

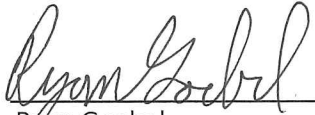
Bay Area WTP

Monthly Operations Report



November, 2020

Water Systems Serial Number: 0465



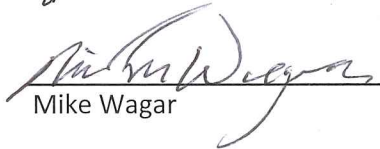
Ryan Goebel

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

November, 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	17.4	Millions of Gallons per Day
Treatment Rate, Maximum	7.6	Millions of Gallons per Day
Maximum Approved Transmembrane Pressure	22	PSI
Maximum Operating Transmembrane Pressure	15.12	PSI
Maximum Approved Flux Rate	36.25	gpd/sq.ft.
Maximum Operating Flux Rate	29.51	gpd/sq.ft.

Chemical Data

Sodium Hypochlorite on hand:	5,061	Gallons	Estimated Supply:	79.8	days
Caustic Soda on hand:	3,447	Gallons	Estimated Supply:	137.6	days
Corrosion Inhibitor on hand:	1,331	Gallons	Estimated Supply:	66.1	days
Hydrofluosilicic Acid on hand:	1,886	Gallons	Estimated Supply:	113.5	days
Aluminum Chlorohydrate on hand:	1,018	Gallons	Estimated Supply:	96.1	days
Sulfuric Acid on hand:	543	Gallons	Estimated Supply:	156.7	days
Sodium Bisulfite on hand:	688	Gallons	Estimated Supply:	98.7	days
Citric Acid on hand:	941	Gallons	Estimated Supply:	48.1	days
Cost of All Chemicals per Million Gallons:	80.19	Dollars			
Estimated Electrical Cost per Million Gallons:	95.17	Dollars			
Estimated Natural Gas Cost per Million Gallons:	5.62	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

Filter #2 was taken out of service at 7:30am on 11/4/20 for maintenance and went back online on Friday 11/6/20 at 1:40pm.
 Filter #2 was again taken out of service at 11:30pm on 11/6/20 for valve work and went back online Monday, 11/9/20 at 8:20am

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
11/1/2020	0.00	6.56	6.56	0.24	0.09	6.65	3.30	3.19	6.49
11/2/2020	0.00	6.71	6.71	0.23	0.10	6.77	3.25	3.16	6.41
11/3/2020	0.00	7.23	7.23	0.22	0.10	7.57	3.79	3.51	7.30
11/4/2020	0.00	7.14	7.14	0.22	0.08	6.24	2.99	2.87	5.86
11/5/2020	0.00	6.36	6.36	0.19	0.08	6.50	3.29	3.06	6.36
11/6/2020	0.00	5.72	5.72	0.22	0.08	6.15	2.96	2.78	5.75
11/7/2020	0.00	6.00	6.00	0.22	0.08	6.38	3.24	3.00	6.24
11/8/2020	0.00	6.87	6.87	0.19	0.08	6.26	3.07	2.87	5.93
11/9/2020	0.00	7.00	7.00	0.22	0.08	6.48	3.18	2.99	6.17
11/10/2020	0.00	6.53	6.53	0.24	0.08	6.75	3.35	3.12	6.47
11/11/2020	0.00	6.20	6.20	0.23	0.08	6.30	3.11	3.05	6.15
11/12/2020	0.00	5.87	5.87	0.23	0.07	6.39	3.09	3.01	6.10
11/13/2020	0.00	6.53	6.53	0.22	0.08	6.73	3.27	3.18	6.45
11/14/2020	0.00	7.15	7.15	0.21	0.08	6.64	3.14	3.08	6.22
11/15/2020	0.00	6.49	6.49	0.22	0.08	6.46	3.16	3.10	6.26
11/16/2020	0.00	6.83	6.83	0.22	0.08	6.47	3.17	3.10	6.26
11/17/2020	0.00	6.58	6.58	0.21	0.09	6.62	3.18	3.10	6.28
11/18/2020	0.00	6.41	6.41	0.21	0.08	6.66	3.24	3.17	6.41
11/19/2020	0.00	6.22	6.22	0.21	0.07	6.37	3.12	2.96	6.08
11/20/2020	0.00	6.90	6.90	0.22	0.08	6.38	3.12	2.94	6.06
11/21/2020	0.00	6.90	6.90	0.19	0.08	6.19	3.04	2.91	5.95
11/22/2020	0.00	5.94	5.94	0.20	0.08	6.63	3.22	2.99	6.20
11/23/2020	0.00	6.17	6.17	0.19	0.08	6.31	3.22	2.98	6.21
11/24/2020	0.00	6.86	6.86	0.19	0.08	6.49	3.21	3.00	6.21
11/25/2020	0.00	6.41	6.41	0.22	0.09	6.59	3.21	3.07	6.27
11/26/2020	0.00	6.70	6.70	0.25	0.08	6.56	3.23	3.05	6.28
11/27/2020	0.00	6.33	6.33	0.20	0.08	5.92	2.92	2.77	5.70
11/28/2020	0.00	5.93	5.93	0.22	0.08	6.10	2.96	2.83	5.79
11/29/2020	0.00	6.05	6.05	0.20	0.08	6.38	3.20	3.00	6.20
11/30/2020	0.00	6.13	6.13	0.22	0.08	6.50	3.21	2.97	6.18
Total	0.00	194.72	194.72	6.45	2.40	194.44	95.45	90.80	186.25
Avg	0.00	6.49	6.49	0.21	0.08	6.48	3.18	3.03	6.21
Min	0.00	5.72	5.72	0.19	0.07	5.92	2.92	2.77	5.70
Max	0.00	7.23	7.23	0.25	0.10	7.57	3.79	3.51	7.30



