

# Bay Area WTP

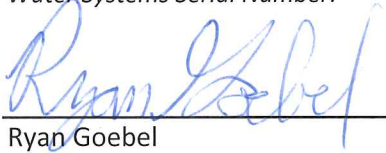
## Monthly Operations Report



February, 2019

Water Systems Serial Number:

0465

  
Ryan Goebel

Interim Water Plant Superintendent

Title

F1

Classification

# Bay Area Water Treatment Plant

## Monthly Operations Report

Supply Name: Bay Area Water System  
 WSSN: 0465

Ryan Goebel  
 Operator-in-charge

February, 2019  
 Month, Year

F1  
 Certification of Operator-in-charge

F1  
 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>8.8</u>	Millions of Gallons per Day
Maximum Approved Transmembrane Pressure	<u>22</u>	PSI
Maximum Operating Transmembrane Pressure	<u>22</u>	PSI

### Chemical Data

Sodium Hypochlorite on hand:	<u>2,795</u>	Gallons	Estimated Supply:	<u>54.0</u>	days
Caustic Soda on hand:	<u>1,202</u>	Gallons	Estimated Supply:	<u>88.6</u>	days
Corrosion Inhibitor on hand:	<u>311</u>	Gallons	Estimated Supply:	<u>14.2</u>	days
Hydrofluosilicic Acid on hand:	<u>1,745</u>	Gallons	Estimated Supply:	<u>82.5</u>	days
Aluminum Chlorohydrate on hand:	<u>492</u>	Gallons	Estimated Supply:	<u>53.2</u>	days
Sulfuric Acid on hand:	<u>630</u>	Gallons	Estimated Supply:	<u>178.0</u>	days
Sodium Bisulfite on hand:	<u>976</u>	Gallons	Estimated Supply:	<u>240.0</u>	days
Citric Acid on hand:	<u>896</u>	Gallons	Estimated Supply:	<u>115.1</u>	days
Cost of All Chemicals per Million Gallons:	<u>73.15</u>	Dollars			
Estimated Electrical Cost per Million Gallons:	<u>112.38</u>	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%

#### Did any individual membrane skid exceed:

1.0 NTU in two consecutive measurements taken 15 minutes apart?  
 If yes, attach specific filter(s) information and indicate required follow-up status. No

0.5 NTU in two consecutive measurements taken 15 minutes apart after 4 hours of operation?  
 If yes, attach specific filter(s) information and indicate required follow-up status. No

1.0 NTU in two consecutive measurements taken 15 minutes apart for 3 consecutive months?  
 If yes, attach specific filter(s) information and indicate required follow-up status. No

2.0 NTU in two consecutive measurements taken 15 minutes apart for 2 consecutive months?  
 If yes, attach specific filter(s) information and indicate required follow-up status. No

Was continuous (every 15 minutes) filter monitoring equipment off-line during the month?  
 If yes, indicate date(s), duration, and individual filter grab sampling frequency on a separate sheet. No

Did POE disinfectant residual fall below 0.2 ppm during the month?  
 If yes, indicate date(s) and duration on a separate sheet. No

Was minimum C\*T credit achieved for the entire month?  
 If no, indicate on a separate sheet the date(s) not achieved. Yes

Was continuous POE chlorine residual monitoring equipment off-line during the month?  
 If yes, date(s) and duration will be indicated on the rule page. No

