


Bay Area WTP

Monthly Operations Report



September, 2021

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

September, 2021
 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>9.8</u>	Millions of Gallons per Day
Maximum Approved Transmembrane Pressure	<u>22</u>	PSI
Maximum Operating Transmembrane Pressure	<u>12.09</u>	PSI
Maximum Approved Flux Rate	<u>36.25</u>	gpd/sq.ft.
Maximum Operating Flux Rate	<u>29.39</u>	gpd/sq.ft.

Chemical Data

Sodium Hypochlorite on hand:	<u>3,743</u>	Gallons	Estimated Supply:	<u>35.8</u>	days
Caustic Soda on hand:	<u>1,542</u>	Gallons	Estimated Supply:	<u>143.1</u>	days
Corrosion Inhibitor on hand:	<u>1,396</u>	Gallons	Estimated Supply:	<u>57.2</u>	days
Hydrofluosilicic Acid on hand:	<u>2,058</u>	Gallons	Estimated Supply:	<u>85.0</u>	days
Aluminum Chlorohydrate on hand:	<u>850</u>	Gallons	Estimated Supply:	<u>45.3</u>	days
Sulfuric Acid on hand:	<u>158</u>	Gallons	Estimated Supply:	<u>56.6</u>	days
Sodium Bisulfite on hand:	<u>397</u>	Gallons	Estimated Supply:	<u>99.7</u>	days
Citric Acid on hand:	<u>2,976</u>	Gallons	Estimated Supply:	<u>400.9</u>	days
Cost of All Chemicals per Million Gallons:	<u>68.71</u>	Dollars			
Estimated Electrical Cost per Million Gallons:	<u>79.35</u>	Dollars			
Estimated Natural Gas Cost per Million Gallons:	<u>1.23</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

9/5/21 Tap sample was Total Coliform Positive. Tap was sampled twice a day for the 6th and 7th and all were negative.

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
9/1/2021	4.59	4.49	9.08	0.30	0.09	9.40	4.89	4.33	9.23
9/2/2021	4.28	5.12	9.40	0.32	0.08	9.46	4.89	4.34	9.23
9/3/2021	4.72	5.79	10.50	0.22	0.20	9.50	4.94	4.37	9.31
9/4/2021	3.52	4.35	7.87	0.15	0.25	8.93	4.64	4.09	8.73
9/5/2021	3.76	6.16	9.92	0.17	0.25	9.16	4.70	4.16	8.85
9/6/2021	4.56	5.61	10.17	0.18	0.25	9.84	5.11	4.56	9.67
9/7/2021	4.53	4.88	9.41	0.18	0.22	8.54	4.30	3.97	8.27
9/8/2021	2.69	5.55	8.24	0.25	0.14	9.45	4.78	4.34	9.12
9/9/2021	2.68	6.71	9.39	0.25	0.11	8.21	4.24	3.75	8.00
9/10/2021	2.81	5.61	8.42	0.29	0.08	8.71	4.51	3.97	8.48
9/11/2021	3.28	5.62	8.90	0.31	0.08	8.71	4.51	3.97	8.48
9/12/2021	3.12	4.94	8.07	0.30	0.08	8.35	4.28	3.77	8.05
9/13/2021	2.80	5.44	8.24	0.29	0.08	8.03	4.16	3.64	7.80
9/14/2021	2.69	5.46	8.15	0.30	0.08	7.81	4.04	3.53	7.57
9/15/2021	2.69	4.82	7.51	0.30	0.09	8.37	4.36	3.82	8.18
9/16/2021	3.70	4.37	8.07	0.30	0.09	8.00	4.14	3.64	7.78
9/17/2021	3.99	4.46	8.45	0.24	0.13	8.33	4.32	3.79	8.11
9/18/2021	3.62	5.21	8.83	0.35	0.08	8.33	4.28	3.75	8.03
9/19/2021	3.67	4.91	8.59	0.31	0.08	7.94	4.12	3.64	7.77
9/20/2021	3.95	4.60	8.54	0.31	0.10	8.13	4.21	3.68	7.89
9/21/2021	3.13	3.94	7.06	0.26	0.11	8.04	4.04	3.71	7.76
9/22/2021	3.03	4.67	7.70	0.27	0.09	7.60	3.92	3.48	7.39
9/23/2021	3.03	3.89	6.92	0.25	0.08	7.29	3.75	3.36	7.11
9/24/2021	3.16	4.04	7.21	0.20	0.15	7.08	3.55	3.24	6.78
9/25/2021	3.23	4.47	7.70	0.16	0.22	7.63	3.71	3.41	7.12
9/26/2021	3.19	5.17	8.35	0.14	0.25	7.99	4.00	3.72	7.72
9/27/2021	3.06	5.56	8.62	0.14	0.25	8.09	4.05	3.77	7.83
9/28/2021	2.99	5.45	8.44	0.15	0.25	8.33	4.22	3.90	8.12
9/29/2021	3.04	5.08	8.12	0.17	0.24	8.26	4.09	3.82	7.91
9/30/2021	3.07	4.94	8.02	0.28	0.12	7.70	3.78	3.68	7.46
Total	102.57	151.32	253.89	7.33	4.33	251.23	128.54	115.21	243.75
Avg	3.42	5.04	8.46	0.24	0.14	8.37	4.28	3.84	8.12
Min	2.68	3.89	6.92	0.14	0.08	7.08	3.55	3.24	6.78
Max	4.72	6.71	10.50	0.35	0.25	9.84	5.11	4.56	9.67



