

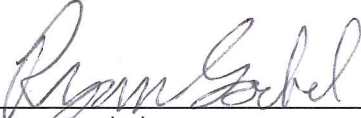
Bay Area WTP

Monthly Operations Report



October, 2022

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

October, 2022
 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	<u>17.4</u>	Millions of Gallons per Day
Treatment Rate, Maximum	<u>8.1</u>	Millions of Gallons per Day
Maximum Approved Transmembrane Pressure	<u>22</u>	PSI
Maximum Operating Transmembrane Pressure	<u>9.65</u>	PSI
Maximum Approved Flux Rate	<u>36.25</u>	gpd/sq.ft.
Maximum Operating Flux Rate	<u>24.20</u>	gpd/sq.ft.

Chemical Data

Sodium Hypochlorite on hand:	<u>3,717</u>	Gallons	Estimated Supply:	<u>38.0</u>	days
Caustic Soda on hand:	<u>4,040</u>	Gallons	Estimated Supply:	<u>276.7</u>	days
Corrosion Inhibitor on hand:	<u>864</u>	Gallons	Estimated Supply:	<u>39.8</u>	days
Hydrofluosilicic Acid on hand:	<u>478</u>	Gallons	Estimated Supply:	<u>26.2</u>	days
Aluminum Chlorohydrate on hand:	<u>868</u>	Gallons	Estimated Supply:	<u>77.1</u>	days
Sulfuric Acid on hand:	<u>764</u>	Gallons	Estimated Supply:	<u>381.9</u>	days
Sodium Bisulfite on hand:	<u>551</u>	Gallons	Estimated Supply:	<u>190.0</u>	days
Citric Acid on hand:	<u>1,278</u>	Gallons	Estimated Supply:	<u>102.3</u>	days
Cost of All Chemicals per Million Gallons:	<u>124.69</u>	Dollars			
Estimated Electrical Cost per Million Gallons:	<u>90</u>	Dollars			
Estimated Natural Gas Cost per Million Gallons:	<u>6.4</u>	Dollars			

Remarks

Number of periods of filter confluence turbidity samples > 0.3 NTU	<u>0</u>
Percent of membrane period confluence samples > 0.3 NTU:	<u>0.00%</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, date(s) and duration will be indicated on the rule page.	<u>No</u>



Notes

- Filter #2 out for pinning maint. @ 8:16am on 10/24, back in at 3:20pm on 10/26
- Filter #8 out for pinning maint. @7:44am on 10/27, back in at 7:43am on 10/29
- Clarified water sent to sewer from 10/24-11/3 in order to complete clarified pipe maintenance

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
10/1/2022	2.07	6.37	8.44	0.23	0.25	6.96	3.34	3.17	6.51
10/2/2022	2.08	5.30	7.38	0.25	0.21	7.27	3.61	3.44	7.05
10/3/2022	1.93	5.33	7.26	0.26	0.21	7.45	3.71	3.54	7.25
10/4/2022	1.88	5.29	7.17	0.24	0.25	7.42	3.63	3.46	7.09
10/5/2022	1.89	5.53	7.42	0.21	0.24	7.32	3.53	3.36	6.89
10/6/2022	1.90	5.69	7.59	0.30	0.14	6.94	3.52	3.35	6.87
10/7/2022	1.96	5.11	7.07	0.32	0.08	7.07	3.46	3.29	6.75
10/8/2022	2.14	4.42	6.56	0.32	0.08	6.76	3.28	3.11	6.39
10/9/2022	2.15	4.60	6.75	0.37	0.08	7.13	3.44	3.27	6.71
10/10/2022	1.96	5.57	7.53	0.33	0.09	6.92	3.48	3.31	6.79
10/11/2022	1.86	5.85	7.71	0.33	0.08	7.25	3.54	3.37	6.91
10/12/2022	1.86	5.16	7.02	0.35	0.11	8.13	3.90	3.73	7.63
10/13/2022	1.85	6.03	7.89	0.36	0.08	6.73	3.33	3.16	6.49
10/14/2022	1.90	5.50	7.40	0.36	0.08	6.93	3.37	3.20	6.57
10/15/2022	2.02	4.57	6.58	0.37	0.08	7.12	3.45	3.28	6.73
10/16/2022	1.98	4.62	6.60	0.36	0.08	6.92	3.38	3.21	6.59
10/17/2022	1.87	5.17	7.04	0.28	0.08	6.87	3.38	3.21	6.59
10/18/2022	1.81	5.48	7.29	0.33	0.08	6.80	3.33	3.16	6.49
10/19/2022	1.82	4.65	6.47	0.37	0.08	6.98	3.34	3.17	6.51
10/20/2022	1.83	5.09	6.92	0.34	0.08	6.70	3.32	3.15	6.47
10/21/2022	1.94	4.99	6.93	0.35	0.08	6.80	3.32	3.15	6.47
10/22/2022	2.23	4.56	6.80	0.31	0.08	6.82	3.33	3.16	6.49
10/23/2022	2.18	4.46	6.64	0.36	0.08	6.78	3.33	3.16	6.49
10/24/2022	1.96	5.05	7.01	0.13	0.19	6.73	3.30	3.13	6.43
10/25/2022	1.91	5.16	7.07	0.00	0.25	6.84	3.35	3.18	6.53
10/26/2022	1.88	5.31	7.19	0.00	0.25	6.84	3.34	3.17	6.51
10/27/2022	0.50	5.79	6.29	0.00	0.22	6.45	3.26	3.09	6.35
10/28/2022	0.00	7.66	7.66	0.00	0.18	6.99	3.34	3.17	6.51
10/29/2022	0.00	6.83	6.83	0.00	0.25	6.15	3.08	2.91	5.99
10/30/2022	0.00	6.38	6.38	0.00	0.25	6.39	3.19	3.02	6.21
10/31/2022	0.00	6.83	6.83	0.00	0.24	6.55	3.18	3.01	6.19
Total	51.36	168.37	219.74	7.44	4.55	215.01	105.36	100.07	205.43
Avg	1.66	5.43	7.09	0.24	0.15	6.94	3.40	3.23	6.63
Min	0.00	4.42	6.29	0.00	0.08	6.15	3.08	2.91	5.99
Max	2.23	7.66	8.44	0.37	0.25	8.13	3.90	3.73	7.63