### Notes



## Bay Area WTP Monthly Operating Report

Date	Flows									
	Raw Water (MG)			Clarified (MG)	Wasted (MG)	Sludge (MG)	Treated (MG)	Finished Water Pumped (MG)		
	North FIT-1000-1	South FIT-1000-2	Total Calculated	Total FIT-5520-1	Total FIT-5520-2	Total FIT-5180	Total FIT-4000-1	N. Euclid FIT-4040-1	Lauria Road FIT-4040-2	Total Calculated
2/1/2019	0.00	6.79	6.79	0.25	0.00	0.06	6.93	3.48	3.39	6.87
2/2/2019	0.00	7.04	7.04	0.27	0.00	0.05	7.88	3.74	3.68	7.42
2/3/2019	0.00	7.42	7.42	0.30	0.00	0.04	7.76	3.68	3.67	7.35
2/4/2019	1.29	7.95	9.24	0.31	0.00	0.03	8.54	4.16	4.09	8.26
2/5/2019	4.18	5.71	9.89	0.31	0.00	0.07	8.77	3.77	3.73	7.50
2/6/2019	1.56	4.19	5.75	0.26	0.00	0.06	6.54	3.24	3.19	6.43
2/7/2019	0.00	6.93	6.93	0.29	0.00	0.04	7.23	3.52	3.41	6.93
2/8/2019	0.00	7.69	7.69	0.25	0.00	0.05	6.90	3.38	3.24	6.63
2/9/2019	0.00	7.01	7.01	0.26	0.00	0.04	6.85	3.41	3.31	6.72
2/10/2019	0.00	6.30	6.30	0.25	0.00	0.05	7.17	3.48	3.33	6.81
2/11/2019	0.00	7.10	7.10	0.28	0.00	0.04	6.80	3.34	3.20	6.54
2/12/2019	0.00	7.20	7.20	0.26	0.00	0.04	6.77	3.36	3.20	6.55
2/13/2019	0.00	6.81	6.81	0.28	0.00	0.04	6.41	3.14	2.99	6.13
2/14/2019	0.00	6.54	6.54	0.27	0.00	0.04	6.57	3.19	3.10	6.29
2/15/2019	0.00	6.58	6.58	0.27	0.00	0.04	6.64	3.24	3.21	6.45
2/16/2019	0.00	6.39	6.39	0.25	0.00	0.04	6.70	3.23	3.21	6.44
2/17/2019	0.00	6.37	6.37	0.26	0.00	0.04	6.73	3.22	3.22	6.44
2/18/2019	0.00	6.86	6.86	0.28	0.00	0.04	6.74	3.28	3.26	6.53
2/19/2019	0.00	7.00	7.00	0.26	0.00	0.03	6.84	3.26	3.22	6.48
2/20/2019	0.00	7.09	7.09	0.26	0.00	0.04	6.83	3.34	3.30	6.65
2/21/2019	0.00	6.78	6.78	0.29	0.00	0.02	6.81	3.28	3.27	6.55
2/22/2019	0.00	6.64	6.64	0.27	0.00	0.02	6.83	3.29	3.21	6.50
2/23/2019	0.00	6.19	6.19	0.27	0.00	0.03	6.61	3.24	3.21	6.45
2/24/2019	0.00	5.95	5.95	0.28	0.00	0.02	6.93	3.31	3.29	6.60
2/25/2019	0.00	6.88	6.88	0.26	0.00	0.03	6.32	3.06	3.04	6.10
2/26/2019	0.00	7.44	7.44	0.28	0.00	0.03	6.73	3.27	3.21	6.48
2/27/2019	0.00	7.15	7.15	0.25	0.00	0.05	6.52	3.17	3.14	6.31
2/28/2019	0.00	6.28	6.28	0.24	0.00	0.04	6.64	3.20	3.17	6.36
<b>Total</b>	<b>7.03</b>	<b>188.28</b>	<b>195.30</b>	<b>7.55</b>	<b>0.00</b>	<b>1.12</b>	<b>194.97</b>	<b>94.27</b>	<b>92.50</b>	<b>186.77</b>
<b>Avg</b>	<b>0.25</b>	<b>6.72</b>	<b>6.98</b>	<b>0.27</b>	<b>0.00</b>	<b>0.04</b>	<b>6.96</b>	<b>3.37</b>	<b>3.30</b>	<b>6.67</b>
<b>Min</b>	<b>0.00</b>	<b>4.19</b>	<b>5.75</b>	<b>0.24</b>	<b>0.00</b>	<b>0.02</b>	<b>6.32</b>	<b>3.06</b>	<b>2.99</b>	<b>6.10</b>
<b>Max</b>	<b>4.18</b>	<b>7.95</b>	<b>9.89</b>	<b>0.31</b>	<b>0.00</b>	<b>0.07</b>	<b>8.77</b>	<b>4.16</b>	<b>4.09</b>	<b>8.26</b>



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	
2/1/2019	3.11	7.90	1.64	4.39	0.07	0.48	Negative	Negative
2/2/2019	3.08	7.89	1.27	4.66	0.07	0.58	Negative	Negative
2/3/2019	3.11	7.90	1.14	4.80	0.07	0.52	Negative	Negative
2/4/2019	3.24	7.93	1.19	3.51	0.07	0.39	Negative	Negative
2/5/2019	3.50	7.91	0.92	2.58	0.07	0.45	Negative	Negative
2/6/2019	3.47	7.91	0.73	3.40	0.07	0.47	Negative	Negative
2/7/2019	3.57	7.91	0.74	1.68	0.11	0.48	Negative	Negative
2/8/2019	3.64	7.92	2.45	5.27	0.10	0.38	Negative	Negative
2/9/2019	3.44	7.91	1.75	5.54	0.10	0.45	Negative	Negative
2/10/2019	3.55	7.89	1.02	4.15	0.10	0.58	Negative	Negative
2/11/2019	3.50	7.89	0.74	3.69	0.10	0.60	Negative	Negative
2/12/2019	3.32	7.91	0.62	8.54	0.10	0.46	Negative	Negative
2/13/2019	3.00	7.92	0.54	2.16	0.10	0.43	Negative	Negative
2/14/2019	2.88	7.92	0.55	1.47	0.09	0.42	Negative	Negative
2/15/2019	2.93	7.92	0.47	1.06	0.09	0.43	Negative	Negative
2/16/2019	2.89	7.92	0.51	1.32	0.10	0.45	Negative	Negative
2/17/2019	2.95	7.92	0.56	2.24	0.09	0.43	Negative	Negative
2/18/2019	2.89	7.91	0.47	2.58	0.08	0.47	Negative	Negative
2/19/2019	2.89	7.91	0.36	0.82	0.09	0.47	Negative	Negative
2/20/2019	2.88	7.91	0.32	0.75	0.09	0.51	Negative	Negative
2/21/2019	2.81	7.92	0.34	0.92	0.09	0.45	Negative	Negative
2/22/2019	2.83	7.92	0.29	2.60	0.08	0.47	Negative	Negative
2/23/2019	2.74	7.92	0.29	0.62	0.07	0.47	Negative	Negative
2/24/2019	2.93	7.91	0.35	1.04	0.07	0.48	Negative	Negative
2/25/2019	2.91	7.91	0.28	1.01	0.09	0.47	Negative	Negative
2/26/2019	2.88	7.91	0.29	1.23	0.07	0.45	Negative	Negative
2/27/2019	2.88	7.92	0.39	1.03	0.07	0.45	Negative	Negative
2/28/2019	2.97	7.92	0.34	0.86	0.09	0.42	Negative	Negative
Avg	3.1	7.91	0.74	2.64	0.09	0.47	NA	NA
Min	2.7	7.89	0.28	0.62	0.07	0.38	NA	NA
Max	3.6	7.93	2.45	8.54	0.11	0.60	NA	NA