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	
11/1/2020	12.0	7.82	2.48	8.39	0.09	0.74	Negative	Negative
11/2/2020	11.8	7.83	1.97	15.00	0.10	0.72	Negative	Negative
11/3/2020	11.7	7.82	1.63	7.97	0.10	0.72	Negative	Negative
11/4/2020	11.5	7.84	1.43	7.09	0.09	0.67	Negative	Negative
11/5/2020	11.4	7.83	1.20	7.31	0.09	0.74	Negative	Negative
11/6/2020	11.4	7.83	0.78	3.29	0.09	0.77	Negative	Negative
11/7/2020	11.3	7.84	0.78	1.65	0.09	0.71	Negative	Negative
11/8/2020	11.4	7.83	0.73	2.54	0.09	0.71	Negative	Negative
11/9/2020	11.6	7.82	0.53	2.06	0.09	0.71	Negative	Negative
11/10/2020	11.6	7.85	0.54	5.80	0.09	0.56	Negative	Negative
11/11/2020	11.6	7.86	0.51	3.16	0.09	0.49	Negative	Negative
11/12/2020	11.8	7.87	0.31	1.04	0.09	0.49	Negative	Negative
11/13/2020	11.8	7.87	0.40	1.46	0.09	0.45	Negative	Negative
11/14/2020	11.8	7.87	0.51	1.69	0.09	0.47	Negative	Negative
11/15/2020	11.7	7.86	0.53	1.10	0.08	0.50	Negative	Negative
11/16/2020	11.5	7.87	0.57	2.24	0.09	0.47	Negative	Negative
11/17/2020	11.4	7.88	1.02	4.51	0.09	0.36	Negative	Negative
11/18/2020	11.3	7.90	2.14	13.52	0.09	0.35	Negative	Negative
11/19/2020	11.1	7.85	0.55	1.72	0.09	0.59	Negative	Negative
11/20/2020	11.0	7.85	0.44	1.36	0.09	0.60	Negative	Negative
11/21/2020	10.9	7.84	0.66	1.54	0.09	0.63	Negative	Negative
11/22/2020	10.8	7.84	0.54	2.68	0.09	0.67	Negative	Negative
11/23/2020	10.7	7.84	0.33	1.09	0.09	0.63	Negative	Negative
11/24/2020	10.6	7.84	0.27	0.96	0.09	0.59	Negative	Negative
11/25/2020	10.5	7.85	0.27	1.65	0.09	0.58	Negative	Negative
11/26/2020	10.3	7.86	0.28	1.62	0.09	0.57	Negative	Negative
11/27/2020	10.1	7.86	0.26	1.15	0.10	0.58	Negative	Negative
11/28/2020	10.0	7.84	0.33	1.45	0.10	0.64	Negative	Negative
11/29/2020	10.0	7.84	0.40	1.98	0.10	0.67	Negative	Negative
11/30/2020	9.9	7.84	0.34	1.64	0.09	0.65	Negative	Negative
Avg	11.1	7.85	0.76	3.62	0.09	0.60	NA	NA
Min	9.9	7.82	0.26	0.96	0.08	0.35	NA	NA
Max	12.0	7.90	2.48	15.00	0.10	0.77	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	Calculated	Lab			
	AIT-4040-1	AIT-4050-2	AIT-4040-5	Lab		AIT-4050-1	Lab		Lab	Lab	Lab	Lab	Lab		Total Coliform	E. coli		
11/1/2020	11.4	7.62	3.38	0.79		1.21	0	77	10	11	64	10.7	238	-0.85	0.91	0.41	Negative	Negative
11/2/2020	11.1	7.60	3.38	0.79	0.77	1.22	0	78	9	11	66	10.4	236	-0.86	0.82	0.38	Negative	Negative
11/3/2020	11.0	7.58	3.39	0.77		1.23	0	78	10	11	64	10.9	237	-0.89	0.91	0.40	Negative	Negative
11/4/2020	10.9	7.57	3.39	0.77		1.20	0	72	11	11	70	10.8	230	-0.90	1.00	0.46	Negative	Negative
11/5/2020	10.9	7.57	3.39	0.79		1.20	0	74	10	11	68	9.6	222	-0.90	0.91	0.42	Negative	Negative
11/6/2020	10.8	7.56	3.40	0.70		1.20	0	73	10	10	70	10.6	227	-0.91	1.00	0.41	Negative	Negative
11/7/2020	10.7	7.57	3.42	0.75		1.20	0	76	10	9	72	10.4	225	-0.87	1.11	0.38	Negative	Negative
11/8/2020	10.7	7.57	3.38	0.73		1.20	0	74	10	9	70	10.5	223	-0.90	1.11	0.39	Negative	Negative
11/9/2020	10.9	7.56	3.37	0.75	0.73	1.20	0	75	10	9	72	10.7	221	-0.88	1.11	0.38	Negative	Negative
11/10/2020	10.8	7.56	3.37	0.80		1.21	0	75	10	9	75	11.1	223	-0.87	1.11	0.38	Negative	Negative
11/11/2020	10.8	7.58	3.37	0.76		1.20	0	74	9	9	74	8.4	215	-0.85	1.00	0.37	Negative	Negative
11/12/2020	10.9	7.58	3.36	0.78		1.19	0	77	9	10	64	10.7	223	-0.90	0.90	0.37	Negative	Negative
11/13/2020	10.9	7.58	3.35	0.78		1.20	0	77	9	10	66	10.8	223	-0.88	0.90	0.37	Negative	Negative
11/14/2020	10.9	7.59	3.36	0.78		1.20	0	75	10	11	66	10.5	225	-0.89	0.91	0.42	Negative	Negative
11/15/2020	10.8	7.61	3.36	0.77		1.20	0	77	9	10	66	10.8	224	-0.86	0.90	0.37	Negative	Negative
