CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

[redacted]
Operator-in-Charge

December 2014
Month/Year

F-1R, F-2
Certification of Operator-in-Charge

F-1
Water Plant Classification

[redacted]
Signature of Operator-in-Charge

Genesee
County

DEQ
RESOURCE MANAGEMENT DIVISION
FEB 06 2015
LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	23.8	Million Gallons per Day
Rated Plant Capacity:	36	Million Gallons per Day
Average Filter Run:	74	Hours
Average Head Loss:	n/a	Feet *(filter head loss meters not operational)
Average Filtration Rate:	2.4	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	3.2	Gallons Per Square Feet per Minute
Average Wash Water Use:	2.9%	Percent of Treated Water

Chemical Data

Chlorine on hand:	20,000	lb.	Est. supply:	30	days
Primary Coagulant (Ferric Chloride) on hand:	54,000	lb.	Est. supply:	18	days
Lime (CaO) on hand:	296	tons	Est. supply:	34	days
Fluoride on Hand:	16,630	lb.	Est. supply:	35	days
Cost of All Chemicals per Million Gallons:	n/a	dollars			
Total Power Cost per Million Gallons:	n/a	dollars			

Remarks

	Confluence Point # 1 (N)	Confluence Point # 2 (S)
Number of filter confluence samples > 0.3 NTU:	0	0
Number of filter confluence samples collected:	226	226
Percent of filter confluence samples > 0.3 NTU:	0.0%	0.0%
Number of filter confluence samples > 1 NTU	0	0

Did any individual filter exceed:

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

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

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

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

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

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

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

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

Coagulation Parameters & Softening Chemical Application — City of Flint Water Treatment Plant — December 2014 — Page 2

WSSN: 2310

Date	Million Gallons Treated	Ferric as Fe3+ mg/L	Lime Dosage (mg/L)	PW-340 Cationic Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
						Raw			Plate Settler	Applied
						Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	16.6	12.2	111.7	4.2	1.03	8	5.3	7.8	0.80	3.06
2	16.5	12.4	130.1	4.2	1.03	8	4.4	4.9	0.92	2.02
3	16.2	12.5	130.6	4.4	1.06	8	3.6	3.8	0.75	1.96
4	16.2	12.3	126.7	4.1	1.07	8	3.1	4.1	0.93	2.13
5	19.6	12.3	117.1	3.9	1.04	8	2.2	2.5	1.52	2.19
6	6.4	13.7	117.7	3.7	1.04	3	1.8	1.9	2.50	1.67
7	0.0	0.0	0.0	0.0	0.00	4	3.2	3.7	n/a	n/a
8	0.0	0.0	0.0	0.0	0.00	1	4.0	4.0	n/a	n/a
9	18.4	15.3	116.4	4.2	0.65	8	2.4	2.9	1.24	1.88
10	18.3	15.2	119.7	4.2	0.79	8	2.1	3.7	0.93	1.50
11	18.5	16.2	113.3	4.1	0.86	8	1.7	1.9	0.92	1.54
12	18.6	16.5	113.3	4.1	0.85	8	1.6	1.9	0.91	1.22
13	18.5	16.7	118.1	4.2	0.85	8	1.7	1.8	0.92	1.82
14	18.4	16.6	124.8	4.3	0.86	8	1.9	2.7	0.93	1.73
15	18.5	16.8	119.8	4.3	0.86	8	2.8	3.5	1.06	2.39
16	18.5	16.5	118.5	4.2	0.86	8	2.9	7.2	0.87	1.76
17	18.2	16.6	123.1	4.3	0.87	8	2.0	2.2	0.84	1.88
18	18.3	16.4	130.5	4.3	0.86	8	2.3	4.3	0.87	1.87
19	18.1	16.8	132.8	4.4	0.87	8	1.8	2.0	0.87	1.56
20	16.2	15.1	149.6	4.9	0.84	8	1.8	3.1	0.81	1.65
21	14.9	14.5	116.7	4.9	0.97	8	3.8	5.9	0.80	6.47
22	15.0	14.4	114.9	4.6	0.98	8	3.6	4.0	0.73	2.37
23	15.1	14.3	119.9	5.2	0.96	8	3.7	4.1	0.83	1.59
24	15.1	14.3	136.7	5.1	0.96	8	7.6	17.3	0.75	2.11
25	14.8	14.5	148.3	5.2	1.07	8	9.4	17.1	0.75	2.86
26	15.0	14.2	148.7	5.3	1.06	8	7.9	13.3	0.76	1.36
27	15.0	16.3	145.7	5.2	1.05	8	21.9	23.5	1.05	1.43
28	15.0	17.5	140.0	5.3	1.06	8	21.8	25.6	1.07	1.25
29	15.2	18.2	130.4	5.2	1.04	8	9.7	12.8	0.76	1.08
30	11.8	19.2	139.8	5.6	0.79	8	6.6	7.8	0.53	0.97
31	10.4	19.0	143.9	5.6	0.83	8	5.2	7.1	0.40	1.26
Avg.	15.1	14.4	119.3	4.3	0.87	7	4.95			1.95
Max.	19.6	19.2	149.6	5.6	1.07	8	21.9	25.6	2.50	6.47
Min.	0.0	0.0	0.0	0.0	0.00	1	1.60			0.97
Total	467.3									