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	
9/1/2021	21.0	7.81	0.61	1.17	0.07	0.35	Negative	Negative
9/2/2021	20.9	7.84	1.05	18.00	0.06	0.33	Negative	Negative
9/3/2021	21.2	8.04	2.37	6.79	0.10	0.05	Negative	Negative
9/4/2021	21.4	7.92	1.64	3.98	0.10	0.17	Negative	Negative
9/5/2021	21.4	7.84	1.64	2.36	0.09	0.12	Positive	Negative
9/6/2021	21.3	7.86	1.75	12.67	0.08	0.16	Negative	Negative
9/7/2021	21.2	7.87	1.26	3.01	0.08	0.17	Negative	Negative
9/8/2021	21.1	7.84	0.71	1.18	0.07	0.23	Negative	Negative
9/9/2021	20.9	7.83	0.76	1.15	0.09	0.20	Negative	Negative
9/10/2021	20.4	7.76	0.50	0.86	0.08	0.34	Negative	Negative
9/11/2021	20.3	7.75	0.51	0.85	0.08	0.57	Negative	Negative
9/12/2021	20.3	7.77	0.50	1.62	0.08	0.57	Negative	Negative
9/13/2021	20.1	7.80	0.37	1.19	0.08	0.52	Negative	Negative
9/14/2021	20.1	7.80	0.37	2.52	0.08	0.50	Negative	Negative
9/15/2021	20.0	7.82	0.42	1.27	0.08	0.37	Negative	Negative
9/16/2021	20.0	7.84	0.66	1.16	0.08	0.26	Negative	Negative
9/17/2021	20.0	7.84	0.52	1.37	0.06	0.33	Negative	Negative
9/18/2021	20.0	7.81	0.61	2.60	0.08	0.39	Negative	Negative
9/19/2021	20.0	7.83	0.70	2.20	0.06	0.36	Negative	Negative
9/20/2021	20.1	7.83	1.69	46.43	0.08	0.29	Negative	Negative
9/21/2021	20.1	7.86	0.86	2.01	0.08	0.20	Negative	Negative
9/22/2021	19.9	7.87	0.85	1.04	0.08	0.16	Negative	Negative
9/23/2021	19.7	7.86	1.02	5.53	0.08	0.19	Negative	Negative
9/24/2021	19.5	7.78	5.31	17.01	0.06	0.11	Negative	Negative
9/25/2021	19.6	7.67	14.20	84.59	0.08	0.05	Positive	Negative
9/26/2021	19.3	7.63	5.72	27.85	0.09	0.10	Positive	Negative
9/27/2021	18.9	7.62	4.32	78.45	0.08	0.21	Negative	Negative
9/28/2021	18.6	7.63	3.44	18.86	0.09	0.14	Negative	Negative
9/29/2021	18.5	7.63	3.17	3.23	0.09	0.13	Positive	Negative
9/30/2021	18.5	7.63	3.18	3.18	0.07	0.11	Negative	Negative
Avg	20.1	7.80	2.02	11.80	0.08	0.26	NA	NA
Min	18.5	7.62	0.37	0.85	0.06	0.05	NA	NA
Max	21.4	8.04	14.20	84.59	0.10	0.57	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	µS/cm				Calculated	Lab	Total Coliform	E. coli
	AIT-4040-1	AIT-4050-2	AIT-4040-5	Lab		AIT-4050-1	Lab		Lab	Lab	Lab	Lab	Lab						Lab	
9/1/2021	20.6	7.57	3.42	0.77		1.31	0	77	13	10	74	8.1	228	-0.62	1.30	0.46	Negative	Negative		
9/2/2021	20.0	7.57	3.44	0.83		1.33	0	80	11	9	64	8.0	229	-0.68	1.22	0.38	Negative	Negative		
9/3/2021	20.4	7.59	3.36	0.85		1.29	0	82	13	10	64	7.8	239	-0.64	1.30	0.43	Negative	Negative		
9/4/2021	21.1	7.62	3.36	0.83		1.28	0	85	11	11	68	7.8	244	-0.55	1.00	0.39	Negative	Negative		
9/5/2021	21.2	7.62	3.37	0.81		1.30	0	80	12	12	62	7.9	243	-0.62	1.00	0.45	Positive	Negative		
9/6/2021	21.1	7.60	3.37	0.75		1.30	0	82	12	11	64	7.8	244	-0.61	1.09	0.43	Negative	Negative		
9/7/2021	21.1	7.60	3.33	0.76	0.79	1.28	0	84	12	13	64	7.9	241	-0.60	0.92	0.45	Negative	Negative		
9/8/2021	20.9	7.60	3.37	0.81		1.28	0	82	12	10	72	7.7	258	-0.58	1.20	0.41	Negative	Negative		
9/9/2021	20.8	7.59	3.41	0.76		1.29	0	81	12	9	70	7.7	235	-0.59	1.33	0.40	Negative	Negative		
9/10/2021	20.4	7.58	3.41	0.76		1.29	0	80	12	9	70	8.0	233	-0.62	1.33	0.40	Negative	Negative		
9/11/2021	20.1	7.57	3.41	0.77		1.32	0	80	11	9	72	8.0	238	-0.63	1.22	0.38	Negative	Negative		
9/12/2021	20.0	7.56	3.41	0.76		1.34	0	79	11	9	70	8.4	226	-0.65	1.22	0.39	Negative	Negative		
9/13/2021	19.8	7.56	3.41	0.75	0.75	1.32	0	79	11	9	72	8.1	225	-0.65	1.22	0.39	Negative	Negative		
9/14/2021	19.8	7.57	3.41	0.75		1.30	0	79	11	9	70	8.0	224	-0.65	1.22	0.39	Negative	Negative		
9/15/2021	19.7	7.57	3.40	0.76		1.30	0	80	11	9	74	8.1	223	-0.62	1.22	0.38	Negative	Negative		