11/16/2020	10.7	7.62	3.37	0.75	0.68	1.21	0	78	9	11	68	10.6	227	-0.83	0.82	0.38	Negative	Negative
11/17/2020	10.6	7.61	3.37	0.77		1.19	0	75	9	10	66	10.7	229	-0.88	0.90	0.38	Negative	Negative
11/18/2020	10.6	7.61	3.36	0.76		1.19	0	84	11	10	74	8.4	223	-0.77	1.10	0.38	Negative	Negative
11/19/2020	10.6	7.62	3.36	0.76		1.20	0	77	11	10	72	11.1	235	-0.82	1.10	0.41	Negative	Negative
11/20/2020	10.6	7.60	3.37	0.75		1.21	0	76	11	9	72	10.7	228	-0.84	1.22	0.40	Negative	Negative
11/21/2020	10.5	7.58	3.36	0.77		1.20	0	75	10	8	74	10.4	224	-0.85	1.25	0.37	Negative	Negative
11/22/2020	10.4	7.57	3.36	0.77		1.21	0	74	10	9	74	11.0	222	-0.87	1.11	0.39	Negative	Negative
11/23/2020	10.3	7.58	3.36	0.76	0.71	1.20	0	75	10	8	70	10.8	222	-0.89	1.25	0.37	Negative	Negative
11/24/2020	10.3	7.58	3.36	0.75		1.21	0	73	10	8	74	11.0	220	-0.87	1.25	0.38	Negative	Negative
11/25/2020	10.2	7.57	3.36	0.77		1.22	0	75	10	11	68	10.8	222	-0.91	0.91	0.42	Negative	Negative
11/26/2020	10.2	7.58	3.36	0.77		1.22	0	74	10	11	70	10.9	223	-0.89	0.91	0.42	Negative	Negative
11/27/2020	10.1	7.58	3.36	0.80		1.21	0	75	9	14	70	10.9	223	-0.89	0.64	0.45	Negative	Negative
11/28/2020	10.0	7.59	3.36	0.80		1.21	0	75	9	12	68	10.6	221	-0.90	0.75	0.41	Negative	Negative
11/29/2020	10.0	7.59	3.36	0.79		1.22	0	77	9	9	66	10.1	223	-0.90	1.00	0.35	Negative	Negative
11/30/2020	9.7	7.59	3.37	0.79	0.73	1.21	0	76	9	11	70	10.9	223	-0.89	0.82	0.39	Negative	Negative
Avg	10.6	7.59	3.37	0.77	0.72	1.21	0	76	10	10	69	10.5	225	-0.87	0.99	0.39	NA	NA
Min	9.7	7.56	3.35	0.70	0.68	1.19	0	72	9	8	64	8.4	215	-0.91	0.64	0.35	NA	NA
Max	11.4	7.62	3.42	0.80	0.77	1.23	0	84	11	14	75	11.1	238	-0.77	1.25	0.46	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
11/1/2020	2.48	8.39	1.15	3.81	0.021	0.021	96	0	0.0	0.017
11/2/2020	1.97	15.00	1.17	2.52	0.021	0.021	96	0	0.0	0.016
11/3/2020	1.63	7.97	1.82	2.09	0.021	0.022	96	0	0.0	0.017
11/4/2020	1.43	7.09	1.08	1.79	0.021	0.021	96	0	0.0	0.016
11/5/2020	1.20	7.31	0.90	1.38	0.021	0.021	96	0	0.0	0.016
11/6/2020	0.78	3.29	1.00	1.06	0.021	0.021	96	0	0.0	0.016
11/7/2020	0.78	1.65	1.01	0.89	0.021	0.021	96	0	0.0	0.016
11/8/2020	0.73	2.54	0.72	0.84	0.021	0.021	96	0	0.0	0.016
11/9/2020	0.53	2.06	1.23	0.75	0.021	0.021	96	0	0.0	0.016
11/10/2020	0.54	5.80	1.07	0.58	0.021	0.021	96	0	0.0	0.016
11/11/2020	0.51	3.16	0.96	0.48	0.021	0.021	96	0	0.0	0.017
11/12/2020	0.31	1.04	0.77	0.41	0.021	0.021	96	0	0.0	0.017
11/13/2020	0.40	1.46	0.84	0.40	0.021	0.021	96	0	0.0	0.017
11/14/2020	0.51	1.69	1.04	0.45	0.021	0.021	96	0	0.0	0.017
11/15/2020	0.53	1.10	1.38	0.57	0.021	0.021	96	0	0.0	0.017
11/16/2020	0.57	2.24	1.31	0.54	0.021	0.021	96	0	0.0	0.017
11/17/2020	1.02	4.51	1.28	0.65	0.021	0.021	96	0	0.0	0.017
11/18/2020	2.14	13.52	1.96	1.46	0.021	0.021	96	0	0.0	0.017
11/19/2020	0.55	1.72	2.27	1.15	0.021	0.022	96	0	0.0	0.017
11/20/2020	0.44	1.36	1.28	0.76	0.021	0.021	96	0	0.0	0.017
11/21/2020	0.66	1.54	1.01	0.64	0.021	0.021	96	0	0.0	0.017
11/22/2020	0.54	2.68	1.25	0.71	0.021	0.021	96	0	0.0	0.017
11/23/2020	0.33	1.09	1.17	0.52	0.021	0.021	96	0	0.0	0.017
11/24/2020	0.27	0.96	1.27	0.39	0.021	0.021	96	0	0.0	0.017
11/25/2020	0.27	1.65	1.19	0.31	0.021	0.022	96	0	0.0	0.017
11/26/2020	0.28	1.62	1.16	0.29	0.021	0.022	96	0	0.0	0.017
11/27/2020	0.26	1.15	0.97	0.29	0.021	0.022	96	0	0.0	0.017
11/28/2020	0.33	1.45	0.91	0.33	0.021	0.021	96	0	0.0	0.017
11/29/2020	0.40	1.98	1.07	0.40	0.021	0.021	96	0	0.0	0.017
11/30/2020	0.34	1.64	1.14	0.44	0.021	0.022	96	0	0.0	0.017
Avg	0.76	3.62	1.18	0.90	0.021	0.021	96	0	0.0	0.017
Min	0.26	0.96	0.72	0.29	0.021	0.021	96	0	0.0	0.016
Max	2.48	15.00	2.27	3.81	0.021	0.022	96	0	0.0	0.017

