

**MONTHLY OPERATION REPORT OF
WATER TREATMENT PLANT**

SUPPLY NAME: CITY OF ADRIAN
WSSN: 0040

Tim Ritchie
Operator-in-Charge

May-20
Month/Year

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

F-1
Water Plant Classification

Electronically Submitted 6/3/20
Signature of Operator-in-Charge
EGLE-DWEH-JACKSON@MICHIGAN.GOV

LENAWEE
County

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>3.321</u>	Million Gallons per Day
Rated Plant Capacity:	<u>8.0</u>	Million Gallons per Day
Average Filter Run:	<u>149.89</u>	Hours
Average Head Loss:	<u>2.4</u>	Feet
Average Filtration Rate:	<u>1.02</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>1.16</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>25,679</u>	lb.	Est. supply:	<u>43</u>	days
Ferric Sulfate on hand	<u>57,694</u>	lb.	Est. supply:	<u>26.5</u>	days
Lime (CaO) on hand	<u>45.00</u>	Tons	Est. supply:	<u>18.1</u>	days
Cost of All Chemicals per Million Gallons:	<u>\$335.99</u>	dollars			
Total Power Cost per Million Gallons:	<u>\$134.10</u>	dollars			

Remarks

Number of filter confluence samples > 0.3 NTU:	<u>0</u>
Number of filter confluence compliance samples collected:	<u>186</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.

May-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	NSF 60 Max: 250	Avg.	Max.	Avg.	No. of Samples					
1	1.304	1.214	2.518	2.490	26.0	4.3	4.2	4.9	0.5	24	0.04	0.05	6	0	0	0.04	0.05
2	1.451	1.343	2.794	2.501	24.5	4.5	7.5	9.3	0.6	24	0.04	0.06	6	0	0	0.04	0.06
3	1.437	1.377	2.814	2.655	26.2	5.1	5.4	7.4	0.6	24	0.04	0.05	6	0	0	0.04	0.06
4	1.340	1.283	2.623	2.529	23.6	4.2	4.8	6.6	0.4	22	0.04	0.06	6	0	0	0.04	0.05
5	1.344	1.293	2.637	2.573	22.4	3.9	5.4	9.0	0.6	24	0.04	0.06	6	0	0	0.04	0.06
6	1.351	1.241	2.592	2.623	21.7	3.6	3.0	3.1	0.9	24	0.03	0.06	6	0	0	0.04	0.06
7	1.708	1.613	3.321	2.582	18.1	4.3	24.0	114.0	0.9	21	0.04	0.08	6	0	0	0.04	0.07
8	1.169	1.345	2.514	2.560	22.8	4.7	3.1	3.4	0.8	24	0.05	0.06	6	0	0	0.05	0.06
9	1.178	1.335	2.513	2.486	22.4	3.2	3.1	3.4	0.8	24	0.04	0.05	6	0	0	0.05	0.05
10	1.151	1.283	2.434	2.418	21.2	3.5	3.0	3.5	0.8	24	0.03	0.05	6	0	0	0.04	0.05
11	1.333	1.177	2.510	2.472	20.8	4.1	2.9	3.8	0.9	24	0.03	0.04	6	0	0	0.05	0.06
12	1.330	1.195	2.252	2.501	20.1	4.4	3.0	3.2	0.7	24	0.04	0.05	6	0	0	0.04	0.05
13	1.190	1.434	2.624	2.566	20.6	4.9	6.6	15.5	0.7	24	0.03	0.04	6	0	0	0.04	0.05
14	1.043	1.641	2.684	2.517	17.7	5.8	5.9	9.6	1.0	24	0.05	0.06	6	0	0	0.05	0.06
15	0.963	1.362	2.325	2.499	17.0	6.1	2.7	3.2	0.6	24	0.05	0.07	6	0	0	0.06	0.08
16	0.939	1.312	2.251	2.402	17.8	5.1	5.4	10.6	0.9	24	0.04	0.06	6	0	0	0.04	0.06
17	0.980	1.539	2.519	2.433	22.2	4.4	15.1	18.5	0.9	24	0.03	0.06	6	0	0	0.04	0.05
18	0.926	1.625	2.551	2.525	20.6	4.4	10.3	12.8	0.9	24	0.03	0.06	6	0	0	0.04	0.05
19	0.885	1.650	2.535	2.530	13.4	4.3	31.2	42.8	1.1	24	0.03	0.04	6	0	0	0.04	0.04
20	0.928	2.221	3.149	2.552	14.9	5.7	35.6	53.7	2.0	21	0.03	0.05	6	0	0	0.04	0.05
21	0.658	1.833	2.491	2.442	18.1	7.9	22.3	25.7	1.6	24	0.04	0.06	6	0	0	0.04	0.06
22	0.685	1.782	2.467	2.544	17.5	7.4	15.5	19.3	0.6	24	0.04	0.06	6	0	0	0.04	0.07
23	0.803	1.910	2.713	2.574	16.7	6.2	9.5	10.6	0.8	24	0.04	0.06	6	0	0	0.03	0.05
24	0.748	1.963	2.711	2.601	17.2	7.9	9.7	10.9	0.9	24	0.04	0.07	6	0	0	0.04	0.05
25	0.870	2.034	2.904	2.741	16.7	7.8	6.9	7.2	1.4	24	0.04	0.07	6	0	0	0.05	0.07
26	0.876	2.113	2.989	2.823	17.3	7.5	7.7	8.5	1.2	24	0.04	0.06	6	0	0	0.05	0.06
27	0.907	2.087	2.994	2.830	18.0	12.2	11.5	16.7	1.7	24	0.05	0.07	6	0	0	0.06	0.07
28	0.860	2.062	2.922	2.648	17.1	14.4	5.1	5.8	1.4	24	0.03	0.05	6	0	0	0.04	0.06
29	1.051	2.250	3.301	2.611	15.4	15.7	4.7	6.1	1.0	21	0.03	0.05	6	0	0	0.04	0.07
30	0.851	1.918	2.769	2.738	17.7	13.6	5.0	5.9	0.6	24	0.04	0.07	6	0	0	0.05	0.08
31	0.955	2.065	3.020	2.621	16.6	14.7	6.2	7.2	0.5	24	0.04	0.07	6	0	0	0.05	0.06
AVG	1.071	1.629	2.692	2.567	19.4	6.6	9.2		0.9	24	0.04	0.06	6	0	0	0.04	0.06
MAX	1.708	2.250	3.321	2.830	26.2	15.7	35.6	114.0	2.0	24	0.05	0.08	6	0	0	0.06	0.08
MIN	0.658	1.177	2.251	2.402	13.4	3.2	2.7		0.4	21		0.04	6	0	0	0.03	0.04
Total	33.214	50.500	83.441	79.587									186	0	0		

