

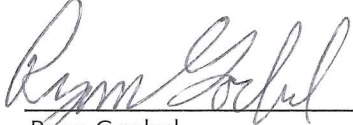
Bay Area WTP

Monthly Operations Report



April, 2023

Water Systems Serial Number: 0465


Ryan Goebel

Water Plant Superintendent
Title

F-1
Classification


Mike Wagar

Operations Supervisor
Title

F-2
Classification

Bay Area Water Treatment Plant

Monthly Operations Report

Supply Name: Bay Area Water System
 WSSN: 0465

Ryan Goebel
 Operator-in-charge

April, 2023
 Month, Year

F-1
 Certification of Operator-in-charge

F-1
 Water Plant Classification

Bay
 County

Treatment Rate and Membrane Data

Treatment Rate, Approved Rated Plant Capacity	<u>17.4</u>	Millions of Gallons per Day
Treatment Rate, Maximum	<u>7.3</u>	Millions of Gallons per Day
Maximum Approved Transmembrane Pressure	<u>22</u>	PSI
Maximum Operating Transmembrane Pressure	<u>14.79</u>	PSI
Maximum Approved Flux Rate	<u>36.25</u>	gpd/sq.ft.
Maximum Operating Flux Rate	<u>28.34</u>	gpd/sq.ft.

Chemical Data

Sodium Hypochlorite on hand:	<u>6,105</u>	Gallons	Estimated Supply:	<u>115.8</u>	days
Caustic Soda on hand:	<u>1,761</u>	Gallons	Estimated Supply:	<u>120.6</u>	days
Corrosion Inhibitor on hand:	<u>1,020</u>	Gallons	Estimated Supply:	<u>49.0</u>	days
Hydrofluosilicic Acid on hand:	<u>1,495</u>	Gallons	Estimated Supply:	<u>81.4</u>	days
Aluminum Chlorohydrate on hand:	<u>1,006</u>	Gallons	Estimated Supply:	<u>175.1</u>	days
Sulfuric Acid on hand:	<u>677</u>	Gallons	Estimated Supply:	<u>338.5</u>	days
Sodium Bisulfite on hand:	<u>997</u>	Gallons	Estimated Supply:	<u>343.8</u>	days
Citric Acid on hand:	<u>3,257</u>	Gallons	Estimated Supply:	<u>260.6</u>	days
Cost of All Chemicals per Million Gallons:	<u>105.20</u>	Dollars			
Estimated Electrical Cost per Million Gallons:	<u>95.7</u>	Dollars			
Estimated Natural Gas Cost per Million Gallons:	<u>15.24</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

- Membrane skids 2, 4, 6, & 8 taken out of service at 7:30AM on Monday, April 24 for filter bypass capability modification.
- Membrane skids 2, 4, 6, & 8 put back in service in the afternoon of Thursday, April 27

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
4/1/2023	0.00	7.47	7.47	0.28	0.08	6.63	3.14	3.01	6.15
4/2/2023	0.00	6.72	6.72	0.27	0.08	6.36	3.07	2.97	6.05
4/3/2023	0.00	6.40	6.40	0.26	0.08	6.40	3.06	2.90	5.96
4/4/2023	0.00	6.15	6.15	0.27	0.08	6.80	3.22	3.09	6.30
4/5/2023	0.00	6.68	6.68	0.29	0.08	6.49	3.06	3.03	6.09
4/6/2023	0.00	6.68	6.68	0.27	0.08	6.43	3.03	3.04	6.08
4/7/2023	0.00	6.43	6.43	0.27	0.08	6.30	2.95	2.96	5.90
4/8/2023	0.00	6.27	6.27	0.27	0.08	6.55	3.03	3.05	6.07
4/9/2023	0.00	6.55	6.55	0.29	0.08	6.55	3.03	3.05	6.08
4/10/2023	0.00	6.64	6.64	0.28	0.08	6.22	2.95	2.96	5.92
4/11/2023	0.00	6.30	6.30	0.27	0.07	6.91	3.21	3.21	6.42
4/12/2023	0.00	7.22	7.22	0.30	0.09	7.32	3.47	3.39	6.86
4/13/2023	0.00	7.26	7.26	0.28	0.08	6.85	3.25	3.18	6.43
4/14/2023	0.00	6.51	6.51	0.29	0.08	7.10	3.35	3.35	6.71
4/15/2023	0.00	6.79	6.79	0.28	0.08	6.76	3.24	3.14	6.38
4/16/2023	0.00	6.96	6.96	0.30	0.08	6.55	3.03	3.00	6.03
4/17/2023	0.00	7.06	7.06	0.29	0.08	6.21	2.96	2.90	5.86
4/18/2023	0.00	6.40	6.40	0.28	0.08	6.64	3.19	3.08	6.27
4/19/2023	0.00	5.98	5.98	0.28	0.08	6.64	3.16	3.01	6.17
4/20/2023	0.00	6.43	6.43	0.30	0.08	6.64	3.25	3.00	6.24
4/21/2023	0.00	6.82	6.82	0.32	0.08	7.05	3.44	3.20	6.64
4/22/2023	0.00	7.19	7.19	0.28	0.08	6.43	3.07	2.92	5.99
4/23/2023	0.00	7.19	7.19	0.30	0.08	6.48	3.09	2.96	6.04
4/24/2023	0.00	6.82	6.82	0.24	0.08	6.88	3.29	3.13	6.42
4/25/2023	0.00	6.90	6.90	0.21	0.08	6.73	3.26	3.09	6.35
4/26/2023	0.00	7.18	7.18	0.20	0.08	6.92	3.35	3.17	6.52
4/27/2023	0.00	7.07	7.07	0.26	0.08	7.15	3.42	3.30	6.71
4/28/2023	0.00	6.82	6.82	0.27	0.08	6.77	3.20	3.17	6.37
4/29/2023	0.00	6.57	6.57	0.26	0.08	6.56	3.09	2.98	6.07
4/30/2023	0.00	6.32	6.32	0.28	0.08	6.71	3.15	3.10	6.25
Total	0.00	201.78	201.78	8.27	2.35	199.99	95.01	92.33	187.34
Avg	0.00	6.73	6.73	0.28	0.08	6.67	3.17	3.08	6.24
Min	0.00	5.98	5.98	0.20	0.07	6.21	2.95	2.90	5.86
Max	0.00	7.47	7.47	0.32	0.09	7.32	3.47	3.39	6.86



