MONTHLY OPERATION REPORT OF
WATER TREATMENT PLANT

SUPPLY NAME: **CITY OF ADRIAN**
WSSN: **0040**

Tim Ritchie	**February-20**
Operator-in-Charge	Month/Year
F-1, S-3	**F-1**
Certification of Operator-in-Charge	Water Plant Classification
Electronically Submitted 3/3/20	**LENAWEE**
Signature of Operator-in-Charge	County

EGLE-DWEH-JACKSON@MICHIGAN.GOV

Treatment Rate and Filter Data

Maximum Treatment Rate:	2.956	Million Gallons per Day
Rated Plant Capacity:	8.0	Million Gallons per Day
Average Filter Run:	125.07	Hours
Average Head Loss:	0.9	Feet
Average Filtration Rate:	1.04	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	1.34	Gallons Per Square Feet per Minute
Average Wash Water Use:	2.0	Percent of Treated Water

Chemical Data

Sodium Hypochlorite on hand	43,952	lb.	Est. supply:	122.7	days
Ferric Sulfate on hand	61,387	lb.	Est. supply:	83	days
Lime (CaO) on hand	42.00	Tons	Est. supply:	15.2	days

Cost of All Chemicals per Million Gallons:	$248.73	dollars
Total Power Cost per Million Gallons:	$165.56	dollars

Remarks

Number of filter confluence samples > 0.3 NTU:	0
Number of filter confluence compliance samples collected:	174
Percent of filter confluence samples > 0.3 NTU:	0

Did any individual filter exceed:

1.0 NTU in two consecutive measurements taken 15 minutes apart? NO
If yes, attach specific filter(s) information and indicate required follow-up status.

0.5 NTU in two consecutive measurements taken 15 minutes apart after 4 hours of operation? NO
If yes, attach specific filter(s) information and indicate required follow-up status.

1.0 NTU in two consecutive measurements taken 15 minutes apart for 3 consecutive months? NO
If yes, attach specific filter(s) information and indicate required follow-up status.

2.0 NTU in two consecutive measurements taken 15 minutes apart for 2 consecutive months? NO
If yes, attach specific filter(s) information and indicate required follow-up status.

Was continuous (every 15 minutes) filter monitoring equipment off-line during the month? NO
If yes, indicate date(s), duration, and individual filter grab sampling frequency on a separate sheet.

Did POE disinfectant residual fall below 0.2 ppm during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

Was minimum C*T credit achieved for the entire month? YES
If no, indicate on a separate sheet the date(s) not achieved.