9/16/2021	19.7	7.57	3.40	0.75		1.26	0	82	10	10	66	8.0	229	-0.66	1.00	0.37	Negative	Negative		
9/17/2021	19.7	7.58	3.40	0.73		1.29	0	78	11	12	64	8.2	230	-0.68	0.92	0.44	Negative	Negative		
9/18/2021	19.7	7.58	3.41	0.75		1.31	0	78	11	9	64	8.6	229	-0.69	1.22	0.39	Negative	Negative		
9/19/2021	19.7	7.57	3.40	0.74		1.30	0	82	10	10	66	8.0	228	-0.66	1.00	0.37	Negative	Negative		
9/20/2021	19.9	7.56	3.40	0.78	0.75	1.30	0	82	10	9	62	8.1	230	-0.69	1.11	0.35	Negative	Negative		
9/21/2021	19.8	7.57	3.34	0.78		1.30	0	84	11	10	64	8.2	232	-0.66	1.10	0.38	Negative	Negative		
9/22/2021	19.5	7.62	3.40	0.80		1.27	0	78	11	10	66	8.6	234	-0.64	1.10	0.41	Negative	Negative		
9/23/2021	19.3	7.64	3.39	0.83		1.26	0	74	11	12	70	8.2	236	-0.62	0.92	0.47	Negative	Negative		
9/24/2021	19.1	7.63	3.39	0.78		1.25	0	76	12	13	66	8.2	236	-0.65	0.92	0.49	Negative	Negative		
9/25/2021	19.1	7.60	3.40	0.79		1.23	0	83	14	10	70	8.1	264	-0.62	1.40	0.45	Negative	Negative		
9/26/2021	18.6	7.58	3.40	0.79		1.30	0	82	14	10	72	8.2	247	-0.64	1.40	0.45	Negative	Negative		
9/27/2021	18.2	7.56	3.38	0.79	0.77	1.32	0	81	13	10	70	8.3	262	-0.69	1.30	0.44	Negative	Negative		
9/28/2021	17.9	7.56	3.38	0.80		1.32	0	81	13	10	70	8.2	262	-0.70	1.30	0.44	Negative	Negative		
9/29/2021	17.8	7.55	3.39	0.79		1.34	0	79	13	9	78	8.6	261	-0.68	1.44	0.43	Negative	Negative		
9/30/2021	17.8	7.55	3.39	0.79		1.34	0	83	12	12	62	8.6	263	-0.76	1.00	0.44	Negative	Negative		
Avg	19.8	7.58	3.39	0.78	0.76	1.30	0	80	12	10	68	8.1	239	-0.65	1.16	0.41	NA	NA		
Min	17.8	7.55	3.33	0.73	0.75	1.23	0	74	10	9	62	7.7	223	-0.76	0.92	0.35	NA	NA		
Max	21.2	7.64	3.44	0.85	0.79	1.34	0	85	14	13	78	8.6	264	-0.55	1.44	0.49	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
9/1/2021	0.61	1.17	1.51	0.65	0.024	0.024	96	0	0.0	0.016
9/2/2021	1.05	18.00	1.79	0.66	0.024	0.024	96	0	0.0	0.017
9/3/2021	2.37	6.79	3.41	1.41	0.024	0.025	96	0	0.0	0.017
9/4/2021	1.64	3.98	4.83	1.87	0.026	0.027	96	0	0.0	0.017
9/5/2021	1.64	2.36	3.14	1.84	0.026	0.028	96	0	0.0	0.017
9/6/2021	1.75	12.67	2.69	1.73	0.025	0.028	96	0	0.0	0.017
9/7/2021	1.26	3.01	1.87	1.46	0.024	0.025	96	0	0.0	0.018
9/8/2021	0.71	1.18	2.81	1.12	0.024	0.024	96	0	0.0	0.018
9/9/2021	0.76	1.15	3.21	0.96	0.023	0.024	96	0	0.0	0.018
9/10/2021	0.50	0.86	2.72	0.72	0.023	0.024	96	0	0.0	0.018
9/11/2021	0.51	0.85	2.19	0.46	0.023	0.023	96	0	0.0	0.018
9/12/2021	0.50	1.62	1.25	0.44	0.022	0.023	96	0	0.0	0.018
9/13/2021	0.37	1.19	1.61	0.45	0.023	0.023	96	0	0.0	0.018
9/14/2021	0.37	2.52	1.41	0.41	0.023	0.023	96	0	0.0	0.018
9/15/2021	0.42	1.27	1.75	0.44	0.023	0.023	96	0	0.0	0.018
9/16/2021	0.66	1.16	2.72	0.61	0.023	0.023	96	0	0.0	0.018
9/17/2021	0.52	1.37	1.36	0.52	0.023	0.023	96	0	0.0	0.018
9/18/2021	0.61	2.60	1.72	0.48	0.023	0.023	96	0	0.0	0.018
9/19/2021	0.70	2.20	1.50	0.60	0.023	0.023	96	0	0.0	0.018
9/20/2021	1.69	46.43	2.14	0.74	0.023	0.023	96	0	0.0	0.018
9/21/2021	0.86	2.01	2.33	0.77	0.023	0.023	96	0	0.0	0.018
9/22/2021	0.85	1.04	2.19	0.84	0.023	0.023	96	0	0.0	0.018
9/23/2021	1.02	5.53	2.98	0.95	0.023	0.024	96	0	0.0	0.018
9/24/2021	5.31	17.01	2.33	1.74	0.023	0.024	96	0	0.0	0.018
9/25/2021	14.20	84.59	4.95	8.96	0.024	0.024	96	0	0.0	0.018
9/26/2021	5.72	27.85	4.57	7.22	0.024	0.024	96	0	0.0	0.018
9/27/2021	4.32	78.45	3.08	4.96	0.024	0.024	96	0	0.0	0.018
9/28/2021	3.44	18.86	3.43	3.88	0.024	0.024	96	0	0.0	0.018
9/29/2021	3.17	3.23	3.94	3.56	0.024	0.024	96	0	0.0	0.018
9/30/2021	3.18	3.18	3.91	3.56	0.024	0.024	96	0	0.0	0.018
Avg	2.02	11.80	2.64	1.80	0.023	0.024	96	0	0.0	0.018
Min	0.37	0.85	1.25	0.41	0.022	0.023	96	0	0.0	0.016
Max	14.20	84.59	4.95	8.96	0.026	0.028	96	0	0.0	0.018

