

Bay Area WTP

Monthly Operations Report



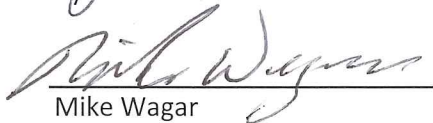
October, 2021

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

October, 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	17.4	Millions of Gallons per Day
Treatment Rate, Maximum	8.7	Millions of Gallons per Day
Maximum Approved Transmembrane Pressure	22	PSI
Maximum Operating Transmembrane Pressure	15.14	PSI
Maximum Approved Flux Rate	36.25	gpd/sq.ft.
Maximum Operating Flux Rate	29.89	gpd/sq.ft.

Chemical Data

Sodium Hypochlorite on hand:	4,200	Gallons	Estimated Supply:	46.3	days
Caustic Soda on hand:	1,221	Gallons	Estimated Supply:	89.7	days
Corrosion Inhibitor on hand:	1,323	Gallons	Estimated Supply:	58.2	days
Hydrofluosilicic Acid on hand:	1,380	Gallons	Estimated Supply:	67.4	days
Aluminum Chlorohydrate on hand:	488	Gallons	Estimated Supply:	34.7	days
Sulfuric Acid on hand:	712	Gallons	Estimated Supply:	234.2	days
Sodium Bisulfite on hand:	904	Gallons	Estimated Supply:	127.0	days
Citric Acid on hand:	3,438	Gallons	Estimated Supply:	365.0	days
Cost of All Chemicals per Million Gallons:	69.66	Dollars			
Estimated Electrical Cost per Million Gallons:	99.38	Dollars			
Estimated Natural Gas Cost per Million Gallons:	1.98	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

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
10/1/2021	3.15	5.00	8.15	0.26	0.17	7.84	3.84	3.68	7.52
10/2/2021	3.39	4.16	7.55	0.17	0.25	7.32	3.59	3.43	7.01
10/3/2021	3.32	3.64	6.96	0.13	0.25	7.26	3.58	3.44	7.02
10/4/2021	3.97	3.82	7.79	0.20	0.14	7.37	3.57	3.41	6.98
10/5/2021	4.31	3.34	7.65	0.22	0.12	7.08	3.50	3.34	6.85
10/6/2021	4.29	2.99	7.28	0.27	0.08	7.70	3.70	3.54	7.24
10/7/2021	4.38	3.06	7.44	0.29	0.08	7.53	3.75	3.59	7.34
10/8/2021	4.03	3.47	7.51	0.26	0.08	7.12	3.57	3.23	6.80
10/9/2021	3.02	4.14	7.16	0.25	0.08	7.21	3.55	3.31	6.86
10/10/2021	2.92	4.17	7.09	0.23	0.08	7.07	3.49	3.32	6.80
10/11/2021	2.76	4.30	7.06	0.20	0.17	7.23	3.54	3.36	6.90
10/12/2021	2.72	4.73	7.45	0.15	0.19	7.36	3.65	3.48	7.13
10/13/2021	2.69	5.58	8.27	0.14	0.24	7.72	3.77	3.57	7.35
10/14/2021	0.98	7.23	8.21	0.16	0.21	7.29	3.59	3.43	7.02
10/15/2021	0.00	7.85	7.85	0.14	0.25	8.00	4.09	3.57	7.66
10/16/2021	0.00	6.29	6.29	0.24	0.12	6.76	3.50	3.11	6.61
10/17/2021	0.00	7.00	7.00	0.25	0.08	7.48	3.81	3.39	7.20
10/18/2021	0.00	8.23	8.23	0.27	0.09	7.24	3.60	3.31	6.91
10/19/2021	0.00	7.12	7.12	0.19	0.14	7.21	3.64	3.33	6.97
10/20/2021	0.00	5.29	5.29	0.22	0.11	7.55	3.74	3.40	7.13
10/21/2021	0.00	4.65	4.65	0.18	0.07	5.48	3.47	3.14	6.60
10/22/2021	0.00	9.63	9.63	0.30	0.07	8.67	3.70	3.39	7.10
10/23/2021	0.00	8.62	8.62	0.26	0.08	7.15	3.58	3.27	6.85
10/24/2021	0.00	7.20	7.20	0.23	0.08	6.95	3.57	3.28	6.85
10/25/2021	0.00	5.01	5.01	0.26	0.08	7.29	3.57	3.32	6.89
10/26/2021	0.00	6.38	6.38	0.24	0.07	6.41	3.72	3.43	7.15
10/27/2021	0.00	10.11	10.11	0.29	0.10	8.21	3.45	3.28	6.73
10/28/2021	0.00	8.45	8.45	0.22	0.10	7.18	3.52	3.36	6.88
10/29/2021	0.00	6.98	6.98	0.23	0.08	7.02	3.50	3.21	6.71
10/30/2021	0.00	6.60	6.60	0.24	0.09	6.57	3.27	3.01	6.28
10/31/2021	0.00	6.52	6.52	0.21	0.12	6.64	3.37	3.03	6.40
Total	45.94	181.56	227.50	6.87	3.86	224.90	111.81	103.94	215.75
Avg	1.48	5.86	7.34	0.22	0.12	7.25	3.61	3.35	6.96
Min	0.00	2.99	4.65	0.13	0.07	5.48	3.27	3.01	6.28
Max	4.38	10.11	10.11	0.30	0.25	8.67	4.09	3.68	7.66