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	
4/1/2023	4.2	7.83	1.66	2.73	0.08	0.52	Negative	Negative
4/2/2023	4.1	7.83	3.18	8.51	0.08	0.51	Negative	Negative
4/3/2023	4.5	7.82	7.74	19.68	0.08	0.46	Negative	Negative
4/4/2023	4.7	7.82	3.08	5.16	0.08	0.47	Negative	Negative
4/5/2023	4.7	7.82	1.89	12.41	0.08	0.54	Negative	Negative
4/6/2023	4.8	7.83	11.30	28.25	0.08	0.38	Negative	Negative
4/7/2023	4.9	7.81	6.86	14.50	0.09	0.59	Negative	Negative
4/8/2023	5.0	7.81	2.54	6.37	0.08	0.54	Negative	Negative
4/9/2023	5.1	7.81	2.08	2.87	0.08	0.53	Negative	Negative
4/10/2023	5.3	7.82	1.69	4.59	0.08	0.43	Negative	Negative
4/11/2023	5.3	7.84	1.99	3.39	0.08	0.26	Negative	Negative
4/12/2023	5.3	7.84	1.60	2.17	0.09	0.35	Negative	Negative
4/13/2023	5.4	7.83	1.44	2.02	0.08	0.43	Negative	Negative
4/14/2023	5.6	7.82	1.22	2.08	0.09	0.46	Negative	Negative
4/15/2023	5.9	7.81	1.03	1.60	0.09	0.51	Negative	Negative
4/16/2023	6.2	7.80	1.08	1.32	0.08	0.50	Negative	Negative
4/17/2023	6.4	7.81	1.40	5.62	0.09	0.46	Negative	Negative
4/18/2023	6.8	7.85	1.84	3.44	0.09	0.32	Negative	Negative
4/19/2023	7.0	7.82	0.88	2.13	0.09	0.47	Negative	Negative
4/20/2023	7.0	7.81	0.45	0.74	0.08	0.55	Negative	Negative
4/21/2023	6.9	7.81	0.36	1.30	0.08	0.53	Negative	Negative
4/22/2023	6.9	7.82	3.36	6.66	0.08	0.44	Negative	Negative
4/23/2023	7.1	7.82	1.08	4.45	0.08	0.49	Negative	Negative
4/24/2023	6.9	7.83	0.52	0.98	0.08	0.50	Negative	Negative
4/25/2023	7.2	7.81	0.50	1.05	0.08	0.47	Negative	Negative
4/26/2023	7.2	7.81	0.46	0.80	0.08	0.47	Negative	Negative
4/27/2023	7.2	7.83	0.43	0.70	0.08	0.44	Negative	Negative
4/28/2023	7.1	7.85	0.37	0.53	0.08	0.44	Negative	Negative
4/29/2023	7.2	7.84	0.50	0.71	0.08	0.46	Negative	Negative
4/30/2023	7.3	7.85	0.65	0.98	0.08	0.42	Negative	Negative
Avg	6.0	7.82	2.11	4.92	0.08	0.46	NA	NA
Min	4.1	7.80	0.36	0.53	0.08	0.26	NA	NA
Max	7.3	7.85	11.30	28.25	0.09	0.59	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				Lab	
4/1/2023	3.1	7.63	3.36	0.76		1.02	0	78	9	12	76	13.2	241	-0.98	0.75	0.40	Negative	Negative
4/2/2023	2.8	7.65	3.37	0.75		1.00	0	78	10	10	74	13.8	240	-0.98	1.00	0.39	Negative	Negative
4/3/2023	3.3	7.64	3.37	0.75	0.75	1.01	0	78	10	9	78	13.9	240	-0.95	1.11	0.37	Negative	Negative
4/4/2023	3.8	7.64	3.32	0.75		1.00	0	78	10	10	78	13.7	240	-0.94	1.00	0.39	Negative	Negative
4/5/2023	3.8	7.64	3.30	0.76		1.02	0	78	10	11	76	13.5	241	-0.94	0.91	0.40	Negative	Negative
4/6/2023	3.9	7.65	3.32	0.74		1.01	0	82	10	9	72	13.2	239	-0.94	1.11	0.35	Negative	Negative
4/7/2023	3.8	7.66	3.31	0.75		1.01	0	77	10	10	76	13.3	245	-0.94	1.00	0.39	Negative	Negative
4/8/2023	3.9	7.66	3.31	0.75		1.02	0	78	10	9	76	12.8	243	-0.93	1.11	0.37	Negative	Negative
4/9/2023	4.0	7.64	3.30	0.75		1.01	0	78	9	8	74	12.3	241	-0.95	1.13	0.33	Negative	Negative
4/10/2023	4.1	7.65	3.29	0.76	0.77	1.02	0	78	10	9	70	13.6	242	-0.97	1.11	0.37	Negative	Negative
4/11/2023	4.2	7.66	3.27	0.76		1.01	0	82	10	9	76	13.4	241	-0.90	1.11	0.35	Negative	Negative
4/12/2023	4.4	7.66	3.29	0.78		1.01	0	78	11	11	76	11.9	230	-0.90	1.00	0.43	Negative	Negative
4/13/2023	4.6	7.67	3.29	0.75		1.01	0	76	10	12	74	12.6	245	-0.92	0.83	0.43	Negative	Negative
4/14/2023	4.8	7.65	3.29	0.76		1.01	0	77	11	11	76	12.4	241	-0.92	1.00	0.43	Negative	Negative
4/15/2023	4.9	7.64	3.31	0.77		1.01	0	78	10	9	78	13.3	240	-0.91	1.11	0.37	Negative	Negative
4/16/2023	5.0	7.64	3.34	0.76		1.02	0	78	10	9	78	12.9	237	-0.90	1.11	0.37	Negative	Negative