Filter turbidity

City of Flint Water Treatment Plant

WSSN: 2310

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Plant Tap NTU
1	8	0.09	0.11	6	0	0	8	0.09	0.10	6	0	0	0.09
2	8	0.08	0.09	6	0	0	8	0.08	0.09	6	0	0	0.08
3	8	0.08	0.12	6	0	0	8	0.07	0.10	6	0	0	0.07
4	8	0.07	0.10	6	0	0	8	0.07	0.08	6	0	0	0.07
5	8	0.07	0.08	6	0	0	8	0.07	0.09	6	0	0	0.08
6	2	0.10	0.12	2	0	0	2	0.10	0.10	2	0	0	0.08
7	0	n/a	n/a	0	0	0	0	n/a	n/a	0	0	0	0.07
8	0	n/a	n/a	0	0	0	0	n/a	n/a	0	0	0	0.12
9	8	0.09	0.19	6	0	0	8	0.07	0.11	6	0	0	0.08
10	8	0.08	0.14	6	0	0	8	0.06	0.07	6	0	0	0.05
11	8	0.08	0.10	6	0	0	8	0.07	0.10	6	0	0	0.07
12	8	0.09	0.13	6	0	0	8	0.09	0.14	6	0	0	0.07
13	8	0.07	0.10	6	0	0	8	0.07	0.08	6	0	0	0.08
14	8	0.06	0.07	6	0	0	8	0.06	0.07	6	0	0	0.05
15	8	0.06	0.06	6	0	0	8	0.06	0.07	6	0	0	0.06
16	8	0.07	0.08	6	0	0	8	0.06	0.06	6	0	0	0.06
17	8	0.07	0.08	6	0	0	8	0.07	0.08	6	0	0	0.08
18	8	0.07	0.11	6	0	0	8	0.06	0.07	6	0	0	0.07
19	8	0.08	0.13	6	0	0	8	0.06	0.09	6	0	0	0.07
20	8	0.07	0.10	6	0	0	8	0.07	0.09	6	0	0	0.06
21	8	0.06	0.07	6	0	0	8	0.06	0.09	6	0	0	0.07
22	8	0.06	0.07	6	0	0	8	0.07	0.16	6	0	0	0.06
23	8	0.07	0.09	6	0	0	8	0.07	0.12	6	0	0	0.07
24	8	0.06	0.10	6	0	0	8	0.06	0.10	6	0	0	0.06
25	8	0.06	0.09	6	0	0	8	0.06	0.10	6	0	0	0.06
26	8	0.08	0.16	6	0	0	8	0.07	0.15	6	0	0	0.08
27	8	0.08	0.12	6	0	0	8	0.07	0.11	6	0	0	0.07
28	8	0.07	0.11	6	0	0	8	0.05	0.07	6	0	0	0.07
29	8	0.07	0.09	6	0	0	8	0.06	0.07	6	0	0	0.08
30	8	0.06	0.08	6	0	0	8	0.05	0.06	6	0	0	0.06
31	8	0.07	0.09	6	0	0	8	0.06	0.08	6	0	0	0.08
Avg.	7	0.07	0.10	5	0	0	7	0.07	0.09	5	0	0	
Max.	8	0.10	0.19	6	0	0	8	0.10	0.16	6	0	0	0.12
Min.	0	0.06	0.06	0	0	0	0	0.05	0.06	0	0	0	