Finished Water Analysis																		
Date	Temp	pH	Phosphate	Fluoride		Free Cl <sub>2</sub>	Alkalinity (as CaCO <sub>3</sub> )		Chloride	Sulfate	Calcium (as CaCO <sub>3</sub> )	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		
2/1/2019	3.0	7.55	3.45	0.79		1.00	0	84	10	9	74	13.3	243	-1.04	1.06	0.33	Negative	Negative
2/2/2019	3.4	7.55	3.46	0.78		1.03	0	82	10	8	72	13.3	242	-1.05	1.25	0.34	Negative	Negative
2/3/2019	3.6	7.54	3.46	0.78		1.03	0	80	10	8	70	12.9	236	-1.08	1.19	0.33	Negative	Negative
2/4/2019	3.8	7.55	3.47	0.75	0.76	1.02	0	83	10	10	74	13.2	238	-1.03	1.00	0.36	Negative	Negative
2/5/2019	4.3	7.57	3.53	0.80		1.01	0	81	9	13	78	13.2	243	-0.98	0.72	0.40	Negative	Negative
2/6/2019	4.2	7.57	3.48	0.77		0.99	0	79	9	12	76	13.1	244	-1.00	0.75	0.39	Negative	Negative
2/7/2019	4.4	7.57	3.46	0.81		1.02	0	84	10	10	82	12.7	240	-0.93	1.00	0.36	Negative	Negative
2/8/2019	4.4	7.58	3.46	0.75		1.02	0	80	8	11	76	12.8	244	-0.98	0.73	0.35	Negative	Negative
2/9/2019	4.0	7.59	3.44	0.75		1.01	0	82	9	10	76	13.1	247	-0.98	0.90	0.35	Negative	Negative
2/10/2019	3.9	7.57	3.43	0.73		1.04	0	78	9	12	72	12.8	242	-1.04	0.75	0.40	Negative	Negative
2/11/2019	4.0	7.55	3.41	0.75	0.71	1.04	0	78	8	11	68	13.5	237	-1.08	0.73	0.36	Negative	Negative
2/12/2019	3.9	7.55	3.45	0.77		1.03	0	70	9	10	64	13.3	230	-1.15	0.90	0.41	Negative	Negative
2/13/2019	3.9	7.55	3.44	0.75		1.02	0	72	9	11	64	12.6	220	-1.14	0.80	0.41	Negative	Negative
2/14/2019	3.6	7.56	3.44	0.70		1.02	0	74	9	11	66	12.3	216	-1.11	0.78	0.39	Negative	Negative
2/15/2019	3.7	7.57	3.43	0.72		1.02	0	74	9	11	64	12.4	232	-1.11	0.82	0.40	Negative	Negative
2/16/2019	3.6	7.56	3.43	0.76		1.03	0	75	9	11	64	13.8	233	-1.12	0.82	0.40	Negative	Negative
2/17/2019	3.6	7.55	3.43	0.73		1.02	0	78	9	12	66	14.6	226	-1.10	0.75	0.40	Negative	Negative
2/18/2019	3.6	7.55	3.44	0.74		1.03	0	77	10	12	64	14.0	227	-1.12	0.82	0.42	Negative	Negative
2/19/2019	3.6	7.53	3.44	0.79	0.72	1.02	0	77	10	12	66	14.0	228	-1.12	0.83	0.42	Negative	Negative
2/20/2019	3.6	7.54	3.44	0.75		1.03	0	78	10	13	68	13.4	221	-1.10	0.77	0.44	Negative	Negative
2/21/2019	3.6	7.54	3.44	0.76		1.03	0	78	11	9	68	12.9	221	-1.09	1.22	0.39	Negative	Negative
2/22/2019	3.6	7.54	3.44	0.78		1.03	0	79	10	10	72	13.8	223	-1.07	1.00	0.38	Negative	Negative
2/23/2019	3.6	7.54	3.43	0.75		1.02	0	80	9	14	64	13.0	229	-1.12	0.67	0.43	Negative	Negative
2/24/2019	3.7	7.55	3.42	0.76		1.02	0	80	10	12	64	14.7	220	-1.10	0.83	0.41	Negative	Negative
2/25/2019	3.7	7.57	3.41	0.79	0.80	1.02	0	80	10	10	68	13.8	221	-1.06	1.00	0.38	Negative	Negative
2/26/2019	3.6	7.55	3.47	0.77		1.02	0	78	9	9	70	13.6	233	-1.07	1.00	0.35	Negative	Negative
2/27/2019	3.5	7.55	3.38	0.75		1.01	0	78	9	10	70	13.6	231	-1.08	0.90	0.36	Negative	Negative
2/28/2019	3.5	7.54	3.39	0.77		1.01	0	79	10	9	70	13.3	232	-1.08	1.11	0.37	Negative	Negative
Avg	3.7	7.56	3.44	0.76	0.75	1.02	0	79	9	11	70	13.3	232	-1.07	0.90	0.38	NA	NA
Min	3.0	7.53	3.38	0.70	0.71	0.99	0	70	8	8	64	12.3	216	-1.15	0.67	0.33	NA	NA
Max	4.4	7.59	3.53	0.81	0.80	1.04	0	84	11	14	82	14.7	247	-0.93	1.25	0.44	NA	NA