4/17/2023	5.0	7.65	3.38	0.77	0.78	1.01	0	76	9	11	76	13.1	233	-0.92	0.82	0.39	Negative	Negative
4/18/2023	5.0	7.67	3.37	0.77		1.01	0	75	11	10	76	13.7	230	-0.90	1.10	0.43	Negative	Negative
4/19/2023	5.3	7.67	3.37	0.78		1.01	0	78	11	11	76	12.9	237	-0.88	1.00	0.43	Negative	Negative
4/20/2023	5.5	7.66	3.36	0.75		1.02	0	79	10	9	78	12.6	239	-0.86	1.11	0.37	Negative	Negative
4/21/2023	5.5	7.65	3.35	0.76		1.03	0	78	10	9	74	11.9	230	-0.90	1.11	0.37	Negative	Negative
4/22/2023	5.4	7.64	3.35	0.76		1.02	0	80	10	10	74	12.6	229	-0.90	1.00	0.38	Negative	Negative
4/23/2023	5.4	7.65	3.35	0.76		1.02	0	78	9	10	72	13.0	235	-0.92	0.90	0.36	Negative	Negative
4/24/2023	5.5	7.65	3.34	0.76	0.77	1.02	0	79	10	9	74	12.9	234	-0.90	1.11	0.37	Negative	Negative
4/25/2023	5.6	7.61	3.34	0.76		1.03	0	79	10	9	74	12.3	233	-0.93	1.11	0.37	Negative	Negative
4/26/2023	5.6	7.62	3.36	0.77		1.02	0	75	12	10	74	12.2	236	-0.95	1.20	0.45	Negative	Negative
4/27/2023	5.7	7.63	3.37	0.78		1.01	0	78	10	10	74	12.7	241	-0.92	1.00	0.39	Negative	Negative
4/28/2023	5.6	7.67	3.38	0.76		1.01	0	78	10	11	78	13.1	240	-0.86	0.91	0.40	Negative	Negative
4/29/2023	5.7	7.66	3.39	0.77		1.00	0	77	9	10	76	13.0	241	-0.88	0.90	0.37	Negative	Negative
4/30/2023	5.8	7.66	3.37	0.77		1.01	0	76	9	9	74	12.8	241	-0.90	1.00	0.36	Negative	Negative
Avg	4.7	7.65	3.34	0.76	0.77	1.01	0	78	10	10	75	12.9	238	-0.92	1.02	0.38	NA	NA
Min	2.8	7.61	3.27	0.74	0.75	1.00	0	75	9	8	70	11.9	229	-0.98	0.75	0.33	NA	NA
Max	5.8	7.67	3.39	0.78	0.78	1.03	0	82	12	12	78	13.9	245	-0.86	1.20	0.45	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	
4/1/2023	1.66	2.73	1.98	2.43	0.024	0.024	96	0	0.0	0.020
4/2/2023	3.18	8.51	2.19	2.38	0.024	0.024	96	0	0.0	0.020
4/3/2023	7.74	19.68	1.63	5.17	0.024	0.024	96	0	0.0	0.020
4/4/2023	3.08	5.16	1.25	4.83	0.024	0.024	96	0	0.0	0.020
4/5/2023	1.89	12.41	1.39	3.48	0.024	0.024	96	0	0.0	0.020
4/6/2023	11.30	28.25	1.21	5.95	0.024	0.024	96	0	0.0	0.020
4/7/2023	6.86	14.50	1.50	8.08	0.024	0.025	96	0	0.0	0.020
4/8/2023	2.54	6.37	2.01	5.62	0.024	0.024	96	0	0.0	0.020
4/9/2023	2.08	2.87	2.09	3.92	0.024	0.024	96	0	0.0	0.020
4/10/2023	1.69	4.59	2.41	2.81	0.024	0.024	96	0	0.0	0.020
4/11/2023	1.99	3.39	3.50	2.54	0.024	0.024	96	0	0.0	0.020
4/12/2023	1.60	2.17	2.88	2.38	0.024	0.024	96	0	0.0	0.020
4/13/2023	1.44	2.02	2.38	1.94	0.024	0.024	96	0	0.0	0.020
4/14/2023	1.22	2.08	2.06	1.70	0.024	0.024	96	0	0.0	0.020
4/15/2023	1.03	1.60	1.85	1.42	0.024	0.024	96	0	0.0	0.020
4/16/2023	1.08	1.32	2.68	1.31	0.024	0.024	96	0	0.0	0.020
4/17/2023	1.40	5.62	2.16	1.12	0.024	0.024	96	0	0.0	0.020
4/18/2023	1.84	3.44	2.31	1.26	0.022	0.024	96	0	0.0	0.018
4/19/2023	0.88	2.13	2.69	1.24	0.022	0.022	96	0	0.0	0.019
4/20/2023	0.45	0.74	2.31	0.82	0.022	0.022	96	0	0.0	0.018
4/21/2023	0.36	1.30	2.31	0.53	0.022	0.022	96	0	0.0	0.018
4/22/2023	3.36	6.66	2.07	1.42	0.022	0.022	96	0	0.0	0.018
4/23/2023	1.08	4.45	1.76	1.57	0.022	0.022	96	0	0.0	0.018
4/24/2023	0.52	0.98	2.21	0.95	0.022	0.022	96	0	0.0	0.018
4/25/2023	0.50	1.05	1.96	0.63	0.022	0.022	96	0	0.0	0.018
4/26/2023	0.46	0.80	1.74	0.51	0.022	0.022	96	0	0.0	0.018
4/27/2023	0.43	0.70	1.59	0.45	0.022	0.051	96	0	0.0	0.018
4/28/2023	0.37	0.53	1.09	0.38	0.022	0.022	96	0	0.0	0.018
4/29/2023	0.50	0.71	1.20	0.38	0.022	0.022	96	0	0.0	0.018
4/30/2023	0.65	0.98	1.50	0.48	0.022	0.022	96	0	0.0	0.018
Avg	2.11	4.92	2.00	2.26	0.023	0.024	96	0	0.0	0.019
Min	0.36	0.53	1.09	0.38	0.022	0.022	96	0	0.0	0.018
Max	11.30	28.25	3.50	8.08	0.024	0.051	96	0	0.0	0.020

