

**MONTHLY OPERATION REPORT OF
WATER TREATMENT PLANT**

SUPPLY NAME: CITY OF ADRIAN
WSSN: 0040

Tim Ritchie
Operator-in-Charge

June-20
Month/Year

F-1, S-3
Certification of Operator-in-Charge

F-1
Water Plant Classification

Electronically Submitted 7/2/20
Signature of Operator-in-Charge
EGLE-DWEH-JACKSON@MICHIGAN.GOV

LENAWEE
County

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>3.847</u>	Million Gallons per Day
Rated Plant Capacity:	<u>8.0</u>	Million Gallons per Day
Average Filter Run:	<u>142.06</u>	Hours
Average Head Loss:	<u>3.1</u>	Feet
Average Filtration Rate:	<u>1.11</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>1.80</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>1.9</u>	Percent of Treated Water

Chemical Data

Sodium Hypochlorite on hand	<u>48,240</u>	lb.	Est. supply:	<u>66.1</u>	days
Ferric Sulfate on hand	<u>76,412</u>	lb.	Est. supply:	<u>86.3</u>	days
Lime (CaO) on hand	<u>70.00</u>	Tons	Est. supply:	<u>38.3</u>	days
Cost of All Chemicals per Million Gallons:	<u>\$214.83</u>	dollars			
Total Power Cost per Million Gallons:	<u>\$90.41</u>	dollars			

Remarks

Number of filter confluence samples > 0.3 NTU:	<u>0</u>
Number of filter confluence compliance samples collected:	<u>180</u>
Percent of filter confluence samples > 0.3 NTU:	<u>0</u>

Did any individual filter exceed:

1.0 NTU in two consecutive measurements taken 15 minutes apart? If yes , attach specific filter(s) information and indicate required follow-up status.	<u>NO</u>
0.5 NTU in two consecutive measurements taken 15 minutes apart after 4 hours of operation? If yes , attach specific filter(s) information and indicate required follow-up status.	<u>NO</u>
1.0 NTU in two consecutive measurements taken 15 minutes apart for 3 consecutive months? If yes , attach specific filter(s) information and indicate required follow-up status.	<u>NO</u>
2.0 NTU in two consecutive measurements taken 15 minutes apart for 2 consecutive months? If yes , attach specific filter(s) information and indicate required follow-up status.	<u>NO</u>
Was continuous (every 15 minutes) filter monitoring equipment off-line during the month? If yes , indicate date(s), duration, and individual filter grab sampling frequency on a separate sheet.	<u>NO</u>
Did POE disinfectant residual fall below 0.2 ppm during the month? If yes , indicate date(s) and duration on a separate sheet.	<u>NO</u>
Was minimum C*T credit achieved for the entire month? If no , indicate on a separate sheet the date(s) not achieved.	<u>YES</u>
Was continuous POE chlorine residual monitoring equipment off-line during the month? If yes , indicate date(s) and duration on a separate sheet.	<u>NO</u>

MICHIGAN EGLE

COAGULATION PARAMETERS

WSSN 0040

MONTH/YR.