Turbidity										
Date	Raw Water		Clarified Water	Membrane Feed Water	Combined Membrane Filtrate					Finished Average
	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
2/1/2019	1.64	4.39	1.26	1.45	0.015	0.016	96	0	0.0	0.012
2/2/2019	1.27	4.66	1.37	1.55	0.015	0.019	96	0	0.0	0.012
2/3/2019	1.14	4.80	1.09	1.27	0.015	0.016	96	0	0.0	0.012
2/4/2019	1.19	3.51	1.48	1.36	0.015	0.016	96	0	0.0	0.013
2/5/2019	0.92	2.58	1.07	1.14	0.016	0.016	96	0	0.0	0.014
2/6/2019	0.73	3.40	1.05	0.91	0.015	0.017	96	0	0.0	0.012
2/7/2019	0.74	1.68	1.04	0.81	0.015	0.016	96	0	0.0	0.012
2/8/2019	2.45	5.27	1.09	1.37	0.016	0.017	96	0	0.0	0.012
2/9/2019	1.75	5.54	1.31	1.76	0.015	0.016	96	0	0.0	0.012
2/10/2019	1.02	4.15	1.36	1.49	0.015	0.016	96	0	0.0	0.012
2/11/2019	0.74	3.69	1.14	1.04	0.015	0.016	96	0	0.0	0.012
2/12/2019	0.62	8.54	0.93	0.79	0.015	0.016	96	0	0.0	0.012
2/13/2019	0.54	2.16	0.86	0.65	0.015	0.016	96	0	0.0	0.012
2/14/2019	0.55	1.47	1.19	0.65	0.015	0.016	96	0	0.0	0.012
2/15/2019	0.47	1.06	0.97	0.56	0.016	0.017	96	0	0.0	0.012
2/16/2019	0.51	1.32	1.03	0.54	0.015	0.016	96	0	0.0	0.012
2/17/2019	0.56	2.24	1.02	0.59	0.015	0.016	96	0	0.0	0.012
2/18/2019	0.47	2.58	0.93	0.56	0.015	0.016	96	0	0.0	0.011
2/19/2019	0.36	0.82	0.89	0.48	0.015	0.016	96	0	0.0	0.012
2/20/2019	0.32	0.75	1.31	0.46	0.016	0.018	96	0	0.0	0.011
2/21/2019	0.34	0.92	1.12	0.44	0.015	0.016	96	0	0.0	0.011
2/22/2019	0.29	2.60	1.28	0.45	0.015	0.016	96	0	0.0	0.012
2/23/2019	0.29	0.62	0.93	0.33	0.016	0.016	96	0	0.0	0.011
2/24/2019	0.35	1.04	1.45	0.42	0.016	0.016	96	0	0.0	0.011
2/25/2019	0.28	1.01	1.09	0.39	0.016	0.016	96	0	0.0	0.012
2/26/2019	0.29	1.23	0.89	0.36	0.016	0.016	96	0	0.0	0.011
2/27/2019	0.39	1.03	1.00	0.42	0.016	0.017	96	0	0.0	0.012
2/28/2019	0.34	0.86	1.06	0.42	0.017	0.018	96	0	0.0	0.012
Avg	0.74	2.64	1.12	0.81	0.016	0.016	96	0	0.0	0.012
Min	0.28	0.62	0.86	0.33	0.015	0.016	96	0	0.0	0.011
Max	2.45	8.54	1.48	1.76	0.017	0.019	96	0	0.0	0.014

Note: % Exceeded are 4 hr compliance periods where 50% of the samples are greater than 0.3 NTU



