

**MONTHLY OPERATION REPORT OF
WATER TREATMENT PLANT**

SUPPLY NAME: CITY OF ADRIAN
WSSN: 0040

Tim Ritchie
Operator-in-Charge

July-20
Month/Year

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

F-1
Water Plant Classification

Electronically Submitted 8/3/20
Signature of Operator-in-Charge
EGLE-DWEH-JACKSON@MICHIGAN.GOV

LENAWEE
County

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>3.595</u>	Million Gallons per Day
Rated Plant Capacity:	<u>8.0</u>	Million Gallons per Day
Average Filter Run:	<u>149.97</u>	Hours
Average Head Loss:	<u>2.0</u>	Feet
Average Filtration Rate:	<u>1.09</u>	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	<u>1.27</u>	Gallons Per Square Feet per Minute
Average Wash Water Use:	<u>2.1</u>	Percent of Treated Water

Chemical Data

Sodium Hypochlorite on hand	<u>24,605</u>	lb.	Est. supply:	<u>31.2</u>	days
Ferric Sulfate on hand	<u>66,534</u>	lb.	Est. supply:	<u> </u>	days
Lime (CaO) on hand	<u>70.00</u>	Tons	Est. supply:	<u>17.5</u>	days
Cost of All Chemicals per Million Gallons:	<u>\$250.17</u>	dollars			
Total Power Cost per Million Gallons:	<u>\$132.22</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.

