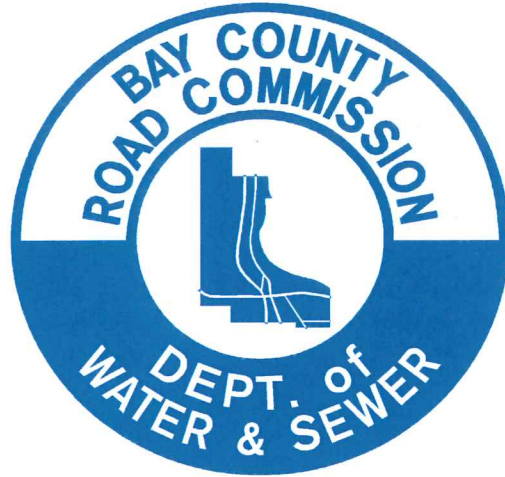


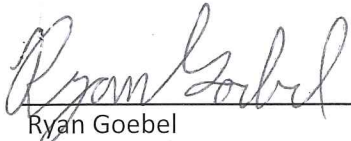
Bay Area WTP

Monthly Operations Report




March, 2023

Water Systems Serial Number: 0465


Ryan Goebel

Water Plant Superintendent
Title

F-1
Classification


Mike Wagar

Operations Supervisor
Title

F-2
Classification

Bay Area Water Treatment Plant

Monthly Operations Report

Supply Name: Bay Area Water System
 WSSN: 0465

Ryan Goebel
 Operator-in-charge

March, 2023
 Month, Year

F-1
 Certification of Operator-in-charge

F-1
 Water Plant Classification

Bay
 County

Treatment Rate and Membrane Data

Treatment Rate, Approved Rated Plant Capacity	17.4	Millions of Gallons per Day
Treatment Rate, Maximum	7.2	Millions of Gallons per Day
Maximum Approved Transmembrane Pressure	22	PSI
Maximum Operating Transmembrane Pressure	14.54	PSI
Maximum Approved Flux Rate	36.25	gpd/sq.ft.
Maximum Operating Flux Rate	20.71	gpd/sq.ft.

Chemical Data

Sodium Hypochlorite on hand:	4,152	Gallons	Estimated Supply:	79.0	days
Caustic Soda on hand:	2,341	Gallons	Estimated Supply:	160.3	days
Corrosion Inhibitor on hand:	336	Gallons	Estimated Supply:	16.2	days
Hydrofluosilicic Acid on hand:	2,084	Gallons	Estimated Supply:	121.0	days
Aluminum Chlorohydrate on hand:	876	Gallons	Estimated Supply:	113.6	days
Sulfuric Acid on hand:	763	Gallons	Estimated Supply:	381.4	days
Sodium Bisulfite on hand:	1,127	Gallons	Estimated Supply:	388.5	days
Citric Acid on hand:	3,668	Gallons	Estimated Supply:	293.5	days
Cost of All Chemicals per Million Gallons:	101.56	Dollars			
Estimated Electrical Cost per Million Gallons:	97.99	Dollars			
Estimated Natural Gas Cost per Million Gallons:	32.52	Dollars			

Remarks

Number of periods of filter confluence turbidity samples > 0.3 NTU	0
Percent of membrane period confluence samples > 0.3 NTU:	0.00%
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.	No
Did POE disinfectant residual fall below 0.2 ppm during the month? If yes, indicate date(s) and duration on a separate sheet.	No
Was minimum C*T credit achieved for the entire month? If no, indicate on a separate sheet the date(s) not achieved.	Yes
Was continuous POE chlorine residual monitoring equipment off-line during the month? If yes, date(s) and duration will be indicated on the rule page.	No



Notes

-Euclid Ave Finished Water line taken out of service on 3/13 for flow meter replacement. Euclid Ave FW line put back in service on 3/23.

Bay Area WTP Monthly Operating Report

Date	Flows								
	Raw Water (MG)			Clarified (MG)	Sludge (MG)	Treated (MG)	Finished Water Pumped (MG)		
	North	South	Total	Total	Total	Total	N. Euclid	Lauria Road	Total
	FIT-1000-1	FIT-1000-2	Calculated	FIT-5520-1	FIT-5180	FIT-4000-1	FIT-4040-1	FIT-4040-2	Calculated
3/1/2023	0.00	6.39	6.39	0.29	0.08	6.93	3.42	3.25	6.67
3/2/2023	0.00	6.81	6.81	0.28	0.08	6.42	3.08	2.91	5.99
3/3/2023	0.00	6.46	6.46	0.29	0.08	6.93	3.31	3.14	6.46
3/4/2023	0.00	6.94	6.94	0.27	0.08	6.45	3.14	2.97	6.11
3/5/2023	0.00	6.55	6.55	0.26	0.08	6.34	3.14	2.97	6.10
3/6/2023	0.00	6.31	6.31	0.27	0.08	6.53	3.46	3.29	6.75
3/7/2023	0.00	6.73	6.73	0.31	0.08	6.57	3.19	3.02	6.21
3/8/2023	0.00	6.80	6.80	0.27	0.08	6.67	3.21	3.04	6.25
3/9/2023	0.00	6.02	6.02	0.27	0.08	6.56	3.21	3.04	6.24
3/10/2023	0.00	6.47	6.47	0.27	0.08	6.82	3.30	3.13	6.44
3/11/2023	0.00	6.74	6.74	0.28	0.08	6.55	3.19	3.02	6.22
3/12/2023	0.00	6.61	6.61	0.27	0.07	6.24	3.02	2.85	5.87
3/13/2023	0.00	6.21	6.21	0.26	0.08	6.26	1.76	4.46	6.22
3/14/2023	0.00	6.57	6.57	0.33	0.08	6.84	0.00	6.44	6.44
3/15/2023	0.00	7.09	7.09	0.28	0.08	6.41	0.00	6.02	6.02
3/16/2023	0.00	6.51	6.51	0.26	0.08	6.35	0.00	6.05	6.05
3/17/2023	0.00	6.09	6.09	0.29	0.08	6.69	0.00	6.34	6.34
3/18/2023	0.00	6.74	6.74	0.27	0.08	6.61	0.00	6.13	6.13
3/19/2023	0.00	6.97	6.97	0.27	0.08	6.48	0.00	6.14	6.14
3/20/2023	0.00	6.73	6.73	0.28	0.08	6.67	0.00	6.28	6.28
3/21/2023	0.00	6.23	6.23	0.27	0.08	6.35	0.00	6.02	6.02
3/22/2023	0.00	6.33	6.33	0.31	0.08	6.96	1.38	4.92	6.30
3/23/2023	0.00	6.62	6.62	0.31	0.08	6.52	2.85	3.17	6.02
3/24/2023	0.00	6.68	6.68	0.30	0.08	6.28	2.85	3.04	5.88
3/25/2023	0.00	6.10	6.10	0.27	0.08	6.38	2.88	3.09	5.97
3/26/2023	0.00	6.31	6.31	0.26	0.08	6.50	2.93	3.15	6.08
3/27/2023	0.00	6.98	6.98	0.30	0.08	6.58	3.04	3.12	6.16
3/28/2023	0.00	6.83	6.83	0.31	0.08	6.81	3.15	3.10	6.25
3/29/2023	0.00	6.50	6.50	0.30	0.08	6.53	3.19	3.01	6.19
3/30/2023	0.00	6.53	6.53	0.26	0.08	6.89	3.28	3.16	6.44
3/31/2023	0.00	6.93	6.93	0.29	0.08	7.24	3.45	3.31	6.76
Total	0.00	203.78	203.78	8.73	2.36	204.36	69.42	123.59	193.00
Avg	0.00	6.57	6.57	0.28	0.08	6.59	2.24	3.99	6.23
Min	0.00	6.02	6.02	0.26	0.07	6.24	0.00	2.85	5.87
Max	0.00	7.09	7.09	0.33	0.08	7.24	3.46	6.44	6.76