Date	Membrane Integrity																							
	Membrane 1			Membrane 2			Membrane 3			Membrane 4			Membrane 5			Membrane 6			Membrane 7			Membrane 8		
	Air Hold Start Pressure (PSI)	Air Hold Stop Pressure (PSI)	Pass / Fail	Air Hold Start Pressure (PSI)	Air Hold Stop Pressure (PSI)	Pass / Fail	Air Hold Start Pressure (PSI)	Air Hold Stop Pressure (PSI)	Pass / Fail	Air Hold Start Pressure (PSI)	Air Hold Stop Pressure (PSI)	Pass / Fail	Air Hold Start Pressure (PSI)	Air Hold Stop Pressure (PSI)	Pass / Fail	Air Hold Start Pressure (PSI)	Air Hold Stop Pressure (PSI)	Pass / Fail	Air Hold Start Pressure (PSI)	Air Hold Stop Pressure (PSI)	Pass / Fail	Air Hold Start Pressure (PSI)	Air Hold Stop Pressure (PSI)	Pass / Fail
2/1/2019	15.1	14.6	PASS	14.3	13.8	PASS	15.7	15.3	PASS	14.3	13.9	PASS	14.8	14.2	PASS	14.3	13.9	PASS	15.1	14.7	PASS	14.3	13.7	PASS
2/2/2019	15.1	14.7	PASS	14.8	14.4	PASS	16.0	15.5	PASS	14.4	13.9	PASS	14.5	13.8	PASS	14.6	14.4	PASS	14.9	14.5	PASS	14.3	13.8	PASS
2/3/2019	15.0	14.5	PASS	14.3	13.7	PASS	16.1	15.7	PASS	14.5	14.1	PASS	14.4	13.8	PASS	14.3	13.9	PASS	14.8	14.4	PASS	14.3	13.8	PASS
2/4/2019	15.0	14.6	PASS	14.3	13.8	PASS	14.8	14.3	PASS	14.3	13.9	PASS	14.3	13.7	PASS	14.3	13.8	PASS	14.9	14.5	PASS	14.3	13.8	PASS
2/5/2019	14.9	14.4	PASS	14.3	13.7	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.6	14.0	PASS	14.3	13.9	PASS	14.7	14.2	PASS	14.3	13.8	PASS
2/6/2019	15.0	14.5	PASS	14.4	13.8	PASS	14.7	14.1	PASS	20.2	20.2	PASS	14.6	14.0	PASS	14.4	13.9	PASS	15.0	14.7	PASS	14.3	13.7	PASS
2/7/2019	15.0	14.5	PASS	14.3	13.8	PASS	14.8	14.2	PASS	14.3	13.9	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.8	14.4	PASS	14.3	13.8	PASS
2/8/2019	15.1	14.6	PASS	14.3	13.8	PASS	14.8	14.2	PASS	14.3	13.9	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.8	14.4	PASS	15.3	14.9	PASS
2/9/2019	15.1	14.7	PASS	14.3	13.7	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.7	14.2	PASS	14.3	13.9	PASS	14.8	14.4	PASS	14.4	13.9	PASS
2/10/2019	15.0	14.5	PASS	14.3	13.7	PASS	14.8	14.2	PASS	14.3	13.9	PASS	14.7	14.1	PASS	14.3	13.8	PASS	14.8	14.3	PASS	14.4	13.9	PASS
2/11/2019	15.1	14.7	PASS	14.3	13.7	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.7	14.1	PASS	14.4	14.0	PASS	14.8	14.3	PASS	14.4	13.9	PASS
2/12/2019	14.9	14.5	PASS	14.4	13.9	PASS	14.7	14.2	PASS	14.5	14.1	PASS	14.7	14.1	PASS	14.3	13.9	PASS	15.1	14.8	PASS	14.5	14.0	PASS
2/13/2019	14.9	14.4	PASS	14.4	13.9	PASS	14.8	14.3	PASS	14.3	13.9	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.7	14.3	PASS	14.4	13.9	PASS
2/14/2019	14.9	14.4	PASS	14.4	13.9	PASS	14.7	14.2	PASS	14.3	13.9	PASS	14.8	14.2	PASS	14.3	13.9	PASS	14.7	14.3	PASS	14.5	14.0	PASS
2/15/2019	15.1	14.7	FAIL	14.3	13.7	PASS	14.7	14.1	PASS	14.3	13.8	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.9	14.5	PASS	14.5	14.0	PASS
2/16/2019	15.1	14.7	PASS	14.4	13.8	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.8	14.4	PASS	14.3	13.8	PASS
2/17/2019	15.0	14.5	PASS	14.4	13.8	PASS	14.7	14.2	PASS	14.3	13.9	PASS	14.7	14.1	PASS	14.3	13.8	PASS	14.9	14.6	PASS	14.4	14.0	PASS
2/18/2019	15.1	14.6	PASS	14.3	13.7	PASS	14.8	14.2	PASS	14.4	14.0	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.8	14.3	PASS	14.3	13.8	PASS
2/19/2019	15.0	14.6	PASS	14.3	13.7	PASS	14.7	14.1	PASS	14.4	13.9	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.7	14.2	PASS	14.3	13.8	PASS
2/20/2019	15.0	14.5	PASS	14.3	13.8	PASS	15.1	14.7	PASS	14.3	13.9	PASS	14.7	14.1	PASS	14.3	13.8	PASS	14.9	14.4	PASS	14.3	13.7	PASS
2/21/2019	15.0	14.4	PASS	14.3	13.7	PASS	15.0	14.5	PASS	14.3	13.9	PASS	14.6	14.0	PASS	14.3	13.9	PASS	14.8	14.4	PASS	14.3	13.8	PASS
2/22/2019	15.0	14.6	PASS	14.3	13.7	PASS	14.9	14.4	PASS	14.3	13.8	PASS	14.7	14.1	PASS	14.3	13.9	PASS	14.8	14.3	PASS	14.3	13.9	PASS
2/23/2019	14.9	14.5	PASS	14.3	13.8	PASS	14.7	14.2	PASS	14.3	13.9	PASS	14.6	14.0	PASS	14.4	14.0	PASS	14.8	14.4	PASS	14.4	13.9	PASS
2/24/2019	14.9	14.4	PASS	14.3	13.8	PASS	14.7	14.2	PASS	14.3	13.9	PASS	15.1	14.7	PASS	14.3	13.9	PASS	14.8	14.4	PASS	14.4	13.8	PASS
2/25/2019	15.0	14.5	PASS	14.3	13.8	PASS	14.9	14.4	PASS	14.3	13.9	PASS	14.6	14.1	PASS	14.4	13.9	PASS	14.8	14.4	PASS	14.3	13.8	PASS
2/26/2019	14.9	14.4	PASS	14.3	13.8	PASS	14.8	14.3	PASS	14.3	13.9	PASS	14.7	14.2	PASS	14.3	13.8	PASS	14.7	14.3	PASS	14.4	14.0	PASS
2/27/2019	14.9	14.4	PASS	14.3	13.7	PASS	14.7	14.2	PASS	14.3	13.9	PASS	14.2	13.6	PASS	14.3	13.9	PASS	14.8	14.4	PASS	14.4	14.0	PASS
2/28/2019	14.9	14.4	PASS	14.3	13.7	PASS	14.8	14.2	PASS	14.5	14.1	PASS	14.4	13.8	PASS	14.3	13.8	PASS	14.8	14.4	PASS	14.3	13.8	PASS