Jul-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 As Fe ₂ SO ₄ NSF 60 Max: 600	Powdered Activated Carbon mg/L NSF 60 Max: 250	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
							Raw		Applied	Filter Confluence							
							Avg.	Max.	Avg.	No. of Samples	Comp. Period Avg.	Max.					
1	0.485	2.835	3.320	3.254	9.2	6.9	5.7	8.0	0.8	24	0.04	0.05	6	0	0	0.04	0.05
2	0.485	2.788	3.273	3.075	9.1	6.8	5.3	7.0	0.9	24	0.05	0.06	6	0	0	0.05	0.05
3	0.667	2.573	3.240	2.955	8.4	7.2	2.3	3.2	0.6	24	0.04	0.05	6	0	0	0.05	0.06
4	0.632	2.599	3.231	2.938	8.5	7.2	2.0	2.8	0.5	24	0.04	0.05	6	0	0	0.04	0.04
5	0.640	2.596	3.236	2.930	8.7	7.1	2.5	6.6	0.5	24	0.03	0.04	6	0	0	0.04	0.04
6	0.479	2.860	3.339	3.065	6.1	6.9	3.5	5.0	0.3	24	0.03	0.03	6	0	0	0.03	0.04
7	0.398	3.194	3.592	3.226	7.4	6.6	1.8	5.1	0.3	24	0.03	0.04	6	0	0	0.03	0.04
8	0.359	3.236	3.595	3.280	7.4	6.8	1.1	1.1	0.8	24	0.03	0.04	6	0	0	0.03	0.04
9	0.343	3.179	3.522	3.291	6.2	6.7	1.2	1.3	1.3	24	0.04	0.04	6	0	0	0.04	0.05
10	0.229	3.066	3.295	2.981	6.4	6.7	3.6	7.5	1.2	24	0.05	0.08	6	0	0	0.04	0.06
11	0.325	2.568	2.893	2.840	6.2	7.5	3.2	4.0	1.3	24	0.04	0.05	6	0	0	0.04	0.05
12	0.314	2.815	3.129	2.876	5.0	7.6	2.3	3.3	1.2	24	0.03	0.04	6	0	0	0.03	0.04
13	0.298	2.937	3.235	3.042	5.6	7.1	1.6	3.5	0.9	24	0.03	0.05	6	0	0	0.04	0.04
14	0.283	3.041	3.324	3.142	6.1	6.6	0.8	0.9	0.7	24	0.03	0.05	6	0	0	0.04	0.04
15	0.379	2.892	3.271	3.116	7.0	6.9	0.8	1.1	0.6	24	0.03	0.04	6	0	0	0.04	0.04
16	0.453	2.638	3.091	2.945	8.2	7.3	2.6	3.5	1.1	24	0.03	0.05	6	0	0	0.03	0.04
17	0.517	2.468	2.985	2.916	8.6	7.4	2.7	3.6	1.1	24	0.04	0.06	6	0	0	0.04	0.05
18	0.571	2.842	3.413	3.036	8.9	6.8	3.2	5.0	1.4	24	0.04	0.06	6	0	0	0.04	0.04
19	0.612	2.683	3.295	2.911	8.7	7.0	4.5	7.3	1.3	24	0.04	0.05	6	0	0	0.04	0.05
20	0.595	2.669	3.264	3.129	9.4	7.3	4.2	6.7	1.1	24	0.03	0.06	6	0	0	0.03	0.05
21	0.645	2.792	3.437	3.138	9.3	6.9	2.4	3.8	1.2	24	0.03	0.05	6	0	0	0.03	0.04
22	0.678	2.788	3.466	3.068	8.9	4.5	2.0	2.4	1.1	24	0.04	0.05	6	0	0	0.04	0.04
23	0.640	2.696	3.370	3.073	8.7	6.3	2.3	2.9	1.0	24	0.04	0.05	6	0	0	0.04	0.06
24	0.512	2.913	3.425	3.239	7.5	5.9	3.0	3.5	1.2	24	0.04	0.07	6	0	0	0.05	0.06
25	0.365	2.701	3.066	3.003	8.6	6.2	5.0	7.5	1.1	24	0.04	0.05	6	0	0	0.04	0.05
26	0.553	2.759	3.312	2.918	6.6	7.7	5.7	8.2	1.1	24	0.04	0.05	6	0	0	0.04	0.05
27	0.375	2.920	3.295	3.165	6.8	3.5	6.3	15.4	1.0	24	0.04	0.05	6	0	0	0.05	0.05
28	0.437	2.809	3.246	3.070	6.8	3.8	1.4	1.8	2.2	24	0.04	0.05	6	0	0	0.04	0.05
29	0.369	2.971	3.340	3.219	8.2	3.7	1.4	1.6	1.9	24	0.04	0.05	6	0	0	0.05	0.06
30	0.474	3.042	3.516	3.305	9.3	4.2	2.4	3.3	1.5	24	0.04	0.05	6	0	0	0.05	0.05
31	0.378	2.871	3.249	3.126	9.3	11.4	1.4	3.7	1.5	24	0.04	0.05	6	0	0	0.05	0.05
AVG	0.467	2.830	3.299	3.073	7.8	6.6	2.8		1.0	24	0.04	0.05	6	0	0	0.04	0.05
MAX	0.678	3.236	3.595	3.305	9.4	11.4	6.3	15.4	2.2	24	0.05	0.08	6	0	0	0.05	0.06
MIN	0.229	2.468	2.893	2.840	5.0	3.5	0.8		0.3	24		0.03	6	0	0	0.03	0.04
Total	14.490	87.741	102.265	95.272									186	0	0		

