

**MONTHLY OPERATION REPORT OF
WATER TREATMENT PLANT**

SUPPLY NAME: CITY OF ADRIAN
WSSN: 0040

Tim Ritchie
Operator-in-Charge

January-20
Month/Year

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

F-1
Water Plant Classification

Electronically Submitted 2/6/20
Signature of Operator-in-Charge
EGLE-DWEH-JACKSON@MICHIGAN.GOV

LENAWEE
County

Treatment Rate and Filter Data

Maximum Treatment Rate:	<u>3.191</u>	Million Gallons per Day
Rated Plant Capacity:	<u>8.0</u>	Million Gallons per Day
Average Filter Run:	<u>125.3</u>	Hours
Average Head Loss:	<u>0.9</u>	Feet
Average Filtration Rate:	<u>1.03</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>2.0</u>	Percent of Treated Water

Chemical Data

Sodium Hypochlorite on hand	<u>54,340</u>	lb.	Est. supply:	<u>78.6</u>	days
Ferric Sulfate on hand	<u>82,844</u>	lb.	Est. supply:	<u>83.2</u>	days
Lime (CaO) on hand	<u>42.00</u>	Tons	Est. supply:	<u>13.3</u>	days
Cost of All Chemicals per Million Gallons:	<u>\$280.26</u>	dollars			
Total Power Cost per Million Gallons:	<u>\$154.15</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. Jan-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	0.735	1.867	2.602	2.503	17.1	3.9	17.9	20.8	1.1	24	0.05	0.06	6	0	0	0.05	0.06
2	1.212	1.852	3.064	3.046	16.9	3.4	26.3	29.4	1.3	24	0.05	0.07	6	0	0	0.05	0.07
3	1.050	1.837	2.887	2.664	19.2	3.6	22.3	26.8	0.9	24	0.04	0.08	6	0	0	0.04	0.06
4	0.960	1.677	2.637	2.678	16.1	4.1	18.2	21.8	1.2	24	0.04	0.06	6	0	0	0.03	0.06
5	1.092	1.867	2.959	2.826	16.0	3.4	12.9	17.0	1.0	24	0.04	0.05	6	0	0	0.03	0.06
6	1.076	1.902	2.978	2.799	16.1	3.0	12.5	16.0	1.4	24	0.00	0.05	6	0	0	0.04	0.06
7	1.105	1.805	2.910	2.829	16.7	3.4	9.8	10.6	0.8	24	0.03	0.04	6	0	0	0.04	0.05
8	1.148	1.939	3.087	2.859	17.3	3.0	8.9	12.8	1.2	24	0.04	0.06	6	0	0	0.04	0.06
9	1.151	1.840	2.991	2.895	16.7	3.3	8.3	9.1	1.1	24	0.05	0.07	6	0	0	0.05	0.07
10	1.405	1.732	3.137	2.848	17.6	3.0	9.4	10.8	1.2	24	0.04	0.06	6	0	0	0.04	0.06