Jun-20

Date	Surface Water Mil Gals Treated	Well Water Mil Gals Treated	Total Mil Gals Treated Raw	High Service Mil Gals Pumped	Ferric Sulfate mg/L	Powdered Activated Carbon mg/L	Turbidity, Units						No. of 4 Hr. Comp Periods	No. of 4 Hr Comp Periods >0.3 NTU	No. of Samples >0.3 NTU	Plant Tap NTU	MAX Plant Tap NTU
					As Fe ₂ SO ₄	NSF 60 Max: 250	Raw		Applied	Filter Confluence							
							NSF 60 Max: 600	Avg.	Max.	Avg.	No. of Samples	Comp. Period Avg.					
1	0.890	2.032	2.922	2.684	16.6	7.8	6.7	8.5	0.4	24	0.04	0.07	6	0	0	0.05	0.06
2	0.946	2.009	2.955	2.744	16.7	6.4	4.9	6.1	1.0	24	0.03	0.06	6	0	0	0.04	0.07
3	0.896	2.351	3.247	2.868	16.3	5.8	6.2	7.1	1.6	24	0.04	0.05	6	0	0	0.04	0.06
4	0.740	2.159	2.899	2.847	17.5	6.2	5.6	6.7	1.7	24	0.04	0.06	6	0	0	0.04	0.05
5	0.734	2.144	2.878	2.809	18.1	6.3	5.0	6.4	1.6	24	0.05	0.06	6	0	0	0.04	0.05
6	0.911	1.973	2.884	2.711	16.2	6.9	5.9	7.6	1.2	24	0.04	0.05	6	0	0	0.04	0.05
7	0.934	1.954	2.888	2.732	16.6	7.0	3.5	4.2	1.0	24	0.03	0.05	6	0	0	0.04	0.05
8	0.876	2.445	3.321	2.978	16.6	6.0	4.7	5.2	1.6	24	0.03	0.04	6	0	0	0.04	0.05
9	0.918	2.404	3.322	2.931	16.0	6.2	5.3	6.9	1.7	24	0.03	0.04	6	0	0	0.03	0.04
10	1.105	2.742	3.847	3.004	16.2	6.7	6.3	7.5	1.5	21	0.03	0.04	6	0	0	0.03	0.04
11	0.934	2.125	3.059	2.818	16.8	7.0	4.1	8.1	1.4	21	0.04	0.04	6	0	0	0.04	0.05
12	0.908	2.198	3.106	2.936	16.8	6.0	2.4	2.7	2.0	24	0.04	0.05	6	0	0	0.04	0.05
13	0.870	2.113	2.983	2.780	16.7	5.8	2.5	7.2	1.9	24	0.03	0.04	6	0	0	0.04	0.05
14	0.879	2.005	2.884	2.693	16.3	6.1	2.4	2.5	2.0	24	0.04	0.06	6	0	0	0.04	0.05
15	0.919	2.358	3.277	3.070	16.6	5.1	3.5	4.2	1.3	24	0.03	0.05	6	0	0	0.04	0.05
16	1.119	2.602	3.721	3.012	16.5	6.2	4.1	5.8	1.4	21	0.04	0.06	6	0	0	0.04	0.05
17	0.891	2.338	3.229	2.970	18.4	5.6	3.6	4.6	1.2	24	0.04	0.07	6	0	0	0.05	0.07
18	0.894	2.335	3.229	2.983	18.4	5.0	2.9	3.4	0.9	24	0.04	0.08	6	0	0	0.04	0.05
19	0.923	2.374	3.297	3.079	18.3	4.9	2.9	3.7	0.8	24	0.03	0.06	6	0	0	0.04	0.06
20	0.999	2.423	3.422	3.079	16.6	6.9	4.5	6.4	0.8	24	0.03	0.04	6	0	0	0.03	0.04
21	0.892	2.250	3.142	2.836	16.7	6.4	5.9	8.1	0.6	24	0.03	0.04	6	0	0	0.03	0.04
22	0.924	2.243	3.167	3.009	14.8	6.2	3.0	4.5	0.5	24	0.03	0.04	6	0	0	0.04	0.05
23	0.920	2.327	3.247	2.995	12.5	6.4	2.2	2.7	0.6	24	0.04	0.07	6	0	0	0.05	0.06
24	0.825	2.153	2.978	2.840	13.6	7.2	2.2	2.5	0.8	23	0.05	0.06	6	0	0	0.06	0.07
25	0.775	2.263	3.041	2.991	13.5	7.6	2.0	2.2	0.9	24	0.04	0.05	6	0	0	0.05	0.06
26	1.088	2.579	3.667	3.232	12.9	6.9	2.4	2.9	1.0	24	0.04	0.07	6	0	0	0.05	0.06
27	0.622	2.627	3.249	3.024	8.4	7.5	1.8	2.1	1.1	24	0.04	0.05	6	0	0	0.04	0.05
28	0.563	2.339	2.902	2.827	8.6	7.8	1.6	2.1	0.7	24	0.04	0.06	6	0	0	0.04	0.05
29	0.780	2.393	3.173	2.841	9.2	7.3	2.2	2.9	0.8	24	0.04	0.05	6	0	0	0.04	0.05
30	0.857	2.702	3.559	3.052	8.6	6.7	3.4	5.1	0.8	24	0.04	0.06	6	0	0	0.05	0.07
31																	
AVG	0.884	2.299	3.183	2.913	15.2	6.5	3.8		1.2	24	0.04	0.05	6	0	0	0.04	0.05
MAX	1.119	2.742	3.847	3.232	18.4	7.8	6.7	8.5	2.0	24	0.05	0.08	6	0	0	0.06	0.07
MIN	0.563	1.954	2.878	2.684	8.4	4.9	1.6		0.4	21		0.04	6	0	0	0.03	0.04
Total	26.532	68.960	95.495	87.375									180	0	0		

