

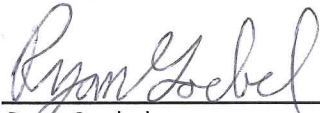
Bay Area WTP

Monthly Operations Report



February, 2020

Water Systems Serial Number: 0465



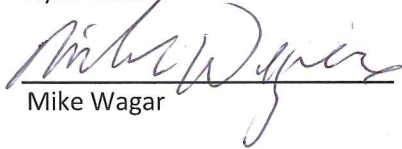
Ryan Goebel

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

February, 2020
 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>7.6</u>	Millions of Gallons per Day
Maximum Approved Transmembrane Pressure	<u>22</u>	PSI
Maximum Operating Transmembrane Pressure	<u>16.79</u>	PSI
Maximum Approved Flux Rate	<u>36.25</u>	gpd/sq.ft.
Maximum Operating Flux Rate	<u>28.02</u>	gpd/sq.ft.

Chemical Data

Sodium Hypochlorite on hand:	<u>5,394</u>	Gallons	Estimated Supply:	<u>107.7</u>	days
Caustic Soda on hand:	<u>3,398</u>	Gallons	Estimated Supply:	<u>241.1</u>	days
Corrosion Inhibitor on hand:	<u>1,584</u>	Gallons	Estimated Supply:	<u>72.4</u>	days
Hydrofluosilicic Acid on hand:	<u>1,356</u>	Gallons	Estimated Supply:	<u>73.0</u>	days
Aluminum Chlorohydrate on hand:	<u>483</u>	Gallons	Estimated Supply:	<u>92.7</u>	days
Sulfuric Acid on hand:	<u>658</u>	Gallons	Estimated Supply:	<u>158.1</u>	days
Sodium Bisulfite on hand:	<u>983</u>	Gallons	Estimated Supply:	<u>261.7</u>	days
Citric Acid on hand:	<u>879</u>	Gallons	Estimated Supply:	<u>86.1</u>	days
Cost of All Chemicals per Million Gallons:	<u>68.04</u>	Dollars			
Estimated Electrical Cost per Million Gallons:	<u>84.67</u>	Dollars			
Estimated Natural Gas Cost per Million Gallons:	<u>20.02</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

Bay Area WTP Monthly Operating Report

Date	Flows									
	Raw Water (MG)			Clarified (MG)	Wasted (MG)	Sludge (MG)	Treated (MG)	Finished Water Pumped (MG)		
	North	South	Total	Total	Total	Total	Total	N. Euclid	Lauria Road	Total
FIT-1000-1	FIT-1000-2	Calculated	FIT-5520-1	FIT-5520-2	FIT-5180	FIT-4000-1	FIT-4040-1	FIT-4040-2	Calculated	
2/1/2020	0.00	6.27	6.27	0.22	0.00	0.08	6.60	3.18	3.14	6.31
2/2/2020	0.00	6.57	6.57	0.25	0.00	0.04	6.64	3.20	3.18	6.38
2/3/2020	0.00	6.60	6.60	0.25	0.00	0.04	6.48	3.08	3.05	6.13
2/4/2020	0.00	6.46	6.46	0.27	0.00	0.04	6.31	3.14	3.11	6.25
2/5/2020	0.00	6.43	6.43	0.23	0.00	0.04	6.72	3.23	3.20	6.43
2/6/2020	0.00	6.71	6.71	0.25	0.00	0.04	6.54	3.15	3.10	6.25
2/7/2020	0.00	7.10	7.10	0.27	0.00	0.05	6.48	3.10	3.06	6.17
2/8/2020	0.00	6.55	6.55	0.24	0.00	0.05	6.56	3.20	3.17	6.36
2/9/2020	0.00	5.47	5.47	0.23	0.00	0.09	6.81	3.28	3.22	6.50
2/10/2020	0.00	6.89	6.89	0.22	0.00	0.08	6.48	3.17	3.10	6.28
2/11/2020	0.00	7.09	7.09	0.22	0.00	0.08	6.50	3.27	3.24	6.52
2/12/2020	0.00	6.90	6.90	0.24	0.00	0.05	7.07	3.28	3.24	6.53
2/13/2020	0.00	6.80	6.80	0.28	0.00	0.04	6.63	3.30	3.24	6.55
2/14/2020	0.00	6.82	6.82	0.29	0.00	0.04	6.94	3.21	3.16	6.37
2/15/2020	0.00	6.83	6.83	0.26	0.00	0.05	6.92	3.34	3.31	6.65
2/16/2020	0.00	6.63	6.63	0.23	0.00	0.07	6.83	3.32	3.32	6.64
2/17/2020	0.00	6.85	6.85	0.25	0.00	0.08	7.10	3.48	3.27	6.76
2/18/2020	0.00	7.06	7.06	0.24	0.00	0.08	6.91	3.52	3.31	6.83
2/19/2020	0.00	7.03	7.03	0.26	0.00	0.08	7.48	3.66	3.50	7.16
2/20/2020	0.00	7.50	7.50	0.27	0.00	0.07	7.01	3.44	3.28	6.72
2/21/2020	0.00	7.67	7.67	0.26	0.00	0.08	7.10	3.55	3.37	6.92
2/22/2020	0.00	7.09	7.09	0.25	0.00	0.06	7.30	3.53	3.39	6.91
2/23/2020	0.00	7.09	7.09	0.29	0.00	0.04	7.59	3.84	3.65	7.49
2/24/2020	0.00	7.13	7.13	0.28	0.00	0.04	7.61	3.73	3.57	7.31
2/25/2020	0.00	7.86	7.86	0.31	0.00	0.04	7.46	3.69	3.51	7.20
2/26/2020	0.00	7.43	7.43	0.30	0.00	0.04	7.18	3.50	3.34	6.84
2/27/2020	0.00	6.90	6.90	0.28	0.00	0.04	6.98	3.49	3.34	6.84
2/28/2020	0.00	6.94	6.94	0.27	0.00	0.05	7.43	3.64	3.49	7.12
2/29/2020	0.00	7.64	7.64	0.26	0.00	0.07	7.60	3.69	3.54	7.22
Total	0.00	200.31	200.31	7.46	0.00	1.62	201.24	98.24	95.39	193.63
Avg	0.00	6.91	6.91	0.26	0.00	0.06	6.94	3.39	3.29	6.68
Min	0.00	5.47	5.47	0.22	0.00	0.04	6.31	3.08	3.05	6.13
Max	0.00	7.86	7.86	0.31	0.00	0.09	7.61	3.84	3.65	7.49