11	0.927	1.623	2.550	2.645	17.8	3.3	10.0	11.7	1.2	24	0.04	0.05	6	0	0	0.04	0.04
12	1.085	1.759	2.844	2.824	18.3	3.3	31.4	35.6	1.9	24	0.04	0.05	6	0	0	0.03	0.04
13	0.841	1.991	2.832	2.810	18.0	3.5	33.1	37.9	2.0	24	0.04	0.06	6	0	0	0.04	0.06
14	0.777	2.119	2.896	2.850	18.4	3.6	28.6	30.9	1.3	24	0.04	0.05	6	0	0	0.04	0.05
15	0.706	1.938	2.644	2.681	14.5	3.0	24.5	29.2	0.7	24	0.04	0.05	6	0	0	0.04	0.05
16	0.989	1.883	2.872	2.769	17.6	2.3	21.8	24.4	1.2	24	0.04	0.05	6	0	0	0.05	0.06
17	1.000	1.716	2.716	2.681	17.8	2.2	20.8	26.4	1.5	22	0.06	0.07	6	0	0	0.06	0.06
18	0.866	1.872	2.738	2.621	15.3	2.8	15.1	19.5	2.0	24	0.08	0.14	6	0	0	0.08	0.12
19	0.748	1.791	2.539	2.649	12.2	2.7	12.8	18.1	0.9	24	0.04	0.05	6	0	0	0.05	0.07
20	1.380	1.811	3.191	2.925	18.0	3.0	18.1	19.8	1.0	24	0.04	0.05	6	0	0	0.04	0.05
21	1.330	1.384	2.714	2.622	19.4	3.1	18.1	20.1	0.8	24	0.03	0.04	6	0	0	0.03	0.04
22	1.281	1.376	2.657	2.653	20.2	3.3	14.9	17.3	1.4	24	0.04	0.06	6	0	0	0.04	0.08
23	1.289	1.490	2.779	2.681	20.4	2.0	14.0	18.5	1.4	24	0.04	0.04	6	0	0	0.03	0.05
24	1.182	1.474	2.656	2.608	18.5	3.2	13.5	26.8	1.1	24	0.04	0.05	6	0	0	0.04	0.04
25	1.163	1.403	2.566	2.557	19.8	2.7	13.0	18.3	1.1	24	0.04	0.05	6	0	0	0.04	0.05
26	1.385	1.365	2.750	2.616	19.4	3.7	12.3	13.2	1.1	24	0.03	0.04	6	0	0	0.04	0.05
27	1.349	1.479	2.828	2.747	21.8	1.1	17.5	35.5	2.8	24	0.04	0.08	6	0	0	0.04	0.04
28	1.333	1.398	2.731	2.743	21.8	1.7	12.3	17.0	1.0	24	0.04	0.06	6	0	0	0.05	0.06
29	1.332	1.364	2.696	2.582	20.9	2.3	13.1	17.5	0.9	24	0.04	0.06	6	0	0	0.04	0.05
30	1.239	1.468	2.707	2.619	21.0	2.0	15.6	19.5	1.1	24	0.04	0.05	6	0	0	0.04	0.04
31	1.323	1.483	2.806	2.676	20.5	3.3	12.3	15.3	1.1	24	0.04	0.06	6	0	0	0.04	0.05
AVG	1.112	1.694	2.805	2.726	18.1	3.0	16.8		1.2	24	0.04	0.06	6	0	0	0.04	0.06
MAX	1.405	2.119	3.191	3.046	21.8	4.1	33.1	37.9	2.8	24	0.08	0.14	6	0	0	0.08	0.12
MIN	0.706	1.364	2.539	2.503	12.2	1.1	8.3		0.7	22		0.04	6	0	0	0.03	0.04
Total	34.459	52.505	86.964	84.506									186	0	0		