MICHIGAN EGLE

FLUORIDATION AND CHLORINATION

WSSN 0040

MONTH/YR. Jun-20

DATE	Fluoride Applied as F mg/L NSF 60 Max: 6mg/L	FLUORIDE ANALYSES mg/l				APPLIED NAOCL (15.5%)		CHLORINE RESIDUAL mg/L									
		SURF. 14	WELL 15	TAP 16	DIST. 17	FILTER INFLUENT 19	CLEARWELL INFLUENT 20	FILTER INFLUENT		FILTER EFFLUENT		CLEARWELL INFLUENT		PLANT TAP		CT	
								FREE	TOTAL	FREE	TOTAL	FREE	TOTAL	FREE	TOTAL		
								21	22	23	24	25	26	27	28		MIN FREE CL ₂ RES 29
1	0.50		0.65	0.83	0.61		4.8					2.4	2.4	2.0	2.1	1.90	25.66
2	0.40		0.67	0.75	0.68		4.6					1.7	1.6	1.8	1.8	1.50	22.00
3	0.40		0.66	0.82			5.0					1.8	2.0	1.8	1.9	1.70	23.40
4	0.40	0.63	0.71	0.80	0.69		5.0					2.2	2.1	1.8	1.9	1.70	23.21
5	0.20		0.73	0.76			4.8					1.8	1.7	1.8	1.8	1.60	22.76
6	0.40		0.78	0.83			5.1					2.1	2.0	1.8	1.8	1.60	23.70
7	0.40		0.76	0.82			5.2					1.8	1.7	2.0	2.0	1.80	27.33
8	0.40		0.61	0.81	0.74		5.1					2.0	2.1	1.9	2.0	1.80	21.72
9	0.40		0.59	0.84	0.76		5.4					2.1	2.3	2.1	2.1	1.80	19.96
10	0.40		0.59	0.79	0.74		5.3					1.8	1.9	2.2	2.3	2.10	23.60
11	0.50	0.53	0.70	0.99	0.78		5.1					2.3	2.4	2.2	2.2	1.90	18.05
12	0.40		0.62	0.82			5.4					2.0	1.9	1.8	1.8	1.70	21.41
13	0.40		0.62	0.79			4.6					2.1	2.2	1.9	1.9	1.80	28.04
14	0.40		0.65	0.85			4.5					2.0	2.1	1.9	2.0	1.70	27.19
15	0.40		0.61	0.74			4.6					1.8	1.8	1.9	1.9	1.60	22.31
16	0.40		0.59	0.76	0.76		4.4					1.7	1.6	1.9	1.9	1.70	18.33
17	0.40		0.61	0.75	0.70		4.5					1.9	2.0	1.8	1.8	1.50	22.75
18	0.40	0.55	0.58	0.85	0.70		4.8					2.1	2.3	1.8	1.9	1.70	23.15
19	0.40		0.56	0.74			4.6					2.2	2.3	1.9	1.9	1.70	21.48
20	0.40		0.58	0.77			4.7					2.0	2.2	2.0	2.1	1.90	28.01
21	0.30		0.57	0.60			4.3					2.0	2.1	2.0	2.1	1.90	30.52
22	0.40		0.58	0.65	0.55		4.4					2.0	2.0	1.9	1.9	1.80	26.04
23	0.40		0.58	0.74	0.68		4.3					1.8	1.8	1.8	1.9	1.60	25.04
24	0.40		0.55	0.69	0.58		4.5					1.9	2.0	1.8	1.9	1.70	24.48
25	0.40	0.58	0.52	0.72	0.70		4.5					2.2	2.2	1.9	2.0	1.70	23.50
26	0.40		0.53	0.73			4.5					1.4	1.5	1.9	2.0	1.80	21.50
27	0.40		0.66	0.85			4.6					1.6	1.6	1.9	2.0	1.70	29.47
28	0.40		0.58	0.81			4.8					2.3	2.4	2.0	2.0	1.80	29.70
29	0.40		0.57	0.76	0.65		4.7					1.6	1.6	2.0	2.0	1.70	23.63
30	0.40		0.59	0.78			4.7					1.6	1.6	2.0	2.1	1.90	24.55
31																	
AVG	0.39	0.57	0.62	0.78	0.69	0.0	4.8	0.0	0.0	0.0	0.0	1.9	2.0	1.9	2.0	1.75	24.10
MAX	0.50	0.63	0.78	0.99	0.78	0.0	5.4	0.0	0.0	0.0	0.0	2.4	2.4	2.2	2.3	2.10	30.52
MIN	0.20	0.53	0.52	0.60	0.55	0.0	4.3	0.0	0.0	0.0	0.0	1.4	1.5	1.8	1.8	1.50	18.05