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



Membrane LRV/Integrity/Max Turbidity																										
Date	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	Pass/Fail	Max	Average	Pass/Fail	Max	Average	Pass/Fail	Max	Average	Pass/Fail	Max	Average	Pass/Fail	Max	Average	Pass/Fail	Max	Average	Pass/Fail	Max	Average	Pass/Fail	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
9/1/2021	4.25	PASS	0.023	4.22	PASS	0.027	4.36	PASS	0.020	4.57	PASS	0.017	4.31	PASS	0.021	4.43	PASS	0.020	4.42	PASS	0.031	4.32	PASS	0.020		
9/2/2021	4.25	PASS	0.022	4.20	PASS	0.027	4.36	PASS	0.020	4.59	PASS	0.017	4.29	PASS	0.020	4.45	PASS	0.020	4.43	PASS	0.031	4.29	PASS	0.020		
9/3/2021	4.19	PASS	0.023	4.18	PASS	0.028	4.31	PASS	0.021	4.58	PASS	0.017	4.25	PASS	0.022	4.42	PASS	0.021	4.39	PASS	0.032	4.23	PASS	0.021		
9/4/2021	4.14	PASS	0.025	4.12	PASS	0.028	4.31	PASS	0.022	4.60	PASS	0.018	4.20	PASS	0.022	4.52	PASS	0.022	4.35	PASS	0.032	4.18	PASS	0.021		
9/5/2021	4.11	PASS	0.024	4.15	PASS	0.028	4.31	PASS	0.022	4.66	PASS	0.018	4.20	PASS	0.022	4.44	PASS	0.021	4.50	PASS	0.034	4.15	PASS	0.021		
9/6/2021	4.09	PASS	0.017	4.13	PASS	0.028	4.28	PASS	0.022	4.61	PASS	0.017	4.17	PASS	0.022	4.41	PASS	0.021	4.46	PASS	0.032	4.19	PASS	0.022		
9/7/2021	4.08	PASS	0.023	4.11	PASS	0.027	4.26	PASS	0.021	4.58	PASS	0.017	4.17	PASS	0.021	4.39	PASS	0.020	4.45	PASS	0.033	4.15	PASS	0.021		
9/8/2021	4.13	PASS	0.028	4.11	PASS	0.027	4.25	PASS	0.021	4.59	PASS	0.017	4.17	PASS	0.021	4.42	PASS	0.020	4.43	PASS	0.033	4.17	PASS	0.022		
9/9/2021	4.12	PASS	0.022	4.16	PASS	0.027	4.29	PASS	0.020	4.58	PASS	0.017	4.16	PASS	0.021	4.44	PASS	0.020	4.42	PASS	0.032	4.22	PASS	0.021		
9/10/2021	4.13	PASS	0.024	4.14	PASS	0.027	4.31	PASS	0.020	4.62	PASS	0.018	4.19	PASS	0.020	4.45	PASS	0.022	4.45	PASS	0.032	4.22	PASS	0.023		
9/11/2021	4.17	PASS	0.023	4.19	PASS	0.028	4.34	PASS	0.019	4.70	PASS	0.017	4.21	PASS	0.020	4.49	PASS	0.019	4.49	PASS	0.031	4.27	PASS	0.023		
9/12/2021	4.18	PASS	0.022	4.23	PASS	0.027	4.35	PASS	0.020	4.64	PASS	0.018	4.26	PASS	0.021	4.53	PASS	0.019	4.49	PASS	0.030	4.28	PASS	0.022		
9/13/2021	4.18	PASS	0.023	4.23	PASS	0.027	4.36	PASS	0.019	4.69	PASS	0.016	4.30	PASS	0.020	4.52	PASS	0.019	4.48	PASS	0.029	4.27	PASS	0.022		
9/14/2021	4.20	PASS	0.022	4.23	PASS	0.026	4.37	PASS	0.019	4.73	PASS	0.016	4.32	PASS	0.020	4.56	PASS	0.019	4.50	PASS	0.031	4.33	PASS	0.022		
9/15/2021	4.20	PASS	0.022	4.20	PASS	0.027	4.38	PASS	0.019	4.71	PASS	0.016	4.32	PASS	0.020	4.55	PASS	0.019	4.55	PASS	0.030	4.30	PASS	0.023		