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	
10/1/2021	18.3	7.65	3.36	6.83	0.09	0.10	Negative	Negative
10/2/2021	18.2	7.64	3.94	9.23	0.09	0.12	Negative	Negative
10/3/2021	18.5	7.64	3.74	8.46	0.09	0.10	Negative	Negative
10/4/2021	18.6	7.58	2.59	12.17	0.09	0.19	Negative	Negative
10/5/2021	18.6	7.61	1.67	3.53	0.12	0.30	Negative	Negative
10/6/2021	18.3	7.69	2.68	32.63	0.08	0.17	Negative	Negative
10/7/2021	18.2	7.66	2.57	4.07	0.09	0.15	Negative	Negative
10/8/2021	18.3	7.63	1.62	2.23	0.09	0.19	Negative	Negative
10/9/2021	18.1	7.62	1.54	1.94	0.09	0.30	Negative	Negative
10/10/2021	18.1	7.60	1.55	2.72	0.08	0.40	Negative	Negative
10/11/2021	18.3	7.76	2.91	3.80	0.09	0.10	Negative	Negative
10/12/2021	18.3	7.68	1.74	2.70	0.09	0.17	Negative	Negative
10/13/2021	18.2	7.71	2.20	5.85	0.09	0.10	Positive	Negative
10/14/2021	18.3	7.73	2.16	4.70	0.10	0.11	Negative	Negative
10/15/2021	18.4	7.66	1.66	3.14	0.09	0.11	Negative	Negative
10/16/2021	18.0	7.52	1.18	2.35	0.09	0.29	Negative	Negative
10/17/2021	17.5	7.51	1.35	6.72	0.09	0.48	Negative	Negative
10/18/2021	17.3	7.48	1.10	5.19	0.10	0.62	Negative	Negative
10/19/2021	16.8	7.53	0.82	7.41	0.09	0.74	Negative	Negative
10/20/2021	16.8	7.60	0.40	0.69	0.09	0.66	Negative	Negative
10/21/2021	16.5	7.60	0.49	1.26	0.07	0.65	Negative	Negative
10/22/2021	15.9	7.61	0.53	2.88	0.07	0.66	Negative	Negative
10/23/2021	15.7	7.65	0.60	0.91	0.08	0.65	Negative	Negative
10/24/2021	15.5	7.71	0.69	0.99	0.08	0.61	Negative	Negative
10/25/2021	16.1	7.71	1.60	81.95	0.09	0.57	Negative	Negative
10/26/2021	16.1	7.72	0.45	0.58	0.09	0.58	Negative	Negative
10/27/2021	15.6	7.74	8.66	29.79	0.08	0.17	Negative	Negative
10/28/2021	15.5	7.68	8.91	25.28	0.10	0.30	Negative	Negative
10/29/2021	15.1	7.71	4.83	14.16	0.10	0.27	Negative	Negative
10/30/2021	15.0	7.72	5.78	11.19	0.08	0.33	Negative	Negative
10/31/2021	14.7	7.69	8.27	17.06	0.08	0.43	Negative	Negative
Avg	17.2	7.65	2.63	10.08	0.09	0.34	NA	NA
Min	14.7	7.48	0.40	0.58	0.07	0.10	NA	NA
Max	18.6	7.76	8.91	81.95	0.12	0.74	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	Bacteriological	
	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	Index
	AIT-4040-1	AIT-4050-2	AIT-4040-5	Lab		AIT-4050-1	Lab		Lab	Lab	Lab	Lab	Lab	Calculated		Lab		
10/1/2021	17.5	7.55	3.39	0.77		1.30	0	81	13	9	62	8.6	242	-0.77	1.44	0.42	Negative	Negative
10/2/2021	17.4	7.56	3.39	0.78		1.29	0	83	13	13	62	8.5	244	-0.75	1.00	0.47	Negative	Negative
10/3/2021	17.5	7.55	3.38	0.78		1.29	0	82	15	10	62	8.6	246	-0.76	1.50	0.47	Negative	Negative
10/4/2021	17.6	7.56	3.39	0.81	0.79	1.30	0	80	13	9	62	8.5	244	-0.77	1.44	0.43	Negative	Negative
10/5/2021	17.6	7.56	3.39	0.83		1.31	0	82	13	12	62	8.8	239	-0.75	1.08	0.46	Negative	Negative
10/6/2021	17.5	7.55	3.40	0.73		1.31	0	81	12	11	74	9.0	238	-0.69	1.09	0.43	Negative	Negative
10/7/2021	17.4	7.56	3.26	0.75		1.29	0	81	13	12	62	8.7	238	-0.76	1.08	0.47	Negative	Negative
10/8/2021	17.4	7.55	3.42	0.79		1.31	0	80	13	11	62	8.6	240	-0.77	1.18	0.46	Negative	Negative
10/9/2021	17.4	7.54	3.41	0.80		1.32	0	80	13	10	74	8.6	237	-0.71	1.30	0.44	Negative	Negative
10/10/2021	17.4	7.54	3.41	0.79		1.30	0	79	13	10	70	9.2	234	-0.74	1.30	0.45	Negative	Negative
10/11/2021	17.6	7.54	3.39	0.78	0.77	1.29	0	81	14	10	70	8.9	240	-0.73	1.40	0.46	Negative	Negative
10/12/2021	17.6	7.57	3.39	0.77		1.28	0	81	14	10	74	9.0	244	-0.67	1.40	0.46	Negative	Negative
10/13/2021	17.5	7.57	3.39	0.78		1.28	0	84	13	10	62	8.6	244	-0.73	1.30	0.42	Negative	Negative
10/14/2021	17.5	7.58	3.38	0.80		1.28	0	86	13	10	68	8.5	245	-0.68	1.30	0.41	Negative	Negative
10/15/2021	17.5	7.57	3.38	0.80		1.33	0	80	13	10	72	8.6	243	-0.69	1.30	0.44	Negative	Negative
10/16/2021	17.2	7.57	3.45	0.79		1.31	0	84	12	11	72	8.4	238	-0.67	1.09	0.42	Negative	Negative