MICHIGAN EGLE

FLUORIDATION AND CHLORINATION WSSN 0040 MONTH/YR. Jul-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.	WELL	TAP	DIST.	FILTER INFLUENT	CLEARWELL INFLUENT	FILTER INFLUENT		FILTER EFFLUENT		CLEARWELL INFLUENT		PLANT TAP		CT	
								FREE	TOTAL	FREE	TOTAL	FREE	TOTAL	FREE	TOTAL		
		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	0.40		0.54	0.85	0.67		4.7					1.7	1.7	2.0	2.1	1.80	25.99
2	0.40	0.67	0.68	0.98			5.2					2.2	2.1	2.1	2.2	2.00	25.29
3	0.40		0.59	0.90			5.0					2.0	2.2	2.1	2.2	2.00	25.06
4	0.40		0.61	0.72			4.8					2.2	2.5	2.0	2.1	1.80	26.54
5	0.30		0.58	0.66			4.8					2.1	2.2	2.0	2.0	1.70	26.03
6	0.40		0.58	0.70	0.68		4.6					1.9	2.2	2.0	2.1	1.90	22.47
7	0.40		0.67	0.84	0.65		4.9					2.3	2.3	1.9	1.9	1.60	20.47
8	0.40		0.65	0.75	0.70		5.0					2.4	2.5	1.9	2.0	1.80	22.67
9	0.30	0.61	0.68	0.73			4.8					2.5	2.4	2.1	2.2	1.90	23.35
10	0.40		0.64	0.64			5.3					2.6	2.7	2.1	2.2	2.00	30.32
11	0.40		0.64	0.79			4.4					2.2	2.1	1.9	2.0	1.80	25.57
12	0.40		0.61	0.76			4.6					2.0	2.0	2.0	2.1	1.90	19.86
13	0.40		0.69	0.77	0.77		4.4					1.9	1.9	1.8	1.8	1.70	21.38
14	0.40		0.67	0.73	0.74		4.4					1.8	1.8	1.9	2.0	1.80	23.07
15	0.40		0.64	0.80	0.71		4.4					1.9	1.9	2.0	2.0	1.80	24.98
16	0.40	0.68	0.54	0.80	0.69		4.6					1.7	1.9	2.0	2.1	1.90	25.14
17	0.40		0.62	0.82			4.3					1.8	1.9	1.9	1.9	1.80	23.37
18	0.50		0.62	0.77			4.1					1.7	1.9	1.8	1.8	1.60	27.44
19	0.40		0.63	0.75			4.5					2.2	2.4	1.7	1.7	1.30	25.59
20	0.50		0.63	0.85	0.75		4.8					1.9	2.2	1.9	1.9	1.60	32.13
21	0.50		0.63	0.86	0.81		4.8					2.0	2.2	1.9	2.0	1.80	27.46
22	0.40		0.62	0.74	0.74		4.7					2.0	1.8	2.0	2.0	1.80	19.65
23	0.40	0.56	0.65	0.72	0.74		4.6					1.8	1.8	1.9	2.0	1.80	22.36
24	0.30		0.65	0.73			4.4					2.1	2.2	1.9	2.0	1.50	18.59
25	0.30		0.62	0.72			4.4					1.9	2.1	1.9	1.9	1.80	24.74
26	0.40		0.62	0.81			4.4					1.7	1.8	1.8	1.9	1.60	18.09
27	0.40		0.65	0.79	0.74		4.8					2.0	2.2	2.0	2.0	1.90	25.33
28	0.30		0.57	0.77	0.70		4.7					1.6	1.7	2.1	2.1	2.00	26.45
29	0.40		0.60	0.70			4.7					1.5	1.6	2.1	2.1	1.90	27.93
30	0.40	0.64	0.68	0.85			4.7					1.5	1.7	2.1	2.1	2.00	26.72
31	0.40		0.68	0.79			4.7					1.6	1.7	2.0	2.1	1.80	22.83
AVG	0.39	0.62	0.63	0.77	0.72	0.0	4.6	0.0	0.0	0.0	0.0	2.0	2.1	2.0	2.0	1.79	24.33
MAX	0.50	0.68	0.69	0.98	0.81	0.0	5.3	0.0	0.0	0.0	0.0	2.6	2.7	2.1	2.2	2.00	32.13
MIN	0.30	0.56	0.54	0.64	0.65	0.0	4.1	0.0	0.0	0.0	0.0	1.5	1.6	1.7	1.7	1.30	18.09

MICHIGAN EGLE

CHEMICAL ANALYSES

WSSN 0040

MONTH /YR.