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		NTU	psi/min		NTU	psi/min		NTU	psi/min		NTU	psi/min		NTU	psi/min		NTU	psi/min		NTU	psi/min		NTU	
11/1/2020	4.39	PASS	0.022	4.42	PASS	0.034	4.34	PASS	0.022	4.65	PASS	0.018	4.38	PASS	0.023	4.49	PASS	0.023	4.47	PASS	0.034	4.30	PASS	0.024
11/2/2020	4.38	PASS	0.022	4.40	PASS	0.034	4.36	PASS	0.025	4.56	PASS	0.019	4.33	PASS	0.023	4.47	PASS	0.023	4.60	PASS	0.032	4.26	PASS	0.024
11/3/2020	4.39	PASS	0.022	4.40	PASS	0.034	4.49	PASS	0.021	4.50	PASS	0.018	4.33	PASS	0.023	4.46	PASS	0.023	4.86	PASS	0.034	4.31	PASS	0.023
11/4/2020	4.44	PASS	0.021	4.41	PASS	0.031	4.34	PASS	0.023	4.54	PASS	0.018	4.33	PASS	0.023	4.49	PASS	0.022	4.58	PASS	0.033	4.38	PASS	0.023
11/5/2020	4.44	PASS	0.022	Out 11/4, back in 11/6			4.36	PASS	0.026	4.56	PASS	0.018	4.32	PASS	0.023	4.47	PASS	0.022	4.58	PASS	0.034	4.31	PASS	0.023
11/6/2020	4.40	PASS	0.021	4.41	PASS	0.030	4.46	PASS	0.021	4.54	PASS	0.018	4.33	PASS	0.023	4.46	PASS	0.025	4.51	PASS	0.033	4.34	PASS	0.023
11/7/2020	4.56	PASS	0.021	Out 11/6, back in 11/9			4.38	PASS	0.023	4.54	PASS	0.018	4.34	PASS	0.023	4.47	PASS	0.022	4.57	PASS	0.034	4.32	PASS	0.023
11/8/2020	4.42	PASS	0.021	4.37	PASS	0.025	4.62	PASS	0.018	4.36	PASS	0.018	4.36	PASS	0.023	4.47	PASS	0.023	4.53	PASS	0.034	4.39	PASS	0.023
11/9/2020	4.43	PASS	0.021	4.48	PASS	0.021	4.65	PASS	0.018	4.41	PASS	0.023	4.49	PASS	0.024	4.56	PASS	0.024	4.56	PASS	0.033	4.30	PASS	0.023
11/10/2020	4.43	PASS	0.021	4.42	PASS	0.033	4.69	PASS	0.024	4.57	PASS	0.018	4.34	PASS	0.022	4.48	PASS	0.022	4.51	PASS	0.034	4.29	PASS	0.023
11/11/2020	4.44	PASS	0.021	4.45	PASS	0.030	4.52	PASS	0.021	4.55	PASS	0.018	4.35	PASS	0.022	4.52	PASS	0.022	4.51	PASS	0.033	4.32	PASS	0.023
11/12/2020	4.46	PASS	0.021	4.48	PASS	0.032	4.49	PASS	0.020	4.57	PASS	0.021	4.38	PASS	0.022	4.52	PASS	0.022	4.54	PASS	0.033	4.30	PASS	0.023
11/13/2020	4.41	PASS	0.021	4.51	PASS	0.028	4.50	PASS	0.020	4.65	PASS	0.021	4.41	PASS	0.022	4.52	PASS	0.025	4.55	PASS	0.032	4.32	PASS	0.023
11/14/2020	4.40	PASS	0.021	4.53	PASS	0.031	4.45	PASS	0.021	4.59	PASS	0.018	4.32	PASS	0.022	4.55	PASS	0.021	4.51	PASS	0.033	4.30	PASS	0.023
11/15/2020	4.42	PASS	0.021	4.51	PASS	0.031	4.46	PASS	0.020	4.51	PASS	0.018	4.34	PASS	0.022	4.51	PASS	0.021	4.54	PASS	0.033	4.31	PASS	0.023
11/16/2020	4.40	PASS	0.021	4.49	PASS	0.029	4.44	PASS	0.022	4.52	PASS	0.018	4.49	PASS	0.024	4.50	PASS	0.021	4.52	PASS	0.033	4.29	PASS	0.023
11/17/2020	4.42	PASS	0.021	4.48	PASS	0.030	4.45	PASS	0.020	4.54	PASS	0.018	4.40	PASS	0.022	4.46	PASS	0.023	4.47	PASS	0.033	4.28	PASS	0.023
11/18/2020	4.40	PASS	0.021	4.46	PASS	0.030	4.42	PASS	0.020	4.52	PASS	0.018	4.36	PASS	0.022	4.52	PASS	0.024	4.50	PASS	0.033	4.27	PASS	0.023
11/19/2020	4.37	PASS	0.021	4.43	PASS	0.030	4.38	PASS	0.021	4.49	PASS	0.018	4.33	PASS	0.024	4.48	PASS	0.024	4.42	PASS	0.034	4.32	PASS	0.023
11/20/2020	4.39	PASS	0.021	4.42	PASS	0.030	4.40	PASS	0.021	4.47	PASS	0.018	4.35	PASS	0.022	4.41	PASS	0.021	4.50	PASS	0.033	4.27	PASS	0.023
11/21/2020	4.50	PASS	0.020	4.43	PASS	0.029	4.42	PASS	0.021	4.48	PASS	0.018	4.55	PASS	0.022	4.46	PASS	0.021	4.48	PASS	0.033	4.29	PASS	0.023
11/22/2020	4.43	PASS	0.020	4.42	PASS	0.029	4.54	PASS	0.020	4.53	PASS	0.020	4.57	PASS	0.022	4.55	PASS	0.023	4.43	PASS	0.033	4.27	PASS	0.023
11/23/2020	4.42	PASS	0.020	4.44	PASS	0.029	4.46	PASS	0.021	4.52	PASS	0.017	4.57	PASS	0.022	4.63	PASS	0.024	4.44	PASS	0.033	4.28	PASS	0.022