10/17/2021	16.6	7.56	4.44	0.79		1.31	0	80	12	9	72	8.9	233	-0.72	1.33	0.40	Negative	Negative
10/18/2021	16.3	7.53	3.85	0.72	0.78	1.31	0	78	10	10	68	8.4	230	-0.78	1.00	0.39	Negative	Negative
10/19/2021	15.8	7.52	3.36	0.77		1.32	0	82	10	9	68	8.8	226	-0.79	1.11	0.35	Negative	Negative
10/20/2021	15.4	7.51	3.38	0.78		1.30	0	76	10	12	74	9.6	222	-0.80	0.83	0.43	Negative	Negative
10/21/2021	15.3	7.52	3.39	0.74		1.25	0	78	11	9	72	9.5	222	-0.80	1.22	0.39	Negative	Negative
10/22/2021	14.8	7.54	3.39	0.80		1.30	0	78	11	9	72	10.0	220	-0.79	1.22	0.39	Negative	Negative
10/23/2021	14.5	7.55	3.39	0.74		1.29	0	78	11	8	70	9.6	219	-0.80	1.38	0.38	Negative	Negative
10/24/2021	14.4	7.55	3.40	0.74		1.29	0	77	10	8	70	9.5	219	-0.80	1.25	0.36	Negative	Negative
10/25/2021	15.0	7.55	3.38	0.76	0.73	1.29	0	78	10	8	72	9.9	220	-0.77	1.25	0.35	Negative	Negative
10/26/2021	14.9	7.56	3.37	0.75		1.25	0	78	10	9	72	9.8	220	-0.76	1.11	0.37	Negative	Negative
10/27/2021	14.6	7.59	3.39	0.75		1.24	0	78	10	9	68	9.9	220	-0.76	1.11	0.37	Negative	Negative
10/28/2021	14.4	7.63	3.40	0.75		1.28	0	78	11	9	68	9.5	227	-0.74	1.22	0.39	Negative	Negative
10/29/2021	14.1	7.63	3.40	0.79		1.30	0	80	12	11	76	9.4	233	-0.68	1.09	0.44	Negative	Negative
10/30/2021	13.9	7.64	3.40	0.80		1.30	0	82	13	11	78	9.5	238	-0.66	1.18	0.45	Negative	Negative
10/31/2021	13.6	7.64	3.40	0.78		1.32	0	82	11	10	70	9.6	236	-0.71	1.10	0.39	Negative	Negative
Avg	16.2	7.56	3.44	0.77	0.77	1.29	0	80	12	10	69	9.1	234	-0.74	1.21	0.42	NA	NA
Min	13.6	7.51	3.26	0.72	0.73	1.24	0	76	10	8	62	8.4	219	-0.80	0.83	0.35	NA	NA
Max	17.6	7.64	4.44	0.83	0.79	1.33	0	86	15	13	78	10.0	246	-0.66	1.50	0.47	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
10/1/2021	3.36	6.83	4.08	3.34	0.024	0.024	96	0	0.0	0.018
10/2/2021	3.94	9.23	3.45	3.35	0.024	0.024	96	0	0.0	0.018
10/3/2021	3.74	8.46	3.04	3.49	0.024	0.025	96	0	0.0	0.018
10/4/2021	2.59	12.17	2.99	2.88	0.024	0.024	96	0	0.0	0.018
10/5/2021	1.67	3.53	2.96	2.17	0.024	0.024	96	0	0.0	0.018
10/6/2021	2.68	32.63	2.40	2.04	0.022	0.023	96	0	0.0	0.018
10/7/2021	2.57	4.07	4.28	2.25	0.022	0.022	96	0	0.0	0.017
10/8/2021	1.62	2.23	3.41	2.00	0.022	0.022	96	0	0.0	0.018
10/9/2021	1.54	1.94	3.74	1.69	0.022	0.022	96	0	0.0	0.017
10/10/2021	1.55	2.72	2.79	1.60	0.022	0.022	96	0	0.0	0.017
10/11/2021	2.91	3.80	3.65	2.07	0.022	0.022	96	0	0.0	0.017
10/12/2021	1.74	2.70	6.47	2.04	0.023	0.023	96	0	0.0	0.017
10/13/2021	2.20	5.85	4.69	1.99	0.023	0.023	96	0	0.0	0.017
10/14/2021	2.16	4.70	4.71	2.02	0.023	0.023	96	0	0.0	0.018
10/15/2021	1.66	3.14	2.08	1.87	0.023	0.023	96	0	0.0	0.017
10/16/2021	1.18	2.35	1.99	1.52	0.023	0.024	96	0	0.0	0.018
10/17/2021	1.35	6.72	1.48	1.32	0.022	0.023	96	0	0.0	0.017
10/18/2021	1.10	5.19	1.55	1.10	0.022	0.022	96	0	0.0	0.017
10/19/2021	0.82	7.41	1.95	0.84	0.022	0.022	96	0	0.0	0.017
10/20/2021	0.40	0.69	1.84	0.62	0.022	0.022	96	0	0.0	0.017
10/21/2021	0.49	1.26	6.58	0.51	0.022	0.025	96	0	0.0	0.018
10/22/2021	0.53	2.88	3.31	0.49	0.022	0.023	96	0	0.0	0.018
10/23/2021	0.60	0.91	1.79	0.45	0.022	0.022	96	0	0.0	0.017
10/24/2021	0.69	0.99	2.06	0.64	0.022	0.022	96	0	0.0	0.017
10/25/2021	1.60	81.95	2.30	0.61	0.021	0.022	96	0	0.0	0.017
10/26/2021	0.45	0.58	2.26	0.57	0.022	0.024	96	0	0.0	0.018
10/27/2021	8.66	29.79	1.56	3.43	0.022	0.025	96	0	0.0	0.018
10/28/2021	8.91	25.28	3.03	7.53	0.022	0.022	96	0	0.0	0.018
10/29/2021	4.83	14.16	1.21	5.49	0.022	0.022	96	0	0.0	0.018
10/30/2021	5.78	11.19	1.70	4.72	0.022	0.022	96	0	0.0	0.018
10/31/2021	8.27	17.06	1.18	5.61	0.022	0.022	96	0	0.0	0.018
Avg	2.63	10.08	2.92	2.27	0.022	0.023	96	0	0.0	0.018
Min	0.40	0.58	1.18	0.45	0.021	0.022	96	0	0.0	0.017
Max	8.91	81.95	6.58	7.53	0.024	0.025	96	0	0.0	0.018