MICHIGAN EGLE

FLUORIDATION AND CHLORINATION

WSSN 0040

MONTH/YR. Jan-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	0.40		0.59	0.64			4.7					1.7	1.8	1.6	1.7	1.40	17.18
2	0.40	0.59	0.70	0.78	0.66		4.9					1.9	2.0	1.6	1.7	1.30	15.61
3	0.40		0.65	0.74			4.8					1.5	1.6	1.6	1.7	1.30	11.03
4	0.30		0.63	0.76			4.8					1.8	1.8	1.6	1.7	1.40	20.16
5	0.40		0.59	0.72			4.9					2.1	2.1	1.8	1.9	1.60	15.50
6	0.50		0.54	0.77	0.69		4.9					1.9	1.9	1.7	1.8	1.60	15.04
7	0.50		0.79	0.81	0.59		5.0					1.6	1.8	1.9	2.0	1.70	14.10
8	0.50		0.63	0.85	0.68		5.1					1.7	2.0	1.9	2.1	1.70	14.96
9	0.40	0.57	0.65	0.67	0.73		4.8					1.5	1.6	1.8	1.9	1.70	16.44
10	0.30		0.58	0.75			4.8					1.6	1.6	1.7	1.8	1.50	14.44
11	0.20		0.64	0.46			4.9					1.7	1.9	1.8	1.9	1.50	18.17
12	0.30		0.58	0.67			4.7					1.8	1.9	1.8	1.9	1.60	13.58
13	0.40		0.62	0.71	0.65		4.9					2.0	2.0	1.9	1.9	1.70	15.19
14	0.40		0.63	0.73	0.60		4.9					2.3	2.5	1.9	2.0	1.60	15.75
15	0.40		0.63	0.69	0.69		4.3					2.0	2.0	1.9	2.0	1.60	18.14
16	0.30		0.58	0.68	0.64		4.6					1.8	1.9	1.8	1.9	1.60	15.59
17	0.30		0.57	0.58			4.7					1.8	1.9	1.9	2.1	1.70	14.57
18	0.40		0.59	0.76			4.7					1.6	1.7	1.7	1.8	1.40	14.27
19	0.40		0.57	0.69			4.8					1.8	1.9	1.7	1.8	1.40	16.17
20	0.40		0.58	0.74	0.66		4.9					1.5	1.5	1.8	1.8	1.40	11.89
21	0.40		0.56	0.66	0.62		4.8					1.8	1.9	1.8	1.9	1.50	15.13
22	0.30		0.57	0.63			4.7					2.2	2.5	1.8	1.9	1.50	15.79
23	0.30		0.53	0.48	0.53		4.7					1.8	1.9	1.8	1.9	1.40	16.65
24	0.40		0.61	0.63			4.9					2.0	1.9	1.8	1.9	1.70	18.92
25	0.40		0.68	0.67			4.7					2.0	2.1	1.9	1.9	1.70	13.44
26	0.40		0.70	0.72			4.6					1.8	1.9	1.8	1.9	1.70	19.34
27	0.40		0.59	0.67	0.61		4.5					1.8	1.8	1.8	1.9	1.70	14.17
28	0.30		0.64	0.66	0.66		4.6					1.7	1.8	1.7	1.8	1.60	16.54
29	0.30		0.64	0.56	0.59		4.5					1.7	1.8	1.7	1.8	1.60	15.91
30	0.30	0.52	0.53	0.64			4.4					1.6	1.6	1.7	1.8	1.60	14.96
31	0.30		0.61	0.65			4.6					2.2	2.2	1.8	1.9	1.50	13.43
AVG	0.37	0.55	0.61	0.68	0.64	0.0	4.7	0.0	0.0	0.0	0.0	1.8	1.9	1.8	1.9	1.57	15.49
MAX	0.50	0.59	0.79	0.85	0.73	0.0	5.1	0.0	0.0	0.0	0.0	2.3	2.5	1.9	2.1	1.70	20.16
MIN	0.20	0.52	0.53	0.46	0.53	0.0	4.3	0.0	0.0	0.0	0.0	1.5	1.5	1.6	1.7	1.30	11.03