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	
2/1/2020	4.33	7.91	1.38	2.33	0.10	0.46	Negative	Negative
2/2/2020	4.25	7.92	1.30	1.88	0.10	0.49	Negative	Negative
2/3/2020	4.24	7.92	1.19	2.36	0.10	0.50	Negative	Negative
2/4/2020	4.18	7.93	1.03	1.83	0.10	0.44	Negative	Negative
2/5/2020	4.50	7.95	1.61	13.63	0.10	0.38	Negative	Negative
2/6/2020	4.53	7.94	1.27	7.66	0.09	0.39	Negative	Negative
2/7/2020	4.43	8.00	0.87	2.94	0.10	0.32	Negative	Negative
2/8/2020	4.42	8.02	4.38	15.20	0.10	0.34	Negative	Negative
2/9/2020	4.43	7.99	5.47	28.93	0.09	0.47	Negative	Negative
2/10/2020	4.33	8.00	2.48	8.42	0.09	0.46	Negative	Negative
2/11/2020	4.27	7.99	1.27	2.71	0.09	0.60	Negative	Negative
2/12/2020	4.31	8.01	0.97	2.20	0.09	0.50	Negative	Negative
2/13/2020	4.28	8.02	0.96	2.22	0.10	0.44	Negative	Negative
2/14/2020	4.21	8.03	0.87	2.06	0.09	0.43	Negative	Negative
2/15/2020	4.52	8.01	3.80	9.10	0.10	0.45	Negative	Negative
2/16/2020	4.62	8.02	1.58	5.46	0.10	0.40	Negative	Negative
2/17/2020	4.42	8.03	1.15	2.93	0.10	0.37	Negative	Negative
2/18/2020	4.20	8.05	1.14	3.97	0.10	0.30	Negative	Negative
2/19/2020	4.12	8.04	0.81	2.74	0.09	0.41	Negative	Negative
2/20/2020	4.01	8.03	0.81	4.95	0.11	0.42	Negative	Negative
2/21/2020	4.00	8.02	0.52	1.53	0.11	0.54	Negative	Negative
2/22/2020	3.99	8.02	0.54	0.99	0.12	0.56	Negative	Negative
2/23/2020	3.94	8.02	0.64	2.68	0.12	0.56	Negative	Negative
2/24/2020	3.86	8.02	0.51	1.71	0.11	0.59	Negative	Negative
2/25/2020	3.87	8.02	0.43	1.36	0.10	0.58	Negative	Negative
2/26/2020	3.88	8.02	0.36	0.90	0.11	0.56	Negative	Negative
2/27/2020	4.14	8.01	5.78	36.66	0.09	0.47	Negative	Negative
2/28/2020	4.55	8.00	13.48	75.79	0.09	0.28	Negative	Negative
2/29/2020	4.57	7.98	5.22	65.99	0.09	0.76	Negative	Negative

Avg	4.3	8.00	2.13	10.73	0.10	0.46	NA	NA
Min	3.9	7.91	0.36	0.90	0.09	0.28	NA	NA
Max	4.6	8.05	13.48	75.79	0.12	0.76	NA	NA