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	
10/1/2022	16.7	8.02	0.87	1.22	0.08	0.38	Negative	Negative
10/2/2022	16.7	8.00	0.85	1.44	0.08	0.47	Negative	Negative
10/3/2022	16.6	8.03	4.02	9.83	0.08	0.20	Negative	Negative
10/4/2022	16.7	7.98	3.60	9.21	0.08	0.29	Negative	Negative
10/5/2022	16.4	7.99	1.03	4.50	0.08	0.51	Negative	Negative
10/6/2022	16.3	8.01	1.37	2.24	0.08	0.41	Negative	Negative
10/7/2022	16.0	7.94	1.48	4.35	0.08	0.42	Negative	Negative
10/8/2022	15.9	7.97	1.31	1.92	0.08	0.55	Negative	Negative
10/9/2022	15.7	7.97	1.69	2.43	0.08	0.54	Negative	Negative
10/10/2022	15.5	7.95	0.98	1.34	0.08	0.49	Negative	Negative
10/11/2022	15.4	7.96	0.85	2.17	0.08	0.43	Negative	Negative
10/12/2022	15.4	7.98	0.66	1.17	0.08	0.43	Negative	Negative
10/13/2022	15.1	8.00	0.64	0.89	0.08	0.41	Negative	Negative
10/14/2022	14.9	7.99	0.66	1.05	0.08	0.44	Negative	Negative
10/15/2022	14.8	7.98	0.76	1.11	0.09	0.46	Negative	Negative
10/16/2022	14.7	7.97	0.66	1.19	0.09	0.51	Negative	Negative
10/17/2022	14.5	7.98	0.68	1.00	0.09	0.51	Negative	Negative
10/18/2022	14.3	7.97	0.70	1.16	0.09	0.51	Negative	Negative
10/19/2022	14.0	7.96	0.92	1.98	0.09	0.49	Negative	Negative
10/20/2022	13.9	7.96	1.13	1.84	0.08	0.46	Negative	Negative
10/21/2022	13.5	7.98	1.17	15.81	0.08	0.50	Negative	Negative
10/22/2022	13.2	7.95	1.08	1.98	0.08	0.64	Negative	Negative
10/23/2022	13.0	7.96	0.77	2.11	0.08	0.60	Negative	Negative
10/24/2022	12.8	7.95	0.51	1.36	0.08	0.61	Negative	Negative
10/25/2022	12.8	7.99	0.48	0.96	0.08	0.49	Negative	Negative
10/26/2022	12.7	8.02	0.47	0.89	0.08	0.44	Negative	Negative
10/27/2022	12.6	8.04	0.45	0.78	0.08	0.44	Negative	Negative
10/28/2022	12.5	8.03	0.45	1.09	0.08	0.45	Negative	Negative
10/29/2022	12.4	8.03	0.50	0.69	0.08	0.48	Negative	Negative
10/30/2022	12.3	8.04	0.51	0.97	0.08	0.50	Negative	Negative
10/31/2022	12.2	8.04	0.43	0.80	0.08	0.52	Negative	Negative
Avg	14.5	7.99	1.02	2.56	0.08	0.47	NA	NA
Min	12.2	7.94	0.43	0.69	0.08	0.20	NA	NA
Max	16.7	8.04	4.02	15.81	0.09	0.64	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				Positive/Negative	
	°C		mg/L	mg/L		mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	uS/cm				Total Coliform	E. coli
	AIT-4040-1	AIT-4050-2	AIT-4040-5	Lab		AIT-4050-1	Lab		Lab	Lab	Lab	Lab	Lab				Calculated	
10/1/2022	15.7	7.57	3.36	0.76		1.31	0	77	11	9	76	9.2	244	-0.73	1.22	0.40	Negative	Negative
10/2/2022	15.5	7.59	3.37	0.76		1.30	0	77	12	9	74	9.2	240	-0.72	1.33	0.42	Negative	Negative
10/3/2022	15.3	7.58	3.36	0.76	0.76	1.30	0	73	12	12	70	9.3	245	-0.78	1.00	0.50	Negative	Negative
10/4/2022	15.3	7.56	3.39	0.76		1.28	0	80	12	13	70	9.2	250	-0.77	0.92	0.47	Negative	Negative
10/5/2022	15.2	7.55	3.43	0.81		1.30	0	78	11	14	84	9.5	247	-0.71	0.79	0.47	Negative	Negative
10/6/2022	15.1	7.55	3.42	0.80		1.31	0	76	12	10	74	9.3	245	-0.77	1.20	0.44	Negative	Negative
10/7/2022	14.9	7.59	3.41	0.79		1.30	0	77	12	9	74	9.2	248	-0.74	1.33	0.42	Negative	Negative
10/8/2022	14.8	7.58	3.41	0.80		1.31	0	76	11	10	72	9.4	246	-0.77	1.10	0.42	Negative	Negative
10/9/2022	14.7	7.58	3.40	0.79		1.31	0	77	12	10	74	9.4	245	-0.75	1.20	0.44	Negative	Negative
10/10/2022	14.5	7.58	3.40	0.80	0.81	1.31	0	79	11	10	74	9.6	244	-0.75	1.10	0.40	Negative	Negative
10/11/2022	14.4	7.57	3.39	0.79		1.30	0	78	11	11	72	9.4	245	-0.78	1.00	0.43	Negative	Negative
10/12/2022	14.4	7.57	3.40	0.79		1.31	0	89	10	11	74	9.0	246	-0.71	0.91	0.35	Negative	Negative
10/13/2022	14.1	7.59	3.40	0.77		1.31	0	79	11	13	70	8.4	238	-0.76	0.85	0.45	Negative	Negative
10/14/2022	13.8	7.62	3.39	0.82		1.31	0	76	11	14	76	9.6	241	-0.73	0.79	0.49	Negative	Negative
10/15/2022	13.8	7.63	3.39	0.79		1.31	0	76	11	10	76	9.5	242	-0.72	1.10	0.42	Negative	Negative