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	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
4/1/2023	4.34	PASS	0.021	4.20	PASS	0.024	4.26	PASS	0.019	4.62	PASS	0.016	5.51	PASS	0.021	4.53	PASS	0.024	4.44	PASS	0.029	5.00	PASS	0.018		
4/2/2023	4.33	PASS	0.021	4.20	PASS	0.025	4.26	PASS	0.019	4.58	PASS	0.016	5.51	PASS	0.021	4.49	PASS	0.023	4.48	PASS	0.029	4.90	PASS	0.018		
4/3/2023	4.32	PASS	0.020	4.19	PASS	0.025	4.48	PASS	0.019	4.60	PASS	0.016	5.49	PASS	0.021	4.48	PASS	0.024	4.42	PASS	0.029	4.89	PASS	0.019		
4/4/2023	4.36	PASS	0.022	4.20	PASS	0.025	4.42	PASS	0.019	4.60	PASS	0.016	5.47	PASS	0.021	4.52	PASS	0.024	4.39	PASS	0.029	4.93	PASS	0.019		
4/5/2023	4.35	PASS	0.020	4.20	PASS	0.025	4.38	PASS	0.019	4.59	PASS	0.016	5.49	PASS	0.021	4.52	PASS	0.023	4.41	PASS	0.029	4.95	PASS	0.018		
4/6/2023	4.40	PASS	0.021	4.20	PASS	0.024	4.37	PASS	0.019	4.59	PASS	0.016	5.52	PASS	0.021	4.49	PASS	0.023	4.43	PASS	0.029	4.89	PASS	0.019		
4/7/2023	4.33	PASS	0.021	4.32	PASS	0.025	4.35	PASS	0.020	4.58	PASS	0.016	5.47	PASS	0.021	4.44	PASS	0.023	4.43	PASS	0.029	4.90	PASS	0.019		
4/8/2023	4.30	PASS	0.021	4.28	PASS	0.024	4.33	PASS	0.020	4.57	PASS	0.016	5.52	PASS	0.022	4.44	PASS	0.023	4.39	PASS	0.029	5.00	PASS	0.019		
4/9/2023	4.35	PASS	0.020	4.24	PASS	0.025	4.29	PASS	0.019	4.60	PASS	0.016	5.48	PASS	0.022	4.51	PASS	0.024	4.40	PASS	0.029	4.97	PASS	0.017		
4/10/2023	4.35	PASS	0.020	4.23	PASS	0.025	4.29	PASS	0.019	4.58	PASS	0.016	5.52	PASS	0.022	4.46	PASS	0.023	4.45	PASS	0.029	4.94	PASS	0.017		
4/11/2023	4.30	PASS	0.022	4.27	PASS	0.030	4.32	PASS	0.020	4.55	PASS	0.016	5.53	PASS	0.022	4.47	PASS	0.024	4.41	PASS	0.029	4.89	PASS	0.018		
4/12/2023	4.24	PASS	0.020	4.27	PASS	0.025	4.30	PASS	0.019	4.61	PASS	0.016	5.48	PASS	0.023	4.43	PASS	0.023	4.50	PASS	0.029	4.84	PASS	0.017		
4/13/2023	4.29	PASS	0.021	4.22	PASS	0.028	4.30	PASS	0.019	4.64	PASS	0.016	5.46	PASS	0.022	4.48	PASS	0.023	4.56	PASS	0.029	4.85	PASS	0.017		
4/14/2023	4.32	PASS	0.022	4.21	PASS	0.025	4.32	PASS	0.019	4.63	PASS	0.016	5.49	PASS	0.022	4.44	PASS	0.023	4.50	PASS	0.029	4.88	PASS	0.017		
4/15/2023	4.31	PASS	0.020	4.23	PASS	0.025	4.32	PASS	0.019	4.59	PASS	0.016	5.51	PASS	0.022	4.47	PASS	0.023	4.45	PASS	0.029	4.85	PASS	0.018		
4/16/2023	4.28	PASS	0.019	4.23	PASS	0.026	4.30	PASS	0.019	4.65	PASS	0.016	5.52	PASS	0.022	4.48	PASS	0.022	4.43	PASS	0.029	4.88	PASS	0.017		
4/17/2023	4.27	PASS	0.021	4.22	PASS	0.029	4.31	PASS	0.040	4.65	PASS	0.017	5.48	PASS	0.022	4.49	PASS	0.023	4.46	PASS	0.029	4.85	PASS	0.021		
4/18/2023	4.26	PASS	0.021	4.22	PASS	0.027	4.37	PASS	0.021	4.60	PASS	0.022	5.48	PASS	0.023	4.50	PASS	0.024	4.47	PASS	0.029	4.85	PASS	0.020		
4/19/2023	4.26	PASS	0.021	4.23	PASS	0.025	4.41	PASS	0.021	4.60	PASS	0.020	5.47	PASS	0.023	4.46	PASS	0.024	4.43	PASS	0.029	4.83	PASS	0.021		
4/20/2023	4.29	PASS	0.021	4.22	PASS	0.027	4.36	PASS	0.023	4.64	PASS	0.016	5.50	PASS	0.021	4.46	PASS	0.024	4.42	PASS	0.029	4.86	PASS	0.020		
4/21/2023	4.34	PASS	0.020	4.22	PASS	0.031	4.35	PASS	0.020	4.62	PASS	0.020	5.48	PASS	0.021	4.51	PASS	0.024	4.42	PASS	0.029	4.86	PASS	0.020		
4/22/2023	4.43	PASS	0.020	4.20	PASS	0.028	4.33	PASS	0.020	4.59	PASS	0.018	5.48	PASS	0.021	4.49	PASS	0.024	4.72	PASS	0.029	4.85	PASS	0.021		
4/23/2023	4.34	PASS	0.020	4.22	PASS	0.028	4.34	PASS	0.019	4.60	PASS	0.016	5.49	PASS	0.021	4.49	PASS	0.024	4.65	PASS	0.029	4.84	PASS	0.021		
4/24/2023	4.33	PASS	0.020	4.20	PASS	0.024	4.48	PASS	0.020	4.59	PASS	0.016	5.41	PASS	0.021	4.47	PASS	0.024	4.55	PASS	0.029	4.83	PASS	0.020		
4/25/2023	4.28	PASS	0.026	out of service on 4/24/2023	4.36	PASS	0.020	out of service on 4/24/2023	5.40	PASS	0.021	out of service on 4/24/2023	4.55	PASS	0.029	out of service on 4/24/2023	4.55	PASS	0.029	out of service on 4/24/2023	4.80	PASS	0.022			
4/26/2023	4.26	PASS	0.022	back in service 4/27/2023	4.27	PASS	0.019	back in service 4/27/2023	5.39	PASS	0.020	back in service 4/27/2023	4.45	PASS	0.029	back in service 4/27/2023	4.45	PASS	0.029	back in service 4/27/2023	4.81	PASS	0.019			
4/27/2023	4.27	PASS	0.020	4.30	PASS	0.098	4.28	PASS	0.019	4.76	PASS	0.023	5.40	PASS	0.020	4.55	PASS	0.030	4.42	PASS	0.029	4.80	PASS	0.022		
4/28/2023	4.27	PASS	0.020	4.26	PASS	0.025	4.29	PASS	0.019	4.71	PASS	0.016	5.42	PASS	0.020	4.52	PASS	0.028	4.45	PASS	0.029	4.81	PASS	0.019		
4/29/2023	4.24	PASS	0.025	4.23	PASS	0.027	4.35	PASS	0.019	4.67	PASS	0.017	5.44	PASS	0.020	4.49	PASS	0.027	4.52	PASS	0.029	4.85	PASS	0.020		
4/30/2023	4.29	PASS	0.020	4.21	PASS	0.025	4.44	PASS	0.019	4.63	PASS	0.016	5.44	PASS	0.020	4.48	PASS	0.026	4.57	PASS	0.029	4.85	PASS	0.019		
Avg	4.31		0.021	4.23		0.029	4.34		0.020	4.62		0.017	5.47		0.021	4.48		0.024	4.47		0.029	4.88		0.019		
Min	4.24		0.019	4.19		0.024	4.26		0.019	4.55		0.016	5.39		0.020	4.43		0.022	4.39		0.029	4.80		0.017		
Max	4.43		0.026	4.32		0.098	4.48		0.040	4.76		0.023	5.53		0.023	4.55		0.030	4.72		0.029	5.00		0.022		