Finished Water Analysis																		
Date	Temp	pH	Phosphate	Fluoride		Free Cl ₂	Alkalinity (as CaCO ₃)		Chloride	Sulfate	Calcium (as CaCO ₃)	Dissolved Oxygen	Conductivity	Langelier Saturation Index	Chloride: Sulfate Mass Ratio	Larson-Skold Index	Bacti	
	Average	Average	Average	Tap	Dist	Average	Carbonate	Bicarbonate	Grab	Grab	Grab	Grab	Grab				Positive/Negative	
	°C		mg/L	mg/L		mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	uS/cm				Total Coliform	E. coli
	AIT-4040-1	AIT-4050-2	AIT-4040-5	Lab		AIT-4050-1	Lab		Lab	Lab	Lab	Lab	Lab	Calculated			Lab	
2/1/2020	4.9	7.58	3.44	0.8		1.01	0	75	10	9	72	13.9	227	-1.02	1.08	0.38	Negative	Negative
2/2/2020	4.8	7.58	3.45	0.79		1.02	0	75	10	8	72	13.4	229	-1.02	1.21	0.36	Negative	Negative
2/3/2020	4.8	7.57	3.44	0.79	0.75	1.02	0	76	10	8	76	13.7	231	-1.00	1.20	0.35	Negative	Negative
2/4/2020	4.9	7.60	3.37	0.80		1.00	0	75	10	8	78	13.7	228	-0.96	1.25	0.37	Negative	Negative
2/5/2020	4.8	7.60	3.43	0.80		1.02	0	76	10	9	74	13.3	230	-0.99	1.11	0.38	Negative	Negative
2/6/2020	4.8	7.60	3.54	0.78		1.00	0	75	9	11	72	12.1	230	-1.00	0.82	0.40	Negative	Negative
2/7/2020	4.8	7.63	3.46	0.82		1.00	0	75	11	12	74	12.4	230	-0.96	0.92	0.46	Negative	Negative
2/8/2020	4.8	7.66	3.44	0.78		1.01	0	75	10	11	72	12.5	234	-0.94	0.91	0.42	Negative	Negative
2/9/2020	4.7	7.66	3.43	0.77		1.01	0	78	9	12	76	13.4	238	-0.90	0.78	0.41	Negative	Negative
2/10/2020	4.7	7.66	3.43	0.79	0.74	1.01	0	78	10	10	78	12.7	237	-0.89	1.00	0.39	Negative	Negative
2/11/2020	4.6	7.67	3.41	0.79		1.02	0	74	9	15	74	12.4	237	-0.93	0.61	0.47	Negative	Negative
2/12/2020	4.6	7.67	3.41	0.78		1.04	0	80	10	14	73	9.2	227	-0.89	0.71	0.44	Negative	Negative
2/13/2020	4.5	7.67	3.40	0.79		1.01	0	77	10	12	78	13.4	230	-0.89	0.83	0.42	Negative	Negative
2/14/2020	4.4	7.68	3.41	0.78		1.02	0	76	10	10	76	13.4	230	-0.90	1.00	0.40	Negative	Negative
2/15/2020	4.3	7.69	3.41	0.79		1.00	0	77	10	9	76	13.8	233	-0.89	1.09	0.37	Negative	Negative
2/16/2020	4.3	7.69	3.40	0.79		1.02	0	77	10	9	76	13.4	237	-0.89	1.11	0.37	Negative	Negative
2/17/2020	4.3	7.70	3.39	0.77		1.00	0	79	10	11	79	14.2	240	-0.85	0.91	0.40	Negative	Negative
2/18/2020	4.3	7.72	3.39	0.78	0.74	1.01	0	80	11	10	76	14.2	234	-0.85	1.05	0.39	Negative	Negative
2/19/2020	4.4	7.73	3.39	0.78		1.03	0	79	9	13	79	13.7	245	-0.82	0.72	0.41	Negative	Negative
2/20/2020	4.3	7.73	3.39	0.79		1.02	0	78	9	11	78	13.2	243	-0.84	0.85	0.39	Negative	Negative
2/21/2020	4.2	7.63	3.39	0.80		1.03	0	76	10	11	76	13.8	240	-0.96	0.91	0.41	Negative	Negative
2/22/2020	4.2	7.56	3.39	0.80		1.04	0	77	10	8	76	14.1	226	-1.02	1.23	0.35	Negative	Negative
2/23/2020	4.3	7.55	3.38	0.81		1.03	0	75	9	12	72	13.2	231	-1.06	0.75	0.41	Negative	Negative