Raw Water Analysis								
Date	Temp	pH	Turbidity		F	Free Cl	Bacti	
	Average	Average	Average	Maximum	Grab	Average	Positive/Negative	
	°C		NTU		mg/L	mg/L	Total Coliform	E. coli
	TIT-1000	AIT-1000-2	AIT-1000-1		Lab	AIT-1035-2	Lab	
3/1/2023	3.5	7.86	8.99	17.57	0.09	0.35	Negative	Negative
3/2/2023	3.5	7.86	6.83	12.74	0.08	0.36	Negative	Negative
3/3/2023	3.4	7.85	2.97	4.37	0.08	0.41	Negative	Negative
3/4/2023	3.5	7.86	5.81	28.40	0.08	0.40	Negative	Negative
3/5/2023	3.6	7.85	7.93	12.19	0.08	0.42	Negative	Negative
3/6/2023	3.6	7.83	3.05	36.02	0.08	0.53	Negative	Negative
3/7/2023	3.6	7.82	1.55	3.19	0.08	0.53	Negative	Negative
3/8/2023	3.6	7.84	6.34	15.22	0.08	0.44	Negative	Negative
3/9/2023	3.6	7.90	8.62	16.02	0.08	0.23	Negative	Negative
3/10/2023	3.6	7.87	6.25	10.11	0.08	0.29	Negative	Negative
3/11/2023	3.7	7.87	7.88	16.08	0.08	0.27	Negative	Negative
3/12/2023	3.9	7.88	14.09	28.94	0.09	0.19	Negative	Negative
3/13/2023	3.9	7.87	9.13	38.21	0.08	0.31	Negative	Negative
3/14/2023	3.7	7.88	8.37	11.68	0.09	0.32	Negative	Negative
3/15/2023	3.6	7.88	9.16	12.00	0.09	0.40	Negative	Negative
3/16/2023	3.6	7.88	8.97	11.90	0.09	0.32	Negative	Negative
3/17/2023	3.7	7.88	5.70	8.24	0.08	0.33	Negative	Negative
3/18/2023	3.6	7.85	4.89	6.62	0.08	0.51	Negative	Negative
3/19/2023	3.8	7.83	4.31	16.99	0.09	0.60	Negative	Negative
3/20/2023	3.5	7.83	1.66	3.79	0.08	0.61	Negative	Negative
3/21/2023	3.4	7.84	1.49	2.64	0.08	0.57	Negative	Negative
3/22/2023	3.5	7.84	0.79	1.76	0.08	0.55	Negative	Negative
3/23/2023	3.6	7.85	1.11	3.46	0.08	0.45	Negative	Negative
3/24/2023	3.5	7.86	2.04	3.80	0.08	0.40	Negative	Negative
3/25/2023	3.6	7.85	1.04	5.12	0.09	0.48	Negative	Negative
3/26/2023	3.9	7.86	5.16	20.48	0.10	0.39	Negative	Negative
3/27/2023	4.4	7.84	8.30	44.09	0.10	0.40	Negative	Negative
3/28/2023	4.0	7.83	2.62	8.02	0.10	0.51	Negative	Negative
3/29/2023	3.8	7.84	3.63	6.97	0.10	0.46	Negative	Negative
3/30/2023	4.0	7.84	2.87	4.99	0.08	0.50	Negative	Negative
3/31/2023	4.0	7.83	1.73	3.29	0.08	0.53	Negative	Negative
Avg	3.7	7.85	5.27	13.38	0.08	0.42	NA	NA
Min	3.4	7.82	0.79	1.76	0.08	0.19	NA	NA
Max	4.4	7.90	14.09	44.09	0.10	0.61	NA	NA