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
10/1/2021	4.05	PASS	0.023	4.09	PASS	0.028	4.23	PASS	0.021	4.51	PASS	0.018	4.12	PASS	0.021	4.39	PASS	0.020	4.32	PASS	0.032	4.16	PASS	0.023		
10/2/2021	4.07	PASS	0.023	4.11	PASS	0.027	4.23	PASS	0.020	4.53	PASS	0.018	4.14	PASS	0.021	4.38	PASS	0.020	4.32	PASS	0.032	4.15	PASS	0.023		
10/3/2021	4.05	PASS	0.023	4.08	PASS	0.028	4.32	PASS	0.020	4.51	PASS	0.018	4.12	PASS	0.021	4.34	PASS	0.020	4.33	PASS	0.033	4.13	PASS	0.023		
10/4/2021	4.05	PASS	0.023	4.06	PASS	0.028	4.32	PASS	0.023	4.44	PASS	0.018	4.10	PASS	0.021	4.33	PASS	0.020	4.29	PASS	0.032	4.34	PASS	0.019		
10/5/2021	4.09	PASS	0.023	4.07	PASS	0.028	4.30	PASS	0.021	4.47	PASS	0.017	4.35	PASS	0.021	4.36	PASS	0.020	4.30	PASS	0.032	4.35	PASS	0.022		
10/6/2021	4.10	PASS	0.022	4.07	PASS	0.027	4.31	PASS	0.019	4.52	PASS	0.018	4.31	PASS	0.021	4.38	PASS	0.020	4.34	PASS	0.031	4.31	PASS	0.025		
10/7/2021	4.11	PASS	0.024	4.08	PASS	0.027	4.32	PASS	0.019	4.56	PASS	0.017	4.29	PASS	0.021	4.39	PASS	0.020	4.36	PASS	0.031	4.29	PASS	0.024		
10/8/2021	4.11	PASS	0.024	4.08	PASS	0.027	4.31	PASS	0.020	4.58	PASS	0.018	4.29	PASS	0.021	4.40	PASS	0.019	4.37	PASS	0.031	4.27	PASS	0.022		
10/9/2021	4.11	PASS	0.024	4.08	PASS	0.027	4.33	PASS	0.020	4.56	PASS	0.017	4.28	PASS	0.021	4.41	PASS	0.019	4.36	PASS	0.031	4.25	PASS	0.021		
10/10/2021	4.13	PASS	0.024	4.09	PASS	0.027	4.31	PASS	0.020	4.58	PASS	0.017	4.28	PASS	0.020	4.39	PASS	0.019	4.37	PASS	0.031	4.25	PASS	0.020		
10/11/2021	4.14	PASS	0.024	4.06	PASS	0.027	4.31	PASS	0.019	4.58	PASS	0.017	4.27	PASS	0.021	4.40	PASS	0.020	4.36	PASS	0.031	4.24	PASS	0.022		
10/12/2021	4.10	PASS	0.025	4.09	PASS	0.028	4.27	PASS	0.020	4.53	PASS	0.018	4.20	PASS	0.021	4.36	PASS	0.020	4.32	PASS	0.032	4.20	PASS	0.024		
10/13/2021	4.07	PASS	0.025	4.07	PASS	0.030	4.26	PASS	0.021	4.50	PASS	0.018	4.19	PASS	0.021	4.37	PASS	0.020	4.33	PASS	0.032	4.19	PASS	0.023		
10/14/2021	4.05	PASS	0.022	4.06	PASS	0.032	4.24	PASS	0.021	4.49	PASS	0.017	4.15	PASS	0.020	4.32	PASS	0.020	4.28	PASS	0.028	4.16	PASS	0.020		
10/15/2021	4.07	PASS	0.022	4.04	PASS	0.032	4.27	PASS	0.020	4.46	PASS	0.019	4.14	PASS	0.020	4.31	PASS	0.020	4.27	PASS	0.029	4.19	PASS	0.016		
10/16/2021	4.09	PASS	0.022	4.07	PASS	0.029	4.26	PASS	0.020	4.53	PASS	0.017	4.16	PASS	0.020	4.37	PASS	0.020	4.29	PASS	0.028	4.21	PASS	0.016		