2/24/2020	4.3	7.54	3.38	0.81	0.78	1.04	0	75	10	10	70	13.2	229	-1.08	0.95	0.39	Negative	Negative
2/25/2020	4.3	7.54	3.40	0.81		1.02	0	75	8	10	72	13.5	226	-1.07	0.82	0.36	Negative	Negative
2/26/2020	4.4	7.55	3.40	0.82		1.02	0	70	9	10	71	13.5	210	-1.09	0.88	0.41	Negative	Negative
2/27/2020	4.4	7.56	3.40	0.79		1.02	0	75	9	9	76	13.3	223	-1.02	1.00	0.36	Negative	Negative
2/28/2020	4.4	7.57	3.40	0.77		1.01	0	76	10	9	78	13.5	229	-1.00	1.06	0.37	Negative	Negative
2/29/2020	4.4	7.57	3.39	0.78		1.04	0	76	10	9	76	14.1	229	-1.01	1.11	0.38	Negative	Negative
Avg	4.5	7.63	3.41	0.79	0.75	1.02	0	76	10	10	75	13.2	231	-0.96	0.96	0.39	NA	NA
Min	4.2	7.54	3.37	0.77	0.74	1.00	0	70	8	8	70	9.2	210	-1.09	0.61	0.35	NA	NA
Max	4.9	7.73	3.54	0.82	0.78	1.04	0	80	11	15	79	14.2	245	-0.82	1.25	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	
2/1/2020	1.38	2.33	1.02	1.22	0.023	0.023	96	0	0.0	0.018
2/2/2020	1.30	1.88	1.05	1.26	0.023	0.023	96	0	0.0	0.018
2/3/2020	1.19	2.36	1.23	1.16	0.023	0.023	96	0	0.0	0.018
2/4/2020	1.03	1.83	1.20	1.05	0.023	0.023	96	0	0.0	0.021
2/5/2020	1.61	13.63	0.99	1.17	0.023	0.023	96	0	0.0	0.018
2/6/2020	1.27	7.66	1.13	1.13	0.022	0.023	96	0	0.0	0.017
2/7/2020	0.87	2.94	1.37	1.07	0.021	0.021	96	0	0.0	0.016
2/8/2020	4.38	15.20	1.08	1.13	0.021	0.021	96	0	0.0	0.016
2/9/2020	5.47	28.93	0.94	2.81	0.021	0.021	96	0	0.0	0.017
2/10/2020	2.48	8.42	0.97	2.75	0.021	0.021	96	0	0.0	0.016
2/11/2020	1.27	2.71	0.93	2.22	0.021	0.021	96	0	0.0	0.016
2/12/2020	0.97	2.20	1.38	1.58	0.021	0.021	96	0	0.0	0.016
2/13/2020	0.96	2.22	1.36	1.28	0.021	0.021	96	0	0.0	0.016
2/14/2020	0.87	2.06	1.04	1.06	0.021	0.021	96	0	0.0	0.018
2/15/2020	3.80	9.10	0.88	2.14	0.021	0.021	96	0	0.0	0.017
2/16/2020	1.58	5.46	0.77	2.05	0.021	0.021	96	0	0.0	0.016
2/17/2020	1.15	2.93	1.25	1.60	0.021	0.021	96	0	0.0	0.016
2/18/2020	1.14	3.97	1.25	1.27	0.021	0.021	96	0	0.0	0.017
2/19/2020	0.81	2.74	1.26	1.03	0.021	0.021	96	0	0.0	0.016
2/20/2020	0.81	4.95	1.00	0.85	0.021	0.021	96	0	0.0	0.016
2/21/2020	0.52	1.53	0.92	0.67	0.021	0.021	96	0	0.0	0.016
2/22/2020	0.54	0.99	0.82	0.58	0.021	0.021	96	0	0.0	0.016
2/23/2020	0.64	2.68	1.14	0.60	0.021	0.021	96	0	0.0	0.016
2/24/2020	0.51	1.71	1.29	0.58	0.021	0.021	96	0	0.0	0.016
2/25/2020	0.43	1.36	0.97	0.49	0.021	0.021	96	0	0.0	0.016
2/26/2020	0.36	0.90	1.76	0.43	0.021	0.021	96	0	0.0	0.016
2/27/2020	5.78	36.66	0.93	1.83	0.021	0.021	96	0	0.0	0.016
2/28/2020	13.48	75.79	0.75	7.83	0.021	0.021	96	0	0.0	0.016
2/29/2020	5.22	65.99	0.87	6.49	0.021	0.021	96	0	0.0	0.016
Avg	2.13	10.73	1.09	1.70	0.021	0.021	96	0	0.0	0.017
Min	0.36	0.90	0.75	0.43	0.021	0.021	96	0	0.0	0.016
Max	13.48	75.79	1.76	7.83	0.023	0.023	96	0	0.0	0.021