MICHIGAN EGLE

CHEMICAL ANALYSES

WSSN 0040

MONTH /YR.

Jun-20

DATE	pH		TOTAL HARDNESS as CaCO3 mg/l		TOTAL ALKALINITY as CaCO3 mg/l		NON-CARBONATE HARDNESS as CaCO3 mg/l		CALCIUM as Ca ⁺⁺ mg/l		MAGNESIUM as Mg ⁺⁺ mg/l		CHLORIDE as Cl ⁻ mg/l		SULFATE as SO ₄ ²⁻ mg/l		SULFATE RATIO	NITRATE as N		
	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	Tap	RAW	TAP	
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	41	42	43	44	45	
1	7.3	9.1	366	142	284	62	82	80	238	90	128	52	15.0	30.0						
2	7.4	9.1	336	148	271	66	65	82	248	94	88	54								
3	7.3	9.1	356	146	282	65	74	81	238	98	118	48								
4	7.4	9.1	342	144	281	73	61	71	224	78	118	66								
5	7.4	9.1	328	166	298	72	30	94	304	88	24	78								
6	7.4	9.1	350	158	275	72	75	86	310	96	40	62								
7	7.4	9.2	352	150	278	65	74	85	312	138	40	12								
8	7.3	9.1	368	138	286	64	82	74	352	118	16	20								
9	7.4	9.2	382	158	290	78	92	80	320	86	62	72								
10	7.3	9.1	374	156	294	68	80	88	360	108	14	48								
11	7.5	9.1	358	152	280	76	78	76	284	126	74	26								
12	7.5	9.1	370	158	298	86	72	72	266	86	104	72								
13	7.3	9.1	340	158	295	80	45	78	280	80	60	78								
14	7.3	9.1	352	158	293	75	59	83	240	66	112	92								
15	7.4	9.1	378	148	306	71	72	77	268	82	110	66								
16	7.4	9.1	346	140	289	67	57	73	222	96	124	44	12.5	28.5						
17	7.3	9.0	368	144	292	72	76	72	256	86	112	58								
18	7.4	9.1	360	146	297	78	63	68	246	80	114	66								
19	7.4	9.1	358	150	293	72	65	78	226	82	132	68								
20	7.6	9.1	390	160	302	68	88	92	316	102	74	58								
21	7.8	9.0	396	156	306	67	90	89	312	100	84	56								
22	7.3	9.0	390	162	310	68	80	94	246	88	144	74								
23	7.4	9.1	382	152	299	66	83	86	298	96	84	56								
24	7.4	9.6	372	158	298	76	74	82	280	116	92	42								
25	7.3	9.1	380	152	307	78	73	74	242	92	138	60								
26	7.3	9.1	364	148	282	74	82	74	238	84	126	64								
27	7.3	9.2	378	158	301	72	77	86	270	86	108	72								
28	7.3	9.1	394	162	312	80	82	82	278	78	116	84								
29	7.3	9.1	390	146	308	75	82	71	240	92	150	54								
30	7.3	9.1	376	154	301	76	75	78	260	92	116	62								
31																				
AVG	7.4	9.1	367	152	294	72	73	80	272	93	94	59	13.8	29.3	0.0	0.0	####	0.00	0.00	
MAX	7.8	9.6	396	166	312	86	92	94	360	138	150	92	15.0	30.0	0.0	0.0	0.00	0.00	0.00	
MIN	7.3	9.0	328	138	271	62	30	68	222	66	14	12	12.5	28.5	0.0	0.0	0.00	0.00	0.00	