Jul-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	384	158	305	81	79	77	282	96	102	62	12.0	36.0	70.0	70.0	0.51		
2	7.4	9.1	382	164	310	99	72	65	270	86	112	78							
3	7.3	9.1	388	160	309	78	79	82	280	82	108	78							
4	7.5	9.1	388	150	300	70	88	80	340	132	48	18							
5	7.4	9.2	388	176	304	82	84	94	328	122	60	54							
6	7.4	9.2	410	158	308	72	102	86	392	112	18	46							
7	7.4	9.1	408	178	292	65	116	113	378	138	30	40							
8	7.4	9.2	402	178	298	68	104	110	342	124	60	54							
9	7.4	9.2	402	152	308	72	94	80	334	130	68	22							
10	7.4	9.2	373	148	310	70	66	78	240	92	136	56							
11	7.3	9.1	342	164	305	63	37	101	288	76	54	88							
12	7.4	9.2	362	154	324	73	38	81	276	78	86	76							
13	7.3	9.2	414	168	313	72	101	96	262	88	152	80	20.0	32.5		71.0	0.46		
14	7.4	9.2	386	134	302	57	84	77	244	92	142	42							
15	7.3	9.2	406	170	306	79	100	91	258	122	148	48							
16	7.4	9.0	410	164	301	68	109	96	264	104	146	60							
17	7.3	9.0	364	154	294	73	70	81	244	100	120	54							
18	7.5	9.0	412	166	299	76	113	90	316	92	96	74							
19	7.0	9.1	386	160	308	78	78	82	330	92	56	68							
20	7.5	8.9	378	156	294	77	84	79	320	104	58	52							
21	7.5	9.0	370	154	287	76	83	78	274	84	96	70	12.5	31.0		72.0	0.43		
22	7.8	9.1	372	162	297	79	75	83	270	82	102	80							
23	7.5	9.0	378	158	304	73	74	85	296	82	82	76							
24	7.2	9.1	380	156	308	81	72	75	332	90	48	66							
25	7.4	9.1	382	164	302	83	80	81	262	78	120	86							
26	7.3	9.1	364	164	296	73	68	91	264	78	100	86							
27	7.3	9.0	372	164	302	74	70	90	244	88	128	76	17.0	31.5		69.0	0.46		
28	7.3	9.1	376	164	296	75	80	89	244	84	132	80							
29	7.3	9.1	358	162	293	80	65	82	226	96	132	66							
30	7.4	9.0	358	152	294	69	64	83	228	88	130	64							
31	7.4	9.0	310	156	235	78	75	78	230	80	80	76							
AVG	7.4	9.1	381	160	300	75	81	86	286	97	95	64	15.4	32.8	70.0	70.5	0.46	0.00	0.00
MAX	7.8	9.2	414	178	324	99	116	113	392	138	152	88	20.0	36.0	70.0	72.0	0.51	0.00	0.00
MIN	7.0	8.9	310	134	235	57	37	65	226	76	18	18	12.0	31.0	70.0	69.0	0.43	0.00	0.00

MICHIGAN EGLE

SOFTENING PARAMETERS

WSSN 0040

MONTH/YR. Jul-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	279	21.1	0.25		1	70	10				52	26	0		0.9
2	319	21.2	0.28		0	65	19				56	30	0		1.0
3	322	27.1	0.25		0	50	19				51	26	0		0.8
4	339	22.7	0.29		1	67	11				43	26	0		1.0
5	233	24.0	0.27		0	48	24				46	30	0		1.1
6	220	28.8	0.28		0	49	22				42	28	0		1.0
7	228	26.4	0.28		0	54	19				40	26	0		0.9
8	232	25.4	0.28		0	53	14				42	25	0		1.0
9	237	25.0	0.26		0	62	17				45	29	0		1.1
10	246	26.2	0.29		0	62	14				44	24	0		0.9
11	242	23.9	0.27		0	64	12				48	25	0		0.7
12	243	25.8	0.27		0	50	17				46	28	0		0.9
13	260	29.6	0.28		0	49	24				43	27	0		0.9
14	290	29.7	0.26		0	53	45				42	24	0		0.9
15	311	41.9	0.28		0	45	26				45	29	0		1.1
16	282	30.3	0.29		0	49	22				53	17	0		0.8
17	275	28.6	0.29		0	53	25				53	19	0		0.8
18	254	26.6	0.27		0	69	15				56	20	0		0.8
19	263	26.5	0.26		0	63	17				57	21	0		0.9
20	367	26.9	0.27		0	60	16				52	22	0		0.8
21	265	27.2	0.28		0	61	19				54	22	0		0.7
22	261	26.5	0.28		0	61	12				51	21	0		0.8
23	258	26.9	0.29		0	64	18				51	23	0		0.7
24	263	24.0	0.26		0	63	15				56	24	0		0.9
25	294	24.2	0.26		0	65	15				57	25	0		0.8
26	284	26.5	0.28		0	67	18				52	26	0		0.8
27	292	26.0	0.28		0	63	16				49	25	0		0.7
28	279	25.2	0.29		3	68	22				61	22	0		0.8
29	242	32.5	0.26		0	48	26				54	27	0		0.9
30	229	27.6	0.29		0	51	20				51	18	0		0.7
31	238	26.6	0.28		0	57	17				52	20	0		0.7
AVG	269	26.8	0.27	0.00	0	58	19	0	0	0	50	24	0		0.9
MAX	367	41.9	0.29	0.00	3	70	45	0	0	0	61	30	0		1.1
MIN	220	21.1	0.25	0.00	0	45	10	0	0	0	40	17	0		0.7