10/17/2021	4.09	PASS	0.020	4.09	PASS	0.029	4.26	PASS	0.020	4.52	PASS	0.016	4.18	PASS	0.019	4.36	PASS	0.020	4.30	PASS	0.028	4.23	PASS	0.016		
10/18/2021	4.09	PASS	0.019	4.06	PASS	0.030	4.29	PASS	0.020	4.51	PASS	0.017	4.17	PASS	0.021	4.36	PASS	0.019	4.33	PASS	0.027	4.23	PASS	0.014		
10/19/2021	4.10	PASS	0.021	4.05	PASS	0.029	4.38	PASS	0.019	4.53	PASS	0.016	4.20	PASS	0.019	4.35	PASS	0.019	4.34	PASS	0.027	4.23	PASS	0.014		
10/20/2021	4.12	PASS	0.017	4.05	PASS	0.029	4.33	PASS	0.019	4.49	PASS	0.016	4.26	PASS	0.019	4.39	PASS	0.019	4.34	PASS	0.027	4.23	PASS	0.016		
10/21/2021	4.13	PASS	0.016	4.08	PASS	0.028	4.33	PASS	0.019	4.56	PASS	0.017	4.26	PASS	0.018	4.43	PASS	0.019	4.38	PASS	0.027	4.24	PASS	0.015		
10/22/2021	4.13	PASS	0.017	4.08	PASS	0.028	4.34	PASS	0.019	4.56	PASS	0.017	4.24	PASS	0.022	4.43	PASS	0.019	4.38	PASS	0.027	4.25	PASS	0.015		
10/23/2021	4.12	PASS	0.018	4.07	PASS	0.027	4.34	PASS	0.018	4.54	PASS	0.015	4.25	PASS	0.018	4.41	PASS	0.018	4.40	PASS	0.026	4.26	PASS	0.014		
10/24/2021	4.13	PASS	0.015	4.07	PASS	0.026	4.34	PASS	0.018	4.52	PASS	0.015	4.28	PASS	0.018	4.40	PASS	0.018	4.42	PASS	0.026	4.27	PASS	0.015		
10/25/2021	4.13	PASS	0.026	4.10	PASS	0.026	4.32	PASS	0.018	4.56	PASS	0.015	4.25	PASS	0.018	4.42	PASS	0.018	4.42	PASS	0.026	4.26	PASS	0.015		
10/26/2021	4.14	PASS	0.016	4.09	PASS	0.026	4.33	PASS	0.018	4.59	PASS	0.015	4.24	PASS	0.020	4.43	PASS	0.018	4.41	PASS	0.026	4.26	PASS	0.014		
10/27/2021	4.17	PASS	0.018	4.14	PASS	0.027	4.31	PASS	0.020	4.55	PASS	0.016	4.22	PASS	0.023	4.41	PASS	0.019	4.38	PASS	0.026	4.26	PASS	0.013		
10/28/2021	4.11	PASS	0.020	4.22	PASS	0.027	4.27	PASS	0.019	4.50	PASS	0.015	4.21	PASS	0.019	4.36	PASS	0.019	4.34	PASS	0.027	4.22	PASS	0.013		
10/29/2021	4.08	PASS	0.020	4.19	PASS	0.027	4.28	PASS	0.019	4.48	PASS	0.015	4.20	PASS	0.019	4.33	PASS	0.020	4.34	PASS	0.027	4.24	PASS	0.014		
10/30/2021	4.07	PASS	0.021	4.07	PASS	0.028	4.25	PASS	0.018	4.44	PASS	0.015	4.16	PASS	0.018	4.31	PASS	0.019	4.32	PASS	0.027	4.24	PASS	0.013		
10/31/2021	4.07	PASS	0.020	4.09	PASS	0.028	4.25	PASS	0.018	4.42	PASS	0.015	4.17	PASS	0.019	4.30	PASS	0.019	4.33	PASS	0.026	4.20	PASS	0.014		
Avg	4.10		0.021	4.09		0.028	4.30		0.019	4.52		0.017	4.22		0.020	4.37		0.019	4.34		0.029	4.24		0.018		
Min	4.05		0.015	4.04		0.026	4.23		0.018	4.42		0.015	4.10		0.018	4.30		0.018	4.27		0.026	4.13		0.013		
Max	4.17		0.026	4.22		0.032	4.38		0.023	4.59		0.019	4.35		0.023	4.43		0.020	4.42		0.033	4.35		0.025		