Finished Water Analysis																		
Date	Temp	pH	Phosphate	Fluoride		Free Cl ₂	Alkalinity (as CaCO ₃)		Chloride	Sulfate	Calcium (as CaCO ₃)	Dissolved Oxygen	Conductivity	Langelier Saturation Index	Chloride: Sulfate Mass Ratio	Larson-Skold Index	Bacti	
	Average	Average	Average	Tap	Dist	Average	Carbonate	Bicarbonate	Grab	Grab	Grab	Grab	Grab	Index	Ratio	Index	Positive/Negative	
	°C		mg/L	mg/L		mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	uS/cm				Calculated	Lab
	AIT-4040-1	AIT-4050-2	AIT-4040-5	Lab		AIT-4050-1	Lab		Lab	Lab	Lab	Lab	Lab					
3/1/2023	2.4	7.62	3.35	0.80		1.00	0	74	11	10	72	12.4	222	-1.05	1.10	0.43	Negative	Negative
3/2/2023	2.4	7.62	3.35	0.78		0.99	0	78	11	10	80	13.3	234	-0.98	1.10	0.41	Negative	Negative
3/3/2023	2.4	7.63	3.35	0.78		1.01	0	74	11	10	74	13.2	226	-1.03	1.10	0.43	Negative	Negative
3/4/2023	2.4	7.64	3.35	0.78		1.01	0	79	11	10	78	14.2	227	-0.97	1.10	0.40	Negative	Negative
3/5/2023	2.5	7.63	3.35	0.76		1.01	0	79	11	10	78	14.1	229	-0.97	1.10	0.40	Negative	Negative
3/6/2023	5.6	7.63	3.35	0.77	0.78	1.02	0	78	10	10	74	14.3	228	-0.92	1.00	0.39	Negative	Negative
3/7/2023	4.5	7.62	3.38	0.77		1.02	0	78	11	9	76	14.1	218	-0.94	1.22	0.39	Negative	Negative
3/8/2023	1.7	7.62	3.38	0.75		1.01	0	78	10	10	74	14.6	220	-1.03	1.00	0.39	Negative	Negative
3/9/2023	1.6	7.62	3.38	0.75		1.01	0	77	10	9	76	13.4	227	-1.03	1.11	0.37	Negative	Negative
3/10/2023	1.4	7.65	3.39	0.75		1.02	0	72	10	10	72	14.2	232	-1.06	1.00	0.42	Negative	Negative
3/11/2023	1.2	7.65	3.38	0.75		1.00	0	77	10	9	78	13.6	224	-1.00	1.11	0.37	Negative	Negative
3/12/2023	1.2	7.66	3.38	0.76		1.00	0	78	10	9	78	13.9	244	-0.99	1.11	0.37	Negative	Negative
3/13/2023	3.8	7.65	3.38	0.75	0.74	1.01	0	82	11	8	78	14.0	245	-0.90	1.38	0.36	Negative	Negative
3/14/2023	7.0	7.65	3.37	0.75		1.01	0	84	9	10	74	14.0	246	-0.83	0.90	0.34	Negative	Negative
3/15/2023	6.8	7.66	3.37	0.75		1.01	0	82	10	12	76	14.0	241	-0.83	0.83	0.40	Negative	Negative
3/16/2023	6.9	7.66	3.38	0.74		1.01	0	82	10	10	80	14.6	239	-0.81	1.00	0.37	Negative	Negative
3/17/2023	7.0	7.66	3.37	0.74		1.02	0	85	10	12	78	14.8	239	-0.80	0.83	0.38	Negative	Negative
3/18/2023	7.4	7.67	3.38	0.75		1.02	0	83	10	12	11	14.0	246	-1.64	0.83	0.39	Negative	Negative
3/19/2023	7.3	7.65	3.37	0.75		1.02	0	81	11	10	78	13.6	239	-0.82	1.10	0.39	Negative	Negative
3/20/2023	6.9	7.65	3.37	0.75	0.75	1.02	0	80	10	10	80	14.3	234	-0.82	1.00	0.38	Negative	Negative
3/21/2023	6.8	7.64	3.38	0.75		1.03	0	79	10	11	80	14.7	231	-0.84	0.91	0.40	Negative	Negative
3/22/2023	5.6	7.63	3.36	0.75		1.01	0	78	11	11	78	13.4	229	-0.90	1.00	0.43	Negative	Negative
3/23/2023	3.8	7.62	3.37	0.75		1.01	0	84	9	9	72	13.8	227	-0.96	1.00	0.32	Negative	Negative
3/24/2023	3.6	7.64	3.38	0.75		1.01	0	78	10	9	76	12.2	232	-0.96	1.11	0.37	Negative	Negative
3/25/2023	3.4	7.65	3.37	0.74		1.01	0	79	9	9	72	13.5	227	-0.96	1.00	0.34	Negative	Negative
3/26/2023	3.3	7.65	3.37	0.76		1.02	0	82	10	8	70	13.8	223	-0.96	1.25	0.34	Negative	Negative
3/27/2023	3.3	7.65	3.37	0.75	0.75	1.01	0	82	9	8	74	13.9	234	-0.94	1.13	0.32	Negative	Negative
3/28/2023	3.2	7.65	3.37	0.75		1.01	0	82	10	9	74	14.0	229	-0.94	1.11	0.35	Negative	Negative
3/29/2023	3.1	7.65	3.37	0.76		1.01	0	75	9	11	79	13.4	237	-0.96	0.82	0.40	Negative	Negative
3/30/2023	3.0	7.65	3.37	0.75		1.00	0	78	9	10	78	14.2	243	-0.95	0.90	0.36	Negative	Negative
3/31/2023	3.1	7.64	3.37	0.75		1.02	0	74	10	12	72	12.3	241	-1.01	0.83	0.44	Negative	Negative
Avg	4.0	7.64	3.37	0.76	0.75	1.01	0	79	10	10	74	13.8	233	-0.96	1.03	0.38	NA	NA
Min	1.2	7.62	3.35	0.74	0.74	0.99	0	72	9	8	11	12.2	218	-1.64	0.82	0.32	NA	NA
Max	7.4	7.67	3.39	0.80	0.78	1.03	0	85	11	12	80	14.8	246	-0.80	1.38	0.44	NA	NA