10/16/2022	13.7	7.62	3.38	0.79		1.31	0	75	11	9	76	9.7	242	-0.73	1.22	0.41	Negative	Negative
10/17/2022	14.6	7.63	3.37	0.79	0.80	1.32	0	75	11	9	78	9.6	241	-0.69	1.22	0.41	Negative	Negative
10/18/2022	14.8	7.65	3.37	0.80		1.31	0	75	11	9	78	9.8	214	-0.66	1.22	0.41	Negative	Negative
10/19/2022	14.6	7.64	3.36	0.78		1.32	0	77	10	10	78	9.8	214	-0.66	1.00	0.39	Negative	Negative
10/20/2022	14.4	7.64	3.37	0.76		1.30	0	71	11	11	70	9.6	211	-0.75	1.00	0.47	Negative	Negative
10/21/2022	14.1	7.65	3.36	0.76		1.32	0	71	11	11	74	9.7	213	-0.72	1.00	0.47	Negative	Negative
10/22/2022	13.9	7.65	3.36	0.76		1.32	0	73	11	11	70	9.7	214	-0.74	1.00	0.45	Negative	Negative
10/23/2022	13.5	7.64	3.36	0.76		1.32	0	74	12	11	70	9.8	212	-0.75	1.09	0.47	Negative	Negative
10/24/2022	13.2	7.65	3.35	0.75	0.77	1.32	0	70	11	11	74	9.7	208	-0.75	1.00	0.47	Negative	Negative
10/25/2022	12.9	7.64	3.35	0.74		1.33	0	70	11	11	74	9.9	214	-0.76	1.00	0.47	Negative	Negative
10/26/2022	12.6	7.67	3.36	0.75		1.33	0	73	11	11	70	10.0	212	-0.74	1.00	0.45	Negative	Negative
10/27/2022	12.4	7.72	3.35	0.74		1.34	0	76	10	9	72	10.5	211	-0.67	1.11	0.38	Negative	Negative
10/28/2022	12.3	7.70	3.35	0.73		1.32	0	75	10	8	74	10.6	210	-0.69	1.25	0.37	Negative	Negative
10/29/2022	12.3	7.70	3.36	0.77		1.30	0	75	10	9	72	10.7	211	-0.70	1.11	0.38	Negative	Negative
10/30/2022	12.2	7.71	3.36	0.76		1.32	0	75	10	9	72	10.4	211	-0.69	1.11	0.38	Negative	Negative
10/31/2022	12.1	7.70	3.36	0.76	0.74	1.33	0	75	10	9	74	10.5	210	-0.69	1.11	0.38	Negative	Negative
Avg	14.0	7.62	3.38	0.77	0.77	1.31	0	76	11	10	74	9.7	229	-0.73	1.07	0.43	NA	NA
Min	12.1	7.55	3.35	0.73	0.74	1.28	0	70	10	8	70	8.4	208	-0.78	0.79	0.35	NA	NA
Max	15.7	7.72	3.43	0.82	0.81	1.34	0	89	12	14	84	10.7	250	-0.66	1.33	0.50	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	
10/1/2022	0.87	1.22	3.29	0.81	0.022	0.022	96	0	0.0	0.019
10/2/2022	0.85	1.44	3.54	0.97	0.022	0.022	96	0	0.0	0.019
10/3/2022	4.02	9.83	3.82	1.85	0.022	0.023	96	0	0.0	0.019
10/4/2022	3.60	9.21	5.51	3.41	0.023	0.023	96	0	0.0	0.019
10/5/2022	1.03	4.50	3.14	2.16	0.023	0.023	96	0	0.0	0.019
10/6/2022	1.37	2.24	2.42	1.58	0.023	0.023	96	0	0.0	0.019
10/7/2022	1.48	4.35	2.62	1.42	0.023	0.023	96	0	0.0	0.018
10/8/2022	1.31	1.92	3.51	1.28	0.023	0.023	96	0	0.0	0.018
10/9/2022	1.69	2.43	3.12	1.41	0.023	0.023	96	0	0.0	0.018
10/10/2022	0.98	1.34	3.15	1.28	0.023	0.023	96	0	0.0	0.018
10/11/2022	0.85	2.17	2.18	1.21	0.023	0.023	96	0	0.0	0.018
10/12/2022	0.66	1.17	2.75	1.01	0.023	0.023	96	0	0.0	0.018
10/13/2022	0.64	0.89	4.64	0.87	0.023	0.024	96	0	0.0	0.018
10/14/2022	0.66	1.05	2.48	0.82	0.023	0.024	96	0	0.0	0.018
10/15/2022	0.76	1.11	3.61	0.79	0.023	0.024	96	0	0.0	0.018
10/16/2022	0.66	1.19	1.90	0.82	0.024	0.024	96	0	0.0	0.018
10/17/2022	0.68	1.00	2.94	0.78	0.024	0.024	96	0	0.0	0.018
10/18/2022	0.70	1.16	0.97	0.73	0.024	0.024	96	0	0.0	0.018
10/19/2022	0.92	1.98	1.74	0.71	0.024	0.024	96	0	0.0	0.018
10/20/2022	1.13	1.84	2.52	0.99	0.023	0.024	96	0	0.0	0.018
10/21/2022	1.17	15.81	1.39	1.03	0.023	0.024	96	0	0.0	0.018
10/22/2022	1.08	1.98	1.73	1.02	0.023	0.024	96	0	0.0	0.018
10/23/2022	0.77	2.11	1.88	1.04	0.023	0.023	96	0	0.0	0.018
10/24/2022	0.51	1.36	6.58	0.80	0.023	0.023	96	0	0.0	0.018
10/25/2022	0.48	0.96	8.90	0.65	0.023	0.023	96	0	0.0	0.018
10/26/2022	0.47	0.89	6.98	0.53	0.023	0.023	96	0	0.0	0.018
10/27/2022	0.45	0.78	5.86	0.51	0.023	0.030	96	0	0.0	0.019
10/28/2022	0.45	1.09	4.61	0.45	0.023	0.023	96	0	0.0	0.017
10/29/2022	0.50	0.69	3.80	0.45	0.023	0.023	96	0	0.0	0.017
10/30/2022	0.51	0.97	4.35	0.52	0.023	0.023	96	0	0.0	0.017
10/31/2022	0.43	0.80	4.65	0.50	0.023	0.023	96	0	0.0	0.017
Avg	1.02	2.56	3.57	1.05	0.023	0.023	96	0	0.0	0.018
Min	0.43	0.69	0.97	0.45	0.022	0.022	96	0	0.0	0.017
Max	4.02	15.81	8.90	3.41	0.024	0.030	96	0	0.0	0.019