MICHIGAN EGLE

FLUORIDATION AND CHLORINATION

WSSN 0040

MONTH/YR. May-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 30	
								FREE	TOTAL	FREE	TOTAL	FREE	TOTAL	FREE	TOTAL		
								21	22	23	24	25	26	27	28		MIN FREE CL ₂ RES 29
1	0.30		0.55	0.62			4.1					2.2	2.2	1.8	1.9	1.70	23.00
2	0.30		0.57	0.64			4.3					1.9	2.0	1.7	1.8	1.50	18.62
3	0.40		0.57	0.77			4.4					2.0	2.1	1.8	1.8	1.70	23.07
4	0.40		0.57	0.68			4.0					1.8	2.2	1.7	1.8	1.60	22.78
5	0.40		0.57	0.70	0.61		4.2					1.6	1.6	1.8	1.9	1.60	24.31
6	0.30		0.55	0.66	0.60		4.0					1.4	1.5	1.9	2.0	1.80	24.07
7	0.40	0.43	0.60	0.68			4.4					2.0	2.0	1.8	1.9	1.70	14.32
8	0.10		0.57	0.43			4.3					2.2	2.7	2.0	2.0	1.60	25.50
9	0.40		0.59	0.61			4.2					1.6	1.7	1.9	2.0	1.70	23.67
10	0.30		0.58	0.60			4.2					1.8	1.8	1.9	2.0	1.60	26.83
11	0.30		0.69	0.64	0.56		4.1					2.3	2.2	1.9	1.9	1.70	29.86
12	0.30		0.72	0.57	0.56		4.5					2.1	2.3	1.9	1.9	1.70	23.15
13	0.40		0.57	0.66	0.52		4.5					2.0	1.9	1.9	1.9	1.80	21.29
14	0.40	0.50	0.59	0.60			4.2					2.0	2.0	1.8	1.8	1.70	25.55
15	0.40		0.59	0.72			4.3					1.8	1.7	1.8	1.8	1.60	25.28
16	0.40		0.60	0.72			4.3					1.7	1.5	1.9	1.9	1.60	26.04
17	0.40		0.63	0.72			4.7					1.8	2.1	1.7	1.8	1.50	22.15
18	0.30		0.58	0.63	0.70		5.0					1.6	1.6	1.6	1.7	1.40	19.91
19	0.40		0.61	0.71	0.70		5.6					1.8	1.8	1.9	1.9	1.50	27.18
20	0.50		0.64	0.71	0.69		5.3					2.2	2.1	1.9	2.1	1.80	14.91
21	0.50	0.55	0.63	0.85	0.68		5.5					2.5	2.5	2.0	2.1	1.80	24.57
22	0.50		0.66	0.92			4.9					2.3	2.4	2.0	2.1	1.80	26.46
23	0.40		0.65	0.86			4.9					2.0	1.7	2.1	2.2	1.80	25.47
24	0.40		0.58	0.72			4.6					2.0	2.0	1.8	1.8	1.70	23.88
25	0.40		0.64	0.75			4.8					2.0	2.0	2.0	2.0	1.80	22.99
26	0.50		0.63	0.79			4.5					2.4	2.8	2.0	2.1	1.90	19.43
27	0.50		0.70	0.92	0.80		4.3					2.1	2.1	1.9	2.0	1.80	23.17
28	0.40	0.51	0.71	0.77			4.6					1.9	1.6	1.9	1.9	1.80	20.40
29	0.40		0.57	0.78			4.7					1.8	1.8	1.8	1.9	1.60	26.52
30	0.30		0.57	0.58			4.6					2.6	2.8	1.9	2.0	1.70	23.86
31	0.30		0.57	0.70			4.8					2.4	2.4	2.0	2.1	1.80	20.62
AVG	0.38	0.50	0.61	0.71	0.64	0.0	4.6	0.0	0.0	0.0	0.0	2.0	2.0	1.9	1.9	1.69	23.35
MAX	0.50	0.55	0.72	0.92	0.80	0.0	5.6	0.0	0.0	0.0	0.0	2.6	2.8	2.1	2.2	1.90	29.86