11/24/2020	4.56	PASS	0.020	4.46	PASS	0.029	4.43	PASS	0.020	4.57	PASS	0.021	4.48	PASS	0.022	4.56	PASS	0.021	4.44	PASS	0.033	4.28	PASS	0.023
11/25/2020	4.52	PASS	0.020	4.45	PASS	0.029	4.60	PASS	0.021	4.67	PASS	0.017	4.46	PASS	0.022	4.59	PASS	0.023	4.46	PASS	0.033	4.28	PASS	0.023
11/26/2020	4.47	PASS	0.020	4.43	PASS	0.030	4.61	PASS	0.020	4.61	PASS	0.018	4.51	PASS	0.022	4.53	PASS	0.024	4.46	PASS	0.033	4.28	PASS	0.022
11/27/2020	4.50	PASS	0.020	4.49	PASS	0.029	4.47	PASS	0.020	4.65	PASS	0.021	4.46	PASS	0.022	4.51	PASS	0.024	4.48	PASS	0.033	4.28	PASS	0.022
11/28/2020	4.51	PASS	0.020	4.53	PASS	0.031	4.48	PASS	0.020	4.60	PASS	0.017	4.45	PASS	0.022	4.54	PASS	0.022	4.47	PASS	0.033	4.33	PASS	0.022
11/29/2020	4.50	PASS	0.020	4.45	PASS	0.029	4.44	PASS	0.020	4.75	PASS	0.020	4.38	PASS	0.024	4.52	PASS	0.023	4.49	PASS	0.033	4.28	PASS	0.021
11/30/2020	4.51	PASS	0.020	4.46	PASS	0.030	4.41	PASS	0.020	4.79	PASS	0.020	4.38	PASS	0.023	4.52	PASS	0.023	4.46	PASS	0.033	4.27	PASS	0.021
Avg	4.44		0.021	4.45		0.030	4.45		0.021	4.58		0.019	4.40		0.023	4.50		0.023	4.52		0.033	4.30		0.023
Min	4.37		0.020	4.34		0.028	4.34		0.020	4.47		0.017	4.32		0.022	4.41		0.021	4.42		0.032	4.26		0.021
Max	4.56		0.022	4.53		0.034	4.69		0.026	4.79		0.021	4.57		0.024	4.63		0.025	4.86		0.034	4.39		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
11/1/2020	6.6	0.74	0.32	1.04	1.35	1.21	3.28	3.38	0.09	0.56	0.79
11/2/2020	6.8	0.72	0.44	0.95	1.33	1.22	3.28	3.38	0.10	0.56	0.79
11/3/2020	7.6	0.72	0.51	0.85	1.33	1.23	3.28	3.39	0.10	0.56	0.77
11/4/2020	6.2	0.67	0.53	0.88	1.31	1.20	3.28	3.39	0.09	0.56	0.77
11/5/2020	6.5	0.74	0.53	0.84	1.32	1.20	3.28	3.39	0.09	0.56	0.79
11/6/2020	6.2	0.77	0.56	0.80	1.31	1.20	3.28	3.40	0.09	0.56	0.70
11/7/2020	6.4	0.71	0.56	0.83	1.30	1.20	3.21	3.42	0.09	0.56	0.75
11/8/2020	6.3	0.71	0.55	0.83	1.30	1.20	3.20	3.38	0.09	0.60	0.73
11/9/2020	6.5	0.71	0.56	0.83	1.30	1.20	3.20	3.37	0.09	0.60	0.75
11/10/2020	6.8	0.56	0.53	0.92	1.31	1.21	3.20	3.37	0.09	0.60	0.80
11/11/2020	6.3	0.49	0.44	0.99	1.29	1.20	3.20	3.37	0.09	0.60	0.76
11/12/2020	6.4	0.49	0.40	0.99	1.29	1.19	3.20	3.36	0.09	0.60	0.78
11/13/2020	6.7	0.45	0.38	1.05	1.30	1.20	3.20	3.35	0.09	0.60	0.78
11/14/2020	6.6	0.47	0.38	1.05	1.30	1.20	3.21	3.36	0.09	0.60	0.78
11/15/2020	6.5	0.50	0.37	1.07	1.31	1.20	3.21	3.36	0.08	0.60	0.77
11/16/2020	6.5	0.47	0.37	1.08	1.31	1.21	3.21	3.37	0.09	0.60	0.75
11/17/2020	6.6	0.36	0.33	1.13	1.29	1.19	3.21	3.37	0.09	0.60	0.77
11/18/2020	6.7	0.35	0.26	1.24	1.32	1.19	3.21	3.36	0.09	0.60	0.76
11/19/2020	6.4	0.59	0.32	1.12	1.31	1.20	3.21	3.36	0.09	0.60	0.76
11/20/2020	6.4	0.60	0.40	1.03	1.31	1.21	3.21	3.37	0.09	0.60	0.75
11/21/2020	6.2	0.63	0.45	0.98	1.30	1.20	3.21	3.36	0.09	0.60	0.77
11/22/2020	6.6	0.67	0.48	0.94	1.31	1.21	3.21	3.36	0.09	0.60	0.77
11/23/2020	6.3	0.63	0.50	0.94	1.30	1.20	3.21	3.36	0.09	0.60	0.76
11/24/2020	6.5	0.59	0.50	0.95	1.30	1.21	3.21	3.36	0.09	0.60	0.75
11/25/2020	6.6	0.58	0.48	0.86	1.31	1.22	3.21	3.36	0.09	0.60	0.77
11/26/2020	6.6	0.57	0.47	0.83	1.31	1.22	3.21	3.36	0.09	0.61	0.77
11/27/2020	5.9	0.58	0.47	0.81	1.30	1.21	3.21	3.36	0.10	0.61	0.80
11/28/2020	6.1	0.64	0.47	0.80	1.30	1.21	3.22	3.36	0.10	0.61	0.80
11/29/2020	6.4	0.67	0.50	0.76	1.31	1.22	3.22	3.36	0.10	0.61	0.79
11/30/2020	6.5	0.65	0.53	0.72	1.28	1.21	3.22	3.37	0.09	0.61	0.79
Avg	6.5	0.60	0.45	0.94	1.31	1.21	3.22	3.37	0.09	0.59	0.77
Min	5.9	0.35	0.26	0.72	1.28	1.19	3.20	3.35	0.08	0.56	0.70
Max	7.6	0.77	0.56	1.24	1.35	1.23	3.28	3.42	0.10	0.61	0.80