Turbidity										
Date	Raw Water		Clarified Water	Membrane Feed Water	Combined Membrane Filtrate					Finished Water
	Avg	Max	Avg	Avg	Avg	Max	# Samples	# > 0.3	% Exceeded	Avg
	NTU									
	AIT-1000-1		AIT-5030-1	AIT-1035-3	AIT-4000-1					Calculated
3/1/2023	8.99	17.57	2.23	5.71	0.024	0.024	96	0	0.0	0.020
3/2/2023	6.83	12.74	2.61	8.42	0.024	0.025	96	0	0.0	0.020
3/3/2023	2.97	4.37	2.40	5.82	0.024	0.024	96	0	0.0	0.020
3/4/2023	5.81	28.40	2.05	5.59	0.024	0.024	96	0	0.0	0.020
3/5/2023	7.93	12.19	2.35	7.86	0.024	0.025	96	0	0.0	0.020
3/6/2023	3.05	36.02	1.80	7.05	0.024	0.024	96	0	0.0	0.020
3/7/2023	1.55	3.19	2.20	4.10	0.024	0.025	96	0	0.0	0.020
3/8/2023	6.34	15.22	1.33	3.96	0.024	0.024	96	0	0.0	0.020
3/9/2023	8.62	16.02	1.54	7.48	0.024	0.027	96	0	0.0	0.020
3/10/2023	6.25	10.11	2.05	7.00	0.024	0.025	96	0	0.0	0.020
3/11/2023	7.88	16.08	2.07	7.09	0.024	0.025	96	0	0.0	0.020
3/12/2023	14.09	28.94	2.37	11.64	0.024	0.025	96	0	0.0	0.020
3/13/2023	9.13	38.21	3.07	11.14	0.024	0.025	96	0	0.0	0.020
3/14/2023	8.37	11.68	3.23	10.30	0.024	0.025	96	0	0.0	0.021
3/15/2023	9.16	12.00	2.38	10.47	0.024	0.026	96	0	0.0	0.021
3/16/2023	8.97	11.90	2.15	10.75	0.024	0.025	96	0	0.0	0.021
3/17/2023	5.70	8.24	2.39	9.45	0.024	0.026	96	0	0.0	0.020
3/18/2023	4.89	6.62	1.54	7.51	0.024	0.025	96	0	0.0	0.021
3/19/2023	4.31	16.99	1.23	6.48	0.024	0.025	96	0	0.0	0.020
3/20/2023	1.66	3.79	1.92	4.45	0.024	0.024	96	0	0.0	0.020
3/21/2023	1.49	2.64	2.30	2.87	0.024	0.024	96	0	0.0	0.020
3/22/2023	0.79	1.76	2.50	2.08	0.024	0.024	96	0	0.0	0.020
3/23/2023	1.11	3.46	1.90	1.45	0.024	0.024	96	0	0.0	0.020
3/24/2023	2.04	3.80	2.28	1.90	0.024	0.024	96	0	0.0	0.021
3/25/2023	1.04	5.12	2.14	1.65	0.024	0.024	96	0	0.0	0.020
3/26/2023	5.16	20.48	1.90	2.36	0.024	0.024	96	0	0.0	0.020
3/27/2023	8.30	44.09	2.02	7.34	0.024	0.024	96	0	0.0	0.020
3/28/2023	2.62	8.02	2.06	5.29	0.024	0.024	96	0	0.0	0.020
3/29/2023	3.63	6.97	1.88	4.21	0.024	0.024	96	0	0.0	0.020
3/30/2023	2.87	4.99	2.39	4.35	0.024	0.025	96	0	0.0	0.020
3/31/2023	1.73	3.29	2.21	3.28	0.024	0.024	96	0	0.0	0.020
Avg	5.27	13.38	2.15	6.10	0.024	0.025	96	0	0.0	0.020
Min	0.79	1.76	1.23	1.45	0.024	0.024	96	0	0.0	0.020
Max	14.09	44.09	3.23	11.64	0.024	0.027	96	0	0.0	0.021

Note: % Exceeded are 4 hr compliance periods where the average of samples are greater than 0.3 NTU