Integrity test performed every 24-hours



Chlorination								
Date	Treated Water	Raw Water	RW Tank	Membrane Feed Water	Added pre-FW Tanks	Treated Water	Post FW Tanks	Added Post FW Tank
	Volume	Free Cl <sub>2</sub>	OCL	Free Cl <sub>2</sub>	OCL	Free Cl <sub>2</sub>	Free Cl <sub>2</sub>	OCL
	MG	mg/l	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Daily	Average	Average	Average	Average	Average	Average	Average
	FIT-4000-1	AIT-1035-2	Added	AIT-1035-4	Added	AIT-4030-1	AIT-4050-1	Added
2/1/2019	6.9	0.48	0.00	0.38	0.61	1.11	1.00	0.00
2/2/2019	7.9	0.58	0.00	0.43	0.55	1.13	1.03	0.00
2/3/2019	7.8	0.52	0.00	0.47	0.52	1.12	1.03	0.00
2/4/2019	8.5	0.39	0.00	0.39	0.60	1.12	1.02	0.00
2/5/2019	8.8	0.45	0.00	0.37	0.59	1.11	1.01	0.00
2/6/2019	6.5	0.47	0.00	0.37	0.61	1.11	0.99	0.00
2/7/2019	7.2	0.48	0.00	0.39	0.60	1.12	1.02	0.00
2/8/2019	6.9	0.38	0.00	0.38	0.62	1.11	1.02	0.00
2/9/2019	6.9	0.45	0.00	0.34	0.65	1.13	1.01	0.00
2/10/2019	7.2	0.58	0.00	0.40	0.60	1.14	1.04	0.00
2/11/2019	6.8	0.60	0.00	0.46	0.55	1.15	1.04	0.00
2/12/2019	6.8	0.46	0.00	0.45	0.55	1.11	1.03	0.00
2/13/2019	6.4	0.43	0.00	0.41	0.58	1.09	1.02	0.00
2/14/2019	6.6	0.42	0.00	0.38	0.64	1.09	1.02	0.00
2/15/2019	6.6	0.43	0.00	0.37	0.60	1.11	1.02	0.00
2/16/2019	6.7	0.45	0.00	0.36	0.60	1.10	1.03	0.00
2/17/2019	6.7	0.43	0.00	0.36	0.62	1.10	1.02	0.00
2/18/2019	6.7	0.47	0.00	0.38	0.58	1.12	1.03	0.00
2/19/2019	6.8	0.47	0.00	0.39	0.60	1.09	1.02	0.00
2/20/2019	6.8	0.51	0.00	0.41	0.58	1.11	1.03	0.00
2/21/2019	6.8	0.45	0.00	0.41	0.60	1.11	1.03	0.00
2/22/2019	6.8	0.47	0.00	0.40	0.60	1.10	1.03	0.00
2/23/2019	6.6	0.47	0.00	0.40	0.58	1.09	1.02	0.00
2/24/2019	6.9	0.48	0.00	0.40	0.60	1.10	1.02	0.00
2/25/2019	6.3	0.47	0.00	0.40	0.60	1.10	1.02	0.00
2/26/2019	6.7	0.45	0.00	0.40	0.60	1.10	1.02	0.00
2/27/2019	6.5	0.45	0.00	0.39	0.60	1.09	1.01	0.00
2/28/2019	6.6	0.42	0.00	0.37	0.62	1.10	1.01	0.00
Avg	7.0	0.47	0.00	0.40	0.59	1.11	1.02	0.00
Min	6.3	0.38	0.00	0.34	0.52	1.09	0.99	0.00
Max	8.8	0.60	0.00	0.47	0.65	1.15	1.04	0.00