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

MICHIGAN EGLE

COAGULATION PARAMETERS **WSSN 0040** **MONTH/YR.** **Feb-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_2SO_4 NSF 60 Max: 600	Powdered Activated Carbon mg/L NSF 60 Max: 250	Turbidity, Units Raw Avg.	Raw Max.	Applied Avg.	Filter Confluence No. of Samples	Filter Confluence Comp. Perod Avg.	Filter Confluence Max.	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
1	1.251	1.338	2.589	2.490	20.1	3.0	11.0	12.6	0.7	24	0.03	0.04	6	0	0	0.03	0.04
2	1.322	1.380	2.702	2.548	20.6	3.5	10.8	14.1	0.8	24	0.04	0.05	6	0	0	0.04	0.05
3	1.446	1.477	2.923	2.685	19.8	3.2	8.4	12.9	1.0	24	0.04	0.05	6	0	0	0.04	0.04
4	1.371	1.426	2.797	2.683	21.2	2.5	7.3	9.1	1.0	24	0.04	0.06	6	0	0	0.04	0.06
5	1.293	1.431	2.724	2.670	21.3	3.1	10.1	12.4	1.8	24	0.04	0.05	6	0	0	0.04	0.06
6	1.207	1.414	2.621	2.650	10.3	2.8	10.7	12.0	1.2	24	0.04	0.05	6	0	0	0.04	0.04
7	1.500	1.456	2.956	2.613	18.4	1.3	12.0	14.5	1.3	24	0.04	0.07	6	0	0	0.04	0.05
8	1.229	1.235	2.464	2.467	20.5	0.0	10.3	11.5	0.1	24	0.03	0.05	6	0	0	0.04	0.05
9	1.344	1.394	2.738	2.515	19.0	0.0	11.3	13.1	1.2	24	0.04	0.05	6	0	0	0.04	0.05
10	1.333	1.462	2.795	2.733	22.1	0.0	12.7	17.8	1.2	24	0.03	0.05	6	0	0	0.03	0.04
11	1.246	1.476	2.722	2.556	21.1	2.2	8.7	10.7	1.0	24	0.03	0.05	6	0	0	0.04	0.06
12	1.340	1.471	2.811	2.689	20.9	2.6	8.2	11.3	1.0	24	0.04	0.04	6	0	0	0.04	0.04
13	1.212	1.388	2.600	2.615	21.2	3.1	11.9	18.9	1.2	24	0.04	0.06	6	0	0	0.04	0.05
14	1.395	1.481	2.876	2.749	23.3	2.8	8.9	9.9	1.4	24	0.04	0.06	6	0	0	0.05	0.06
15	1.185	1.352	2.537	2.485	21.9	2.3	6.6	7.5	1.0	24	0.04	0.05	6	0	0	0.04	0.05
16	1.252	1.376	2.628	2.706	22.1	4.2	6.4	7.4	0.9	24	0.04	0.05	6	0	0	0.04	0.05
17	1.437	1.506	2.943	2.749	22.5	3.4	6.8	7.6	1.2	24	0.03	0.03	6	0	0	0.03	0.05
18	1.306	1.329	2.635	2.670	21.0	3.5	5.3	5.7	1.0	24	0.03	0.03	6	0	0	0.03	0.04
19	1.403	1.521	2.924	2.655	22.1	3.9	6.8	11.1	1.0	24	0.03	0.03	6	0	0	0.03	0.04
20	1.309	1.470	2.779	2.647	21.8	2.7	5.4	6.6	1.3	24	0.03	0.04	6	0	0	0.04	0.06
21	1.443	1.260	2.703	2.647	21.3	2.7	5.1	5.7	1.2	24	0.04	0.06	6	0	0	0.05	0.07
22	1.240	1.423	2.663	2.517	22.6	2.9	6.0	7.5	1.2	24	0.03	0.04	6	0	0	0.04	0.05
23	1.229	1.532	2.761	2.569	20.4	3.7	6.1	8.3	1.4	24	0.04	0.05	6	0	0	0.04	0.05
24	1.236	1.507	2.743	2.592	22.7	3.6	5.5	7.0	1.3	24	0.03	0.04	6	0	0	0.04	0.04
25	1.230	1.437	2.667	2.648	22.4	3.2	5.2	5.7	1.3	24	0.03	0.04	6	0	0	0.03	0.04
26	1.224	1.436	2.660	2.625	21.2	2.9	6.1	7.8	1.3	24	0.04	0.05	6	0	0	0.03	0.05
27	1.193	1.465	2.658	2.520	23.2	3.1	7.1	9.5	1.3	24	0.03	0.04	6	0	0	0.03	0.04
28	1.204	1.560	2.764	2.649	25.5	2.8	8.2	12.8	0.7	24	0.04	0.09	6	0	0	0.05	0.09
29	1.211	1.563	2.774	2.580	25.5	2.6	6.5	8.0	0.5	24	0.03	0.05	6	0	0	0.03	0.04
30																	
31																	
AVG	1.296	1.433	2.730	2.618	21.2	2.7	8.1		1.1	24	0.04	0.05	6	0	0	0.04	0.05
MAX	1.500	1.563	2.956	2.749	25.5	4.2	12.7	18.9	1.8	24	0.04	0.09	6	0	0	0.05	0.09
MIN	1.185	1.235	2.464	2.467	10.3	0.0	5.1		0.1	24		0.03	6	0	0	0.03	0.04
Total	37.591	41.566	79.157	75.922									174	0	0		

