultra-filtration has taken place. Test information demonstrated that daily testing was not necessary as there is a direct relationship between the amount of soluble Manganese prior to filtration and the finished water leaving the plant. As a result, SSWC will only be required to test Pre-Filter Soluble Manganese weekly rather than on a daily basis.

Chloride Levels in the finished water

Results were presented from over 50 tests that indicated the Tonka Ion Exchange Units (Softeners) were performing as designed. Testing information was provided to Tonka for analysis and a letter indicating the results obtained were to be expected. As a result, IEPA was convinced chloride levels are not increasing due to operation of the plant and is no longer requiring Chloride testing upon completion of softener regenerations.



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RTW Modeling of the water in the distribution system

Results from three months of testing was presented. The Langelier Index, a commonly used method for measuring the stability of the water, was the focal point of the discussions. It was suggested that raising the Calcium (as CaCO₃) would be beneficial on a trial basis to determine if water stability could be improved. Lead and Copper test results for 2016 were also provided which were similar to the 2015 results. As a result of the discussions, Mr. Cook requested a copy of the test results and the table so it could be forwarded to Curry and Associates for their opinion. As it stands, IEPA may recommend raising the Calcium (as CaCO₃) level concentration in order to increase the Langelier Index value and provide calcium in the water for the ortho and poly phosphate blend to bond within the distribution system. Additional RTW Model samples would be acquired and analyzed as done previously. A copy of the RTW Model results table is included on Page 3 of this document.

Mr. Cook indicated that a revised SEP will be forwarded to the plant reflecting the changes discussed at the meeting.



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RTW Model Results Summary

ID# L 1670080 October 20, 2016

Chatham

Readings (input into Step)	5-Jul	10-Jul	1-Aug	15-Aug	23-Aug	12-Sep	Min	Max	Avg	Desired
Measured TDS	452	436	442	472	492	494	436	494	450	-
Measured Temp	19.0	17.1	19.5	17.6	18.5	17.3	17.1	19.5	18.2	-
Measured pH	7.50	7.36	7.11	7.47	7.21	7.57	7.11	7.57	7.4	-
Measured Alkalinity, as CaCO ₃	294	283	284	294	285	282	282	294	285.3	-
Measured Calcium, as CaCO ₃	66.9	66.1	63.8	66.3	63.2	75.1	63.2	75.1	66.5	-
Measured Chloride	30.3	36.7	36	35.8	38.1	53.8	30.3	53.8	38.5	-
Measured Sulfate	68.1	71.7	67.3	68.6	74.3	68.8	67.3	74.3	69.8	-
Readings (input into Step 2)										
Hydrofluosilicic acid	0.92	0.92	0.92	0.92	0.92	0.92				
Sodium Hypochlorite	2.16	2.16	2.16	2.16	2.16	2.16				
Readings (from Step 3)										
Interim Alk	294	283	284	284	285	282	282	294	285	> 40 mg/L
Interim Ca, as CaCO ₃	67	66	64	66	63	75	63	75	67	> 40 mg/L
Alk (HCl+SDI)	3.0	2.6	2.7	2.7	2.5	2.3	2.3	3.0	2.6	> 5.0
Interim pH	7.49	7.36	7.11	7.48	7.21	7.56	7.11	7.56	7.37	8.8 - 9.3
Precipitation potential	-1.87	-12.20	-31.16	-5.28	-23.13	1.37	-31.16	1.37	-12.04	6-10 mg/L
Langelier Index	-0.04	-0.21	-0.44	-0.11	-0.36	0.03	0.03	-0.44	-0.2	> 0

New Berlin

Readings (input into Step)	5-Jul	10-Jul	1-Aug	15-Aug	23-Aug	12-Sep	Min	Max	Avg	Desired
Measured TDS	438	410	444	468	454	488	410	488	450	-
Measured Temp	16.3	19.4	20.2	21.0	20.9	20.4	16.3	21.0	19.7	-
Measured pH	7.40	7.35	7.19	7.36	7.11	7.29	7.19	7.71	7.4	-
Measured Alkalinity, as CaCO ₃	280	290	224	285	284	282	224	290	274.2	-
Measured Calcium, as CaCO ₃	67.0	66.0	60.3	65.7	65.6	70.4	60.3	70.4	65.8	-
Measured Chloride	31.5	36.6	35.9	35.4	37.4	37.3	31.5	37.4	35.7	-
Measured Sulfate	69.7	70.9	68.8	69.2	74.3	69.3	69.2	74.3	70.2	-
Readings (input into Step 2)										
Hydrofluosilicic acid	0.92	0.92	0.92	0.92	0.92	0.92				-
Sodium Hypochlorite	2.16	2.16	2.16	2.16	2.16	2.16				-
Readings (from Step 3)										
Interim Alk	280	290	224	285	284	282	224	290	274	> 40 mg/L
Interim Ca, as CaCO ₃	67	66	60	66	66	70	60	70	66	> 40 mg/L
Alk (HCl+SDI)	2.8	2.7	2.1	2.7	2.5	2.6	2.1	2.8	2.6	> 5.0
Interim pH	7.40	7.35	7.19	7.36	7.10	7.29	7.19	7.70	7.38	8.8 - 9.3
Precipitation potential	-10.25	-10.26	-26.31	-9.12	6.46	-13.22	-26.31	6.46	-10.26	6-10 mg/L
Langelier Index	-0.18	-0.17	-0.40	-0.16	0.18	-0.22	0.18	-0.48	-0.2	> 0