*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
4/1/2023	6.6	0.52	0.43	0.46	1.07	1.02	3.20	3.36	0.08	0.63	0.76
4/2/2023	6.4	0.51	0.43	0.48	1.06	1.00	3.20	3.37	0.08	0.63	0.75
4/3/2023	6.4	0.46	0.40	0.51	1.06	1.01	3.20	3.37	0.08	0.63	0.75
4/4/2023	6.8	0.47	0.40	0.56	1.06	1.00	3.21	3.32	0.08	0.63	0.75
4/5/2023	6.5	0.54	0.41	0.52	1.08	1.02	3.31	3.30	0.08	0.63	0.76
4/6/2023	6.4	0.38	0.38	0.60	1.06	1.01	3.31	3.32	0.08	0.63	0.74
4/7/2023	6.3	0.59	0.38	0.54	1.08	1.01	3.31	3.31	0.09	0.63	0.75
4/8/2023	6.5	0.54	0.42	0.52	1.08	1.02	3.31	3.31	0.08	0.63	0.75
4/9/2023	6.5	0.53	0.42	0.54	1.06	1.01	3.31	3.30	0.08	0.63	0.75
4/10/2023	6.2	0.43	0.40	0.56	1.08	1.02	3.31	3.29	0.08	0.63	0.76
4/11/2023	6.9	0.26	0.31	0.66	1.06	1.01	3.31	3.27	0.08	0.63	0.76
4/12/2023	7.3	0.35	0.26	0.66	1.07	1.01	3.31	3.29	0.09	0.63	0.78
4/13/2023	6.8	0.43	0.31	0.62	1.07	1.01	3.31	3.29	0.08	0.63	0.75
4/14/2023	7.1	0.46	0.33	0.60	1.07	1.01	3.34	3.29	0.09	0.64	0.76
4/15/2023	6.8	0.51	0.37	0.58	1.08	1.01	3.34	3.31	0.09	0.64	0.77
4/16/2023	6.6	0.50	0.39	0.56	1.07	1.02	3.39	3.34	0.08	0.64	0.76
4/17/2023	6.2	0.46	0.40	0.56	1.06	1.01	3.40	3.38	0.09	0.64	0.77
4/18/2023	6.6	0.32	0.35	0.74	1.07	1.01	3.40	3.37	0.09	0.64	0.77
4/19/2023	6.6	0.47	0.32	0.73	1.08	1.01	3.40	3.37	0.09	0.64	0.78
4/20/2023	6.6	0.55	0.38	0.64	1.07	1.02	3.40	3.36	0.08	0.64	0.75
4/21/2023	7.1	0.53	0.42	0.60	1.06	1.03	3.40	3.35	0.08	0.64	0.76
4/22/2023	6.4	0.44	0.41	0.66	1.06	1.02	3.40	3.35	0.08	0.64	0.76
4/23/2023	6.5	0.49	0.40	0.64	1.06	1.02	3.40	3.35	0.08	0.64	0.76
4/24/2023	6.9	0.50	0.40	0.66	1.07	1.02	3.40	3.34	0.08	0.64	0.76
4/25/2023	6.7	0.47	0.41	0.66	1.07	1.03	3.41	3.34	0.08	0.64	0.76
4/26/2023	6.9	0.47	0.40	0.66	1.06	1.02	3.43	3.36	0.08	0.64	0.77
4/27/2023	7.1	0.44	0.38	0.68	1.05	1.01	3.44	3.37	0.08	0.69	0.78
4/28/2023	6.8	0.44	0.38	0.68	1.05	1.01	3.44	3.38	0.08	0.64	0.76
4/29/2023	6.6	0.46	0.37	0.70	1.07	1.00	3.43	3.39	0.08	0.64	0.77
4/30/2023	6.7	0.42	0.37	0.70	1.07	1.01	3.43	3.37	0.08	0.64	0.77
Avg	6.7	0.46	0.38	0.61	1.07	1.01	3.35	3.34	0.08	0.64	0.76
Min	6.2	0.26	0.26	0.46	1.05	1.00	3.20	3.27	0.08	0.63	0.74
Max	7.3	0.59	0.43	0.74	1.08	1.03	3.44	3.39	0.09	0.69	0.78