Date	Membrane LRV/Integrity/Max Turbidity																									
	Membrane 1			Membrane 2			Membrane 3			Membrane 4			Membrane 5			Membrane 6			Membrane 7			Membrane 8				
	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity		
	Average		Max	Average		Max	Average		Max	Average		Max	Average		Max	Average		Max	Average		Max	Average		Max		
psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU
3/1/2023	4.24	PASS	0.020	4.24	PASS	0.024	4.31	PASS	0.020	4.46	PASS	0.018	5.51	PASS	0.022	4.43	PASS	0.026	4.49	PASS	0.029	5.03	PASS	0.032		
3/2/2023	4.34	PASS	0.020	4.21	PASS	0.024	4.21	PASS	0.020	4.51	PASS	0.017	5.52	PASS	0.022	4.41	PASS	0.026	4.50	PASS	0.029	5.14	PASS	0.030		
3/3/2023	4.33	PASS	0.020	4.23	PASS	0.024	4.22	PASS	0.020	4.48	PASS	0.017	5.53	PASS	0.022	4.32	PASS	0.025	4.49	PASS	0.029	5.11	PASS	0.028		
3/4/2023	4.25	PASS	0.020	4.23	PASS	0.024	4.27	PASS	0.020	4.46	PASS	0.018	5.51	PASS	0.022	4.37	PASS	0.025	4.53	PASS	0.028	5.10	PASS	0.030		
3/5/2023	4.25	PASS	0.021	4.23	PASS	0.025	4.34	PASS	0.020	4.45	PASS	0.018	5.51	PASS	0.022	4.40	PASS	0.025	4.43	PASS	0.029	5.05	PASS	0.027		
3/6/2023	4.24	PASS	0.020	4.22	PASS	0.024	4.24	PASS	0.020	4.45	PASS	0.018	5.48	PASS	0.022	4.38	PASS	0.024	4.42	PASS	0.029	5.07	PASS	0.027		
3/7/2023	4.29	PASS	0.020	4.22	PASS	0.029	4.25	PASS	0.020	4.47	PASS	0.016	5.51	PASS	0.022	4.37	PASS	0.026	4.40	PASS	0.029	5.02	PASS	0.023		
3/8/2023	4.33	PASS	0.020	4.21	PASS	0.024	4.23	PASS	0.020	4.45	PASS	0.016	5.52	PASS	0.021	4.37	PASS	0.025	4.42	PASS	0.029	4.93	PASS	0.021		
3/9/2023	4.25	PASS	0.020	4.22	PASS	0.024	4.22	PASS	0.020	4.43	PASS	0.016	5.48	PASS	0.024	4.40	PASS	0.026	4.40	PASS	0.029	4.95	PASS	0.023		
3/10/2023	4.29	PASS	0.021	4.23	PASS	0.024	4.21	PASS	0.020	4.42	PASS	0.016	5.48	PASS	0.022	4.37	PASS	0.024	4.39	PASS	0.028	4.94	PASS	0.022		
3/11/2023	4.31	PASS	0.023	4.21	PASS	0.024	4.23	PASS	0.020	4.44	PASS	0.017	5.49	PASS	0.022	4.32	PASS	0.023	4.36	PASS	0.029	5.02	PASS	0.020		
3/12/2023	4.26	PASS	0.025	4.18	PASS	0.026	4.21	PASS	0.020	4.43	PASS	0.017	5.49	PASS	0.022	4.32	PASS	0.026	4.38	PASS	0.029	4.99	PASS	0.022		
3/13/2023	4.18	PASS	0.022	4.18	PASS	0.025	4.22	PASS	0.021	4.41	PASS	0.017	5.51	PASS	0.022	4.34	PASS	0.025	4.38	PASS	0.029	5.14	PASS	0.022		
3/14/2023	4.27	PASS	0.024	4.23	PASS	0.025	4.20	PASS	0.020	4.42	PASS	0.017	5.52	PASS	0.022	4.36	PASS	0.028	4.39	PASS	0.029	5.10	PASS	0.022		
3/15/2023	4.29	PASS	0.023	4.20	PASS	0.026	4.21	PASS	0.020	4.45	PASS	0.017	5.51	PASS	0.022	4.38	PASS	0.026	4.38	PASS	0.029	5.00	PASS	0.022		
3/16/2023	4.32	PASS	0.021	4.21	PASS	0.025	4.21	PASS	0.020	4.47	PASS	0.016	5.48	PASS	0.022	4.34	PASS	0.027	4.42	PASS	0.029	4.91	PASS	0.021		
3/17/2023	4.26	PASS	0.024	4.19	PASS	0.025	4.21	PASS	0.020	4.50	PASS	0.016	5.49	PASS	0.022	4.37	PASS	0.028	4.39	PASS	0.029	4.86	PASS	0.020		
3/18/2023	4.27	PASS	0.021	4.21	PASS	0.025	4.20	PASS	0.021	4.46	PASS	0.016	5.49	PASS	0.022	4.38	PASS	0.027	4.37	PASS	0.029	4.87	PASS	0.020		
3/19/2023	4.28	PASS	0.022	4.19	PASS	0.025	4.30	PASS	0.020	4.47	PASS	0.016	5.53	PASS	0.022	4.40	PASS	0.024	4.37	PASS	0.029	4.94	PASS	0.020		
3/20/2023	4.19	PASS	0.020	4.19	PASS	0.025	4.25	PASS	0.020	4.45	PASS	0.016	5.51	PASS	0.022	4.37	PASS	0.026	4.51	PASS	0.029	4.97	PASS	0.019		
3/21/2023	4.20	PASS	0.023	4.19	PASS	0.024	4.23	PASS	0.019	4.47	PASS	0.016	5.54	PASS	0.022	4.42	PASS	0.026	4.41	PASS	0.029	5.04	PASS	0.019		
3/22/2023	4.49	PASS	0.022	4.22	PASS	0.023	4.23	PASS	0.020	4.49	PASS	0.016	5.52	PASS	0.022	4.38	PASS	0.024	4.39	PASS	0.029	5.17	PASS	0.018		
3/23/2023	4.46	PASS	0.020	4.26	PASS	0.025	4.29	PASS	0.019	4.52	PASS	0.016	5.50	PASS	0.022	4.40	PASS	0.024	4.43	PASS	0.029	5.15	PASS	0.018		
3/24/2023	4.47	PASS	0.022	4.23	PASS	0.024	4.27	PASS	0.020	4.55	PASS	0.016	5.51	PASS	0.022	4.41	PASS	0.024	4.41	PASS	0.029	5.03	PASS	0.018		
3/25/2023	4.47	PASS	0.021	4.24	PASS	0.023	4.25	PASS	0.019	4.48	PASS	0.016	5.53	PASS	0.022	4.50	PASS	0.023	4.42	PASS	0.029	5.00	PASS	0.018		
3/26/2023	4.44	PASS	0.022	4.24	PASS	0.025	4.24	PASS	0.019	4.47	PASS	0.016	5.51	PASS	0.022	4.43	PASS	0.023	4.40	PASS	0.029	4.96	PASS	0.017		
3/27/2023	4.41	PASS	0.020	4.22	PASS	0.025	4.26	PASS	0.021	4.52	PASS	0.016	5.54	PASS	0.022	4.42	PASS	0.025	4.39	PASS	0.029	5.03	PASS	0.019		
3/28/2023	4.41	PASS	0.022	4.21	PASS	0.025	4.33	PASS	0.020	4.52	PASS	0.016	5.50	PASS	0.022	4.39	PASS	0.024	4.40	PASS	0.029	5.19	PASS	0.018		
3/29/2023	4.34	PASS	0.021	4.20	PASS	0.026	4.27	PASS	0.020	4.58	PASS	0.016	5.52	PASS	0.021	4.40	PASS	0.024	4.45	PASS	0.029	5.09	PASS	0.018		
3/30/2023	4.30	PASS	0.023	4.19	PASS	0.024	4.23	PASS	0.019	4.84	PASS	0.016	5.49	PASS	0.021	4.38	PASS	0.024	4.42	PASS	0.029	4.98	PASS	0.018		
3/31/2023	4.30	PASS	0.020	4.21	PASS	0.025	4.23	PASS	0.019	4.71	PASS	0.016	5.49	PASS	0.021	4.58	PASS	0.024	4.42	PASS	0.029	5.02	PASS	0.018		
Avg	4.31		0.021	4.21		0.025	4.24		0.020	4.49		0.016	5.51		0.022	4.39		0.025	4.42		0.029	5.03		0.022		
Min	4.18		0.020	4.18		0.023	4.20		0.019	4.41		0.016	5.48		0.021	4.32		0.023	4.36		0.028	4.86		0.017		
Max	4.49		0.025	4.26		0.029	4.34		0.021	4.84		0.018	5.54		0.024	4.58		0.028	4.53		0.029	5.19		0.032		