MIN	0.10	0.43	0.55	0.43	0.52	0.0	4.0	0.0	0.0	0.0	0.0	1.4	1.5	1.6	1.7	1.40	14.32

MICHIGAN EGLE

CHEMICAL ANALYSES

WSSN 0040

MONTH /YR.

May-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	7.5	9.1	340	144	291	70	49	74	236	98	104	46							
2	7.6	9.1	330	150	283	70	47	80	300	112	30	38							
3	7.5	9.1	356	152	290	64	66	88	244	110	112	42							
4	7.5	9.2	340	154	274	76	66	78	294	122	46	32							
5	7.6	9.3	358	164	278	76	80	88	240	128	118	36	19.0	33.5					
6	7.5	9.1	328	132	276	57	52	75	232	92	96	40							
7	7.6	9.2	340	130	273	53	67	77	222	88	118	42							
8	7.5	9.3	350	128	277	54	73	74	240	78	110	50							
9	7.6	9.2	350	134	280	57	70	77	336	116	14	18							
10	7.6	9.1	352	136	286	55	66	81	320	102	32	34							
11	7.5	9.2	356	138	286	60	70	78	344	102	12	36							
12	7.5	9.2	360	130	290	56	70	74	302	88	58	42							
13	7.6	9.2	362	136	289	55	73	81	282	82	80	54							
14	7.5	9.1	374	156	290	60	84	96	304	118	70	38							
15	7.4	9.1	352	132	300	64	52	68	276	78	76	54							
16	7.5	9.1	356	140	289	60	67	80	218	76	138	64							
17	7.4	9.2	342	128	292	58	50	70	246	96	96	32							
18	7.3	9.2	366	146	285	53	81	93	276	96	90	50	22.0	32.5					
19	7.3	9.2	356	138	273	53	83	85	256	94	100	44						1.12	1.19
20	7.4	9.3	296	126	263	45	33	81	226	96	70	30						0.40	2.00
21	7.3	9.2	312	152	275	67	37	85	224	108	88	44						0.60	2.00
22	7.4	9.0	330	144	265	62	65	82	234	110	96	34						0.20	1.30
23	7.5	8.9	352	142	264	64	88	78	260	100	92	42						0.90	1.90
24	7.8	9.0	338	148	270	67	68	81	276	90	62	58							
25	7.4	9.1	356	156	274	69	82	87	266	80	90	76							
26	7.7	9.0	344	142	268	68	76	74	316	106	28	36							
27	7.8	8.9	350	134	282	63	68	71	320	88	30	46							
28	7.8	9.1	372	160	281	68	91	92	296	86	76	74							
29	7.7	9.2	344	148	280	66	64	82	280	100	64	48							
30	7.3	9.0	352	140	286	68	66	72	276	84	76	56							
31	7.3	9.4	360	158	294	86	66	72	238	122	122	36							
AVG	7.5	9.1	348	143	281	63	67	80	270	98	77	44	20.5	33.0	0.0	0.0	####	0.64	1.68
MAX	7.8	9.4	374	164	300	86	91	96	344	128	138	76	22.0	33.5	0.0	0.0	0.00	1.12	2.00
MIN	7.3	8.9	296	126	263	45	33	68	218	76	12	18	19.0	32.5	0.0	0.0	0.00	0.20	1.19