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	Calculated	TIT-1000	Calculated	Calculated
4/1/2023	45.6	2,743	0.52	1423	28.7	26.1	6.2	610	0.99	605	2027	4.2	12.00	Y
4/2/2023	52.3	2,392	0.51	1228	28.7	24.8	6.0	606	0.99	601	1829	4.1	12.00	Y
4/3/2023	43.4	2,882	0.46	1330	28.7	24.8	6.0	615	0.98	606	1936	4.5	12.00	Y
4/4/2023	40.8	3,066	0.47	1451	28.3	25.2	6.3	582	0.98	573	2023	4.7	12.00	Y
4/5/2023	42.0	2,978	0.54	1600	28.7	25.9	6.1	614	0.97	597	2196	4.7	12.00	Y
4/6/2023	42.0	2,978	0.38	1137	28.7	24.7	6.1	602	1.00	601	1738	4.8	12.00	Y
4/7/2023	44.5	2,811	0.59	1645	28.6	24.1	5.9	613	0.98	603	2248	4.9	12.00	Y
4/8/2023	51.5	2,429	0.54	1306	28.7	23.7	6.1	591	1.01	594	1900	5.0	8.00	Y
4/9/2023	50.3	2,487	0.53	1315	28.7	24.9	6.1	604	0.98	594	1910	5.1	8.00	Y
4/10/2023	42.5	2,943	0.43	1264	28.7	23.6	5.9	605	1.00	605	1868	5.3	8.00	Y
4/11/2023	39.8	3,147	0.26	813	28.2	15.8	6.4	469	1.00	469	1282	5.3	8.00	Y
4/12/2023	43.8	2,858	0.35	992	28.7	24.1	6.9	527	0.98	519	1511	5.3	8.00	Y
4/13/2023	47.1	2,658	0.43	1135	28.7	25.0	6.4	571	0.99	567	1701	5.4	8.00	Y
4/14/2023	47.5	2,633	0.46	1205	28.7	25.3	6.7	552	1.00	551	1756	5.6	8.00	Y
4/15/2023	46.5	2,692	0.51	1371	28.6	24.6	6.4	571	0.99	567	1938	5.9	8.00	Y
4/16/2023	22.6	5,543	0.50	2771	28.6	24.7	6.0	606	1.00	605	3376	6.2	8.00	Y
4/17/2023	47.8	2,619	0.46	1194	28.7	25.7	5.9	637	1.00	636	1830	6.4	8.00	Y
4/18/2023	48.2	2,596	0.32	831	28.2	20.7	6.3	535	0.98	523	1354	6.8	8.00	Y
4/19/2023	38.2	3,274	0.47	1524	28.7	24.7	6.2	593	0.99	588	2111	7.0	8.00	Y
4/20/2023	38.5	3,245	0.55	1777	28.7	25.0	6.2	589	0.94	552	2329	7.0	8.00	Y
4/21/2023	41.6	3,005	0.53	1594	28.7	23.7	6.6	541	1.01	547	2141	6.9	8.00	Y
4/22/2023	55.0	2,274	0.44	1005	28.6	24.9	6.0	612	0.99	606	1611	6.9	8.00	Y
4/23/2023	55.0	2,274	0.49	1114	28.6	24.9	6.0	606	1.00	605	1719	7.1	8.00	Y
4/24/2023	54.6	2,290	0.50	1153	28.7	25.3	6.4	577	0.99	572	1726	6.9	8.00	Y
4/25/2023	43.0	2,909	0.47	1367	28.6	23.5	6.3	563	1.02	573	1940	7.2	8.00	Y
4/26/2023	40.2	3,112	0.47	1463	28.6	24.6	6.5	559	0.99	554	2017	7.2	8.00	Y
4/27/2023	39.2	3,191	0.44	1402	28.7	24.3	6.7	541	0.99	537	1939	7.2	8.00	Y
4/28/2023	42.5	2,943	0.44	1299	28.7	24.5	6.4	572	0.98	563	1862	7.1	8.00	Y
4/29/2023	54.3	2,304	0.46	1056	28.7	24.4	6.1	599	0.98	590	1646	7.2	8.00	Y
4/30/2023	53.4	2,343	0.42	991	28.7	25.5	6.3	594	0.99	589	1580	7.3	8.00	Y
Avg	45.1	2,854	0.46	1325	28.6	24.3	6.2	582	0.99	576	1902	6.0	8.93	NA
Min	22.6	2,274	0.26	813	28.2	15.8	5.9	469	0.94	469	1282	4.1	8.00	NA
Max	55.0	5,543	0.59	2771	28.7	26.1	6.9	637	1.02	636	3376	7.3	12.00	NA