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Authority, Act 399 P.A. 1976

MICHIGAN EGLE

FLUORIDATION AND CHLORINATION **WSSN 0040** **MONTH/YR. Feb-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									CT
								FILTER INFLUENT		FILTER EFFLUENT		CLEARWELL INFLUENT		PLANT TAP			
		SURF.	WELL	TAP	DIST.	FILTER INFLUENT	CLEARWELL INFLUENT	FREE	TOTAL	FREE	TOTAL	FREE	TOTAL	FREE	TOTAL	MIN FREE CL_2 RES	RATIO
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	0.30		0.71	0.70			4.3					2.2	2.1	1.9	2.0	1.70	17.31
2	0.40		0.70	0.68			4.2					2.0	2.1	1.8	1.9	1.70	15.69
3	0.30		0.56	0.64	0.64		4.2					1.7	1.9	1.7	1.8	1.60	13.28
4	0.30		0.55	0.62			4.4					1.8	1.9	1.8	1.9	1.70	17.43
5	0.30		0.54	0.60	0.59		4.0					1.9	2.1	1.8	2.0	1.70	18.05
6	0.30	0.49	0.58	0.58	0.60		4.2					1.7	1.8	1.8	1.9	1.50	14.85
7	0.40		0.58	0.66			4.5					1.8	1.8	1.7	1.8	1.60	14.07
8	0.30		0.66	0.59			4.3					1.7	1.9	1.6	1.7	1.50	15.30
9	0.30		0.69	0.56			4.1					2.1	2.2	1.6	1.7	1.10	11.62
10	0.40		0.59	0.74			4.5					2.4	2.2	1.8	1.8	1.40	14.76
11	0.40		0.62	0.67	0.63		4.4					2.1	2.1	1.8	1.9	1.50	16.13
12	0.30		0.62	0.69	0.64		4.3					1.5	1.6	1.7	1.7	1.50	16.15
13	0.30		0.62	0.69	0.59		4.5					1.7	1.8	1.7	1.7	1.50	16.61
14	0.40	0.44	0.66	0.80			4.6					1.7	1.9	1.8	1.8	1.60	15.36
15	0.40		0.63	0.68			4.9					1.7	1.9	1.8	1.9	1.60	20.12
16	0.40		0.62	0.71			4.6					1.5	1.7	1.7	1.8	1.60	18.61
17	0.40		0.66	0.77	0.64		4.7					1.6	1.7	1.8	1.8	1.60	15.80
18	0.30		0.62	0.59	0.64		4.8					1.8	1.8	1.7	1.8	1.60	18.18
19	0.30		0.55	0.64	0.56		4.8					1.8	1.8	1.8	1.8	1.60	17.34
20	0.30	0.47	0.58	0.58	0.68		5.0					1.9	2.0	1.8	1.8	1.60	17.34
21	0.50		0.62	0.86			5.1					1.7	1.7	1.7	1.8	1.40	16.49
22	0.40		0.77	0.74			4.8					1.8	2.0	1.8	1.9	1.70	20.53
23	0.40		0.76	0.77			4.8					1.7	1.8	1.8	1.8	1.50	18.00
24	0.30		0.69	0.60	0.72		4.8					1.7	1.9	1.7	1.8	1.60	18.25
25	0.40		0.66	0.69	0.63		4.8					1.6	1.7	1.7	1.8	1.60	14.48
26	0.30		0.66	0.53	0.62		5.0					1.6	1.6	1.6	1.7	1.50	17.54
27	0.40	0.49	0.62	0.76			4.9					1.7	1.9	1.7	1.7	1.50	18.78
28	0.40		0.64	0.78			5.2					1.5	1.7	1.7	1.8	1.60	12.64
29	0.40		0.63	0.73			5.1					1.5	1.6	1.7	1.8	1.40	17.62
30																	
31																	
AVG	0.36	0.47	0.63	0.68	0.63	0.0	4.6	0.0	0.0	0.0	0.0	1.7	1.9	1.7	1.8	1.54	16.49
MAX	0.50	0.49	0.77	0.86	0.72	0.0	5.2	0.0	0.0	0.0	0.0	2.4	2.2	1.9	2.0	1.70	20.53
MIN	0.30	0.44	0.54	0.53	0.56	0.0	4.0	0.0	0.0	0.0	0.0	1.5	1.6	1.6	1.7	1.10	11.62