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
11/1/2020	52.3	2,393	0.74	1764	28.9	22.4	6.5	541	1.18	639.35	2,402.94	12.0	6.00	Y
11/2/2020	45.0	2,781	0.72	1993	29.0	22.4	6.4	549	1.18	648.66	2,642.06	11.8	6.00	Y
11/3/2020	39.4	3,178	0.72	2281	29.0	22.8	7.3	486	1.18	574.12	2,854.71	11.7	6.00	Y
11/4/2020	40.1	3,118	0.67	2088	28.9	24.0	5.9	619	1.18	727.28	2,815.60	11.5	6.00	Y
11/5/2020	38.6	3,243	0.74	2411	29.0	23.3	6.4	564	1.18	666.24	3,077.40	11.4	6.00	Y
11/6/2020	41.0	3,049	0.77	2356	28.9	23.7	5.7	628	1.20	751.14	3,107.59	11.4	6.00	Y
11/7/2020	53.6	2,332	0.71	1648	29.0	23.8	6.2	580	1.18	685.53	2,333.25	11.3	6.00	Y
11/8/2020	50.5	2,477	0.71	1764	29.0	23.5	5.9	606	1.18	712.25	2,476.46	11.4	6.00	Y
11/9/2020	40.8	3,063	0.71	2178	29.0	21.6	6.2	561	1.20	670.56	2,848.56	11.6	6.00	Y
11/10/2020	40.0	3,125	0.56	1741	28.9	24.8	6.5	569	1.17	664.78	2,405.45	11.6	6.00	Y
11/11/2020	36.8	3,403	0.49	1663	29.0	23.0	6.2	579	1.18	679.95	2,343.14	11.6	6.00	Y
11/12/2020	36.3	3,446	0.49	1692	29.0	22.9	6.1	583	1.17	681.43	2,373.17	11.8	6.00	Y
11/13/2020	40.3	3,104	0.45	1399	29.0	23.1	6.4	554	1.18	654.60	2,053.74	11.8	6.00	Y
11/14/2020	53.0	2,359	0.47	1114	29.0	22.8	6.2	570	1.18	674.10	1,787.63	11.8	6.00	Y
11/15/2020	46.4	2,695	0.50	1352	29.0	23.8	6.3	578	1.17	674.99	2,027.43	11.7	6.00	Y
11/16/2020	39.7	3,153	0.47	1473	29.0	22.1	6.3	558	1.18	659.85	2,132.75	11.5	6.00	Y
11/17/2020	39.5	3,171	0.36	1139	29.0	22.5	6.3	561	1.18	659.68	1,798.78	11.4	6.00	Y
11/18/2020	38.2	3,278	0.35	1147	29.0	22.9	6.4	554	1.16	643.09	1,789.77	11.3	6.00	Y
11/19/2020	35.0	3,574	0.59	2091	28.1	22.8	6.1	573	1.17	669.59	2,760.78	11.1	6.00	Y
11/20/2020	37.4	3,348	0.60	2001	29.0	23.9	6.1	599	1.18	703.70	2,704.94	11.0	6.00	Y
11/21/2020	55.5	2,255	0.63	1429	28.9	24.6	6.0	616	1.15	711.53	2,140.32	10.9	6.00	Y
11/22/2020	48.9	2,559	0.67	1720	29.0	23.9	6.2	584	1.19	694.78	2,414.69	10.8	6.00	Y
11/23/2020	39.1	3,200	0.63	2022	29.0	24.4	6.2	590	1.18	697.48	2,719.41	10.7	6.00	Y
11/24/2020	35.9	3,482	0.59	2071	29.0	22.9	6.2	573	1.17	669.68	2,740.53	10.6	6.00	Y
11/25/2020	35.8	3,495	0.58	2013	29.0	24.6	6.3	585	1.19	695.95	2,708.72	10.5	6.00	Y
11/26/2020	36.3	3,445	0.57	1958	29.0	24.0	6.3	578	1.19	687.55	2,645.91	10.3	6.00	Y
11/27/2020	39.0	3,209	0.58	1862	28.9	24.1	5.7	638	1.20	762.68	2,624.42	10.1	6.00	Y
11/28/2020	50.2	2,494	0.64	1607	29.0	24.5	5.8	633	1.18	748.69	2,355.61	10.0	6.00	Y
11/29/2020	44.8	2,795	0.67	1867	29.0	23.2	6.2	577	1.22	701.77	2,568.64	10.0	6.00	Y
11/30/2020	38.1	3,280	0.65	2136	29.0	23.2	6.2	578	1.15	667.57	2,804.03	9.9	8.00	Y
Avg	42.2	3,017	0.60	1,799	28.9	23.4	6.2	579	1.18	682.62	2,481.95	11.1	6.07	NA
Min	35.0	2,255	0.35	1,114	28.1	21.6	5.7	486	1.15	574.12	1,787.63	9.9	6.00	NA
Max	55.5	3,574	0.77	2,411	29.0	24.8	7.3	638	1.22	762.68	3,107.59	12.0	8.00	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
11/1/2020																								
11/2/2020																								1.08
11/3/2020		0.68	0.19	0.40	1.15				0.77	0.76	0.61	0.73	0.31	1.03	0.59							0.04		
11/4/2020																								
11/5/2020	0.09					0.94	1.02		0.81	0.38	0.67	0.79	0.33	0.99	0.62	0.81	0.77	0.90	0.60	0.57				
11/6/2020																								
11/7/2020																								
11/8/2020																								
11/9/2020																					1.01		0.24	0.99
11/10/2020		0.44	0.36																					
11/11/2020									0.81	0.36	0.57	0.74	0.28	0.97	0.62									
11/12/2020																1.03	0.92	1.01	0.83	0.66				
11/13/2020																								
11/14/2020																								
11/15/2020																								
11/16/2020																								
11/17/2020		0.88	0.39	0.59	1.08			1.18			0.41	0.74	0.92	0.26	0.99	0.74								
11/18/2020																								
11/19/2020									0.68	0.26	0.66	0.78	0.61	0.90	0.63									
11/20/2020																								
11/21/2020																								
11/22/2020																								
11/23/2020																								1.06
11/24/2020																								
11/25/2020									0.69	0.28	0.67	0.73	0.30	0.89	0.58									0.99
11/26/2020																								
11/27/2020																								
11/28/2020																								
11/29/2020																								
11/30/2020																								
Average	0.09	0.62				1.05			0.65							0.81					1.01	0.14		1.03
Min	0.09	0.19				0.94			0.26							0.57					1.01	0.04		0.99
Max	0.09	1.15				1.18			1.03							1.03					1.01	0.24		1.08