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	Max	Average	Max	Max	Average	Max	Max	Average	Max	Max	Average	Max	Max	Average	Max	Max	Average	Max	Max	Average	Max	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	
10/1/2022	4.33	PASS	0.018	4.19	PASS	0.026	4.43	PASS	0.020	4.53	PASS	0.016	4.22	PASS	0.019	4.47	PASS	0.018	4.46	PASS	0.027	4.20	PASS	0.019	4.28	PASS	0.019
10/2/2022	4.25	PASS	0.018	4.21	PASS	0.026	4.27	PASS	0.020	4.52	PASS	0.016	4.27	PASS	0.019	4.47	PASS	0.018	4.43	PASS	0.028	4.18	PASS	0.019	4.18	PASS	0.019
10/3/2022	4.20	PASS	0.018	4.20	PASS	0.026	4.28	PASS	0.020	4.52	PASS	0.016	4.19	PASS	0.020	4.40	PASS	0.018	4.44	PASS	0.028	4.16	PASS	0.019	4.16	PASS	0.019
10/4/2022	4.18	PASS	0.018	4.16	PASS	0.027	4.24	PASS	0.021	4.65	PASS	0.016	4.17	PASS	0.019	4.38	PASS	0.018	4.38	PASS	0.028	4.13	PASS	0.020	4.13	PASS	0.020
10/5/2022	4.20	PASS	0.018	4.17	PASS	0.027	4.33	PASS	0.020	4.54	PASS	0.016	4.16	PASS	0.019	4.45	PASS	0.018	4.37	PASS	0.028	4.17	PASS	0.019	4.17	PASS	0.019
10/6/2022	4.19	PASS	0.019	4.18	PASS	0.026	4.25	PASS	0.025	4.58	PASS	0.018	4.17	PASS	0.021	4.49	PASS	0.018	4.37	PASS	0.029	4.17	PASS	0.021	4.17	PASS	0.021
10/7/2022	4.17	PASS	0.021	4.15	PASS	0.026	4.21	PASS	0.020	4.55	PASS	0.017	4.19	PASS	0.021	4.58	PASS	0.023	4.41	PASS	0.029	4.14	PASS	0.021	4.14	PASS	0.021
10/8/2022	4.17	PASS	0.021	4.34	PASS	0.023	4.22	PASS	0.021	4.55	PASS	0.017	4.19	PASS	0.021	4.56	PASS	0.023	4.41	PASS	0.029	4.15	PASS	0.020	4.15	PASS	0.020
10/9/2022	4.21	PASS	0.021	4.35	PASS	0.023	4.36	PASS	0.021	4.59	PASS	0.017	4.19	PASS	0.020	4.55	PASS	0.023	4.38	PASS	0.029	4.15	PASS	0.019	4.15	PASS	0.019
10/10/2022	4.18	PASS	0.021	4.34	PASS	0.023	4.39	PASS	0.022	4.59	PASS	0.016	4.18	PASS	0.020	4.59	PASS	0.022	4.40	PASS	0.029	4.17	PASS	0.019	4.17	PASS	0.019
10/11/2022	4.17	PASS	0.021	4.22	PASS	0.023	4.54	PASS	0.021	4.67	PASS	0.016	4.18	PASS	0.020	4.56	PASS	0.023	4.39	PASS	0.029	4.14	PASS	0.018	4.14	PASS	0.018
10/12/2022	4.23	PASS	0.021	4.24	PASS	0.024	4.31	PASS	0.021	4.64	PASS	0.016	4.20	PASS	0.020	4.53	PASS	0.024	4.36	PASS	0.030	4.16	PASS	0.018	4.16	PASS	0.018
10/13/2022	4.25	PASS	0.021	4.24	PASS	0.024	4.32	PASS	0.021	4.60	PASS	0.016	4.17	PASS	0.020	4.54	PASS	0.023	4.54	PASS	0.029	4.16	PASS	0.019	4.16	PASS	0.019
10/14/2022	4.19	PASS	0.021	4.21	PASS	0.024	4.41	PASS	0.021	4.59	PASS	0.016	4.19	PASS	0.020	4.56	PASS	0.023	4.70	PASS	0.029	4.15	PASS	0.021	4.15	PASS	0.021
10/15/2022	4.20	PASS	0.021	4.20	PASS	0.023	4.46	PASS	0.021	4.59	PASS	0.016	4.22	PASS	0.019	4.55	PASS	0.024	4.45	PASS	0.029	4.18	PASS	0.020	4.18	PASS	0.020
10/16/2022	4.23	PASS	0.021	4.25	PASS	0.025	4.46	PASS	0.021	4.60	PASS	0.016	4.21	PASS	0.019	4.52	PASS	0.024	4.50	PASS	0.029	4.20	PASS	0.020	4.20	PASS	0.020