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 <sub>2</sub>	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
2/1/2019	45.7	2,736	0.48	1326	28.7	17.5	6.9	461	0.98	452.72	1,778.91	3.1	12.00	Y
2/2/2019	53.9	2,320	0.58	1351	28.8	17.7	7.4	430	1.02	439.83	1,790.95	3.1	12.00	Y
2/3/2019	53.7	2,329	0.52	1203	28.7	22.2	7.3	475	1.02	482.79	1,685.91	3.1	12.00	Y
2/4/2019	48.0	2,606	0.39	1025	28.8	22.1	8.3	422	1.00	420.54	1,445.84	3.2	12.00	Y
2/5/2019	43.5	2,878	0.45	1308	16.5	16.1	7.5	298	0.97	290.65	1,598.99	3.5	12.00	Y
2/6/2019	40.5	3,092	0.47	1453	16.9	16.6	6.4	357	0.98	350.42	1,803.25	3.5	12.00	Y
2/7/2019	38.1	3,282	0.48	1561	28.7	23.0	6.9	512	1.01	516.31	2,077.40	3.6	12.00	Y
2/8/2019	38.1	3,280	0.38	1256	28.7	25.3	6.6	559	1.00	556.67	1,813.16	3.6	12.00	Y
2/9/2019	54.1	2,310	0.45	1051	28.7	23.2	6.7	529	1.00	526.78	1,577.31	3.4	12.00	Y
2/10/2019	55.8	2,243	0.58	1293	28.7	23.3	6.8	524	1.03	539.36	1,832.00	3.5	12.00	Y
2/11/2019	49.2	2,541	0.60	1528	28.7	25.7	6.5	569	1.03	586.39	2,114.03	3.5	12.00	Y
2/12/2019	44.0	2,845	0.46	1309	28.7	25.0	6.6	562	0.82	458.98	1,767.67	3.3	12.00	Y
2/13/2019	40.5	3,090	0.43	1341	28.7	25.0	6.1	600	1.01	605.85	1,947.28	3.0	12.00	Y
2/14/2019	41.7	2,998	0.42	1261	28.7	24.8	6.3	583	1.01	588.22	1,848.74	2.9	12.00	Y
2/15/2019	43.7	2,860	0.43	1221	28.7	20.7	6.5	524	1.01	529.17	1,749.99	2.9	12.00	Y
2/16/2019	56.1	2,230	0.45	1006	28.7	22.8	6.4	547	1.02	555.81	1,561.98	2.9	12.00	Y
2/17/2019	56.3	2,222	0.43	962	28.7	23.4	6.4	554	1.00	555.44	1,516.99	3.0	12.00	Y
2/18/2019	46.5	2,693	0.47	1271	28.7	23.8	6.5	551	1.02	563.81	1,835.23	2.9	12.00	Y
2/19/2019	40.4	3,095	0.47	1455	28.7	24.0	6.5	558	1.00	559.20	2,013.92	2.9	12.00	Y
2/20/2019	43.1	2,905	0.51	1483	28.7	24.6	6.6	549	1.01	554.30	2,037.02	2.9	12.00	Y
2/21/2019	43.6	2,866	0.45	1282	28.7	24.3	6.6	555	1.02	563.47	1,845.23	2.8	12.00	Y
2/22/2019	45.8	2,732	0.47	1270	28.7	24.2	6.5	558	1.02	570.71	1,841.18	2.8	12.00	Y
2/23/2019	55.6	2,249	0.47	1046	28.7	22.2	6.5	540	1.01	544.92	1,591.22	2.7	12.00	Y
2/24/2019	53.2	2,350	0.48	1123	28.6	23.9	6.6	545	1.00	546.52	1,669.70	2.9	12.00	Y
2/25/2019	43.5	2,877	0.47	1342	28.6	14.1	6.1	480	1.02	487.99	1,829.57	2.9	12.00	Y
2/26/2019	41.7	3,001	0.45	1364	28.7	13.8	6.5	449	1.01	453.34	1,817.53	2.9	12.00	Y
2/27/2019	43.8	2,858	0.45	1272	28.7	23.7	6.3	569	1.00	566.10	1,837.80	2.9	12.00	Y
2/28/2019	41.6	3,011	0.42	1269	28.7	23.5	6.4	563	1.00	560.32	1,829.81	3.0	12.00	Y
Avg	46.5	2,732	0.47	1,273	27.8	22.0	6.7	515	1.00	515.24	1,787.81	3.1	12.00	NA
Min	38.1	2,222	0.38	962	16.5	13.8	6.1	298	0.82	290.65	1,445.84	2.7	12.00	NA
Max	56.3	3,282	0.60	1,561	28.8	25.7	8.3	600	1.03	605.85	2,114.03	3.6	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 Cl<sub>2</sub>)

WSSN: Date	0072 Akron					0390 Bangor Twp.					0400 Bangor Monitor Dist.			0470 Bay City							0485 Bay County				0517 Beaver Rd	0518 Beaver Twp		2180 Essexville
	1	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	22	24	26	29	30	32				
	2/1/2019																											
2/2/2019																												
2/3/2019																												
2/4/2019																								0.96				
2/5/2019	0.23	0.85	0.53	0.71	0.98											0.85	0.56	0.90	0.79	0.79		0.54						
2/6/2019									0.64	0.45	0.64	0.77	0.46	0.96	0.75													
2/7/2019						0.62	0.88																					
2/8/2019																												
2/9/2019																												
2/10/2019																												
2/11/2019									0.89	0.57	0.77	0.92	0.62	1.06	0.93													
2/12/2019		0.42	0.60													0.83	0.83	0.84	0.81	0.82								
2/13/2019																								0.78				
2/14/2019									0.67	0.40	0.67	0.84	0.57	0.92	0.81													
2/15/2019																												
2/16/2019																												
2/17/2019																												
2/18/2019																												
2/19/2019																					0.94			0.87				
2/20/2019									0.74	0.42	0.67	0.72	0.44	0.84	0.89													
2/21/2019		0.22	0.60	0.64	0.98			1.00														0.64						
2/22/2019																								0.92				
2/23/2019																												
2/24/2019																												
2/25/2019									0.69	0.49	0.66	0.82	0.34	0.87	0.79													
2/26/2019																												
2/27/2019																												
2/28/2019									0.27	0.38	0.70	0.89	0.43	0.91	0.76													
Average	0.23		0.65				0.83					0.69					0.80			0.94		0.59		0.88				
Min	0.23		0.22				0.62					0.27					0.56			0.94		0.54		0.78				
Max	0.23		0.98				1.00					1.06					0.90			0.94		0.64		0.96				