MICHIGAN EGLE

SOFTENING PARAMETERS

WSSN 0040

MONTH/YR. May-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 Raw	LANGELIER INDEX Tap
					BI-CARBONATE	CARBONATE	HYDROXIDE	BI-CARBONATE	CARBONATE	HYDROXIDE	BI-CARBONATE	CARBONATE	HYDROXIDE		
					45	46	47	48	49	50	51	52	53		
1	204	23.3	0.33		0	50	19				50	20	0		0.8
2	214	24.2	0.34		1	47	15				45	21	0		0.9
3	265	26.1	0.35		0	54	21				46	24	0		0.8
4	238	34.6	0.35		0	51	45				44	30	0		1.1
5	264	26.2	0.32		0	42	17				50	26	0		1.2
6	270	22.0	0.29		0	40	18				37	20	0		0.8
7	214	18.1	0.35		0	41	16				33	21	0		0.8
8	295	25.2	0.31		0	43	22				37	21	0		0.8
9	291	28.2	0.29		0	44	19				40	21	0		0.9
10	295	26.0	0.30		0	41	20				40	17	0		0.8
11	277	35.9	0.32		0	47	33				39	22	0		0.9
12	272	24.3	0.32		0	43	20				37	23	0		0.8
13	270	25.1	0.30		0	48	17				42	21	0		0.8
14	288	20.4	0.32		0	59	13				45	20	0		1.0
15	337	24.8	0.32		0	45	17				43	21	0		0.7
16	396	24.8	0.33		0	47	32				41	19	0		0.7
17	220	29.2	0.32		0	40	17				36	22	0		0.9
18	217	21.1	0.33		0	42	19				33	20	0		0.8
19	220	20.6	0.32		0	44	23				31	19	0		0.8
20	213	25.3	0.32		0	52	22				27	22	0		0.9
21	216	29.4	0.33		0	62	15				47	24	0		1.0
22	215	28.9	0.32		0	55	22				46	19	0		0.8
23	214	23.6	0.32		0	60	11				47	16	0		0.6
24	235	22.8	0.29		0	57	11				49	19	0		0.7
25	243	29.4	0.30		0	58	20				51	18	0		0.7
26	219	32.0	0.32		0	44	26				46	21	0		0.8
27	199	25.6	0.33		0	49	16				51	15	0		0.6
28	203	24.6	0.32		0	58	14				49	19	0		0.8
29	216	22.9	0.41		0	54	14				40	26	0		0.9
30	328	23.4	0.35		5	47	42				50	18	0		0.7
31	267	32.7	0.33		0	44	20				45	31	0		1.3
AVG	252	25.8	0.32	0.00	0	49	21	0	0	0	42	21	0		0.8
MAX	396	35.9	0.41	0.00	5	62	45	0	0	0	51	31	0		1.3
MIN	199	18.1	0.29	0.00	0	40	11	0	0	0	27	15	0		0.6