10/17/2022	4.24	PASS	0.021	4.26	PASS	0.023	4.43	PASS	0.021	4.60	PASS	0.016	4.23	PASS	0.019	4.49	PASS	0.024	4.50	PASS	0.029	4.18	PASS	0.020	4.18	PASS	0.020
10/18/2022	4.22	PASS	0.021	4.24	PASS	0.023	4.38	PASS	0.021	4.59	PASS	0.016	4.21	PASS	0.019	4.50	PASS	0.023	4.53	PASS	0.029	4.19	PASS	0.020	4.19	PASS	0.020
10/19/2022	4.23	PASS	0.021	4.23	PASS	0.024	4.39	PASS	0.021	4.64	PASS	0.016	4.25	PASS	0.020	4.51	PASS	0.023	4.49	PASS	0.029	4.21	PASS	0.021	4.21	PASS	0.021
10/20/2022	4.23	PASS	0.020	4.26	PASS	0.023	4.38	PASS	0.021	4.64	PASS	0.016	4.26	PASS	0.019	4.56	PASS	0.023	4.47	PASS	0.029	4.20	PASS	0.020	4.20	PASS	0.020
10/21/2022	4.46	PASS	0.020	4.24	PASS	0.023	4.36	PASS	0.020	4.61	PASS	0.016	4.24	PASS	0.019	4.56	PASS	0.023	4.53	PASS	0.028	4.20	PASS	0.019	4.20	PASS	0.019
10/22/2022	4.37	PASS	0.020	4.22	PASS	0.023	4.43	PASS	0.020	4.56	PASS	0.016	4.23	PASS	0.019	4.59	PASS	0.023	4.55	PASS	0.028	4.21	PASS	0.020	4.21	PASS	0.020
10/23/2022	4.31	PASS	0.020	4.25	PASS	0.023	4.45	PASS	0.020	4.57	PASS	0.016	4.27	PASS	0.019	4.58	PASS	0.023	4.48	PASS	0.028	4.21	PASS	0.029	4.21	PASS	0.029
10/24/2022	4.33	PASS	0.020	4.32	PASS	0.022	4.38	PASS	0.020	4.58	PASS	0.015	4.25	PASS	0.018	4.54	PASS	0.022	4.48	PASS	0.028	4.19	PASS	0.029	4.19	PASS	0.029
10/25/2022	4.32	PASS	0.020	out 10/24 for maint. In 10/26			4.34	PASS	0.020	4.56	PASS	0.015	4.24	PASS	0.018	4.51	PASS	0.023	4.49	PASS	0.028	4.18	PASS	0.020	4.18	PASS	0.020
10/26/2022	4.30	PASS	0.020	4.63	PASS	0.022	4.34	PASS	0.020	4.54	PASS	0.015	4.23	PASS	0.018	4.51	PASS	0.023	4.48	PASS	0.028	4.19	PASS	0.020	4.19	PASS	0.020
10/27/2022	4.31	PASS	0.020	4.50	PASS	0.023	4.30	PASS	0.020	4.57	PASS	0.015	4.24	PASS	0.019	4.48	PASS	0.023	4.43	PASS	0.029	4.17	PASS	0.020	4.17	PASS	0.020
10/28/2022	4.29	PASS	0.019	4.34	PASS	0.023	4.29	PASS	0.019	4.57	PASS	0.015	4.22	PASS	0.017	4.51	PASS	0.022	4.43	PASS	0.028	out 10/27 for maint. In 10/29					
10/29/2022	4.29	PASS	0.019	4.32	PASS	0.022	4.29	PASS	0.019	4.57	PASS	0.015	4.25	PASS	0.018	4.49	PASS	0.022	4.42	PASS	0.027	4.49	PASS	0.019	4.49	PASS	0.019
10/30/2022	4.30	PASS	0.019	4.32	PASS	0.022	4.30	PASS	0.020	4.55	PASS	0.015	4.24	PASS	0.018	4.48	PASS	0.022	4.43	PASS	0.027	4.37	PASS	0.019	4.37	PASS	0.019
10/31/2022	4.28	PASS	0.038	4.30	PASS	0.022	4.29	PASS	0.019	4.56	PASS	0.015	4.23	PASS	0.017	4.46	PASS	0.022	4.42	PASS	0.027	4.31	PASS	0.020	4.31	PASS	0.020
Avg	4.25		0.021	4.27		0.024	4.35		0.021	4.58		0.016	4.22		0.019	4.51		0.022	4.46		0.028	4.20		0.020	4.20		0.020
Min	4.17		0.018	4.15		0.022	4.21		0.019	4.52		0.015	4.16		0.017	4.38		0.018	4.36		0.027	4.13		0.018	4.13		0.018
Max	4.46		0.038	4.63		0.027	4.54		0.025	4.67		0.018	4.27		0.021	4.59		0.024	4.70		0.030	4.49		0.029	4.49		0.029