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

Date	Membrane LRV/Integrity/Max Turbidity																									
	Membrane 1			Membrane 2			Membrane 3			Membrane 4			Membrane 5			Membrane 6			Membrane 7			Membrane 8				
	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity	LRV	Integrity	Turbidity		
	Average		Max	Average		Max	Average		Max	Average		Max	Average		Max	Average		Max	Average		Max	Average		Max		
psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU	psi/min	Pass/Fail	NTU
2/1/2020	4.52	PASS	0.022	4.48	PASS	0.029	4.37	PASS	0.020	4.47	PASS	0.019	4.44	PASS	0.022	4.51	PASS	0.021	4.52	PASS	0.025	4.37	PASS	0.022		
2/2/2020	4.51	PASS	0.019	4.51	PASS	0.029	4.42	PASS	0.020	4.47	PASS	0.017	4.40	PASS	0.022	4.50	PASS	0.020	4.49	PASS	0.026	4.36	PASS	0.022		
2/3/2020	4.46	PASS	0.020	4.46	PASS	0.027	4.40	PASS	0.019	4.48	PASS	0.017	4.39	PASS	0.022	4.51	PASS	0.020	4.45	PASS	0.026	4.37	PASS	0.022		
2/4/2020	4.53	PASS	0.022	4.46	PASS	0.027	4.41	PASS	0.022	4.48	PASS	0.017	4.38	PASS	0.022	4.53	PASS	0.021	4.45	PASS	0.026	4.37	PASS	0.022		
2/5/2020	4.52	PASS	0.019	4.48	PASS	0.028	4.43	PASS	0.020	4.47	PASS	0.016	4.38	PASS	0.022	4.59	PASS	0.020	4.45	PASS	0.026	4.36	PASS	0.022		
2/6/2020	4.53	PASS	0.018	4.47	PASS	0.028	4.50	PASS	0.020	4.52	PASS	0.019	4.36	PASS	0.024	4.61	PASS	0.020	4.48	PASS	0.025	4.36	PASS	0.022		
2/7/2020	4.47	PASS	0.018	4.50	PASS	0.030	4.40	PASS	0.020	4.46	PASS	0.017	4.36	PASS	0.022	4.59	PASS	0.021	4.56	PASS	0.025	4.36	PASS	0.022		
2/8/2020	4.50	PASS	0.019	4.48	PASS	0.029	4.40	PASS	0.020	4.44	PASS	0.016	4.36	PASS	0.022	4.58	PASS	0.021	4.60	PASS	0.026	4.36	PASS	0.022		
2/9/2020	4.44	PASS	0.020	4.48	PASS	0.028	4.39	PASS	0.020	4.47	PASS	0.017	4.37	PASS	0.022	4.56	PASS	0.021	4.45	PASS	0.026	4.36	PASS	0.022		
2/10/2020	4.48	PASS	0.022	4.46	PASS	0.028	4.37	PASS	0.020	4.47	PASS	0.017	4.36	PASS	0.023	4.56	PASS	0.022	4.46	PASS	0.029	4.36	PASS	0.022		
2/11/2020	4.50	PASS	0.018	4.45	PASS	0.033	4.35	PASS	0.020	4.51	PASS	0.021	4.37	PASS	0.025	4.59	PASS	0.022	4.45	PASS	0.024	4.35	PASS	0.022		
2/12/2020	4.53	PASS	0.018	4.45	PASS	0.030	4.38	PASS	0.023	4.51	PASS	0.019	4.33	PASS	0.021	4.73	PASS	0.022	4.44	PASS	0.025	4.34	PASS	0.024		
2/13/2020	4.65	PASS	0.018	4.48	PASS	0.029	4.38	PASS	0.025	4.58	PASS	0.018	4.37	PASS	0.021	4.57	PASS	0.023	4.50	PASS	0.026	4.36	PASS	0.021		
2/14/2020	4.60	PASS	0.019	4.53	PASS	0.028	4.43	PASS	0.020	4.47	PASS	0.016	4.36	PASS	0.021	4.56	PASS	0.022	4.56	PASS	0.026	4.36	PASS	0.023		
2/15/2020	4.52	PASS	0.019	4.51	PASS	0.029	4.41	PASS	0.021	4.41	PASS	0.017	4.37	PASS	0.021	4.55	PASS	0.022	4.45	PASS	0.026	4.35	PASS	0.022		
2/16/2020	4.53	PASS	0.022	4.47	PASS	0.029	4.35	PASS	0.020	4.48	PASS	0.017	4.39	PASS	0.021	4.55	PASS	0.022	4.46	PASS	0.026	4.32	PASS	0.022		
2/17/2020	4.70	PASS	0.020	4.44	PASS	0.031	4.34	PASS	0.021	4.47	PASS	0.016	4.35	PASS	0.021	4.51	PASS	0.022	4.45	PASS	0.026	4.34	PASS	0.022		
2/18/2020	4.53	PASS	0.019	4.49	PASS	0.031	4.35	PASS	0.022	4.42	PASS	0.017	4.34	PASS	0.021	4.55	PASS	0.022	4.43	PASS	0.026	4.34	PASS	0.022		
2/19/2020	4.47	PASS	0.019	4.49	PASS	0.034	4.36	PASS	0.020	4.47	PASS	0.017	4.31	PASS	0.021	4.53	PASS	0.022	4.43	PASS	0.025	4.33	PASS	0.023		
2/20/2020	4.47	PASS	0.019	4.46	PASS	0.031	4.37	PASS	0.022	4.58	PASS	0.016	4.33	PASS	0.021	4.50	PASS	0.021	4.40	PASS	0.026	4.36	PASS	0.022		
2/21/2020	4.68	PASS	0.171	4.44	PASS	0.031	4.36	PASS	0.020	4.65	PASS	0.016	4.33	PASS	0.021	4.52	PASS	0.020	4.43	PASS	0.026	4.36	PASS	0.022		
2/22/2020	4.49	PASS	0.018	4.45	PASS	0.030	4.38	PASS	0.020	4.61	PASS	0.016	4.34	PASS	0.021	4.53	PASS	0.021	4.42	PASS	0.026	4.36	PASS	0.022		
2/23/2020	4.48	PASS	0.021	4.46	PASS	0.031	4.39	PASS	0.020	4.61	PASS	0.016	4.34	PASS	0.021	4.52	PASS	0.021	4.44	PASS	0.026	4.35	PASS	0.022		
2/24/2020	4.69	PASS	0.018	4.47	PASS	0.032	4.46	PASS	0.020	4.60	PASS	0.016	4.33	PASS	0.027	4.52	PASS	0.021	4.45	PASS	0.026	4.35	PASS	0.022		
2/25/2020	4.50	PASS	0.018	4.46	PASS	0.029	4.43	PASS	0.020	4.59	PASS	0.016	4.35	PASS	0.022	4.52	PASS	0.021	4.42	PASS	0.026	4.35	PASS	0.022		
2/26/2020	4.46	PASS	0.018	4.46	PASS	0.030	4.36	PASS	0.019	4.59	PASS	0.016	4.33	PASS	0.020	4.52	PASS	0.021	4.48	PASS	0.026	4.35	PASS	0.022		
2/27/2020	4.53	PASS	0.021	4.47	PASS	0.031	4.38	PASS	0.020	4.61	PASS	0.016	4.34	PASS	0.021	4.70	PASS	0.021	4.53	PASS	0.026	4.35	PASS	0.021		
2/28/2020	4.47	PASS	0.018	4.51	PASS	0.030	4.40	PASS	0.020	4.60	PASS	0.016	4.32	PASS	0.021	4.53	PASS	0.021	4.51	PASS	0.026	4.35	PASS	0.022		
2/29/2020	4.44	PASS	0.019	4.49	PASS	0.033	4.36	PASS	0.020	4.56	PASS	0.016	4.32	PASS	0.021	4.51	PASS	0.021	4.51	PASS	0.026	4.35	PASS	0.023		
Avg	4.53		0.025	4.47		0.030	4.39		0.020	4.52		0.017	4.36		0.022	4.55		0.021	4.47		0.026	4.35		0.022		
Min	4.44		0.018	4.44		0.027	4.34		0.019	4.41		0.016	4.31		0.020	4.50		0.020	4.40		0.024	4.32		0.021		
Max	4.70		0.171	4.53		0.034	4.50		0.025	4.65		0.021	4.44		0.027	4.73		0.023	4.60		0.029	4.37		0.024		