*LRV must remain above Upper Control Limit of 3.32 psi/min

Treatment Chemical Dosages											
Date	Treated Water	Sodium Hypochlorite					Phosphoric Acid		Hydroflourosilicic Acid		
		Raw Water	Membrane Feed Water	Dose pre-FW Tanks	Treated Water	Post FW Tanks	Dose pre-FW Tanks	Post FW Tanks	Raw Water	Dose pre-FW Tanks	Post FW Tanks
	Volume	Free Cl ₂					PO4		F		
	MG	mg/L					mg/L		mg/L		
	FIT-4000-1	AIT-1035-2	AIT-1035-4	Added	AIT-4030-1	AIT-4050-1	Added	AIT-4040-5	Lab	Added	Lab
3/1/2023	6.9	0.35	0.38	0.77	1.05	1.00	3.20	3.35	0.09	0.59	0.80
3/2/2023	6.4	0.36	0.30	0.84	1.05	0.99	3.20	3.35	0.08	0.59	0.78
3/3/2023	6.9	0.41	0.31	0.82	1.08	1.01	3.20	3.35	0.08	0.59	0.78
3/4/2023	6.4	0.40	0.32	0.82	1.06	1.01	3.20	3.35	0.08	0.59	0.78
3/5/2023	6.3	0.42	0.32	0.82	1.06	1.01	3.20	3.35	0.08	0.59	0.76
3/6/2023	6.5	0.53	0.36	0.65	1.08	1.02	3.20	3.35	0.08	0.59	0.77
3/7/2023	6.6	0.53	0.41	0.61	1.06	1.02	3.20	3.38	0.08	0.59	0.77
3/8/2023	6.7	0.44	0.41	0.65	1.07	1.01	3.20	3.38	0.08	0.59	0.75
3/9/2023	6.6	0.23	0.25	0.82	1.07	1.01	3.20	3.38	0.08	0.59	0.75
3/10/2023	6.8	0.29	0.24	0.82	1.06	1.02	3.20	3.39	0.08	0.59	0.75
3/11/2023	6.6	0.27	0.22	0.82	1.06	1.00	3.20	3.38	0.08	0.59	0.75
3/12/2023	6.2	0.19	0.15	0.82	1.07	1.00	3.20	3.38	0.09	0.59	0.76
3/13/2023	6.3	0.31	0.17	0.74	1.08	1.01	3.20	3.38	0.08	0.59	0.75
3/14/2023	6.8	0.32	0.20	0.66	1.07	1.01	3.20	3.37	0.09	0.59	0.75
3/15/2023	6.4	0.40	0.25	0.63	1.07	1.01	3.20	3.37	0.09	0.59	0.75
3/16/2023	6.4	0.32	0.26	0.62	1.07	1.01	3.20	3.38	0.09	0.59	0.74
3/17/2023	6.7	0.33	0.25	0.62	1.08	1.02	3.20	3.37	0.08	0.61	0.74
3/18/2023	6.6	0.51	0.29	0.53	1.08	1.02	3.20	3.38	0.08	0.61	0.75
3/19/2023	6.5	0.60	0.41	0.45	1.08	1.02	3.20	3.37	0.09	0.61	0.75
3/20/2023	6.7	0.61	0.46	0.45	1.06	1.02	3.20	3.37	0.08	0.62	0.75
3/21/2023	6.4	0.57	0.47	0.43	1.06	1.03	3.20	3.38	0.08	0.62	0.75
3/22/2023	7.0	0.55	0.47	0.41	1.06	1.01	3.20	3.36	0.08	0.62	0.75
3/23/2023	6.5	0.45	0.44	0.46	1.06	1.01	3.20	3.37	0.08	0.62	0.75
3/24/2023	6.3	0.40	0.39	0.50	1.06	1.01	3.20	3.38	0.08	0.62	0.75
3/25/2023	6.4	0.48	0.38	0.52	1.07	1.01	3.20	3.37	0.09	0.62	0.74
3/26/2023	6.5	0.39	0.38	0.54	1.07	1.02	3.20	3.37	0.10	0.62	0.76
3/27/2023	6.6	0.40	0.30	0.58	1.07	1.01	3.20	3.37	0.10	0.62	0.75
3/28/2023	6.8	0.51	0.36	0.52	1.07	1.01	3.20	3.37	0.10	0.62	0.75
3/29/2023	6.5	0.46	0.38	0.54	1.07	1.01	3.20	3.37	0.10	0.62	0.76
3/30/2023	6.9	0.50	0.38	0.51	1.06	1.00	3.20	3.37	0.08	0.62	0.75
3/31/2023	7.2	0.53	0.41	0.48	1.07	1.02	3.20	3.37	0.08	0.63	0.75
Avg	6.6	0.42	0.33	0.63	1.07	1.01	3.20	3.37	0.08	0.60	0.76
Min	6.2	0.19	0.15	0.41	1.05	0.99	3.20	3.35	0.08	0.59	0.74
Max	7.2	0.61	0.47	0.84	1.08	1.03	3.20	3.39	0.10	0.63	0.80