*LRV not to exceed Upper Control Limit of 3.32 psi/min



Treatment Chemical Dosages

Date	Treated Water	Sodium Hypochlorite					Phosphoric Acid		Hydrofluorosilicic 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					PO ₄		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
10/1/2021	7.8	0.10	0.05	1.39	1.49	1.30	3.40	3.39	0.09	0.67	0.77
10/2/2021	7.3	0.12	0.05	1.40	1.51	1.29	3.40	3.39	0.09	0.67	0.78
10/3/2021	7.3	0.10	0.04	1.42	1.50	1.29	3.40	3.38	0.09	0.67	0.78
10/4/2021	7.4	0.19	0.06	1.41	1.52	1.30	3.40	3.39	0.09	0.66	0.81
10/5/2021	7.1	0.30	0.10	1.37	1.51	1.31	3.40	3.39	0.12	0.66	0.83
10/6/2021	7.7	0.17	0.09	1.16	1.48	1.31	3.40	3.40	0.08	0.66	0.73
10/7/2021	7.5	0.15	0.07	1.20	1.49	1.29	3.40	3.26	0.09	0.66	0.75
10/8/2021	7.1	0.19	0.08	1.20	1.50	1.31	3.40	3.42	0.09	0.66	0.79
10/9/2021	7.2	0.30	0.11	1.12	1.49	1.32	3.40	3.41	0.09	0.66	0.80
10/10/2021	7.1	0.40	0.17	1.05	1.48	1.30	3.40	3.41	0.08	0.66	0.79
10/11/2021	7.2	0.10	0.10	1.18	1.46	1.29	3.40	3.39	0.09	0.66	0.78
10/12/2021	7.4	0.17	0.08	1.20	1.49	1.28	3.40	3.39	0.09	0.66	0.77
10/13/2021	7.7	0.10	0.06	1.23	1.47	1.28	3.40	3.39	0.09	0.66	0.78
10/14/2021	7.3	0.11	0.05	1.23	1.49	1.28	3.40	3.38	0.10	0.66	0.80
10/15/2021	8.0	0.11	0.05	1.09	1.53	1.33	3.39	3.38	0.09	0.66	0.80
10/16/2021	6.8	0.29	0.09	0.96	1.51	1.31	3.40	3.45	0.09	0.66	0.79
10/17/2021	7.5	0.48	0.18	0.86	1.47	1.31	3.40	4.44	0.09	0.64	0.79
10/18/2021	7.2	0.62	0.28	0.77	1.46	1.31	3.40	3.85	0.10	0.63	0.72
10/19/2021	7.2	0.74	0.38	0.68	1.46	1.32	3.41	3.36	0.09	0.62	0.77
10/20/2021	7.5	0.66	0.43	0.73	1.35	1.30	3.42	3.38	0.09	0.62	0.78
10/21/2021	5.5	0.65	0.42	0.72	1.39	1.25	3.42	3.39	0.07	0.62	0.74
10/22/2021	8.7	0.66	0.48	0.70	1.37	1.30	3.42	3.39	0.07	0.62	0.80
10/23/2021	7.1	0.65	0.53	0.70	1.36	1.29	3.42	3.39	0.08	0.62	0.74
10/24/2021	6.9	0.61	0.48	0.74	1.36	1.29	3.42	3.40	0.08	0.64	0.74
10/25/2021	7.3	0.57	0.44	0.83	1.36	1.29	3.42	3.38	0.09	0.64	0.76
10/26/2021	6.4	0.58	0.37	0.85	1.38	1.25	3.42	3.37	0.09	0.64	0.75
10/27/2021	8.2	0.17	0.26	1.20	1.38	1.24	3.43	3.39	0.08	0.64	0.75
10/28/2021	7.2	0.30	0.12	1.21	1.48	1.28	3.43	3.40	0.10	0.64	0.75
10/29/2021	7.0	0.27	0.13	1.20	1.49	1.30	3.43	3.40	0.10	0.64	0.79
10/30/2021	6.6	0.33	0.13	1.24	1.50	1.30	3.43	3.40	0.08	0.64	0.80
10/31/2021	6.6	0.43	0.18	1.16	1.50	1.32	3.43	3.40	0.08	0.63	0.78
Avg	7.3	0.34	0.20	1.07	1.46	1.29	3.41	3.44	0.09	0.65	0.77
Min	5.5	0.10	0.04	0.68	1.35	1.24	3.39	3.26	0.07	0.62	0.72
Max	8.7	0.74	0.53	1.42	1.53	1.33	3.43	4.44	0.12	0.67	0.83