MICHIGAN EGLE

BACTERIOLOGICAL AND PHYSICAL PARAMETERS

WSSN 0040

MO/YR

May-20

DATE	TOTAL COLIFORM				E.COLI			TOTAL COLIFORM				E.COLI			
	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	74	
1	10	20	2	275.0	0	0	0.0								
2	0	49	17	290.9	0	0	0.0	0	0	0	0	0.0	0.0	0	
3	0	49	27	517.2	2	0	2.0								
4	0	46	16	178.2	4	0	4.1								
5	0	48	25	344.1	4	0	4.1								
6	10	30	4	504.0	1	0	10.0								
7	10	36	5	697.0	0	0	0.0								
8	10	20	4	301.0	0	0	0.0								
9	0	49	29	579.4	1	0	1.0	0	0	0	0	0.0	0.0	0	
10	0	49	21	365.4	0	0	0.0								
11	0	49	14	248.1	1	0	1.0								
12	0	47	15	178.5	0	0	0.0								
13	0	48	25	344.1	0	0	0.0								
14	0	48	15	218.7	0	0	0.0								
15	10	28	4	427.0	0	0	0.0								
16	0	49	45	1732.9	14	1	17.3	0	0	0	0	0.0	0.0	0	
17	10	49	37	9208.0	25	5	408.0								
18	10	49	20	3448.0	10	1	121.0								
19	10	47	20	2310.0	12	0	135.0								
20	10	49	25	4611.0	24	1	331.0								
21	10	49	8	1872.0	9	2	120.0								
22	10	49	3	1523.0	2	0	20.0								
23	10	45	7	1236.0	6	1	74.0	0	0	0	0	0.0	0.0	0	
24	0	49	41	1203.3	21	4	31.8								
25	10	30	3	487.0	0	0	0.0								
26	0	49	37	920.8	4	1	5.2								
27	0	49	25	461.1	7	0	7.5								
28	0	49	23	410.6	2	0	2.0								
29	10	34	4	613.0	0	0	0.0								
30	0	49	35	816.4	5	1	6.3	0	0	0	0	0.0	0.0	0	
31	10	49	24	4352.0	3	0	31.0								
AVG		44	19	1312.1	5	1	43.0	0		0	0.0	0	0	0	0
MAX		49	45	9208.0	25	5	408.0	0	0	0	0.0	0	0	0	0
MIN		20	2	178.2	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

May-20

DATE	PLANT TAP		STANDARD PLATE COUNT MPN		TEMPERATURE-(C)		COLOR TRUE <input checked="" type="checkbox"/> APPARENT <input type="checkbox"/>									
	# OF SAMPLES	P/A														TAP
			75	76	77	78	79	80								81
	1	1	A	0	0	13.1	12.1									
2	1	A	0	0	13.2	12.9										
3	1	A	0	0	13.3	13.0										
4	1	A	0	0	13.9	13.0										
5	1	A	0	0	14.0	13.5	97	0								
6	1	A	0	0	14.1	13.4										
7	1	A	0	0	14.3	13.9										
8	1	A	0	0	14.3	14.2										
9	1	A	0	0	13.9	13.6										
10	1	A	0	0	13.9	13.2										
11	1	A	0	0	13.8	13.3	38	0								
12	1	A	0	0	14.2	13.8										
13	1	A	0	0	13.8	13.9										
14	1	A	0	0	13.8	13.0										
15	1	A	0	0	14.8	12.9										
16	1	A	0	0	14.5	13.2										
17	1	A	0	0	14.7	13.5										
18	1	A	0	0	14.6	13.5	92	0								
19	1	A	0	0	14.7	14.0										
20	1	A	166	0	14.7	14.3										
21	1	A	2	2	14.9	14.5										
22	1	A	8	0	15.1	14.8										
23	1	A	0	0	15.2	14.9										
24	1	A	0	0	15.4	15.0										
25	1	A	0	0	15.5	14.7										
26	1	A	0	0	14.7	14.3										
27	1	A	4	2	14.8	13.9	79	0								
28	1	A	0	0	14.8	14.0										
29	1	A	2	0	14.7	14.3										
30	1	A	0	0	16.0	15.6										
31	1	A	2	0	14.8	14.6										
AVG	1		6	0	14.4	13.8	76.5	0.0								
MAX	1	0	166	2	16.0	15.6	97.0	0.0								
MIN	1	0	0	0	13.1	12.1	38.0	0.0								