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 Cl ₂)																								
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
11/1/2020																								
11/2/2020																								
11/3/2020	0.89	0.91				1.13	1.01		0.99							0.35		0.42			0.68	0.71	0.71	
11/4/2020			0.61	0.85	0.88																			
11/5/2020										0.89			1.09		0.82					0.32				0.30
11/6/2020																								
11/7/2020																								
11/8/2020																								
11/9/2020			0.42	0.77	0.72																			
11/10/2020								1.00	0.80							0.50					0.60	1.01	0.50	
11/11/2020																								
11/12/2020									0.31									0.65						
11/13/2020																								
11/14/2020																								
11/15/2020																								
11/16/2020																								
11/17/2020													1.12	0.81	0.87									
11/18/2020																								
11/19/2020			0.52	0.73	0.62																			
11/20/2020																								
11/21/2020																								
11/22/2020																								
11/23/2020			0.45																					
11/24/2020																								
11/25/2020																								
11/26/2020																								
11/27/2020																								
11/28/2020																								
11/29/2020																								
11/30/2020															0.93									
Average	0.90		0.66			1.05			0.90		0.60		0.94			0.43		0.54		0.32	0.70			0.30
Min	0.89		0.42			1.00			0.80		0.31		0.81			0.35		0.42		0.32	0.50			0.30
Max	0.91		0.88			1.13			0.99		0.89		1.12			0.50		0.65		0.32	1.01			0.30