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	
10/1/2021	45.7	2,738	0.10	268	28.7	23.6	7.5	477	1.27	607	875	18.3	4.00	Y
10/2/2021	58.0	2,157	0.12	251	28.7	24.3	7.0	518	1.25	648	899	18.2	4.00	Y
10/3/2021	58.6	2,134	0.10	223	28.7	23.0	7.0	505	1.25	632	855	18.5	4.00	Y
10/4/2021	122.3	1,023	0.19	198	28.7	23.0	7.0	507	1.26	642	840	18.6	4.00	Y
10/5/2021	122.6	1,021	0.30	310	28.7	23.1	6.8	518	1.26	652	962	18.6	4.00	Y
10/6/2021	38.3	3,264	0.17	564	28.7	23.2	7.2	491	1.24	607	1171	18.3	4.00	Y
10/7/2021	37.9	3,302	0.15	491	28.7	23.7	7.3	489	1.26	616	1106	18.2	4.00	Y
10/8/2021	39.2	3,191	0.19	621	28.7	23.3	6.8	525	1.22	638	1260	18.3	4.00	Y
10/9/2021	50.5	2,476	0.30	734	28.6	24.5	6.9	530	1.26	666	1400	18.1	4.00	Y
10/10/2021	50.8	2,462	0.40	973	28.5	23.1	6.8	520	1.26	658	1632	18.1	4.00	Y
10/11/2021	48.5	2,578	0.10	258	28.7	24.6	6.9	530	1.23	652	909	18.3	4.00	Y
10/12/2021	41.7	3,003	0.17	514	28.7	23.0	7.1	497	1.24	615	1129	18.3	4.00	Y
10/13/2021	89.1	1,404	0.10	137	28.8	23.4	7.3	487	1.15	562	699	18.2	4.00	Y
10/14/2021	89.4	1,400	0.11	161	28.3	23.3	7.0	503	1.19	599	759	18.3	4.00	Y
10/15/2021	42.2	2,962	0.11	331	28.8	23.1	7.7	464	1.27	590	921	18.4	4.00	Y
10/16/2021	49.6	2,524	0.29	730	28.7	23.9	6.6	546	1.23	671	1401	18.0	4.00	Y
10/17/2021	50.1	2,497	0.48	1199	28.7	23.4	7.2	496	1.26	628	1827	17.5	4.00	Y
10/18/2021	50.4	2,482	0.62	1531	28.2	22.7	6.9	505	1.27	642	2173	17.3	4.00	Y
10/19/2021	45.1	2,771	0.74	2038	28.7	23.3	7.0	511	1.30	664	2703	16.8	4.00	Y
10/20/2021	41.4	3,018	0.66	1996	27.3	24.3	7.1	495	1.09	538	2534	16.8	4.00	Y
10/21/2021	39.4	3,172	0.65	2047	13.3	13.0	6.6	273	1.16	317	2364	16.5	4.00	Y
10/22/2021	45.0	2,778	0.66	1843	8.8	8.5	7.1	167	0.95	160	2003	15.9	4.00	Y
10/23/2021	54.8	2,284	0.65	1479	25.9	25.6	6.8	516	1.23	634	2114	15.7	4.00	Y
10/24/2021	55.2	2,268	0.61	1376	24.5	24.2	6.9	486	1.22	592	1967	15.5	4.00	Y
10/25/2021	53.2	2,352	0.57	1345	24.4	24.1	6.9	482	1.22	589	1935	16.1	4.00	Y
10/26/2021	98.7	1,268	0.58	731	14.8	14.5	7.2	281	1.13	317	1048	16.1	4.00	Y
10/27/2021	98.9	1,265	0.17	211	10.6	10.3	6.7	212	1.11	235	446	15.6	4.00	Y
10/28/2021	40.7	3,075	0.30	912	28.7	23.9	6.9	524	1.23	645	1557	15.5	4.00	Y
10/29/2021	41.3	3,032	0.27	827	28.7	24.2	6.7	541	1.22	662	1488	15.1	4.00	Y
10/30/2021	50.5	2,477	0.33	812	28.7	24.8	6.3	584	1.20	702	1514	15.0	4.00	Y
10/31/2021	50.8	2,460	0.43	1050	28.7	24.3	6.4	568	1.25	710	1760	14.7	6.00	Y
Avg	58.1	2,414	0.34	844	26.1	22.2	7.0	476	1.22	583	1427	17.2	4.00	NA
Min	37.9	1,021	0.10	137	8.8	8.5	6.3	167	0.95	160	446	14.7	4.00	NA
Max	122.6	3,302	0.74	2047	28.8	25.6	7.7	584	1.30	710	2703	18.6	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 Cl2)																								
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
10/1/2021																								
10/2/2021																								
10/3/2021																								
10/4/2021																								0.95
10/5/2021		0.35	0.30	0.20	1.15				0.76	0.45	0.53	0.81	0.22	1.16	0.68							0.08		
10/6/2021																								
10/7/2021						0.78	1.16		0.85	0.46	0.56	0.71		1.05	0.75									
10/8/2021																								
10/9/2021																								
10/10/2021																								
10/11/2021																								
10/12/2021					0.27	1.16										1.00	0.95	0.94	0.68	0.46		0.11		0.95
10/13/2021									0.68	0.32	0.59	0.71	0.27	1.30	0.64									
10/14/2021																								
10/15/2021																								
10/16/2021																								
10/17/2021																								
10/18/2021																								1.10
10/19/2021		0.73	0.20	0.24	1.18				0.81	0.21	0.51	0.74	0.28	1.04	0.79						1.15			
10/20/2021																								
10/21/2021								1.24	0.90	0.39	0.57	1.04	0.33	1.09	0.94									
10/22/2021																								
10/23/2021																								
10/24/2021																								
10/25/2021																								0.99
10/26/2021	0.24															1.04	0.96	0.93	1.00	0.54				
10/27/2021									0.65	0.31	0.41	0.91	0.35	0.97	0.59									
10/28/2021																								
10/29/2021																								
10/30/2021																								
10/31/2021																								
Average	0.24			0.58				1.06					0.67					0.85			1.15		0.10	1.00
Min	0.24			0.20				0.78					0.21					0.46			1.15		0.08	0.95
Max	0.24			1.18				1.24					1.30					1.04			1.15		0.11	1.10