MICHIGAN EGLE

CHEMICAL ANALYSES

WSSN 0040

MONTH /

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
	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	Tap
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	41	42	43
1	7.3	9.1	348	210	301	68	47	142	274	114	74	96					
2	7.3	9.2	384	198	297	76	87	122	206	118	178	80	27.5	35.0			
3	7.4	9.1	374	150	290	71	84	79	316	150	58	0					
4	7.5	9.0	362	160	272	77	90	83	322	134	40	26					
5	7.6	9.1	396	160	271	76	125	84	328	126	68	34					
6	7.8	9.2	372	156	273	69	99	87	320	104	52	52					
7	7.5	9.2	376	168	279	77	97	91	342	118	34	50					
8	7.4	9.1	356	148	277	85	79	63	250	114	106	34					
9	7.4	9.1	362	142	293	72	69	70	262	106	100	36					
10	7.4	9.0	366	168	279	70	87	98	316	122	50	46					
11	7.4	9.1	395	172	305	77	90	95	302	98	93	74					
12	7.3	9.2	374	166	286	72	88	94	300	94	74	72					
13	7.3	9.1	376	166	292	67	84	99	256	94	120	72					
14	7.4	9.1	366	160	265	69	101	91	282	110	84	50					
15	7.4	9.0	368	160	270	69	98	91	282	112	86	48					
16	7.4	9.1	396	166	287	74	109	92	354	134	42	32					
17	7.3	9.3	372	166	280	83	92	83	256	136	116	30					
18	7.6	9.1	386	176	284	85	102	91	372	140	14	36					
19	7.5	9.1	400	186	299	78	101	108	368	158	32	28					
20	7.5	9.2	348	172	268	82	80	90	332	140	16	32	29.0	26.5			
21	7.4	9.1	364	168	294	86	70	82	328	138	36	30					
22	7.4	9.0	390	160	287	78	103	82	340	120	50	40					
23	7.5	9.1	374	174	297	80	77	94	348	136	26	38					
24	7.4	9.1	388	174	298	70	90	104	322	120	66	54					
25	7.4	9.1	360	154	304	63	56	91	310	100	50	54					
26	7.4	9.1	360	146	289	64	71	82	300	86	60	60					
27	7.4	9.2	388	198	278	83	110	115	282	116	106	82					
28	7.4	9.0	390	184	272	75	118	109	260	120	130	64					
29	7.4	9.1	336	184	270	75	66	109	256	134	80	50					
30	7.4	9.1	376	176	265	73	111	103	258	106	118	70					
31	7.5	9.2	328	144	254	70	74	74	258	110	70	34					
AVG	7.4	9.1	372	168	283	75	89	93	300	120	72	49	28.3	30.8	0.0	0.0	####
MAX	7.8	9.3	400	210	305	86	125	142	372	158	178	96	29.0	35.0	0.0	0.0	0.00
MIN	7.3	9.0	328	142	254	63	47	63	206	86	14	0	27.5	26.5	0.0	0.0	0.00

MICHIGAN EGLE

SOFTENING PARAMETERS

WSSN 0040

MONTH/YR. Jan-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	242	36.1	0.29		0	49	22				56	19	0		0.8
2	242	37.9	0.32		0	52	28				55	23	0		1.0
3	316	33.5	0.31		0	48	23				51	20	0		1.0
4	277	42.5	0.30		0	50	23				61	19	0		0.9
5	317	31.7	0.33		0	54	14				58	17	0		1.0
6	328	24.1	0.32		0	53	18				49	21	0		0.9
7	306	40.0	0.31		0	47	25				52	22	0		1.0
8	293	34.0	0.34		0	50	17				55	17	0		0.9
9	287	29.5	0.31		0	55	16				54	17	0		0.8
10	291	29.9	0.33		0	54	9				52	18	0		0.8
11	308	27.7	0.31		0	60	8				57	19	0		0.8
12	327	32.2	0.32		0	52	16				52	21	0		0.9
13	341	30.8	0.32		0	49	15				53	15	0		0.8
14	348	36.4	0.32		0	53	15				55	18	0		0.9
15	337	37.7	0.28		0	55	25				54	18	0		0.7
16	336	35.8	0.31		0	46	20				52	21	0		0.9
17	326	38.1	0.32		0	49	19				54	22	0		1.1
18	227	25.9	0.29		0	60	15				60	20	0		1.0
19	227	36.5	0.31		0	56	21				56	21	0		1.0
20	225	40.9	0.32		0	57	25				59	24	0		1.1
21	198	39.6	0.27		0	54	18				58	18	0		1.0
22	203	28.0	0.32		0	56	12				55	19	0		0.8
23	215	27.4	0.31		0	59	8				52	21	0		1.0
24	231	30.4	0.30		0	52	19				53	20	0		0.8
25	235	29.6	0.29		1	53	15				50	19	0		0.7
26	244	31.5	0.31		0	51	26				52	24	0		0.7
27	257	38.0	0.32		0	49	25				52	24	0		1.0
28	248	33.7	0.32		0	53	19				53	22	0		0.8
29	236	35.8	0.33		0	55	22				55	22	0		0.9
30	217	27.2	0.32		0	51	13				53	20	0		0.8
31	253	29.2	0.31		0	62	19				50	23	0		0.9
AVG	272	33.3	0.31	0.00	0	53	18	0	0	0	54	20	0		0.9
MAX	348	42.5	0.34	0.00	1	62	28	0	0	0	61	24	0		1.1
MIN	198	24.1	0.27	0.00	0	46	8	0	0	0	49	15	0		0.7