Disinfection CT														
Date	Pipeline CT				FW Tank CT						Compliance			
	Whitestone	Travel Time	Residual	CT	FW Tank 1	FW Tank 2	Plant	Contact Time	Free Cl ₂	CT	Total CT	Temp	CT	CT
	Flow	Min	RW	Achieved	Min Level	Min Level	Flow	Min	Min	Achieved	Achieved	Avg	Required	Met
	MGD	Minutes	mg/L	mg-min/L	ft	ft	MGD	Minutes	mg/L	mg-min/L	mg-min/L	°C	mg-min/L	Y/N
Entry	Calculated	AIT-1035-2	Calculated	LIT-4005-1	LIT-4005-2	Calculated	Calculated	Calculated	Calculated	Calculated	TIT-1000	Calculated	Calculated	
3/1/2023	28.1	4,455	0.35	1580	28.7	24.5	6.7	547	0.98	539	2118	3.5	12.00	Y
3/2/2023	27.6	4,537	0.36	1639	28.7	24.5	6.0	608	0.97	590	2230	3.5	12.00	Y
3/3/2023	39.8	3,146	0.41	1294	28.7	24.9	6.5	568	0.98	560	1854	3.4	12.00	Y
3/4/2023	53.2	2,352	0.40	930	28.7	24.8	6.1	600	1.00	599	1528	3.5	12.00	Y
3/5/2023	52.8	2,367	0.42	988	28.6	23.9	6.1	590	0.98	581	1570	3.6	12.00	Y
3/6/2023	34.3	3,652	0.53	1944	28.7	23.7	6.8	532	0.99	527	2472	3.6	12.00	Y
3/7/2023	27.2	4,595	0.53	2420	28.7	25.0	6.2	592	1.01	595	3016	3.6	12.00	Y
3/8/2023	27.2	4,595	0.44	2039	28.7	24.9	6.3	588	1.00	587	2625	3.6	12.00	Y
3/9/2023	27.2	4,595	0.23	1058	28.7	24.5	6.2	584	0.98	575	1633	3.6	12.00	Y
3/10/2023	27.2	4,595	0.29	1339	28.7	23.9	6.4	560	1.00	560	1899	3.6	12.00	Y
3/11/2023	27.2	4,595	0.27	1230	28.7	24.5	6.2	586	0.99	581	1811	3.7	12.00	Y
3/12/2023	27.2	4,595	0.19	864	28.7	24.6	5.9	622	0.98	608	1472	3.9	12.00	Y
3/13/2023	27.2	4,595	0.31	1405	28.6	24.0	6.2	579	0.99	574	1978	3.9	12.00	Y
3/14/2023	27.2	4,595	0.32	1486	28.5	24.8	6.4	568	0.99	563	2050	3.7	12.00	Y
3/15/2023	27.2	4,595	0.40	1837	28.6	25.3	6.0	614	0.98	605	2442	3.6	12.00	Y
3/16/2023	27.2	4,595	0.32	1453	28.7	24.5	6.0	602	1.00	601	2054	3.6	12.00	Y
3/17/2023	27.2	4,595	0.33	1496	28.7	24.2	6.3	571	0.99	567	2063	3.7	12.00	Y
3/18/2023	27.2	4,595	0.51	2356	28.7	24.2	6.1	591	1.00	590	2946	3.6	12.00	Y
3/19/2023	27.2	4,595	0.60	2772	28.6	25.6	6.1	605	1.01	609	3381	3.8	12.00	Y
3/20/2023	27.2	4,595	0.61	2815	28.7	25.2	6.3	589	1.00	588	3403	3.5	12.00	Y
3/21/2023	27.2	4,595	0.57	2616	28.7	25.0	6.0	611	1.01	619	3234	3.4	12.00	Y
3/22/2023	27.2	4,595	0.55	2522	28.3	25.0	6.3	579	1.00	578	3100	3.5	12.00	Y
3/23/2023	27.2	4,595	0.45	2084	28.6	24.6	6.0	605	0.98	595	2680	3.6	12.00	Y
3/24/2023	27.2	4,595	0.40	1830	28.6	24.9	5.9	623	0.98	613	2444	3.5	12.00	Y
3/25/2023	27.2	4,595	0.48	2224	28.7	24.7	6.0	613	0.99	608	2831	3.6	12.00	Y
3/26/2023	27.2	4,595	0.39	1780	28.6	24.3	6.1	597	0.99	592	2372	3.9	12.00	Y
3/27/2023	27.2	4,595	0.40	1856	28.6	23.4	6.2	579	0.98	570	2426	4.4	12.00	Y
3/28/2023	27.2	4,595	0.51	2329	28.7	24.1	6.3	578	0.99	574	2903	4.0	12.00	Y
3/29/2023	27.2	4,595	0.46	2095	28.6	24.9	6.2	592	0.99	588	2682	3.8	12.00	Y
3/30/2023	27.2	4,595	0.50	2288	28.7	23.9	6.4	560	0.98	548	2836	4.0	12.00	Y
3/31/2023	27.2	4,595	0.53	2437	28.7	24.6	6.8	540	1.00	539	2976	4.0	12.00	Y
Avg	29.6	4,367	0.42	1839	28.7	24.5	6.2	586	0.99	581	2420	3.7	12.00	NA
Min	27.2	2,352	0.19	864	28.3	23.4	5.9	532	0.97	527	1472	3.4	12.00	NA
Max	53.2	4,595	0.61	2815	28.7	25.6	6.8	623	1.01	619	3403	4.4	12.00	NA



Notes:

Pipeline volume factor in SMMWSC to RW tank: 125,090 MG-min/day

Distribution System Monitoring

Chlorine Residual at Bacteriological Monitoring Stations (mg/L Free Cl2)

WSSN:	0072		0390				0400			0470							0485					0517	0518		2180
	Akron		Bangor Twp.				Bangor Monitor Dist.			Bay City							Bay County					Beaver Rd	Beaver Twp		Essexville
	Date	1	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	23	24	26	29	30	32
3/1/2023									skipped	0.64	0.79	0.76	0.48	0.98	0.70										
3/2/2023		0.36	0.53	0.56	0.77																		0.52		
3/3/2023																									
3/4/2023																									
3/5/2023																									
3/6/2023																									
3/7/2023							0.90	0.93		0.68	0.56	0.74	0.89	0.48	0.91	0.74	0.73	0.69	0.68	0.66	0.53				0.88
3/8/2023																									
3/9/2023					0.60	0.96				0.84	0.65	0.77	0.70	0.59	1.02	0.84							0.57		
3/10/2023																									
3/11/2023																									
3/12/2023																									
3/13/2023																									0.95
3/14/2023	0.47								0.83								0.78	0.73	0.73	0.75	0.70				
3/15/2023										0.82	0.49	0.68	0.78	0.41	0.99	0.72									
3/16/2023		0.42	0.54	0.58	0.95																0.76				
3/17/2023																									
3/18/2023																									
3/19/2023																									
3/20/2023																									0.70
3/21/2023										0.91	0.64	0.82	0.93	0.53	1.00	0.79									
3/22/2023										0.92	0.49	0.78	0.91	0.48	0.98	0.75									
3/23/2023																									
3/24/2023																									
3/25/2023																									
3/26/2023																									
3/27/2023																									0.63
3/28/2023																									
3/29/2023										0.83		0.78	0.89		0.99	0.79									
3/30/2023																									
3/31/2023																									
Average	0.47			0.63				0.89					0.76					0.70			0.76		0.55		0.79
Min	0.47			0.36				0.83					0.41					0.53			0.76		0.52		0.63
Max	0.47			0.96				0.93					1.02					0.78			0.76		0.57		0.95



MONITORING STATION ADDRESSES

- Sample station at corner of 5758 M-25 & F
- Bangor Fire Station, 3921 Wheeler
- BCDWS Admin. Bldg. 3933 Patterson Rd.
- 7-11, 3543 S. Old Kawkawlin Rd.
- Admiral Petroleum, 314 S Euclid Ave.
- Sequin Lumber, 3881 Euclid Ave
- B's Boutique, 2981 Midland Rd
- Little Caesars, 3475 E North Union Rd

- Number 1 Fire Station, 1401 Center Ave
- Number 2 Fire Station, 1000 Fremont Ave
- Jack's Fruit Market, 1000 Salzburg Ave
- Number 4 Fire Station, 212 S. Dean St
- Number 5 Fire Station, 1209 Smith St
- Bay City Hall, 301 Washington Ave
- Skipper Buds Marina, 1809 S Water St
- Bay Valley Animal Hospital 6015 WS Saginaw Rd