Date	Fluoriode Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.5	0.22	0.71		2.0	3.8	5.8	0.5	0.8	3.0	3.5	3.0	3.5
2	0.5	0.21	0.72		2.0	3.6	5.6	0.7	1.0	3.0	3.5	2.7	3.2
3	0.5	0.23	0.72		2.1	3.0	5.1	0.7	1.0	2.7	3.2	2.5	2.9
4	0.5	0.21	0.73	0.64	2.0	3.0	5.0	0.6	0.8	3.0	3.5	2.4	2.8
5	0.4	0.21	0.68		1.9	3.0	4.9	0.6	0.8	2.7	3.2	2.2	2.5
6	0.5	0.22	0.77		1.9	3.0	4.9	0.4	0.6	3.1	3.5	2.1	2.5
7	0.0	0.22	0.70		0.0	0.0	0.0	n/a	n/a	3.0	3.5	2.4	2.8
8	0.0	0.22	0.71		0.0	0.0	0.0	n/a	n/a	2.9	3.2	2.6	2.9
9	0.4	0.24	0.67	0.65	2.0	2.3	4.3	0.6	0.8	2.2	2.9	2.7	3.1
10	0.4	0.22	0.71		1.8	2.7	4.5	0.5	0.8	2.6	2.9	2.4	2.7
11	0.4	0.24	0.69		1.8	2.8	4.6	0.5	0.7	2.5	3.1	2.4	2.8
12	0.4	0.21	0.64		1.8	2.7	4.5	0.6	0.8	2.4	2.9	2.0	2.3
13	0.4	0.21	0.63		2.0	2.6	4.6	0.6	0.8	3.0	3.5	2.6	2.9
14	0.4	0.20	0.64		2.0	2.6	4.6	0.7	1.0	2.9	3.2	2.9	3.1
15	0.4	0.24	0.64		2.0	2.6	4.6	0.7	0.9	2.8	3.0	2.6	2.9
16	0.4	0.24	0.63	0.60	2.0	2.6	4.6	0.7	0.9	2.8	3.0	2.3	2.5
17	0.4	0.22	0.63		2.0	2.6	4.6	0.7	0.9	2.7	3.0	2.4	3.0
18	0.4	0.21	0.59		2.0	2.7	4.7	0.6	0.8	2.6	3.0	2.1	2.4
19	0.4	0.21	0.58		2.1	2.6	4.7	0.7	0.9	3.0	3.3	2.6	3.1
20	0.4	0.20	0.61		1.9	2.6	4.5	0.6	0.8	2.6	3.1	2.0	2.5
21	0.4	0.22	0.62		1.3	2.4	3.7	0.6	0.8	2.8	3.0	2.6	2.8
22	0.4	0.22	0.63		2.0	2.6	4.6	0.9	1.1	2.7	3.1	2.6	3.0
23	0.4	0.23	0.63	0.64	1.9	3.1	5.0	0.6	0.9	2.9	3.2	2.5	2.9
24	0.4	0.20	0.63		1.9	3.0	4.9	0.9	1.1	2.8	3.0	2.3	2.7
25	0.4	0.21	0.63		1.9	3.1	5.0	0.5	0.7	2.6	3.0	1.7	2.2
26	0.4	0.23	0.69		2.0	2.8	4.8	0.6	0.7	2.8	3.1	2.3	2.6
27	0.4	0.19	0.60		2.1	2.8	4.9	0.7	0.9	2.9	3.5	1.9	2.5
28	0.4	0.20	0.67		1.9	3.0	4.9	0.6	0.9	2.7	3.0	2.4	2.7
29	0.4	0.21	0.62		1.9	3.0	4.9	0.6	0.9	2.7	3.0	2.7	3.0
30	0.4	0.20	0.60	0.54	1.9	3.1	5.0	0.6	0.9	2.7	2.9	1.9	2.5
31	0.4	0.22	0.63		1.9	3.3	5.2	0.8	1.1	2.7	3.1	2.8	3.1
Avg.	0.39	0.22	0.66	0.61	1.8	2.7	4.5	0.6	0.9	2.8	3.2	2.4	2.8
Max.	0.50	0.24	0.77	0.65	2.1	3.8	5.8	0.9	1.1	3.1	3.5	3.0	3.5
Min.	0.00	0.19	0.58	0.54	0.0	0.0	0.0	0.4	0.6	2.2	2.9	1.7	2.2