MICHIGAN EGLE

BACTERIOLOGICAL AND PHYSICAL PARAMETERS

WSSN 0040

MO/YR

Jul-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	0	47	10	160.7	7	0	7.4								
2	0	49	21	365.4	1	1	2.0								
3	0	49	6	172.0	11	2	14.5								
4	0	39	6	83.6	0	1	1.0	0	0	0	0	0.0	0.0	0	
5	0	42	12	116.9	1	0	1.0								
6	0	45	6	119.8	1	0	1.0								
7	0	49	9	195.6	3	0	3.1								
8	0	40	9	95.9	1	0	1.0								
9	0	48	12	193.5	0	0	0.0								
10	0	49	11	214.3	1	0	1.0								
11	0	43	9	114.5	0	0	0.0								
12	0	40	5	85.7	5	0	5.2								
13	0	41	5	90.6	2	0	2.0								
14	0	34	3	59.4	0	0	0.0								
15	0	38	1	68.4	1	0	1.0								
16	0	29	5	49.6	0	0	0.0								
17	0	27	3	42.0	1	0	1.0								
18	0	49	15	261.3	3	1	4.1	0	0	0	0	0.0	0.0	0	
19	0	42	15	126.7	1	0	1.0								
20	0	45	3	109.2	1	0	1.0								
21	0	43	5	101.9	0	0	0.0								
22	0	36	3	65.7	3	0	3.1								
23	0	22	3	32.3	1	0	1.0								
24	0	33	8	65.7	1	0	1.0								
25	0	39	8	88.4	0	0	0.0	0	0	0	0	0.0	0.0	0	
26	0	45	7	123.6	1	0	1.0								
27	0	48	11	186.0	2	0	2.0								
28	0	40	6	88.2	0	0	0.0								
29	0	25	2	36.4	1	0	1.0								
30	0	31	3	51.2	0	0	0.0								
31	0														
AVG		40	7	118.8	2	0	1.9	0		0	0.0	0	0	0	0
MAX		49	21	365.4	11	2	14.5	0	0	0	0.0	0	0	0	0
MIN		22	1	32.3	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

Jul-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	16.4	15.9									
2	1	A	0	0	16.5	15.8										
3	1	A	0	0	16.6	15.6										
4	1	A	0	4	16.7	16.1										
5	1	A	0	0	17.0	16.1										
6	1	A	0	0	17.0	15.6	40	0								
7	1	A	1	0	17.1	15.5										
8	1	A	0	10	15.7	15.1										
9	1	A	0	2	15.7	15.1										
10	1	A	0	0	15.5	15.2										
11	1	A	0	0	15.4	14.9										
12	1	A	0	0	15.9	14.9										
13	1	A	0	2	15.9	15.1	10	0								
14	1	A	2	4	16.5	16.0										
15	1	A	2	0	16.7	16.2										
16	1	A	0	0	17.0	16.4										
17	1	A	2	0	17.1	16.4										
18	1	A	2	0	17.0	16.8										
19	1	A	0	0	17.5	17.0										
20	1	A	0	0	17.5	16.8										
21	1	A	2	0	16.7	15.7	31	0								
22	1	A	0	0	16.4	16.2										
23	1	A	0	0	16.4	16.0										
24	1	A	0	0	16.3	16.0										
25	1	A	0	0	16.3	16.0										
26	1	A	0	0	16.4	15.7										
27	1	A	0	0	16.6	16.1	19	0								
28	1	A	0	0	16.1	16.0										
29	1	A	0	0	16.3	16.1										
30	1	A	0	0	16.3	16.2										
31	1	A	1	0	16.7	16.3										
AVG	1		0	1	16.5	15.9	25.0	0.0								
MAX	1	0	2	10	17.5	17.0	40.0	0.0								
MIN	1	0	0	0	15.4	14.9	10.0	0.0								