MONITORING STATION ADDRESSES

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>1. Sample station at corner of 5758 M-25 &amp; F</li> <li>3. Bangor Fire Station, 3921 Wheeler</li> <li>4. BCDWS Admin. Bldg. 3933 Patterson Rd.</li> <li>5. 7-11, 3543 S. Old Kawkawlin Rd.</li> <li>6. Admiral Petroleum, 314 S Euclid Ave.</li> <li>7. Sequin Lumber, 3881 Euclid Ave</li> <li>9. B's Boutique, 2981 Midland Rd</li> <li>10. Little Caesars, 3475 E North Union Rd</li> </ul> | <ul style="list-style-type: none"> <li>11. Number 1 Fire Station, 1401 Center Ave</li> <li>12. Number 2 Fire Station, 1000 Fremont Ave</li> <li>13. Skizak's Sport Shop, 807 Salzburg Ave</li> <li>14. Number 4 Fire Station, 212 S. Dean St</li> <li>15. Number 5 Fire Station, 1209 Smith St</li> <li>16. Bay City Hall, 301 Washington Ave</li> <li>17. Skipper Buds Marina, 1809 S Water St</li> <li>18. Bay Valley Animal Hospital 6015 WS Saginaw Rd</li> </ul> | <ul style="list-style-type: none"> <li>19. Dore's M-84 Party Store, 6183 WS Saginaw Rd</li> <li>20. Pump Station #13, 6000 WS Saginaw Rd</li> <li>22. Duce's Char House, 432 N. Tuscola Rd</li> <li>24. Little Learners Daycare, 1694 Cass Ave.</li> <li>26. Wieland Contracting, 2443 S Mackinaw Rd</li> <li>29. Sample Station, 2515 S. 11 Mile Rd</li> <li>30. Sample Station, 340 W. Beaver Rd</li> <li>32. Essexville City Hall, 1107 Woodside Ave</li> </ul> |
|---|---|--|

Distribution System Monitoring																								
Chlorine Residual at Bacteriological Monitoring Stations (mg/L Free Cl <sub>2</sub> )																								
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
2/1/2019																								
2/2/2019																								
2/3/2019																								
2/4/2019			0.66	0.60	0.56																			
2/5/2019																				0.23	0.64	0.74	0.64	0.47
2/6/2019																								
2/7/2019	0.79	0.85				0.97	0.78		0.61				0.93	0.71	0.67	0.42		0.76	0.53					
2/8/2019																								
2/9/2019																								
2/10/2019																								
2/11/2019			0.72	0.60	0.59																			
2/12/2019										0.49											0.67	0.78	0.77	
2/13/2019																								
2/14/2019																								
2/15/2019																								
2/16/2019																								
2/17/2019																								
2/18/2019																								
2/19/2019			0.84	0.60	0.60			0.89	0.75							0.70								
2/20/2019																								
2/21/2019													0.95	0.84	0.70									
2/22/2019																								
2/23/2019																								
2/24/2019																								
2/25/2019			0.76																					
2/26/2019										0.69														
2/27/2019																								
2/28/2019																								
Average	0.82		0.65			0.88			0.68		0.59		0.80			0.56		0.65		0.23		0.71		0.47
Min	0.79		0.56			0.78			0.61		0.49		0.67			0.42		0.53		0.23		0.64		0.47
Max	0.85		0.84			0.97			0.75		0.69		0.95			0.70		0.76		0.23		0.78		0.47



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

Name of Water Supply

**Bay Area Water Treatment Plant**

MICHIGAN DEPARTMENT OF PUBLIC HEALTH  
Bureau of Environmental Health  
Water Supplier Bacteriological Analysis Report

February, 2019

COUNTY	COMMUNITY	WSSN NUMBER	DISTRIBUTION SYSTEM SAMPLES				NUMBER REPEAT SAMPLES
			avg free cl2 mg/L	NUMBER REQUIRED	NUMBER COLLECTED	NUMBER POSITIVE	
Tuscola	Akron	0072	0.23	1	1	0	0
BAY	Bangor Township	0390	0.65	10	10	0	0
BAY	Bangor-Monitor Dist.	0400	0.83	3	3	0	0
BAY	Bay City	0470	0.69	40	42	0	0
BAY	Bay County (Frankl./Monitor/Portsm.)	0485	0.80	10	10	0	0
BAY	Beaver Road Area	0517	0.94	1	1	0	0
BAY	Beaver Township	0518	0.59	2	2	0	0
BAY	Essexville	2180	0.88	4	4	0	0
BAY	Fraser Township	2465	0.82	2	2	0	0
BAY	Hampton Township	2960	0.65	10	10	0	0
BAY	Kawkawlin Township	3565	0.88	3	3	0	0
BAY	Kawkawlin Metro Dist.	3570	0.68	2	2	0	0
BAY	Merritt Township	4280	0.59	2	2	0	0
BAY	Monitor Township	4440	0.80	6	6	0	0
BAY	City of Pinconning	5330	0.56	2	2	0	0
BAY	Pinconning Township	5335	0.65	2	2	0	0
BAY	Portsmouth Township	5540	0.23	1	1	0	0
BAY	Williams Township	7125	0.71	6	6	0	0
Tuscola	Wisner	7134	0.47	1	1	0	0

Average Free Cl2 Residual of All Distribution Sites 0.67 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 NA
- 5. Total distribution samples with no detectable free cl2 residual and HPC was >500 NA
- 6. Percent of distribution samples with no detectable free cl2 residual 0.00%
- 7. Percent shown line #6 in previous monthly report 0.00%