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

CHEMICAL ANALYSES **WSSN 0040** **MONTH /YR. Feb-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	158	269	74	71	84	266	100	74	58							
2	7.5	9.2	364	162	268	96	96	66	290	146	74	16							
3	7.5	9.1	360	160	291	75	69	85	300	98	60	62	29.0	34.0					
4	7.5	9.1	372	156	286	78	86	78	312	106	60	50							
5	7.6	9.1	352	160	284	75	68	85	294	96	58	64							
6	7.5	9.1	358	148	285	74	73	74	314	106	44	42							
7	7.4	9.1	372	145	285	68	87	86	286	106	86	48	27.0	30.0	75.0	74.0	0.41	1.00	1.30
8	7.4	9.2	372	170	285	69	87	101	302	102	70	68							
9	7.4	9.1	366	166	276	76	90	90	278	114	88	52							
10	7.3	9.1	360	160	266	72	94	88	298	122	62	38							
11	7.4	9.1	366	166	265	70	101	96	282	118	84	48							
12	7.5	9.1	376	172	271	73	105	99	298	124	78	48							
13	7.4	9.1	356	164	272	70	84	94	298	110	58	54							
14	7.5	9.1	324	156	255	75	69	81	222	102	102	54							
15	7.6	9.0	338	152	266	70	72	82	320	116	18	36							
16	7.6	9.0	356	162	272	72	84	90	302	142	54	20							
17	7.6	9.1	340	164	265	84	75	80	330	146	10	18							
18	7.6	9.0	352	168	279	78	73	90	322	152	30	16							
19	7.6	9.1	378	168	288	82	90	86	364	152	14	16							
20	7.6	9.1	370	166	290	78	80	88	362	112	8	54							
21	7.4	9.1	382	182	291	80	91	102	290	110	92	72							
22	7.5	9.1	348	186	298	78	50	108	286	110	62	76							
23	7.5	9.1	336	166	286	77	50	89	272	106	64	60							
24	7.5	9.1	372	178	279	81	93	97	240	96	132	82	29.0	37.5					
25	7.5	9.1	364	172	287	72	77	100	258	104	106	68							
26	7.6	9.1	374	188	289	77	85	111	278	114	96	74							
27	7.5	9.0	382	178	288	77	94	101	270	110	112	68							
28	7.6	9.1	330	152	276	71	54	81	256	120	74	32							
29	7.6	9.0	378	160	278	73	100	87	298	108	80	52							
30																			
31																			
AVG	7.5	9.1	360	165	279	76	81	90	293	115	67	50	28.3	33.8	75.0	74.0	0.41	1.00	1.30
MAX	7.6	9.2	382	188	298	96	105	111	364	152	132	82	29.0	37.5	75.0	74.0	0.41	1.00	1.30
MIN	7.3	9.0	324	145	255	68	50	66	222	96	8	16	27.0	30.0	75.0	74.0	0.41	1.00	1.30