*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
10/1/2022	7.0	0.38	0.26	1.14	1.45	1.31	3.28	3.36	0.08	0.59	0.76
10/2/2022	7.3	0.47	0.24	1.15	1.46	1.30	3.28	3.37	0.08	0.60	0.76
10/3/2022	7.4	0.20	0.20	1.22	1.44	1.30	3.28	3.36	0.08	0.60	0.76
10/4/2022	7.4	0.29	0.11	1.30	1.49	1.28	3.32	3.39	0.08	0.62	0.76
10/5/2022	7.3	0.51	0.21	1.22	1.49	1.30	3.34	3.43	0.08	0.64	0.81
10/6/2022	6.9	0.41	0.23	1.20	1.48	1.31	3.34	3.42	0.08	0.63	0.80
10/7/2022	7.1	0.42	0.23	1.22	1.46	1.30	3.34	3.41	0.08	0.60	0.79
10/8/2022	6.8	0.55	0.26	1.16	1.47	1.31	3.34	3.41	0.08	0.62	0.80
10/9/2022	7.1	0.54	0.30	1.14	1.48	1.31	3.34	3.40	0.08	0.62	0.79
10/10/2022	6.9	0.49	0.30	1.14	1.45	1.31	3.34	3.40	0.08	0.62	0.80
10/11/2022	7.3	0.43	0.27	1.16	1.44	1.30	3.34	3.39	0.08	0.62	0.79
10/12/2022	8.1	0.43	0.27	1.17	1.46	1.31	3.34	3.40	0.08	0.62	0.79
10/13/2022	6.7	0.41	0.26	1.20	1.45	1.31	3.34	3.40	0.08	0.61	0.77
10/14/2022	6.9	0.44	0.26	1.19	1.46	1.31	3.34	3.39	0.08	0.58	0.82
10/15/2022	7.1	0.46	0.28	1.17	1.46	1.31	3.34	3.39	0.09	0.59	0.79
10/16/2022	6.9	0.51	0.30	1.16	1.46	1.31	3.34	3.38	0.09	0.59	0.79
10/17/2022	6.9	0.51	0.33	1.12	1.45	1.32	3.34	3.37	0.09	0.59	0.79
10/18/2022	6.8	0.51	0.33	1.12	1.45	1.31	3.34	3.37	0.09	0.58	0.80
10/19/2022	7.0	0.49	0.34	1.10	1.45	1.32	3.34	3.36	0.09	0.55	0.78
10/20/2022	6.7	0.46	0.33	1.14	1.44	1.30	3.34	3.37	0.08	0.57	0.76
10/21/2022	6.8	0.50	0.33	1.10	1.43	1.32	3.34	3.36	0.08	0.58	0.76
10/22/2022	6.8	0.64	0.39	1.04	1.44	1.32	3.34	3.36	0.08	0.55	0.76
10/23/2022	6.8	0.60	0.42	1.06	1.44	1.32	3.34	3.36	0.08	0.57	0.76
10/24/2022	6.7	0.61	0.43	1.02	1.43	1.32	3.34	3.35	0.08	0.58	0.75
10/25/2022	6.8	0.49	0.41	0.98	1.44	1.33	3.34	3.35	0.08	0.55	0.74
10/26/2022	6.8	0.44	0.36	0.96	1.44	1.33	3.34	3.36	0.08	0.58	0.75
10/27/2022	6.5	0.44	0.33	0.92	1.44	1.34	3.34	3.35	0.08	0.57	0.74
10/28/2022	7.0	0.45	0.34	0.88	1.41	1.32	3.36	3.35	0.08	0.61	0.73
10/29/2022	6.2	0.48	0.35	0.88	1.42	1.30	3.36	3.36	0.08	0.61	0.77
10/30/2022	6.4	0.50	0.36	0.88	1.43	1.32	3.36	3.36	0.08	0.59	0.76
10/31/2022	6.6	0.52	0.37	0.84	1.42	1.33	3.36	3.36	0.08	0.60	0.76
Avg	6.9	0.47	0.30	1.10	1.45	1.31	3.34	3.38	0.08	0.60	0.77
Min	6.2	0.20	0.11	0.84	1.41	1.28	3.28	3.35	0.08	0.55	0.73
Max	8.1	0.64	0.43	1.30	1.49	1.34	3.36	3.43	0.09	0.64	0.82