9/16/2021	4.19	PASS	0.023	4.20	PASS	0.025	4.37	PASS	0.019	4.71	PASS	0.016	4.34	PASS	0.022	4.53	PASS	0.019	4.55	PASS	0.031	4.29	PASS	0.023		
9/17/2021	4.20	PASS	0.024	4.20	PASS	0.025	4.39	PASS	0.019	4.72	PASS	0.017	4.30	PASS	0.020	4.54	PASS	0.019	4.50	PASS	0.031	4.31	PASS	0.023		
9/18/2021	4.20	PASS	0.024	4.21	PASS	0.027	4.41	PASS	0.019	4.71	PASS	0.017	4.29	PASS	0.020	4.55	PASS	0.020	4.52	PASS	0.031	4.32	PASS	0.023		
9/19/2021	4.18	PASS	0.024	4.21	PASS	0.026	4.42	PASS	0.019	4.73	PASS	0.017	4.30	PASS	0.020	4.58	PASS	0.020	4.51	PASS	0.031	4.30	PASS	0.022		
9/20/2021	4.18	PASS	0.024	4.19	PASS	0.025	4.46	PASS	0.019	4.77	PASS	0.017	4.29	PASS	0.020	4.56	PASS	0.019	4.54	PASS	0.031	4.30	PASS	0.022		
9/21/2021	4.17	PASS	0.024	4.17	PASS	0.025	4.34	PASS	0.019	4.72	PASS	0.017	4.27	PASS	0.020	4.54	PASS	0.019	4.52	PASS	0.031	4.26	PASS	0.023		
9/22/2021	4.13	PASS	0.024	4.19	PASS	0.028	4.30	PASS	0.020	4.67	PASS	0.017	4.25	PASS	0.021	4.52	PASS	0.020	4.45	PASS	0.031	4.25	PASS	0.023		
9/23/2021	4.10	PASS	0.027	4.14	PASS	0.028	4.28	PASS	0.020	4.58	PASS	0.018	4.19	PASS	0.022	4.47	PASS	0.020	4.46	PASS	0.032	4.25	PASS	0.023		
9/24/2021	4.11	PASS	0.027	4.12	PASS	0.027	4.34	PASS	0.020	4.57	PASS	0.018	4.21	PASS	0.021	4.43	PASS	0.020	4.45	PASS	0.031	4.22	PASS	0.023		
9/25/2021	4.08	PASS	0.026	4.09	PASS	0.030	4.30	PASS	0.021	4.52	PASS	0.018	4.20	PASS	0.022	4.41	PASS	0.021	4.39	PASS	0.032	4.21	PASS	0.024		
9/26/2021	4.08	PASS	0.027	4.08	PASS	0.029	4.22	PASS	0.021	4.49	PASS	0.019	4.17	PASS	0.021	4.43	PASS	0.021	4.37	PASS	0.032	4.18	PASS	0.024		
9/27/2021	4.05	PASS	0.025	4.13	PASS	0.028	4.22	PASS	0.020	4.59	PASS	0.019	4.17	PASS	0.021	4.40	PASS	0.020	4.34	PASS	0.032	4.18	PASS	0.023		
9/28/2021	4.06	PASS	0.024	4.11	PASS	0.028	4.22	PASS	0.020	4.49	PASS	0.018	4.15	PASS	0.021	4.37	PASS	0.020	4.35	PASS	0.032	4.15	PASS	0.023		
9/29/2021	4.07	PASS	0.025	4.10	PASS	0.028	4.23	PASS	0.020	4.45	PASS	0.018	4.14	PASS	0.021	4.34	PASS	0.020	4.34	PASS	0.031	4.12	PASS	0.023		
9/30/2021	4.06	PASS	0.027	4.09	PASS	0.028	4.23	PASS	0.020	4.05	PASS	0.018	4.13	PASS	0.020	4.35	PASS	0.020	4.33	PASS	0.031	4.19	PASS	0.023		
Avg	4.14		0.024	4.16		0.027	4.32		0.020	4.61		0.017	4.23		0.021	4.47		0.020	4.45		0.031	4.24		0.022		
Min	4.05		0.017	4.08		0.025	4.22		0.019	4.05		0.016	4.13		0.020	4.34		0.019	4.33		0.029	4.12		0.020		
Max	4.25		0.028	4.23		0.030	4.46		0.022	4.77		0.019	4.34		0.022	4.58		0.022	4.55		0.034	4.33		0.024		