*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					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
2/1/2020	6.6	0.46	0.36	0.75	1.10	1.01	3.40	3.44	0.10	0.62	0.80
2/2/2020	6.6	0.49	0.37	0.74	1.11	1.02	3.40	3.45	0.10	0.62	0.79
2/3/2020	6.5	0.50	0.40	0.74	1.10	1.02	3.40	3.44	0.10	0.62	0.79
2/4/2020	6.3	0.44	0.38	0.81	1.09	1.00	3.43	3.37	0.10	0.62	0.80
2/5/2020	6.7	0.38	0.35	0.83	1.10	1.02	3.40	3.43	0.10	0.60	0.80
2/6/2020	6.5	0.39	0.33	0.84	1.09	1.00	3.31	3.54	0.09	0.60	0.78
2/7/2020	6.5	0.32	0.29	0.92	1.09	1.00	3.25	3.46	0.10	0.60	0.82
2/8/2020	6.6	0.34	0.28	0.90	1.10	1.01	3.24	3.44	0.10	0.59	0.78
2/9/2020	6.8	0.47	0.28	0.87	1.11	1.01	3.24	3.43	0.09	0.59	0.77
2/10/2020	6.5	0.46	0.32	0.86	1.10	1.01	3.23	3.43	0.09	0.59	0.79
2/11/2020	6.5	0.60	0.39	0.80	1.12	1.02	3.22	3.41	0.09	0.59	0.79
2/12/2020	7.1	0.50	0.43	0.74	1.11	1.04	3.22	3.41	0.09	0.59	0.78
2/13/2020	6.6	0.44	0.41	0.79	1.08	1.01	3.22	3.40	0.10	0.59	0.79
2/14/2020	6.9	0.43	0.38	0.79	1.10	1.02	3.22	3.41	0.09	0.59	0.78
2/15/2020	6.9	0.45	0.36	0.84	1.09	1.00	3.22	3.41	0.10	0.59	0.79
2/16/2020	6.8	0.40	0.37	0.86	1.11	1.02	3.22	3.40	0.10	0.59	0.79
2/17/2020	7.1	0.37	0.30	0.90	1.10	1.00	3.22	3.39	0.10	0.59	0.77
2/18/2020	6.9	0.30	0.28	0.97	1.11	1.01	3.22	3.39	0.10	0.59	0.78
2/19/2020	7.5	0.41	0.28	0.89	1.13	1.03	3.22	3.39	0.09	0.59	0.78
2/20/2020	7.0	0.42	0.30	0.87	1.11	1.02	3.22	3.39	0.11	0.59	0.79
2/21/2020	7.1	0.54	0.37	0.81	1.12	1.03	3.22	3.39	0.11	0.59	0.80
2/22/2020	7.3	0.56	0.42	0.75	1.11	1.04	3.22	3.39	0.12	0.59	0.80
2/23/2020	7.6	0.56	0.45	0.75	1.11	1.03	3.22	3.38	0.12	0.59	0.81
2/24/2020	7.6	0.59	0.47	0.70	1.11	1.04	3.23	3.38	0.11	0.59	0.81
2/25/2020	7.5	0.58	0.49	0.70	1.10	1.02	3.24	3.40	0.10	0.59	0.81
2/26/2020	7.2	0.56	0.49	0.72	1.09	1.02	3.24	3.40	0.11	0.59	0.82
2/27/2020	7.0	0.47	0.46	0.79	1.09	1.02	3.24	3.40	0.09	0.59	0.79
2/28/2020	7.4	0.28	0.32	0.98	1.09	1.01	3.24	3.40	0.09	0.59	0.77
2/29/2020	7.6	0.76	0.41	0.68	1.13	1.04	3.24	3.39	0.09	0.59	0.78
Avg	6.9	0.46	0.37	0.81	1.10	1.02	3.26	3.41	0.10	0.59	0.79
Min	6.3	0.28	0.28	0.68	1.08	1.00	3.22	3.37	0.09	0.59	0.77
Max	7.6	0.76	0.49	0.98	1.13	1.04	3.43	3.54	0.12	0.62	0.82