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
10/1/2022	54.7	2,287	0.38	880	28.7	24.2	6.5	556	1.23	686	1566	16.7	4.00	Y
10/2/2022	55.2	2,265	0.47	1072	28.7	25.2	7.1	523	1.27	664	1736	16.7	4.00	Y
10/3/2022	55.3	2,261	0.20	457	28.8	23.9	7.3	498	1.25	624	1082	16.6	4.00	Y
10/4/2022	48.4	2,587	0.29	759	28.7	24.3	7.1	512	1.25	639	1398	16.7	4.00	Y
10/5/2022	49.6	2,521	0.51	1277	28.7	24.9	6.9	534	1.23	658	1936	16.4	4.00	Y
10/6/2022	50.1	2,498	0.41	1028	28.7	23.2	6.9	518	1.25	646	1673	16.3	4.00	Y
10/7/2022	49.9	2,508	0.42	1047	28.7	23.1	6.7	526	1.28	671	1719	16.0	4.00	Y
10/8/2022	56.1	2,231	0.55	1224	28.7	23.8	6.4	563	1.25	706	1930	15.9	4.00	Y
10/9/2022	56.6	2,209	0.54	1190	28.7	25.0	6.7	548	1.25	687	1878	15.7	4.00	Y
10/10/2022	56.8	2,203	0.49	1080	28.7	24.1	6.8	532	1.28	682	1763	15.5	4.00	Y
10/11/2022	46.1	2,712	0.43	1174	28.7	23.4	6.9	517	1.28	659	1833	15.4	4.00	Y
10/12/2022	40.8	3,067	0.43	1306	28.7	24.9	7.6	481	1.24	597	1903	15.4	4.00	Y
10/13/2022	41.0	3,053	0.41	1260	28.6	23.4	6.5	549	1.26	693	1953	15.1	4.00	Y
10/14/2022	42.2	2,967	0.44	1316	28.7	24.0	6.6	550	1.28	705	2021	14.9	6.00	Y
10/15/2022	46.3	2,702	0.46	1239	28.7	23.8	6.7	535	1.26	675	1914	14.8	6.00	Y
10/16/2022	46.7	2,679	0.51	1371	28.7	25.1	6.6	560	1.25	698	2069	14.7	6.00	Y
10/17/2022	45.0	2,781	0.51	1425	28.8	24.8	6.6	557	1.28	714	2139	14.5	6.00	Y
10/18/2022	41.6	3,007	0.51	1522	28.7	23.6	6.5	553	1.29	712	2235	14.3	6.00	Y
10/19/2022	38.2	3,276	0.49	1606	28.7	24.3	6.5	558	1.30	727	2333	14.0	6.00	Y
10/20/2022	37.3	3,351	0.46	1541	28.7	24.8	6.5	566	1.27	722	2262	13.9	6.00	Y
10/21/2022	43.2	2,894	0.50	1459	28.7	24.9	6.5	568	1.28	729	2187	13.5	6.00	Y
10/22/2022	57.6	2,172	0.64	1394	28.7	24.1	6.5	557	1.30	722	2116	13.2	6.00	Y
10/23/2022	58.2	2,150	0.60	1290	28.6	24.3	6.5	559	1.30	728	2018	13.0	6.00	Y
10/24/2022	56.3	2,224	0.61	1367	28.7	23.9	6.4	560	1.28	717	2084	12.8	6.00	Y
10/25/2022	45.7	2,737	0.49	1333	28.7	24.8	6.5	562	1.27	717	2049	12.8	6.00	Y
10/26/2022	43.0	2,909	0.44	1293	28.8	25.0	6.5	566	1.28	725	2018	12.7	6.00	Y
10/27/2022	41.8	2,989	0.44	1319	26.3	14.0	6.3	435	1.27	554	1873	12.6	6.00	Y
10/28/2022	41.1	3,041	0.45	1366	28.7	23.7	6.5	552	1.28	708	2074	12.5	6.00	Y
10/29/2022	53.2	2,353	0.48	1132	28.7	25.6	6.0	621	1.26	783	1915	12.4	6.00	Y
10/30/2022	53.6	2,334	0.50	1165	28.7	24.2	6.2	583	1.29	752	1916	12.3	6.00	Y
10/31/2022	53.1	2,355	0.52	1222	28.7	23.9	6.2	583	1.27	743	1965	12.2	6.00	Y
Avg	48.5	2,623	0.47	1229	28.6	23.9	6.6	545	1.27	692	1921	14.5	5.16	NA
Min	37.3	2,150	0.20	457	26.3	14.0	6.0	435	1.23	554	1082	12.2	4.00	NA
Max	58.2	3,351	0.64	1606	28.8	25.6	7.6	621	1.30	783	2333	16.7	6.00	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 Cl ₂)																								
WSSN:	0072	0390				0400			0470							0485					0517	0518		2180
Date	Akron	Bangor Twp.				Bangor Monitor Dist.			Bay City							Bay County					Beaver Rd	Beaver Twp		Essexville
	1	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	23	24	26	29	30	32
10/1/2022																								
10/2/2022																								
10/3/2022																								
10/4/2022	0.07	0.13	0.18	0.27	1.14				0.81	0.34	0.44	0.78	0.24	1.13	0.61	0.87	0.94	0.75	0.44	0.36		0.26		1.06
10/5/2022																								
10/6/2022						0.90	1.11		0.78	0.38	0.51	0.74	0.26	1.11	0.58									
10/7/2022																								
10/8/2022																								
10/9/2022																								
10/10/2022																								1.04
10/11/2022				0.26	1.18											0.85	0.87	0.84	0.77	0.27		0.07		
10/12/2022									0.76	0.42	0.58	0.82	0.29	1.18	0.65									
10/13/2022								1.23													0.76			
10/14/2022																								
10/15/2022																								
10/16/2022																								1.06
10/17/2022																								
10/18/2022		0.22	0.32	0.29	1.05				0.72	0.64	0.57	0.89	0.36	1.06	0.60									
10/19/2022																								
10/20/2022									0.67	0.32	0.48	0.76	0.34	1.04	0.59									
10/21/2022																								
10/22/2022																								
10/23/2022																								
10/24/2022																								1.01
10/25/2022																								
10/26/2022									0.70		0.41	0.71		1.04	0.63									
10/27/2022																								
10/28/2022																								
10/29/2022																								
10/30/2022																								
10/31/2022																								
Average	0.07			0.50				1.08						0.65					0.70		0.76		0.17	1.04
Min	0.07			0.13				0.90						0.24					0.27		0.76		0.07	1.01
Max	0.07			1.18				1.23						1.18					0.94		0.76		0.26	1.06