*LRV not to exceed 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
9/1/2021	9.4	0.35	0.18	1.12	1.41	1.31	3.14	3.42	0.07	0.75	0.77
9/2/2021	9.5	0.33	0.18	0.97	1.45	1.33	3.11	3.44	0.06	0.74	0.83
9/3/2021	9.5	0.05	0.07	1.05	1.39	1.29	3.15	3.36	0.10	0.72	0.85
9/4/2021	8.9	0.17	0.04	1.05	1.46	1.28	3.21	3.36	0.10	0.68	0.83
9/5/2021	9.2	0.12	0.04	1.13	1.46	1.30	3.15	3.37	0.09	0.66	0.81
9/6/2021	9.8	0.16	0.04	1.03	1.44	1.30	3.17	3.37	0.08	0.65	0.75
9/7/2021	8.5	0.17	0.05	1.12	1.41	1.28	3.28	3.33	0.08	0.65	0.76
9/8/2021	9.5	0.23	0.07	1.10	1.44	1.28	3.37	3.37	0.07	0.64	0.81
9/9/2021	8.2	0.20	0.08	1.18	1.45	1.29	3.40	3.41	0.09	0.64	0.76
9/10/2021	8.7	0.34	0.11	1.20	1.46	1.29	3.40	3.41	0.08	0.64	0.76
9/11/2021	8.7	0.57	0.22	1.03	1.48	1.32	3.40	3.41	0.08	0.64	0.77
9/12/2021	8.4	0.57	0.32	0.92	1.47	1.34	3.40	3.41	0.08	0.64	0.76
9/13/2021	8.0	0.52	0.33	0.95	1.46	1.32	3.40	3.41	0.08	0.64	0.75
9/14/2021	7.8	0.50	0.34	0.98	1.44	1.30	3.40	3.41	0.08	0.64	0.75
9/15/2021	8.4	0.37	0.30	0.98	1.43	1.30	3.40	3.40	0.08	0.64	0.76
9/16/2021	8.0	0.26	0.21	1.08	1.40	1.26	3.40	3.40	0.08	0.64	0.75
9/17/2021	8.3	0.33	0.19	1.10	1.45	1.29	3.40	3.40	0.06	0.65	0.73
9/18/2021	8.3	0.39	0.22	1.07	1.45	1.31	3.40	3.41	0.08	0.66	0.75
9/19/2021	7.9	0.36	0.24	1.06	1.44	1.30	3.40	3.40	0.06	0.67	0.74
9/20/2021	8.1	0.29	0.19	1.15	1.43	1.30	3.40	3.40	0.08	0.67	0.78
9/21/2021	8.0	0.20	0.13	1.21	1.43	1.30	3.40	3.34	0.08	0.67	0.78
9/22/2021	7.6	0.16	0.08	1.22	1.44	1.27	3.40	3.40	0.08	0.67	0.80
9/23/2021	7.3	0.19	0.07	1.28	1.45	1.26	3.40	3.39	0.08	0.67	0.83
9/24/2021	7.1	0.11	0.06	1.32	1.47	1.25	3.40	3.39	0.06	0.67	0.78
9/25/2021	7.6	0.05	0.04	1.50	1.53	1.23	3.40	3.40	0.08	0.67	0.79
9/26/2021	8.0	0.10	0.04	1.45	1.62	1.30	3.40	3.40	0.09	0.67	0.79
9/27/2021	8.1	0.21	0.06	1.34	1.54	1.32	3.40	3.38	0.08	0.67	0.79
9/28/2021	8.3	0.14	0.05	1.36	1.54	1.32	3.40	3.38	0.09	0.67	0.80
9/29/2021	8.3	0.12	0.06	1.36	1.56	1.34	3.40	3.39	0.09	0.67	0.79
9/30/2021	7.7	0.12	0.06	1.36	1.56	1.34	3.40	3.39	0.07	0.67	0.79
Avg	8.4	0.26	0.14	1.16	1.47	1.30	3.35	3.39	0.08	0.67	0.78
Min	7.1	0.05	0.04	0.92	1.39	1.23	3.11	3.33	0.06	0.64	0.73
Max	9.8	0.57	0.34	1.50	1.62	1.34	3.40	3.44	0.10	0.75	0.85