Disinfection CT														
	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
2/1/2020	53.1	2,355	0.46	1094	29.0	21.9	6.3	552	0.97	534.30	1,628.75	4.3	12.00	Y
2/2/2020	51.2	2,443	0.49	1196	28.9	23.9	6.4	567	1.00	568.07	1,764.51	4.2	12.00	Y
2/3/2020	44.1	2,835	0.50	1428	28.9	25.8	6.1	612	0.96	588.73	2,016.43	4.2	12.00	Y
2/4/2020	39.1	3,197	0.44	1407	28.9	20.2	6.2	539	0.98	529.26	1,936.31	4.2	12.00	Y
2/5/2020	39.2	3,189	0.38	1202	29.0	23.6	6.4	560	1.00	557.50	1,759.23	4.5	12.00	Y
2/6/2020	43.7	2,862	0.39	1114	28.9	23.8	6.3	578	1.00	575.24	1,689.60	4.5	12.00	Y
2/7/2020	41.2	3,033	0.32	958	29.0	24.0	6.2	589	1.00	586.26	1,544.39	4.4	12.00	Y
2/8/2020	53.1	2,354	0.34	796	29.0	21.6	6.4	545	1.00	542.41	1,338.66	4.4	12.00	Y
2/9/2020	50.8	2,461	0.47	1155	28.9	21.4	6.5	531	0.98	521.29	1,676.13	4.4	12.00	Y
2/10/2020	44.9	2,786	0.46	1289	28.9	23.8	6.3	576	0.99	569.93	1,858.95	4.3	12.00	Y
2/11/2020	39.7	3,147	0.60	1900	28.9	17.7	6.5	490	0.99	484.62	2,384.84	4.3	12.00	Y
2/12/2020	40.2	3,113	0.50	1568	29.0	14.4	6.5	456	1.01	459.84	2,027.35	4.3	12.00	Y
2/13/2020	40.8	3,069	0.44	1355	28.9	20.3	6.5	515	0.99	509.64	1,864.99	4.3	12.00	Y
2/14/2020	40.3	3,105	0.43	1337	28.9	14.7	6.4	469	0.98	460.24	1,796.85	4.2	12.00	Y
2/15/2020	55.0	2,273	0.45	1030	29.0	24.2	6.6	548	0.98	538.39	1,567.96	4.5	12.00	Y
2/16/2020	52.2	2,395	0.40	964	28.9	24.0	6.6	546	1.00	543.92	1,507.49	4.6	12.00	Y
2/17/2020	45.2	2,765	0.37	1029	29.0	25.0	6.8	547	0.98	537.32	1,565.94	4.4	12.00	Y
2/18/2020	41.2	3,034	0.30	925	28.9	21.1	6.8	501	0.99	495.90	1,421.35	4.2	12.00	Y
2/19/2020	41.1	3,040	0.41	1236	29.0	21.8	7.2	486	1.00	487.69	1,723.53	4.1	12.00	Y
2/20/2020	39.9	3,134	0.42	1323	28.9	23.6	6.7	535	1.00	536.90	1,859.58	4.0	12.00	Y
2/21/2020	40.7	3,071	0.54	1646	28.9	22.7	6.9	512	1.01	516.90	2,163.16	4.0	12.00	Y
2/22/2020	54.1	2,314	0.56	1284	29.0	23.6	6.9	521	1.02	529.33	1,813.80	4.0	12.00	Y
2/23/2020	53.7	2,329	0.56	1300	29.0	22.6	7.5	472	1.02	479.23	1,779.47	3.9	12.00	Y
2/24/2020	48.1	2,598	0.59	1537	28.5	20.9	7.3	463	1.01	466.92	2,004.08	3.9	12.00	Y
2/25/2020	40.1	3,120	0.58	1811	29.0	23.5	7.2	499	1.00	500.20	2,311.09	3.9	12.00	Y
2/26/2020	39.5	3,165	0.56	1762	28.9	23.3	6.8	524	1.00	525.41	2,287.70	3.9	12.00	Y
2/27/2020	40.7	3,072	0.47	1455	29.0	24.0	6.8	531	1.00	528.61	1,983.91	4.1	12.00	Y
2/28/2020	42.6	2,937	0.28	809	29.0	24.9	7.1	519	0.99	513.07	1,321.78	4.6	12.00	Y
2/29/2020	53.7	2,330	0.76	1760	29.0	24.4	7.2	507	1.00	508.26	2,267.81	4.6	12.00	Y
Avg	45.2	2,811	0.46	1,299	28.9	22.3	6.7	527	0.99	523.98	1,822.95	4.3	12.00	NA
Min	39.1	2,273	0.28	796	28.5	14.4	6.1	456	0.96	459.84	1,321.78	3.9	12.00	NA
Max	55.0	3,197	0.76	1,900	29.0	25.8	7.5	612	1.02	588.73	2,384.84	4.6	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	22	24	26	29	30	32
2/1/2020																								
2/2/2020																								
2/3/2020																								0.93
2/4/2020			0.74	0.67	0.61	0.93																0.41		
2/5/2020									0.62	0.43	0.65	0.59	0.31	0.82	0.49									
2/6/2020	0.46															0.57	0.74	0.87	0.73	0.62				
2/7/2020																								
2/8/2020																								
2/9/2020																								
2/10/2020																								0.91
2/11/2020			0.78	0.61	0.59	0.89	0.62	0.70	0.58	0.30	0.44	0.65	0.33	0.83	0.47	0.67	0.80	0.87	0.73	0.70				
2/12/2020																								
2/13/2020									0.70	0.34	0.53	0.72	0.35	0.95	0.49						0.78		0.59	
2/14/2020																								
2/15/2020																								
2/16/2020																								
2/17/2020																								
2/18/2020					0.64	0.99		1.00																0.93
2/19/2020									0.67	0.45	0.59	0.63	0.35	0.83	0.51									
2/20/2020																								
2/21/2020																								
2/22/2020																								
2/23/2020																								
2/24/2020																								1.02
2/25/2020									0.68	0.38	0.63	0.71	0.49	0.85	0.57									
2/26/2020																								
2/27/2020									0.70	0.39	0.72	0.66	0.48	0.94	0.64									
2/28/2020																								
2/29/2020																								
Average	0.46				0.75			0.77						0.58						0.73		0.78		0.95
Min	0.46				0.59			0.62						0.30						0.57		0.78		0.91
Max	0.46				0.99			1.00						0.95						0.87		0.78		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 | 22. Duce's Char House, 432 N. Tuscola Rd |
| 5. 7-11, 3543 S. Old Kawkawlin Rd. | 14. Number 4 Fire Station, 212 S. Dean St | 24. Little Learners Daycare, 1694 Cass Ave. |
| 6. Admiral Petroleum, 314 S Euclid Ave. | 15. Number 5 Fire Station, 1209 Smith St | 26. Wieland Contracting, 2443 S Mackinaw Rd |
| 7. Sequin Lumber, 3881 Euclid Ave | 16. Bay City Hall, 301 Washington Ave | 29. Sample Station, 2515 S. 11 Mile Rd |
| 9. B's Boutique, 2981 Midland Rd | 17. Skipper Buds Marina, 1809 S Water St | 30. Sample Station, 340 W. Beaver Rd |
| 10. Little Caesars, 3475 E North Union Rd | 18. Bay Valley Animal Hospital 6015 WS Saginaw Rd | 32. Essexville City Hall, 1107 Woodside Ave |