MICHIGAN EGLE

SOFTENING PARAMETERS

WSSN 0040

MONTH/YR. Jun-20

DATE	CHEMICAL APPLICATION mg/l				ALKALINITY as CaCO3 mg/l									STABILITY	
	LIME as CaO NSF Max. 500 mg/L	Carbon Dioxide	PHOSPHATE as ORTHO NSF Max. 27 mg/L	POTASSIUM PERMANGANATE NSF Max 176 mg/L	#1 FLOC			#2 FLOC			TAP			FREE CO2 MG/L	LANGELIER INDEX
					BI-CARBONATE	CARBONATE	HYDROXIDE	BI-CARBONATE	CARBONATE	HYDROXIDE	BI-CARBONATE	CARBONATE	HYDROXIDE		
					45	46	47	48	49	50	51	52	53	54	55
58	59														
1	256	23.2	0.37		0	52	17				42	22	0		0.8
2	254	24.6	0.31		0	54	16				49	21	0		0.8
3	240	22.5	0.34		0	62	13				45	24	0		0.8
4	265	23.6	0.36		0	56	18				49	24	0		0.8
5	269	22.9	0.31		0	55	18				48	25	0		0.8
6	262	22.4	0.35		0	51	21				45	27	0		0.8
7	260	26.2	0.35		0	52	23				45	25	0		1.1
8	245	20.8	0.33		0	62	16				44	23	0		0.9
9	280	22.2	0.36		3	63	10				50	26	0		0.9
10	275	19.5	0.36		0	63	13				41	30	0		0.9
11	349	19.3	0.35		0	57	17				50	29	6		1.0
12	198	21.4	0.30		0	69	12				48	31	0		0.9
13	197	21.6	0.27		0	67	11				50	29	0		0.8
14	201	23.8	0.29		0	58	11				51	27	0		0.7
15	230	24.8	0.27		0	52	17				50	18	0		0.8
16	221	22.1	0.33		0	58	13				45	22	0		0.9
17	226	20.6	0.28		0	34	8				51	20	0		0.7
18	237	23.5	0.29		0	62	14				51	22	0		0.8
19	306	27.1	0.27		0	53	18				51	21	0		0.8
20	243	25.5	0.27		0	56	19				48	23	0		0.9
21	239	25.2	0.30		0	57	20				43	21	0		0.8
22	238	23.7	0.26		0	56	16				46	19	0		0.7
23	299	28.8	0.28		0	48	36				44	23	0		0.8
24	282	30.0	0.29		0	49	18				35	43	0		1.5
25	292	25.4	0.28		0	52	20				46	25	0		0.9
26	264	23.3	0.29		0	60	12				48	23	0		0.8
27	277	23.8	0.25		0	61	16				42	29	0		0.9
28	296	25.5	0.27		0	53	21				51	27	0		0.8
29	281	28.0	0.29		0	57	15				48	23	0		0.9
30	261	24.6	0.28		0	58	16				52	22	0		0.9
31															
AVG	258	23.9	0.31	0.00	0	56	17	0	0	0	47	25	0		0.9
MAX	349	30.0	0.37	0.00	3	69	36	0	0	0	52	43	6		1.5
MIN	197	19.3	0.25	0.00	0	34	8	0	0	0	35	18	0		0.7