- Dore's M-84 Party Store, 6183 WS Saginaw Rd
- Pump Station #13, 6000 WS Saginaw Rd
- Rail Trail Pump Station, 366 N. Tuscola Rd.
- Little Learners Daycare, 1694 Cass Ave.
- Wieland Contracting, 2443 S Mackinaw Rd
- Sample Station, 2515 S. 11 Mile Rd
- Sample Station, 340 W. Beaver Rd
- Essexville City Hall, 1107 Woodside Ave

Distribution System Monitoring																								
Chlorine Residual at Bacteriological Monitoring Stations (mg/L Free Cl ₂)																								
WSSN:	2465		2960			3565			3570		4280		4440			5330		5335		5540	7125			7134
Date	Fraser Twp.		Hampton Twp.			Kawkawlin Twp.			Kawkawlin Met.		Merritt Twp.		Monitor Twp.			City Pinconning		Pinconning Twp.		Portsmouth	Williams Twp.			Wisner
	34	35	37	38	39	40	41	42	43	45	46	48	49	52	55	58	59	61	63	65	68	69	70	72
3/1/2023																					0.35	0.65	0.56	
3/2/2023																								
3/3/2023																								
3/4/2023																								
3/5/2023																								
3/6/2023																								
3/7/2023			0.57	0.68	0.54						0.56		0.90	0.75	0.73					0.63				0.25
3/8/2023																								
3/9/2023		0.71				0.79	0.62		0.74							0.44		0.41			0.75	0.60	0.65	
3/10/2023																								
3/11/2023																								
3/12/2023																								
3/13/2023			0.55	0.69	0.47																			
3/14/2023											0.61		0.72	0.72	0.68									
3/15/2023																								
3/16/2023	0.62							0.84	0.71							0.60		0.61						
3/17/2023																								
3/18/2023																								
3/19/2023																								
3/20/2023																								
3/21/2023			0.47																					
3/22/2023																								
3/23/2023																								
3/24/2023																								
3/25/2023																								
3/26/2023																								
3/27/2023																								
3/28/2023																								
3/29/2023																								
3/30/2023			0.44	0.61	0.45																			
3/31/2023																								
Average	0.67		0.55			0.75			0.73		0.59		0.75			0.52		0.51		0.63		0.59		0.25
Min	0.62		0.44			0.62			0.71		0.56		0.68			0.44		0.41		0.63		0.35		0.25
Max	0.71		0.69			0.84			0.74		0.61		0.90			0.60		0.61		0.63		0.75		0.25



MONITORING STATION ADDRESSES

- 34. Fraser Elevated Tank, 2949 1/2 N. Huron Rd
- 35. Lloyd's Cabinet, 1947 N Huron Rd
- 37. Hampton DPW, 950 Wagner Rd.
- 38. Bay County Golf Course, 584 W Hampton Rd.
- 39. Sewer Lift Station, 902 Nebobish Rd.
- 40. Bay Co. Road Commisison, 2600 E Beaver Rd
- 41. Parish Rd. Elevated Tank, 1770 E. Parish Rd
- 42. Linwood Tile, 205 S Huron Rd

- 43. Speedway, 106 S. Huron Rd.
- 45. Kawkawlin Restaurant, 103 S Huron Rd
- 46. John's Bar, 1476 S Tuscola Rd
- 48. Tool Shed Bar, 12 W Munger Rd
- 49. Wilder Rd Party Store, 2951 E Wilder Rd
- 52. Monitor Twp. Elevated Tank, 1611 E. Midland Rd
- 55. Auburn Fertilizer, 4640 S 7 Mile Rd
- 58. Pinconning City Hall, 208 S Manitou St

- 59. Marathon Gas Station, 511 S Mabel St
- 61. Pinconning Meter Pit, 3005 N Huron Rd
- 63. Master Meter Pit, 2865 Pinconning Rd
- 65. Ike's Welding, 50 N Finn Rd
- 68. Williams Township Hall, 1080 W Midland Rd
- 69. Pump Station, 490 W. Salzburg & 9 Mile Rd
- 70. 11 Mile Elevated Tank, 5003 S. 11 Mile Rd
- 72. Lindy's Sales, 9051 M-25

Distribution System Bacteriological							
Water Supplier Bacteriological Analysis Report							
MICHIGAN DEPARTMENT OF PUBLIC HEALTH Bureau of Environmental Health Water Supplier Bacteriological Analysis Report				Name of Water Supply Bay Area Water Treatment Plant			
				March, 2023			
COUNTY	COMMUNITY	WSSN NUMBER	DISTRIBUTION SYSTEM SAMPLES				
			avg free cl2 mg/L	NUMBER REQUIRED	NUMBER COLLECTED	NUMBER POSITIVE	NUMBER REPEAT SAMPLES
Tuscola	Akron	0072	0.47	1	1	0	0
BAY	Bangor Township	0390	0.63	10	10	0	0
BAY	Bangor-Monitor Dist.	0400	0.89	3	3	0	0
BAY	Bay City	0470	0.76	30	46	0	0
BAY	Bay County (Frankl./Monitor/Portsm.)	0485	0.70	9	10	0	0
BAY	Beaver Road Area	0517	0.76	1	1	0	0
BAY	Beaver Township	0518	0.55	2	2	0	0
BAY	Essexville	2180	0.79	4	4	0	0
BAY	Fraser Township	2465	0.67	2	2	0	0
BAY	Hampton Township	2960	0.55	10	10	0	0
BAY	Kawkawlin Township	3565	0.75	3	3	0	0
BAY	Kawkawlin Metro Dist.	3570	0.73	2	2	0	0
BAY	Merritt Township	4280	0.59	2	2	0	0
BAY	Monitor Township	4440	0.75	6	6	0	0
BAY	City of Pinconning	5330	0.52	2	2	0	0
BAY	Pinconning Township	5335	0.51	2	2	0	0
BAY	Portsmouth Township	5540	0.63	1	1	0	0
BAY	Williams Township	7125	0.59	6	6	0	0
Tuscola	Wisner	7134	0.25	1	1	0	0
Average Free Cl2 Residual of All Distribution Sites			0.63	mg/L			
1. Total distribution samples			114				
2. Total distribution samples with detectable free cl2 residual			114				
3. Total distribution samples with no detectable free cl2 residual			0				
4. Total distribution samples with no detectable free cl2 residual and HPC was <500			NA				
5. Total distribution samples with no detectable free cl2 residual and HPC was >500			NA				
6. Percent of distribution samples with no detectable free cl2 residual			0.00%				
7. Percent shown line #6 in previous monthly report			0.00%				