Distribution System Monitoring

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

WSSN: Date	2465 Fraser Twp.		2960 Hampton Twp.			3565 Kawkawlin Twp.			3570 Kawkawlin Met.		4280 Merritt Twp.		4440 Monitor Twp.			5330 City Pinconning		5335 Pinconning Twp.		5540 Portsmouth	7125 Williams Twp.			7134 Wisner	
	34	35	37	38	39	40	41	42	43	45	46	48	49	52	55	58	59	61	63	65	68	69	70	72	
	2/1/2020																								
2/2/2020																									
2/3/2020			0.66	0.67	0.58																	0.66	0.68	0.56	
2/4/2020																									
2/5/2020																									
2/6/2020	0.83	0.91				0.96	0.78		0.78	0.44					0.71		0.72	0.63	0.60					0.52	
2/7/2020																									
2/8/2020																									
2/9/2020																									
2/10/2020																									
2/11/2020			0.63	0.58	0.69					0.55			0.55	0.34	0.50										
2/12/2020																									
2/13/2020								0.86	0.71						0.68							1.02	0.64	0.39	
2/14/2020																									
2/15/2020																									
2/16/2020																									
2/17/2020																									
2/18/2020													0.94	0.74	0.73										
2/19/2020			0.77	0.68	0.64																				
2/20/2020																									
2/21/2020																									
2/22/2020																									
2/23/2020																									
2/24/2020			0.68																						
2/25/2020																									
2/26/2020																									
2/27/2020																									
2/28/2020																									
2/29/2020																									
Average	0.87		0.66			0.87			0.75	0.50			0.63		0.70		0.68		0.60		0.66			0.52	
Min	0.83		0.58			0.78			0.71	0.44			0.34		0.68		0.63		0.60		0.39			0.52	
Max	0.91		0.77			0.96			0.78	0.55			0.94		0.71		0.72		0.60		1.02			0.52	



MONITORING STATION ADDRESSES

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

- 43. Kawkawlin Party Store, 105 Grove St
- 45. Kawkawlin Restaurant, 103 S Huron Rd
- 46. John's Bar, 1476 S Tuscola Rd
- 48. Tool Shed Bar, 12 W Munger Rd
- 49. Wilder Rd Party Store, 2951 E Wilder Rd
- 52. Monitor Twp. Elevated Tank, 1611 E. Midland Rd
- 55. Auburn Fertilizer, 4640 S 7 Mile Rd
- 58. Pinconning City Hall, 208 S Manitou St

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

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			
				February, 2020			
COUNTY	COMMUNITY	WSSN NUMBER	DISTRIBUTION SYSTEM SAMPLES				
			avg free cl2 mg/L	NUMBER REQUIRED	NUMBER COLLECTED	NUMBER POSITIVE	NUMBER REPEAT SAMPLES
Tuscola	Akron	0072	0.46	1	1	0	0
BAY	Bangor Township	0390	0.75	10	10	0	0
BAY	Bangor-Monitor Dist.	0400	0.77	3	3	0	0
BAY	Bay City	0470	0.58	40	42	0	0
BAY	Bay County (Frankl./Monitor/Portsm.)	0485	0.73	10	10	0	0
BAY	Beaver Road Area	0517	0.78	1	1	0	0
BAY	Beaver Township	0518	0.50	2	2	0	0
BAY	Essexville	2180	0.95	4	4	0	0
BAY	Fraser Township	2465	0.87	2	2	0	0
BAY	Hampton Township	2960	0.66	10	10	0	0
BAY	Kawkawlin Township	3565	0.87	3	3	0	0
BAY	Kawkawlin Metro Dist.	3570	0.75	2	2	0	0
BAY	Merritt Township	4280	0.50	2	2	0	0
BAY	Monitor Township	4440	0.63	6	6	0	0
BAY	City of Pinconning	5330	0.70	2	2	0	0
BAY	Pinconning Township	5335	0.68	2	2	0	0
BAY	Portsmouth Township	5540	0.60	1	1	0	0
BAY	Williams Township	7125	0.66	6	6	0	0
Tuscola	Wisner	7134	0.52	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%				