MICHIGAN EGLE

SOFTENING PARAMETERS **WSSN 0040** **MONTH/YR. Feb-20**

DATE	CHEMICAL APPLICATION mg/l				ALKALINITY as CaCO3 mg/l									STABILITY	
					#1 FLOC			#2 FLOC			TAP				
	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	BI-CARBONATE	CARBONATE	HYDROXIDE	BI-CARBONATE	CARBONATE	HYDROXIDE	BI-CARBONATE	CARBONATE	HYDROXIDE	FREE CO2 MG/L Raw	LANGELIER INDEX Tap
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
1	248	36.9	0.33		0	52	50				54	21	0		0.8
2	261	38.0	0.30		0	53	16				59	26	0		1.2
3	278	28.6	0.31		0	64	9				56	24	0		0.8
4	307	29.2	0.33		0	50	14				59	19	0		0.9
5	321	27.5	0.32		0	58	15				55	17	0		0.8
6	323	33.8	0.29		0	51	15				54	21	0		0.8
7	308	28.8	0.30		0	58	14				49	24	0		0.8
8	306	33.4	0.30		0	56	24				49	23	0		0.9
9	282	32.7	0.32		0	55	13				54	20	0		0.9
10	300	31.6	0.32		0	49	15				52	20	0		0.9
11	297	33.5	0.33		0	54	19				53	19	0		0.8
12	302	33.4	0.30		0	51	17				54	20	0		0.9
13	298	29.8	0.30		0	52	11				51	19	0		0.8
14	318	28.3	0.32		0	45	16				57	16	0		0.8
15	306	30.8	0.28		0	49	15				57	17	0		0.7
16	241	36.1	0.29		0	54	28				53	18	0		0.8
17	223	44.1	0.33		0	57	20				59	21	0		1.0
18	213	32.5	0.28		0	50	16				56	17	0		0.9
19	213	31.3	0.31		0	58	12				54	19	0		1.0
20	217	29.0	0.31		0	56	13				55	20	0		0.9
21	220	31.7	0.31		0	53	17				55	21	0		0.8
22	221	32.6	0.32		0	51	14				57	16	0		0.8
23	210	29.5	0.29		0	59	13				57	17	0		0.8
24	219	34.6	0.30		0	57	17				55	20	0		0.8
25	222	35.1	0.32		0	56	21				56	19	0		0.8
26	217	32.9	0.30		0	57	16				58	19	0		0.9
27	215	33.3	0.30		0	54	19				59	18	0		0.8
28	212	30.8	0.32		0	54	19				55	19	0		0.9
29	346	33.1	0.32		0	60	53				55	19	0		0.7
30															
31															
AVG	264	32.5	0.31	0.00	0	54	19	0	0	0	55	20	0		0.9
MAX	346	44.1	0.33	0.00	0	64	53	0	0	0	59	26	0		1.2
MIN	210	27.5	0.28	0.00	0	45	9	0	0	0	49	16	0		0.7

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Authority Act 399, P.A. 1976