Notes:

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

Distribution System Monitoring

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

WSSN:	0072	0390				0400			0470							0485					0517	0518		2180
	Akron	Bangor Twp.				Bangor Monitor Dist.			Bay City							Bay County					Beaver Rd	Beaver Twp		Essexville
Date	1	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	23	24	26	29	30	32
4/1/2023																								
4/2/2023																								
4/3/2023																								
4/4/2023	0.43								0.71	0.79	0.77	0.75	0.43	0.91	0.87	0.68	0.79	0.84	0.69	0.53				
4/5/2023																								
4/6/2023		0.55	0.85	0.62	0.96				0.75	0.65	0.72	0.90	0.48	0.97	0.71							0.55		
4/7/2023																								
4/8/2023																								
4/9/2023																								
4/10/2023																								
4/11/2023						0.79	0.82									0.86	0.83	0.79	0.56	0.70				1.02
4/12/2023									0.81	0.48	0.71	0.86	0.51	0.94	0.74									
4/13/2023		0.88	0.50					0.98														0.71		
4/14/2023																								
4/15/2023																								
4/16/2023																								
4/17/2023																								
4/18/2023									0.84	0.61	0.75	0.81	0.49	0.98	0.69						0.89			0.94
4/19/2023																								
4/20/2023		0.38	0.54	0.58	0.93				0.77	0.31	0.75	0.90	0.51	1.08	0.81									
4/21/2023																								0.97
4/22/2023																								
4/23/2023																								
4/24/2023																								0.98
4/25/2023																								
4/26/2023									0.87	0.43	0.76	0.75	0.47	0.91	0.80									
4/27/2023																								
4/28/2023																								
4/29/2023																								
4/30/2023																								
Average	0.43	0.68				0.86			0.73							0.73					0.89	0.63		0.98
Min	0.43	0.38				0.79			0.31							0.53					0.89	0.55		0.94
Max	0.43	0.96				0.98			1.08							0.86					0.89	0.71		1.02