MICHIGAN EGLE

BACTERIOLOGICAL AND PHYSICAL PARAMETERS

WSSN 0040

MO/YR

Jun-20

DATE	TOTAL COLIFORM				E.COLI				TOTAL COLIFORM				E.COLI			74
	RAW QANTI-TRAY 2000								WELL QUANTI - TRAY 2000							
	DILUTION (ML)	# OF LARGE CELLS POS.	# OF SMALL CELLS POS.	MPN	# OF LARGE CELLS POS.	# OF SMALL CELLS POS.	MPN	DILUTION (ML)	# OF LARGE CELLS POS.	# OF SMALL CELLS POS.	MPN	# OF LARGE CELLS POS.	# OF SMALL CELLS POS.	MPN		
60	61	62	63	64	65	66	67	68	69	70	71	72	73			
1	1	14	2	1850.0	0	0	0.0									
2	10	38	0	663.0	1	0	10.0									
3	10	49	25	4611.0	1	1	20.0									
4	10	31	3	512.0	0	0	0.0									
5	0	49	30	613.1	1	0	1.0									
6	0	49	32	686.1	2	0	2.0	0	0	0	0	0.0	0.0	0		
7	0	49	38	980.4	0	0	0.0									
8	0	49	16	275.5	0	0	0.0									
9	0	49	21	365.4	1	0	1.0									
10	0	49	18	307.6	0	0	0.0									
11	0	48	17	238.2	5	0	5.2									
12	0	43	13	12.1	3	0	3.1									
13	0	37	4	71.2	0	0	0.0	0	0	0	0	0.0	0.0	0		
14	0	32	4	55.6	0	1	1.0									
15	0	35	8	72.3	1	0	1.0									
16	0	26	3	39.9	0	0	0.0									
17	0	35	7	70.3	1	0	1.0									
18	0	29	12	61.2	0	0	0.0									
19	0	30	1	45.5	1	0	1.0									
20	0	46	15	172.5	0	0	0.0	0	0	0	0	0.0	0.0	0		
21	0	45	14	152.9	0	0	0.0									
22	0	46	10	146.7	0	0	0.0									
23	0	46	12	156.5	1	0	1.0									
24	0	37	8	79.8	0	0	0.0									
25	0	34	3	59.4	1	0	1.0									
26	0	37	8	79.8	0	0	0.0									
27	0	38	1	68.4	0	0	0.0	0	0	0	0	0.0	0.0	0		
28	0	30	1	45.5	0	0	0.0									
29	0	33	5	60.1	2	1	3.0									
30	0	47	5	135.4	4	0	4.1									
31																
AVG		39	11	422.9	1	0	1.8	0		0	0.0	0	0	0	0	
MAX		49	38	4611.0	5	1	20.0	0	0	0	0.0	0	0	0	0	
MIN		14	0	12.1	0	0	0.0	0	0	0	0.0	0	0	0	0	

Failure to complete this form is a violation of Act 399, P.A. 1976 and is subject to penalties as outlined in the act.