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
9/1/2021	46.9	2,666	0.35	929	28.8	24.6	9.2	396	1.27	504	1434	21.0	2.00	Y
9/2/2021	50.8	2,460	0.33	823	28.7	23.3	9.2	386	1.28	493	1317	20.9	2.00	Y
9/3/2021	51.1	2,447	0.05	119	28.7	23.4	9.3	383	1.24	474	593	21.2	2.00	Y
9/4/2021	64.0	1,954	0.17	341	28.7	22.4	8.7	401	1.24	497	838	21.4	2.00	Y
9/5/2021	64.9	1,926	0.12	231	28.8	24.1	8.9	409	1.22	501	732	21.4	2.00	Y
9/6/2021	65.3	1,915	0.16	304	28.8	22.8	9.7	366	1.26	460	764	21.3	2.00	Y
9/7/2021	55.5	2,255	0.17	384	28.6	20.4	8.3	406	1.22	494	878	21.2	2.00	Y
9/8/2021	48.4	2,586	0.23	590	28.8	24.0	9.1	397	1.20	475	1065	21.1	2.00	Y
9/9/2021	42.8	2,920	0.20	582	28.7	24.6	8.0	456	1.11	508	1090	20.9	2.00	Y
9/10/2021	46.2	2,709	0.34	933	28.7	24.2	8.5	428	1.25	536	1469	20.4	2.00	Y
9/11/2021	64.8	1,932	0.57	1106	28.8	24.5	8.5	430	1.27	547	1653	20.3	2.00	Y
9/12/2021	65.1	1,921	0.57	1101	28.8	24.1	8.1	450	1.15	517	1618	20.3	2.00	Y
9/13/2021	58.0	2,155	0.52	1127	28.8	25.0	7.8	472	1.29	607	1734	20.1	2.00	Y
9/14/2021	45.9	2,727	0.50	1368	28.8	25.3	7.6	489	1.26	615	1983	20.1	2.00	Y
9/15/2021	40.9	3,060	0.37	1120	28.8	24.7	8.2	448	1.27	570	1690	20.0	2.00	Y
9/16/2021	43.3	2,890	0.26	759	28.7	24.5	7.8	469	1.25	587	1346	20.0	4.00	Y
9/17/2021	45.4	2,757	0.33	909	28.8	23.4	8.1	442	1.24	550	1459	20.0	4.00	Y
9/18/2021	59.9	2,089	0.39	814	28.9	24.1	8.0	452	1.25	566	1380	20.0	2.00	Y
9/19/2021	60.8	2,056	0.36	734	28.8	24.0	7.8	466	1.28	596	1330	20.0	2.00	Y
9/20/2021	61.3	2,042	0.29	594	28.9	23.4	7.9	454	1.27	577	1171	20.1	2.00	Y
9/21/2021	51.8	2,416	0.20	475	28.8	24.3	7.8	469	1.25	586	1062	20.1	2.00	Y
9/22/2021	43.3	2,890	0.16	453	28.7	23.6	7.4	485	1.16	563	1016	19.9	4.00	Y
9/23/2021	41.7	2,997	0.19	582	28.3	22.6	7.1	490	1.20	590	1172	19.7	4.00	Y
9/24/2021	41.3	3,031	0.11	340	28.7	22.5	6.8	518	1.23	637	977	19.5	4.00	Y
9/25/2021	51.8	2,417	0.05	129	28.7	22.2	7.1	490	1.16	569	698	19.6	4.00	Y
9/26/2021	52.1	2,399	0.10	236	28.8	25.1	7.7	478	1.24	595	831	19.3	4.00	Y
9/27/2021	50.2	2,494	0.21	518	28.7	24.7	7.8	468	1.29	605	1123	18.9	4.00	Y
9/28/2021	44.3	2,823	0.14	390	28.7	22.9	8.1	436	1.25	545	935	18.6	4.00	Y
9/29/2021	42.0	2,977	0.13	387	28.7	23.1	7.9	449	1.26	565	951	18.4	4.00	Y
9/30/2021	42.7	2,932	0.11	329	28.7	21.4	7.5	460	1.26	578	907	18.4	4.00	Y
Avg	51.4	2,495	0.26	624	28.7	23.6	8.1	445	1.24	550	1174	20.1	2.73	NA
Min	40.9	1,915	0.05	119	28.3	20.4	6.8	366	1.11	460	593	18.4	2.00	NA
Max	65.3	3,060	0.57	1368	28.9	25.3	9.7	518	1.29	637	1983	21.4	4.00	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:	Chlorine Residual at Bacteriological Monitoring Stations (mg/L Free Cl ₂)																								
	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	
9/1/2021									0.68	0.37	0.48	0.69	0.23	0.99	0.72										
9/2/2021		0.33	0.55	0.27	1.04	0.81	1.07																		
9/3/2021																									
9/4/2021																									
9/5/2021																									
9/6/2021																									
9/7/2021									1.01	0.42	0.36	0.78	0.27	1.04	0.70	0.91	0.89	0.75	0.63	0.44		0.14			
9/8/2021																									
9/9/2021		0.66	0.53						0.74	0.27	0.37	0.78	0.28	0.96	0.59	0.88	0.86	0.81	0.56	0.57		0.20		1.00	
9/10/2021																									
9/11/2021																									
9/12/2021																									
9/13/2021																									1.02
9/14/2021																					1.16				
9/15/2021									0.88	0.45	0.62	0.75	0.24	0.97	0.71										
9/16/2021		0.35	0.20	0.24	1.19			1.22																	
9/17/2021																									
9/18/2021																									
9/19/2021																									
9/20/2021																									1.02
9/21/2021	0.05								0.65	0.26	0.45	0.66	0.27	1.01	0.57										
9/22/2021																									
9/23/2021									0.83		0.57	0.66		1.06	0.72										
9/24/2021																									
9/25/2021																									
9/26/2021																									
9/27/2021																									
9/28/2021																									
9/29/2021									0.84	0.45	0.58	0.79	0.36	1.07	0.76										1.01
9/30/2021																									
Average	0.05		0.54				1.03					0.64					0.73				1.16		0.17		1.01
Min	0.05		0.20				0.81					0.23					0.44				1.16		0.14		1.00
Max	0.05		1.19				1.22					1.07					0.91				1.16		0.20		1.02