MONITORING STATION ADDRESSES

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> 1. Sample station at corner of 5758 M-25 & R 3. Bangor Fire Station, 3921 Wheeler 4. BCDWS Admin. Bldg, 3933 Patterson Rd. 5. 7-11, 3543 S. Old Kawkawlin Rd. 6. Admiral Petroleum, 314 S Euclid Ave. 7. Sequin Lumber, 3881 Euclid Ave 9. B's Boutique, 2981 Midland Rd 10. Little Caesars, 3475 E North Union Rd | <ul style="list-style-type: none"> 11. Number 1 Fire Station, 1401 Center Ave 12. Number 2 Fire Station, 1000 Fremont Ave 13. Jack's Fruit Market, 1000 Salzburg Ave 14. Number 4 Fire Station, 212 S. Dean St 15. Number 5 Fire Station, 1209 Smith St 16. Bay City Hall, 301 Washington Ave 17. Skipper Buds Marina, 1809 S Water St 18. Bay Valley Animal Hospital 6015 WS Saginaw Rd | <ul style="list-style-type: none"> 19. Dore's M-84 Party Store, 6183 WS Saginaw Rd 20. Pump Station #13, 6000 WS Saginaw Rd 23. Rail Trail Pump Station, 366 N. Tuscola Rd. 24. Little Learners Daycare, 1694 Cass Ave. 26. Wieland Contracting, 2443 S Mackinaw Rd 29. Sample Station, 2515 S. 11 Mile Rd 30. Sample Station, 340 W. Beaver Rd 32. 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
	Fraser Twp.		Hampton Twp.			Kawkawlin Twp.			Kawkawlin Met.		Merritt Twp.		Monitor Twp.			City Pinconning		Pinconning Twp.		Portsmouth	Williams Twp.			Wisner
Date	34	35	37	38	39	40	41	42	43	45	46	48	49	52	55	58	59	61	63	65	68	69	70	72
4/1/2023																								
4/2/2023																								
4/3/2023																								
4/4/2023											0.54									0.59				0.59
4/5/2023			0.55	0.65	0.57																			
4/6/2023	0.80					0.78	0.74		0.74							0.22		0.57			0.35	0.62	0.54	
4/7/2023																								
4/8/2023																								
4/9/2023																								
4/10/2023																								
4/11/2023			0.55								0.68		0.81	0.74	0.66									
4/12/2023																								
4/13/2023													0.81	0.72	0.67						0.63	0.82	0.70	
4/14/2023																								
4/15/2023																								
4/16/2023																								
4/17/2023																								
4/18/2023	0.56		0.59	0.73	0.55			0.81	0.71							0.59		0.60						
4/19/2023																								
4/20/2023																								
4/21/2023																								
4/22/2023																								
4/23/2023																								
4/24/2023																								
4/25/2023																								
4/26/2023																								
4/27/2023																								
4/28/2023			0.59	0.62	0.60																			
4/29/2023																								
4/30/2023																								
Average	0.68		0.60			0.78			0.73		0.61		0.74			0.41		0.59		0.59		0.61		0.59
Min	0.56		0.55			0.74			0.71		0.54		0.66			0.22		0.57		0.59		0.35		0.59
Max	0.80		0.73			0.81			0.74		0.68		0.81			0.59		0.60		0.59		0.82		0.59



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

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

Distribution System Bacteriological							
Water Supplier Bacteriological Analysis Report							
MICHIGAN DEPARTMENT OF PUBLIC HEALTH Bureau of Environmental Health Water Supplier Bacteriological Analysis Report				Name of Water Supply Bay Area Water Treatment Plant			
				April, 2023			
COUNTY	COMMUNITY	WSSN NUMBER	DISTRIBUTION SYSTEM SAMPLES				
			avg free cl2 mg/L	NUMBER REQUIRED	NUMBER COLLECTED	NUMBER POSITIVE	NUMBER REPEAT SAMPLES
Tuscola	Akron	0072	0.43	1	1	0	0
BAY	Bangor Township	0390	0.68	10	10	0	0
BAY	Bangor-Monitor Dist.	0400	0.86	3	3	0	0
BAY	Bay City	0470	0.73	30	42	0	0
BAY	Bay County (Frankl./Monitor/Portsm.)	0485	0.73	9	10	0	0
BAY	Beaver Road Area	0517	0.89	1	1	0	0
BAY	Beaver Township	0518	0.63	2	2	0	0
BAY	Essexville	2180	0.98	4	4	0	0
BAY	Fraser Township	2465	0.68	2	2	0	0
BAY	Hampton Township	2960	0.60	10	10	0	0
BAY	Kawkawlin Township	3565	0.78	3	3	0	0
BAY	Kawkawlin Metro Dist.	3570	0.73	2	2	0	0
BAY	Merritt Township	4280	0.61	2	2	0	0
BAY	Monitor Township	4440	0.74	6	6	0	0
BAY	City of Pinconning	5330	0.41	2	2	0	0
BAY	Pinconning Township	5335	0.59	2	2	0	0
BAY	Portsmouth Township	5540	0.59	1	1	0	0
BAY	Williams Township	7125	0.61	6	6	0	0
Tuscola	Wisner	7134	0.59	1	1	0	0
Average Free Cl2 Residual of All Distribution Sites			0.68	mg/L			
1. Total distribution samples			110				
2. Total distribution samples with detectable free cl2 residual			110				
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%				