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			
				November, 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	0.09	1	1	0	0
BAY	Bangor Township	0390	0.62	10	10	0	0
BAY	Bangor-Monitor Dist.	0400	1.05	3	3	0	0
BAY	Bay City	0470	0.65	40	41	0	0
BAY	Bay County (Frankl./Monitor/Portsm.)	0485	0.81	10	10	0	0
BAY	Beaver Road Area	0517	1.01	1	1	0	0
BAY	Beaver Township	0518	0.14	2	2	0	0
BAY	Essexville	2180	1.03	4	4	0	0
BAY	Fraser Township	2465	0.90	2	2	0	0
BAY	Hampton Township	2960	0.66	10	10	0	0
BAY	Kawkawlin Township	3565	1.05	3	3	0	0
BAY	Kawkawlin Metro Dist.	3570	0.90	2	2	0	0
BAY	Merritt Township	4280	0.60	2	2	0	0
BAY	Monitor Township	4440	0.94	6	6	0	0
BAY	City of Pinconning	5330	0.43	2	2	0	0
BAY	Pinconning Township	5335	0.54	2	2	0	0
BAY	Portsmouth Township	5540	0.32	1	1	0	0
BAY	Williams Township	7125	0.70	6	6	0	0
Tuscola	Wisner	7134	0.30	1	1	0	0
Average Free Cl2 Residual of All Distribution Sites			0.67	mg/L			
1. Total distribution samples					109		
2. Total distribution samples with detectable free cl2 residual					108		
3. Total distribution samples with no detectable free cl2 residual					1		
4. Total distribution samples with no detectable free cl2 residual and HPC was <500					1		
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%		