MICHIGAN EGLE

BACTERIOLOGICAL AND PHYSICAL PARAMETERS **WSSN 0040** **MO/YR** **Feb-20**

	TOTAL COLIFORM				E.COLI			TOTAL COLIFORM				E.COLI			
	RAW QANTI-TRAY 2000							WELL QUANTI - TRAY 2000							
DATE	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	0	49	32	686.7	11	3	15.6	0	0	0	0	0.0	0.0		
2	0	49	21	365.4	9	3	13.1								
3	0	49	19	325.5	10	1	12.1								
4	0	49	19	325.5	6	0	6.3								
5	0	49	43	1413.6	12	0	13.5								
6	0	49	37	920.8	8	0	8.6								
7	10	49	18	3076.0	0	0	0.0								
8	10	49	18	3076.0	2	0	20.0	0	0	0	0	0.0	0.0	0	
9	10	48	13	2014.0	0	0	0.0								
10	10	45	11	1396.0	0	0	0.0								
11	10	30	5	520.0	0	0	0.0								
12	0	48	22	298.7	1	1	1.0								
13	0	47	16	198.9	2	0	2.0								
14	0	49	12	224.7	0	2	2.0								
15	0	45	13	148.3	4	0	4.1	0	0	0	0	0.0	0.0	0	
16	0	47	8	150.0	7	1	8.5								
17	0	49	12	224.7	6	1	7.4								
18	0	45	8	127.4	4	0	4.1								
19	0	42	8	104.6	5	0	5.2								
20	0	42	5	96.0	5	0	5.2								
21	0	32	2	52.1	0	0	0.0								
22	0	35	4	64.4	3	0	3.1	0	0	0	0	0.0	0.0	0	
23	0	25	6	47.7	1	0	1.0								
24	0	20	3	28.8	0	0	0.0								
25	0	25	3	37.9	1	0	1.0								
26	0	37	3	69.1	2	0	2.0								
27	0	29	4	48.0	0	0	0.0								
28	0	49	23	410.6	4	0	4.1								
29	0	48	11	186.0	3	0	3.1	0							
30															
31															
AVG		42	14	573.7	4	0	4.9	0		0	0.0	0	0	0	0
MAX		49	43	3076.0	12	3	20.0	0	0	0	0.0	0	0	0	0
MIN		20	2	28.8	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.

D-5f 1/86
Authority Act 399, P.A. 1976

MICHIGAN EGLE

BACTERIOLOGICAL AND PHYSICAL PARAMETERS **WSSN 0040** **MO/YR Feb-20**

DATE	PLANT TAP # OF SAMPLES	PLANT TAP P/A	STANDARD PLATE COUNT MPN TAP	STANDARD PLATE COUNT MPN TAP	TEMPERATURE-(C) RAW	TEMPERATURE-(C) TAP	COLOR TRUE X APPARENT __ RAW	COLOR TRUE X APPARENT __ TAP							
	75	76	77	78	79	80	81	82							
1	1	A	4	0	12.5	11.2									
2	1	A	0	0	10.8	10.3									
3	1	A	0	2	11.8	10.6	18	0							
4	1	A	0	0	10.9	9.3									
5	1	A	2	0	10.8	8.4									
6	1	A	0	0	10.9	8.9									
7	1	A	0	0	10.7	8.6									
8	1	A	0	0	11.0	8.9									
9	1	A	0	0	10.9	8.8									
10	1	A	0	0	11.0	8.7									
11	1	A	0	0	11.4	9.3									
12	1	A	0	0	11.6	9.4	18	0							
13	1	A	0	0	11.3	9.8									
14	1	A	0	0	11.1	9.1									
15	1	A	0	0	10.6	9.4									
16	1	A	8	19	11.4	9.4									
17	1	A	8	43	10.9	9.7	22	0							
18	1	A	0	0	10.6	8.8									
19	1	A	0	0	10.5	8.8									
20	1	A	2	0	10.6	8.8									
21	1	A	0	0	10.6	9.1									
22	1	A	2	0	10.8	9.1									
23	1	A	0	0	10.5	9.5									
24	1	A	0	0	10.5	9.5									
25	1	A	0	0	11.5	10.2									
26	1	A	0	0	12.0	10.2									
27	1	A	0	0	11.3	10.5									
28	1	A	0	0	11.5	10.5									
29	1	A	0	0	11.0	10.4									
30															
31															
AVG	1		1	2	11.1	9.5	19.3	0.0							
MAX	1	0	8	43	12.5	11.2	22.0	0.0							
MIN	1	0	0	0	10.5	8.4	18.0	0.0							

D-5g 1/86
Authority: Act 399, P.A. 1976

MICHIGAN EGLE

DISTRIBUTION SYSTEM MONITORING **WSSN 0040** **MONTH/YR.** Feb-20

CHLORINE RESIDUAL AT BACTERIOLOGICAL MONITORING STATIONS mg/l — X FREE / ____ TOTAL

DATE	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			1.4															1.3													
2			1.5								1.5						1.5			1.7					1.4						
3											1.4								1.3												
4					1.7												1.9														
5												1.3												1.8							
6			1.7															1.8													
7						1.3																				2.0					
8												1.4												1.7							
9					1.4								1.4						1.6						1.8						
10													1.1						1.3												