BLUE GREEN ALGAE & PHYSICAL PARAMETERS

LAKE ADRIAN

WSSN 0040

DATE MO/YR

Jul-20

DATE	pH				TEMPERATURE				CONDUCTIVITY				CHLOROPHYLL-a				PHYCOCYANIN			
	MAX				MAX				MAX				MAX				MAX			
1	7.5				72.7				591.0				103.0				47.0			
2	7.4				73.0				586.0				95.0				44.7			
3	7.4				72.8				582.0				72.9				37.7			
4	7.4				73.8				582.0				54.1				33.7			
5	7.4				74.1				584.0				53.1				33.1			
6	7.3				73.9				580.0				61.1				32.5			
7	7.3				74.3				578.6				82.9				37.3			
8	7.3				74.2				580.9				131.5				45.6			
9	7.3				74.6				591.9				89.1				37.1			
10	7.3				74.0				590.9				32.2				24.4			
11	7.3				76.6				555.0				34.2				25.5			
12	7.3				76.4				557.0				34.6				25.4			
13	7.5				77.4				559.0				77.7				30.5			
14	7.4				77.3				553.0				118.0				44.6			
15	7.5				77.6				557.0				85.6				36.9			
16	7.5				78.5				547.0				78.5				35.4			
17	7.6				77.8				563.0				41.0				25.5			
18	7.4				76.6				564.0				65.4				27.5			
19	7.5				77.2				555.0				55.2				26.7			
20	7.5				77.7				548.0				54.5				28.7			
21	7.5				77.4				546.0				136.0				42.8			
22	7.5				77.8				730.0				111.0				39.2			
23	7.5				78.2				550.0				55.4				25.0			
24	7.7				78.4				556.0				114.0				37.0			
25	7.5				77.9				554.0				38.4				26.2			
26	7.5				78.1				752.0				20.2				25.0			
27	7.5				78.8				769.0				41.2				27.9			
28	7.9				79.4				760.0				67.9				38.9			
29	8.0				80.0				547.0				49.8				30.4			
30	7.9				79.5				541.0				64.1				33.2			
31	8.3				79.2				539.0				68.4				36.1			
AVG	7.5	0.0	0.0	0.0	76.6	0.0	0.0	0.0	588.7	0.0	0.0	0.0	70.5	0.0	0.0	0.0	33.6	0.0	0.0	0.0
MAX	8.3	0.0	0.0	0.0	80.0	0.0	0.0	0.0	769.0	0.0	0.0	0.0	136.0	0.0	0.0	0.0	47.0	0.0	0.0	0.0
MIN	7.3	0.0	0.0	0.0	72.7	0.0	0.0	0.0	539.0	0.0	0.0	0.0	20.2	0.0	0.0	0.0	24.4	0.0	0.0	0.0

ALGAL TOXIN & COMPOUNDS

WSSN 0040

MO/YR Jul-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	0.117	0.054													
2															
3															
4															
5															
6		0.000								5.3	0.0	0.0	31.2	2.8	4.7
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															
AVG	0.117	0.027	0.0	0.0	0.0	0.0	0.000	0.000	5.3	0.0	0.0	31.2	2.8	4.7	
MAX	0.117	0.054	0.0	0.0	0.0	0.0	0.000	0.000	5.3	0.0	0.0	31.2	2.8	4.7	
MIN	0.117	0.000	0.0	0.0	0.0	0.0	0.000	0.000	5.3	0.0	0.0	31.2	2.8	4.7	

<0.3 = non-detect*

qPCR MONITORING

WSSN 0040

MO/YR

Jul-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	1060.0	0.000	0.000	0.000	75.9	0.000	0.000	0.000		
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										
AVG	1060.0	0.000	0.000	0.000	75.9	0.000	0.000	0.000		
MAX	1060.0	0.000	0.000	0.000	75.9	0.000	0.000	0.000		
MIN	1060.0	0.000	0.000	0.000	75.9	0.000	0.000	0.000		