MICHIGAN EGLE

BACTERIOLOGICAL AND PHYSICAL PARAMETERS

WSSN 0040

MO/YR

Jan-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	49	41	224.2	49	8	187.2								
2	10	49	47	24192.0	15	2	199.0								
3	1	45	12	14390.0	0	0	0.0								
4	1	38	10	8860.0	0	0	0.0	0	0	0	0	0.0	0.0	0	
5	0	49	46	1986.3	13	4	19.5								
6	10	47	13	1785.0	1	0	10.0								
7	10	49	17	2909.0	0	0	0.0								
8	10	46	16	1782.0	1	0	10.0								
9	10	46	9	1421.0	0	0	0.0								
10	10	49	10	2046.0	2	0	20.0								
11	10	34	4	613.0	1	0	10.0	0	0	0	0	0.0	0.0	0	
12	10	49	34	7701.0	20	1	262.0								
13	1	46	9	14210.0	4	1	520.0								
14	1	37	3	6910.0	2	0	200.0								
15	1	22	3	3230.0	1	0	100.0								
16	10	49	26	4884.0	2	0	20.0								
17	1	20	1	3690.0	0	0	0.0								
18	0	49	41	1203.3	7	2	9.6	0	0	0	0	0.0	0.0	0	
19	0	49	22	387.3	8	0	8.6								
20	0	49	26	488.4	9	0	9.8								
21	0	49	23	410.6	9	0	9.8								
22	0	49	26	488.4	4	1	5.2								
23	0	49	26	488.4	4	1	5.2								
24	0	49	24	435.2	4	0	4.1								
25	10	21	5	332.0	0	0	0.0	0	0	0	0	0.0	0.0	0	
26	10	46	34	331.0	3	1	4.1								
27	0	49	32	686.7	14	1	17.3								
28	0	49	25	461.1	14	1	17.3								
29	10	11	2	145.0	3	1	41.0								
30	0	49	37	920.8	23	3	34.1								
31	10	48	14	2098.0	4	0	41.0								
AVG		43	21	3539.0	7	1	56.9	0		0	0.0	0	0	0	0
MAX		49	47	24192.0	49	8	520.0	0	0	0	0.0	0	0	0	0
MIN		11	1	145.0	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

Jan-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	13.6	11.7									
2	1	A	0	0	13.2	12.1										
3	1	A	0	23	13.2	10.8										
4	1	A	0	0	13.0	11.4										
5	1	A	2	12	13.0	12.0										
6	1	A	0	0	13.2	11.7	79	0								
7	1	A	0	0	12.1	9.7										
8	1	A	0	0	11.6	9.4										
9	1	A	0	0	11.6	9.1										
10	1	A	2	0	11.7	9.2										
11	1	A	0	0	11.8	9.0										
12	1	A	0	0	11.5	9.3										
13	1	A	0	2	12.0	9.7	320	0								
14	1	A	0	0	12.5	10.8	220	0								
15	1	A	2	0	12.5	10.3	263	0								
16	1	A	0	0	12.6	10.4	25	0								
17	1	A	0	0	12.5	10.2	166	0								
18	1	A	6	23	11.8	9.3										
19	1	A	0	0	12.0	9.7										
20	1	A	2	0	12.1	9.4	158	4								
21	1	A	0	0	11.9	9.1										
22	1	A	2	0	11.9	8.6										
23	1	A	2	0	11.0	9.5										
24	1	A	0	0	11.1	8.7										
25	1	A	0	0	10.8	8.8										
26	1	A	0	0	10.5	8.5										
27	1	A	0	0	10.4	8.7	101	0								
28	1	A	0	0	12.7	10.2										
29	1	A	0	0	12.1	10.1										
30	1	A	0	0	12.0	10.2										
31	1	A	0	0	11.0	10.7										
AVG	1		1	2	12.0	9.9	166.5	0.5								
MAX	1	0	6	23	13.6	12.1	320.0	4.0								
MIN	1	0	0	0	10.4	8.5	25.0	0.0								