DISTRIBUTION SAMPLE SUMMARY

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

DISTRIBUTION FREE CHLORINE RESIDUAL SUMMARY

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

DISTRIBUTION BACTERIOLOGICAL SUMMARY

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

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

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

BLUE GREEN ALGAE & PHYSICAL PARAMETERS **LAKE ADRIAN** **WSSN 0040** **DATE MO/YR** **Feb-20**

DATE	pH				TEMPERATURE				CONDUCTIVITY				CHLOROPHYLL-a				PHYCOCYANIN			
	MAX				MAX				MAX				MAX				MAX			
1	8.0				37.3				545.0				15.1				38.5			
2	8.0				37.3				553.0				15.7				38.4			
3	8.6				45.0				559.0				18.9				63.8			
4	8.0				38.9				548.0				20.7				46.4			
5	8.0				38.0				513.0				14.9				43.3			
6	8.0				38.0				501.0				16.5				49.0			
7	8.0				38.0				506.0				14.6				48.6			
8	8.0				37.4				518.0				13.3				48.1			
9	8.0				37.2				547.0				15.6				48.6			
10	8.0				37.0				557.0				15.2				49.2			
11	8.1				37.2				581.0				17.7				51.1			
12	8.1				37.0				590.0				17.8				51.7			
13	8.1				47.4				777.0				23.9				78.0			
14	8.1				37.1				592.0				18.3				62.3			
15	8.1				37.0				597.0				17.3				49.0			
16	8.1				36.8				599.0				18.4				49.4			
17	8.1				36.1				608.0				21.9				44.8			
18	8.1				36.3				611.0				20.4				45.3			
19	8.2				36.9				613.6				21.8				46.6			
20	8.2				37.4				619.0				25.6				48.9			
21	8.2				37.8				624.0				27.1				51.0			
22	8.2				38.1				626.2				29.7				52.7			
23	8.2				38.3				627.0				34.1				59.7			
24	8.3				38.4				631.0				52.8				64.4			
25	8.4				38.1				641.0				36.2				73.6			
26	8.2				38.3				644.0				32.2				65.7			
27	8.5				38.3				638.0				104.0				81.5			
28	8.4				38.1				640.0				53.2				113.0			
29	8.5				37.6				640.0				101.0				65.0			
30																				
31																				
AVG	8.2	0.0	0.0	0.0	38.1	0.0	0.0	0.0	594.7	0.0	0.0	0.0	28.8	0.0	0.0	0.0	56.1	0.0	0.0	0.0
MAX	8.6	0.0	0.0	0.0	47.4	0.0	0.0	0.0	777.0	0.0	0.0	0.0	104.0	0.0	0.0	0.0	113.0	0.0	0.0	0.0
MIN	8.0	0.0	0.0	0.0	36.1	0.0	0.0	0.0	501.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	38.4	0.0	0.0	0.0

ALGAL TOXIN & COMPOUNDS **WSSN 0040** **MO/YR Feb-20**

	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		
DATE	RAW	TAP	RAW	TAP	RAW	TAP	RAW	TAP	RAW	BLENDED	TAP	RAW	BLENDED	TAP
1														
2														
3									4.1	<1.0	1.2	5.4	1.5	1.6
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	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	4.1	0.0	1.2	5.4	1.5	1.6
MAX	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	4.1	0.0	1.2	5.4	1.5	1.6
MIN	0.000	0.000	0.0	0.0	0.0	0.0	0.000	0.000	4.1	0.0	1.2	5.4	1.5	1.6

<0.3 = non-detect*

qPCR MONITORING **WSSN 0040** **MO/YR** **Feb-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		