MICHIGAN EGLE

BACTERIOLOGICAL AND PHYSICAL PARAMETERS

WSSN 0040

MO/YR

Jun-20

DATE	PLANT TAP		STANDARD PLATE COUNT MPN		TEMPERATURE-(C)		COLOR TRUE <input checked="" type="checkbox"/> APPARENT <input type="checkbox"/>								
	# OF SAMPLES	P/A													
			75	76	77	78	79	80							
	1	1	A	0	0	14.8	14.5	74							
2	1	A	4	0	15.2	14.7									
3	1	A	4	0	15.1	15.1									
4	1	A	6	0	15.0	14.6									
5	1	A	15	2	15.1	14.4									
6	1	A	26	8	15.4	14.6									
7	1	A	0	6	15.6	14.7									
8	1	A	0	0	15.4	14.8	35	0							
9	1	A	0	2	15.1	14.6									
10	1	A	0	2	15.4	14.6									
11	1	A	48	112	15.9	15.2									
12	1	A	15	15	15.7	15.4									
13	1	A	6	2	15.6	15.4									
14	1	A	0	4	15.4	15.6									
15	1	A	0	8	15.6	15.4	34	0							
16	1	A	0	0	16.5	16.0									
17	1	A	6	6	16.9	16.5									
18	1	A	0	0	16.8	16.4									
19	1	A	0	0	16.7	16.2									
20	1	A	0	0	17.0	16.5									
21	1	A	0	0	17.0	16.4									
22	1	A	0	0	17.0	16.4	30	0							
23	1	A	0	0	15.9	15.8									
24	1	A	0	0	16.1	15.8									
25	1	A	0	0	16.0	15.7									
26	1	A	0	0	16.0	16.0									
27	1	A	0	0	15.9	16.2									
28	1	A	2	4	15.8	15.4									
29	1	A	0	0	15.9	15.7	14	0							
30	1	A	0	21	16.3	15.6									
31															
AVG	1		4	6	15.9	15.5	37.4	0.0							
MAX	1	0	48	112	17.0	16.5	74.0	0.0							
MIN	1	0	0	0	14.8	14.4	14.0	0.0							

MICHIGAN EGLE

DISTRIBUTION SYSTEM MONITORING

WSSN 0040

MONTH/YR. Jun-20

DATE	CHLORINE RESIDUAL AT BACTERIOLOGICAL MONITORING STATIONS mg/l																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1				0.8														1.5													
2	1.7						1.7									1.3						1.8									
3	1.2										1.3														1.1						
4	1.9									2.0						1.4						1.8									
5		1.7								1.4													1.5								
6									2.1									2.0													
7																															
8							1.6										0.7													1.6	
9	1.7									1.5						1.5								1.4							
10																															

DISTRIBUTION SAMPLE SUMMARY

Total number of routine distribution samples analyzed 25
 Total number of routine distribution samples required 25

DISTRIBUTION BACTERIOLOGICAL SUMMARY

Total number of positive routine distribution samples 0
 Total number of positive repeat distribution samples 0

DISTRIBUTION FREE CHLORINE RESIDUAL SUMMARY

Percent samples with a detectable free chlorine residual 100%
 Average free chlorine residual this month 1.5

Positive Routine Distribution Samples				Check Samples			
DATE	Total Col.	E. Coli	DATE	Total Col.	E. Coli	CL2	