BLUE GREEN ALGAE & PHYSICAL PARAMETERS

LAKE ADRIAN

WSSN 0040

DATE MO/YR

Jan-20

DATE	pH				TEMPERATURE				CONDUCTIVITY				CHLOROPHYLL-a				PHYCOCYANIN			
	MAX				MAX				MAX				MAX				MAX			
1	7.9				39.0				412.0				7.9				30.5			
2	7.9				37.8				435.0				7.3				28.8			
3	8.1				38.0				468.0				8.4				33.6			
4	8.0				38.5				496.0				8.3				30.2			
5	8.0				38.4				512.0				8.7				30.9			
6	8.9				45.4				531.0				10.0				29.6			
7	8.0				38.4				536.0				8.7				32.6			
8	8.1				37.6				564.0				9.5				30.0			
9	8.1				36.8				564.0				10.4				30.2			
10	8.1				38.3				572.0				9.4				31.8			
11	8.1				40.4				565.0				8.5				37.2			
12	8.1				40.4				565.0				8.5				37.2			
13	7.8				39.5				333.0				6.6				35.5			
14	7.8				38.3				334.0				6.3				32.7			
15	7.8				38.5				384.0				6.5				32.9			
16	8.2				38.5				421.0				8.6				39.0			
17	7.9				49.5				805.0				11.6				56.9			
18	8.0				37.0				454.0				9.6				30.4			
19	8.0				35.7				471.0				10.2				29.6			
20	7.9				35.2				476.0				9.5				29.5			
21	7.9				35.0				506.0				11.2				28.3			
22	8.0				34.8				523.0				13.3				29.6			
23	8.0				34.6				536.0				16.3				30.8			
24	8.0				34.9				533.0				16.0				32.8			
25	7.9				35.2				533.0				15.2				34.5			
26	8.0				34.9				533.0				15.3				34.7			
27	8.0				35.2				535.0				18.0				35.9			
28	8.0				36.2				531.0				16.5				38.3			
29	8.1				36.8				517.0				16.0				40.6			
30	7.9				37.2				513.0				12.9				37.0			
31	8.0				37.4				527.0				13.5				38.0			
AVG	8.0	0.0	0.0	0.0	37.9	0.0	0.0	0.0	506.0	0.0	0.0	0.0	10.9	0.0	0.0	0.0	33.9	0.0	0.0	0.0
MAX	8.9	0.0	0.0	0.0	49.5	0.0	0.0	0.0	805.0	0.0	0.0	0.0	18.0	0.0	0.0	0.0	56.9	0.0	0.0	0.0
MIN	7.8	0.0	0.0	0.0	34.6	0.0	0.0	0.0	333.0	0.0	0.0	0.0	6.3	0.0	0.0	0.0	28.3	0.0	0.0	0.0

ALGAL TOXIN & COMPOUNDS

WSSN 0040

MO/YR Jan-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															
6										5.4	1.1	1.1	4.4	1.1	1.4
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	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	5.4	1.1	1.1	4.4	1.1	1.4	
MAX	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	5.4	1.1	1.1	4.4	1.1	1.4	
MIN	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	5.4	1.1	1.1	4.4	1.1	1.4	

<0.3 = non-detect*

qPCR MONITORING

WSSN 0040

MO/YR Jan-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										
16										
17										
18										
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		