DISTRIBUTION SYSTEM MONITORING

WSSN 0040

MONTH/YR. May-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						1.0						0.9																				
2					1.5							1.3							1.6													
3						1.2							1.3								1.2											
4					1.6								1.7								1.3								1.7			
5					1.6								1.7								1.3								1.7			
6													2.0													2.1						
7																																
8												1.4																				
9					1.3																1.4									1.8		
10																																

DISTRIBUTION SAMPLE SUMMARY

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

DISTRIBUTION BACTERIOLOGICAL SUMMARY

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

DISTRIBUTION FREE CHLORINE RESIDUAL SUMMARY

Percent samples with a detectable free chlorine residual
 Average free chlorine residual this month

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

May-20

DATE	pH				TEMPERATURE				CONDUCTIVITY				CHLOROPHYLL-a				PHYCOCYANIN			
	MAX				MAX				MAX				MAX				MAX			
1	8.5				55.7				594.0				37.3				61.9			
2	8.3				56.7				594.0				28.8				58.4			
3	8.3				57.6				595.0				22.7				57.5			
4	8.4				58.5				849.0				33.3				65.3			
5	8.4				57.6				599.0				29.3				57.0			
6	8.6				58.0				597.0				32.7				53.8			
7	8.5				58.4				610.0				31.8				54.9			
8	8.5				57.5				605.0				22.5				52.1			
9	8.4				55.8				608.0				20.4				51.6			
10	8.5				55.5				618.0				18.1				53.3			
11	8.5				55.5				618.0				40.1				64.4			
12	8.5				54.6				610.0				52.7				61.2			
13	8.4				53.0				614.0				26.5				54.0			
14	8.3				52.7				618.0				24.9				54.1			
15	8.4				54.7				623.0				58.5				57.1			
16	8.0				55.8				524.0				26.7				48.0			
17	7.9				56.5				534.0				26.2				46.7			
18	7.9				57.6				524.0				27.7				46.5			
19	7.7				56.9				443.0				32.4				50.4			
20	7.5				57.0				666.0				14.5				45.1			
21	7.6				57.4				333.0				17.1				49.8			
22	7.7				58.7				376.0				15.2				38.3			
23	7.7				59.5				390.0				19.4				37.6			
24	7.7				61.4				422.0				26.0				38.0			
25	7.7				63.0				428.0				34.8				39.3			
26	7.7				63.8				433.0				47.0				59.0			
27	7.6				63.3				434.0				68.3				56.5			
28	7.6				63.9				440.0				45.3				45.9			
29	7.6				65.4				451.0				60.4				44.3			
30	7.5				63.9				444.0				36.5				35.9			
31	7.7				65.1				468.0				27.6				33.5			
AVG	8.0	0.0	0.0	0.0	58.4	0.0	0.0	0.0	537.5	0.0	0.0	0.0	32.4	0.0	0.0	0.0	50.7	0.0	0.0	0.0
MAX	8.6	0.0	0.0	0.0	65.4	0.0	0.0	0.0	849.0	0.0	0.0	0.0	68.3	0.0	0.0	0.0	65.3	0.0	0.0	0.0
MIN	7.5	0.0	0.0	0.0	52.7	0.0	0.0	0.0	333.0	0.0	0.0	0.0	14.5	0.0	0.0	0.0	33.5	0.0	0.0	0.0

ALGAL TOXIN & COMPOUNDS

WSSN 0040

MO/YR May-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															
2															
3															
4															
5										11.4	3.4	5.3	10.5	2.7	3.5
6															
7															
8															
9															
10															
11															
12															
13										4.3	1.3	1.5	9.8	3.0	3.8
14															
15															
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	7.9	2.4	3.4	10.2	2.9	3.7	
MAX	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	11.4	3.4	5.3	10.5	3.0	3.8	
MIN	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	4.3	1.3	1.5	9.8	2.7	3.5	

<0.3 = non-detect*

qPCR MONITORING

WSSN 0040

MO/YR May-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										
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19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
AVG	0.0	0.000	0.000	0.000	0.0	0.000	0.000	0.000		
MAX	0.0	0.000	0.000	0.000	0.0	0.000	0.000	0.000		
MIN	0.0	0.000	0.000	0.000	0.0	0.000	0.000	0.000		