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
- Skizak's Sport Shop, 807 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 Cl2)																								
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
10/1/2021																								
10/2/2021																								
10/3/2021																								
10/4/2021			0.41	0.54	0.66																			
10/5/2021																						0.49	0.67	0.40
10/6/2021																								
10/7/2021	0.37	0.98				1.01	0.74		0.78				1.07	0.78	0.51	0.45		0.35	0.50					
10/8/2021																								
10/9/2021																								
10/10/2021																								
10/11/2021																								
10/12/2021												0.42										0.73	0.46	
10/13/2021																								
10/14/2021																								
10/15/2021																								
10/16/2021																								
10/17/2021																								
10/18/2021																								
10/19/2021			0.31	0.78	0.71			1.09	0.85							0.35								
10/20/2021																								
10/21/2021														1.11	0.62	0.76						0.59		
10/22/2021																								
10/23/2021																								
10/24/2021																								
10/25/2021			0.52	0.38	0.56																			
10/26/2021			0.66																					
10/27/2021											0.34									0.43				0.31
10/28/2021																								
10/29/2021																								
10/30/2021																								
10/31/2021																								
Average	0.68		0.55			0.95			0.82		0.38		0.81			0.40		0.43		0.43		0.56		0.31
Min	0.37		0.31			0.74			0.78		0.34		0.51			0.35		0.35		0.43		0.40		0.31
Max	0.98		0.78			1.09			0.85		0.42		1.11			0.45		0.50		0.43		0.73		0.31



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

October, 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	0.24	1	1	0	0
BAY	Bangor Township	0390	0.58	10	10	0	0
BAY	Bangor-Monitor Dist.	0400	1.06	3	3	0	0
BAY	Bay City	0470	0.67	30	41	0	0
BAY	Bay County (Frankl./Monitor/Portsm.)	0485	0.85	9	10	0	0
BAY	Beaver Road Area	0517	1.15	1	1	0	0
BAY	Beaver Township	0518	0.10	2	2	0	0
BAY	Essexville	2180	1.00	4	4	0	0
BAY	Fraser Township	2465	0.68	2	2	0	0
BAY	Hampton Township	2960	0.55	10	10	0	0
BAY	Kawkawlin Township	3565	0.95	3	3	0	0
BAY	Kawkawlin Metro Dist.	3570	0.82	2	2	0	0
BAY	Merritt Township	4280	0.38	2	2	0	0
BAY	Monitor Township	4440	0.81	6	6	0	0
BAY	City of Pinconning	5330	0.40	2	2	0	0
BAY	Pinconning Township	5335	0.43	2	2	0	0
BAY	Portsmouth Township	5540	0.43	1	1	0	0
BAY	Williams Township	7125	0.56	6	6	0	0
Tuscola	Wisner	7134	0.31	1	1	0	0
Average Free Cl2 Residual of All Distribution Sites			0.63	mg/L			
1. Total distribution samples			109				
2. Total distribution samples with detectable free cl2 residual			109				
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%				