MONITORING STATION ADDRESSES

- | | | |
|--|---|---|
| 1. Sample station at corner of 5758 M-25 & F | 11. Number 1 Fire Station, 1401 Center Ave | 19. Dore's M-84 Party Store, 6183 WS Saginaw Rd |
| 3. Bangor Fire Station, 3921 Wheeler | 12. Number 2 Fire Station, 1000 Fremont Ave | 20. Pump Station #13, 6000 WS Saginaw Rd |
| 4. BCDWS Admin. Bldg. 3933 Patterson Rd. | 13. Skizak's Sport Shop, 807 Salzburg Ave | 23. Rail Trail Pump Station, 366 N. Tuscola Rd. |
| 5. 7-11, 3543 S. Old Kawkawlin Rd. | 14. Number 4 Fire Station, 212 S. Dean St | 24. Little Learners Daycare, 1694 Cass Ave. |
| 6. Admiral Petroleum, 314 S Euclid Ave. | 15. Number 5 Fire Station, 1209 Smith St | 26. Wieland Contracting, 2443 S Mackinaw Rd |
| 7. Sequin Lumber, 3881 Euclid Ave | 16. Bay City Hall, 301 Washington Ave | 29. Sample Station, 2515 S. 11 Mile Rd |
| 9. B's Boutique, 2981 Midland Rd | 17. Skipper Buds Marina, 1809 S Water St | 30. Sample Station, 340 W. Beaver Rd |
| 10. Little Caesars, 3475 E North Union Rd | 18. Bay Valley Animal Hospital 6015 WS Saginaw Rd | 32. Essexville City Hall, 1107 Woodside Ave |

Distribution System Monitoring

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

WSSN: Date	2465 Fraser Twp.		2960 Hampton Twp.			3565 Kawkawlin Twp.			3570 Kawkawlin Met.		4280 Merritt Twp.		4440 Monitor Twp.			5330 City Pinconning		5335 Pinconning Twp.		5540 Portsmouth	7125 Williams Twp.			7134 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
	10/1/2022																							
10/2/2022																								
10/3/2022			0.44	0.56	0.41																			
10/4/2022											0.22									0.44	0.56	0.70	0.45	0.21
10/5/2022																								
10/6/2022	0.27	0.74				1.02	0.92		0.57				1.08	0.60	0.76	0.45		0.71	0.41					
10/7/2022																								
10/8/2022																								
10/9/2022																								
10/10/2022																								
10/11/2022											0.21											0.50	0.63	0.40
10/12/2022			0.23	0.66	0.46																			
10/13/2022								0.92	0.60				1.11	0.63	0.85	0.81								
10/14/2022																								
10/15/2022																								
10/16/2022																								
10/17/2022			0.39	0.64	0.34																			
10/18/2022																								
10/19/2022																								
10/20/2022																								
10/21/2022																								
10/22/2022																								
10/23/2022																								
10/24/2022			0.36																					
10/25/2022																								
10/26/2022																								
10/27/2022																								
10/28/2022																								
10/29/2022																								
10/30/2022																								
10/31/2022																								
Average	0.51		0.45			0.95			0.59		0.22		0.84			0.63		0.56		0.44		0.54		0.21
Min	0.27		0.23			0.92			0.57		0.21		0.60			0.45		0.41		0.44		0.40		0.21
Max	0.74		0.66			1.02			0.60		0.22		1.11			0.81		0.71		0.44		0.70		0.21



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 Commission, 2600 E Beaver Rd
- 41. Parish Rd. Elevated Tank, 1770 E. Parish Rd
- 42. Linwood Tile, 205 S Huron Rd

- 43. Kawkawlin Party Store, 105 Grove St
- 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