BLUE GREEN ALGAE & PHYSICAL PARAMETERS

LAKE ADRIAN

WSSN 0040

DATE MO/YR

Jun-20

DATE	pH				TEMPERATURE				CONDUCTIVITY				CHLOROPHYLL-a				PHYCOCYANIN			
	MAX				MAX				MAX				MAX				MAX			
1	8.5				62.9				476.0				37.3				37.0			
2	7.6				63.0				500.0				52.8				45.5			
3	7.6				63.3				506.0				30.9				34.5			
4	7.6				63.1				509.0				31.0				34.1			
5	7.5				62.6				504.0				40.2				37.9			
6	7.5				62.6				505.0				44.7				37.5			
7	7.5				63.6				512.0				41.2				35.3			
8	7.4				62.0				501.0				56.0				38.4			
9	7.4				63.1				510.5				49.2				36.5			
10	7.5				65.0				518.0				23.8				30.2			
11	8.1				71.2				789.0				77.4				37.0			
12	7.6				69.1				533.0				84.4				35.9			
13	7.5				68.7				545.0				51.6				28.5			
14	7.5				68.8				549.0				27.5				25.1			
15	8.5				68.2				562.0				84.4				32.9			
16	7.6				68.4				570.0				109.0				36.2			
17	7.5				67.8				573.0				159.0				51.1			
18	7.5				68.2				579.0				125.0				42.7			
19	7.5				68.4				573.0				144.0				48.7			
20	7.4				68.4				581.0				166.0				59.1			
21	7.4				68.9				586.0				194.0				63.9			
22	7.4				69.5				588.0				157.0				60.9			
23	7.5				71.3				781.0				132.0				52.7			
24	7.9				72.9				810.0				119.0				50.3			
25	7.4				71.2				602.0				93.9				46.8			
26	7.5				72.2				787.0				85.7				38.4			
27	7.5				71.8				601.0				74.3				37.7			
28	7.5				71.9				605.0				68.6				37.9			
29	7.5				71.8				600.0				91.8				41.5			
30	7.5				72.5				590.0				193.0				67.4			
31																				
AVG	7.6	0.0	0.0	0.0	67.7	0.0	0.0	0.0	581.5	0.0	0.0	0.0	88.2	0.0	0.0	0.0	42.1	0.0	0.0	0.0
MAX	8.5	0.0	0.0	0.0	72.9	0.0	0.0	0.0	810.0	0.0	0.0	0.0	194.0	0.0	0.0	0.0	67.4	0.0	0.0	0.0
MIN	7.4	0.0	0.0	0.0	62.0	0.0	0.0	0.0	476.0	0.0	0.0	0.0	23.8	0.0	0.0	0.0	25.1	0.0	0.0	0.0

ALGAL TOXIN & COMPOUNDS

WSSN 0040

MO/YR Jun-20

DATE	ADDA-ELISA MICROCYSTIN ug/L*		LC-MS TOTAL MICROCYSTIN ng/L		LC-MS NODULARIN ng/L		LC-MS ANATOXIN-a ng/L		GEOSMIN ng/L			MIB ng/L		
	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	BLENDED	TAP	RAW	BLENDED	TAP
1									5.8	2.3	1.8	6.2	1.5	1.4
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15	<0.3								6.3	2.2	2.0	11.4	2.8	2.3
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
AVG	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	6.1	2.3	1.9	8.8	2.2	1.9
MAX	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	6.3	2.3	2.0	11.4	2.8	2.3
MIN	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	5.8	2.2	1.8	6.2	1.5	1.4

<0.3 = non-detect*

qPCR MONITORING

WSSN 0040

MO/YR Jun-20

qPCR GENE COPIES/uL RAW					qPCR COPIES/uL BLENDED					
DATE	CYANO-BACTERIA TOTAL	MICROCYSTIN /NODULARIN	CYLINDRO-SPERMOP-SIN	SAXITOXIN	CYANO-BACTERIA TOTAL	MICROCYSTIN /NODULARIN	CYLINDRO-SPERMOP-SIN	SAXITOXIN		
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15	1820.0	<0.180	<0.180	<.0180	244.0	<0.180	<0.180	<0.180		
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
AVG	1820.0	0.000	0.000	0.000	244.0	0.000	0.000	0.000		
MAX	1820.0	0.000	0.000	0.000	244.0	0.000	0.000	0.000		
MIN	1820.0	0.000	0.000	0.000	244.0	0.000	0.000	0.000		