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 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
9/1/2021																								
9/2/2021	0.51	0.95	0.45		0.68	1.13	0.58		0.88				0.77	0.60	0.77	0.64		0.50	0.63					
9/3/2021																								
9/4/2021																								
9/5/2021																								
9/6/2021																								
9/7/2021			0.46	0.73	0.42					0.35										0.55	0.15	0.70	0.43	0.26
9/8/2021										0.23											0.37	0.56	0.56	
9/9/2021																								
9/10/2021																								
9/11/2021																								
9/12/2021																								
9/13/2021																								
9/14/2021			0.44	0.74	0.54			1.08	0.87							0.55								
9/15/2021																								
9/16/2021													1.11		0.85									
9/17/2021																								
9/18/2021																								
9/19/2021																								
9/20/2021																								
9/21/2021															0.86									
9/22/2021			0.54		0.55																			
9/23/2021																								
9/24/2021																								
9/25/2021																								
9/26/2021																								
9/27/2021																								
9/28/2021																								
9/29/2021																								
9/30/2021																								
Average	0.73		0.56			0.93			0.88		0.29		0.83			0.60		0.57		0.55	0.46			0.26
Min	0.51		0.42			0.58			0.87		0.23		0.60			0.55		0.50		0.55	0.15			0.26
Max	0.95		0.74			1.13			0.88		0.35		1.11			0.64		0.63		0.55	0.70			0.26



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. 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

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

September, 2021

COUNTY	COMMUNITY	WSSN NUMBER	DISTRIBUTION SYSTEM SAMPLES				
			avg free cl2 mg/L	NUMBER REQUIRED	NUMBER COLLECTED	NUMBER POSITIVE	NUMBER REPEAT SAMPLES
Tuscola	Akron	0072	0.05	1	1	0	0
BAY	Bangor Township	0390	0.54	10	10	0	0
BAY	Bangor-Monitor Dist.	0400	1.03	3	3	0	0
BAY	Bay City	0470	0.64	40	47	0	0
BAY	Bay County (Frankl./Monitor/Portsm.)	0485	0.73	10	10	0	0
BAY	Beaver Road Area	0517	1.16	1	1	0	0
BAY	Beaver Township	0518	0.17	2	2	0	0
BAY	Essexville	2180	1.01	4	4	0	0
BAY	Fraser Township	2465	0.73	2	2	0	0
BAY	Hampton Township	2960	0.56	10	10	0	0
BAY	Kawkawlin Township	3565	0.93	3	3	0	0
BAY	Kawkawlin Metro Dist.	3570	0.88	2	2	0	0
BAY	Merritt Township	4280	0.29	2	2	0	0
BAY	Monitor Township	4440	0.83	6	6	0	0
BAY	City of Pinconning	5330	0.60	2	2	0	0
BAY	Pinconning Township	5335	0.57	2	2	0	0
BAY	Portsmouth Township	5540	0.55	1	1	0	0
BAY	Williams Township	7125	0.46	6	6	0	0
Tuscola	Wisner	7134	0.26	1	1	0	0

Average Free Cl2 Residual of All Distribution Sites 0.63 mg/L

- 1. Total distribution samples 115
- 2. Total distribution samples with detectable free cl2 residual 115
- 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 0
- 5. Total distribution samples with no detectable free cl2 residual and HPC was >500 0
- 6. Percent of distribution samples with no detectable free cl2 residual 0.00%
- 7. Percent shown line #6 in previous monthly report 0.00%