WSSN: 2310

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.25	7.82	303	204	248	109	55	95	97.8	63.3	14.6	11.7	47	77
2	8.12	8.27	303	193	248	97	55	96	98.6	54.5	14.1	13.6	47	77
3	8.21	8.25	307	192	243	96	64	96	113.8	64.1	5.8	7.8	47	75
4	8.42	7.84	312	193	257	97	55	96	103.4	55.3	13.6	13.6	48	76
5	8.21	8.23	314	197	257	98	57	99	109.0	65.7	9.7	7.8	45	74
6	8.27	8.34	314	210	254	115	60	95	109.8	69.7	9.7	8.3	47	74
7	8.43	8.08	326	203	265	102	61	101	103.4	58.5	16.5	13.6	47	78
8	8.35	8.00	326	197	268	93	58	104	107.4	56.9	14.1	13.1	48	77
9	8.33	7.95	324	200	263	97	61	103	121.0	71.3	6.3	5.8	48	77
10	8.23	7.95	329	190	269	81	60	109	106.6	53.7	15.1	12.6	48	82
11	8.17	7.95	321	190	261	88	60	102	111.4	68.1	10.2	4.9	48	79
12	8.13	8.33	324	197	260	95	64	102	116.2	70.5	8.3	2.9	49	81
13	8.13	7.41	322	208	261	100	61	108	119.4	75.4	6.3	4.9	48	83
14	8.18	8.16	334	206	270	97	64	109	101.0	55.3	20.4	16.5	48	81
15	8.24	8.18	328	207	269	102	59	105	97.0	59.3	19.9	14.1	50	83
16	8.29	8.37	324	200	269	95	55	105	103.4	55.3	16.0	14.6	48	82
17	8.22	8.18	321	201	261	89	60	112	107.4	65.7	12.2	9.2	44	85
18	8.24	8.15	325	203	264	91	61	112	108.2	60.9	13.6	12.2	48	82
19	7.99	8.03	319	199	258	91	61	108	117.0	69.7	6.8	5.8	48	84
20	8.23	7.90	318	196	252	90	66	106	116.2	70.5	7.3	4.9	48	83
21	8.31	8.20	317	173	260	77	57	96	99.4	51.3	17.0	9.7	45	78
22	8.31	8.35	319	177	266	72	53	105	102.6	48.1	15.1	14.1	47	80
23	8.25	8.22	322	168	263	71	59	97	121.0	52.9	15.1	7.8	49	79
24	8.27	8.49	323	179	264	72	59	107	108.2	54.5	12.6	10.2	46	79
25	8.28	8.12	312	183	255	72	57	111	109.0	63.3	10.2	6.3	49	82
26	8.25	8.18	307	182	248	79	59	103	109.0	65.7	9.7	3.9	46	81
27	8.21	8.07	289	173	232	76	57	97	102.6	64.1	8.3	4.9	44	80
28	8.26	8.03	290	174	235	67	55	107	95.4	52.1	13.1	10.7	42	82
29	8.29	7.62	313	184	251	75	62	109	101.0	53.7	15.1	11.7	43	83
30	8.17	7.77	319	197	257	84	62	113	107.4	60.9	12.2	10.7	46	84
31	8.17	7.67	320	181	260	60	60	121	117.8	69.7	7.3	1.9	48	87
Avg.	8.24	8.07	317	192	258	88	59	104	107.8	61.3	12.1	9.3	47	80
Max.	8.43	8.49	334	210	270	115	66	121	121.0	75.4	20.4	16.5	50	87
Min.	7.99	7.41	289	168	232	60	53	95	95.4	48.1	5.8	1.9	42	74

Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	24066	12	0	1	0	> 14760	4	0.38	5.1				
2	1	18416	12	0	1	0	2320	2	0.38	6.4				
3	1	6152	12	0	1	0	1360	4	0.37	5.6				
4	1	2324	12	0	1	0	1020	< 2	0.38	5.4				
5	1	852	12	0	1	0	340	< 2	0.38	6.1				
6	1	518	4	0	1	0	40	2	0.40	7.2				
7	1	194	0	0	1	0	80	< 2	0.38	1.4				
8	1	350	0	0	1	0	240	< 2	0.38	3.3				
9	1	342	12	0	1	0	120	< 2	0.40	4.8				
10	1	346	12	0	1	0	240	< 2	0.38	6.5				
11	1	62	12	0	1	0	120	< 2	0.38	4.9				
12	1	40	12	0	1	0	< 2	< 2	0.39	6.0				
13	1	82	12	0	1	0	160	< 2	0.32	6.4				
14	1	40	12	0	1	0	80	2	0.39	5.6				
15	1	20	12	0	1	0	40	< 2	0.40	5.9				
16	1	219	12	0	1	0	> 14760	< 2	0.40	6.0				
17	1	83	12	0	1	0	166	< 2	0.39	6.3				
18	1	88	12	0	1	0	161	< 2	0.40	5.8				
19	1	56	12	0	1	0	116	2	0.39	6.4				
20	1	68	12	0	1	0	156	< 2	0.35	7.0				
21	1	248	12	0	1	0	137	< 2	0.36	3.9				
22	1	308	12	0	1	0	216	< 2	0.36	3.4				
23	1	1300	12	0	1	0	324	< 2	0.35	4.5				
24	1	1300	12	0	1	0	324	< 2	0.36	6.4				
25	1	687	12	0	1	0	470	< 2	0.37	7.4				
26	1	1986	12	0	1	0	392	< 2	0.36	5.1				
27	1	> 2419	12	0	1	0	> 738	< 2	0.37	5.6				
28	1	> 48392	12	0	1	0	9400	2	0.36	4.5				
29	1	39732	12	0	1	0	2640	< 2	0.37	4.0				
30	1	4286	12	0	1	0	560	< 2	0.37	2.2				
31	1	1976	12	0	1	0	300	< 2	0.37	2.6				

Avg.									0.38	5.2				
Max.							9400	4	0.40	7.4				
Min.									0.32	1.4				

WSSN: 2310

Date	Free Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1									2.8	0.7	2
2	0.2	2.0	1.9	1.8	1.2	0.1	1.2	2.1	1.6	1.8	10
3	0.9	1.7	1.9	1.6	1.0	0.1	1.5	1.8	1.8	2.0	10
4	0.6	1.1	1.6	1.7	0.9	0.1	1.4	1.8	1.3	1.7	10
5											0
6											0
7											0
8									0.4	0.4	2
9	0.9	0.1	1.4	0.2	0.1	0.2	1.7	2.5	0.3	1.2	10
10	0.7	0.2	1.8	1.7	0.2	0.2	1.5	1.9	1.6	0.8	10
11	0.6	0.6		1.4	0.8	0.1	1.5	1.8	1.5	0.9	9
12											0
13											0
14											0
15									0.8	1.6	2
16	0.7	1.7	1.5	1.6	0.7	0.2	0.8	1.8	1.3	2.1	10
17	0.6	0.8	1.4	1.5	0.7	0.1	0.8	1.8	1.1	1.4	10
18	0.8	1.5	1.5	1.5	0.6	0.2	1.5	1.8	1.2	1.3	10
19	0.5	1.7	1.7	1.3	0.8	0.1			0.9	1.0	8
20											0
21											0
22											0
23	0.7	1.5	1.3	1.5	0.8	0.3	1.5	1.8	1.8	0.3	10
24	0.6	1.1	2.1	0.6	0.5	0.5	1.0	2.0	0.7	1.2	10
25											0
26											0
27											0
28											0
29											0
30	0.6	0.4	1.7	1.5	0.8	0.3	1.2	2.0		1.4	9
31											0

Distribution Sample Summary	
Total # of routine distribution samples analyzed	132
Total # of routine distribution samples required	100

Distribution Bacteriological Summary	
Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary	
Percentage of samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.1

WSSN: 2310

Date	Total Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1									3.2	1.0	2
2	0.4	2.6	2.5	2.1	1.5	0.2	1.5	2.5	2.1	2.0	10
3	1.2	2.0	2.1	1.9	1.3	0.4	1.8	2.1	2.1	2.3	10
4	1.0	1.4	1.9	2.0	1.3	0.2	1.7	2.1	1.5	1.9	10
5											0
6											0
7											0
8									0.5	0.6	2
9	1.3	0.2	1.6	0.4	0.3	0.4	1.9	2.7	0.5	1.5	10
10	1.1	0.3	2.1	2.0	0.3	0.3	1.7	2.2	1.9	1.1	10
11	1.0	0.5	1.5	2.0	0.8	0.3	2.1	1.9	2.0	2.0	10
12	0.9	0.8		1.6	1.0	0.3	1.7	2.0	1.8	1.2	9
13											0
14											0
15									1.1	1.9	2
16	0.9	2.1	1.8	1.8	1.0	0.3	1.0	2.3	1.5	2.4	10
17	0.8	1.1	1.7	1.8	1.0	0.3	1.0	2.1	1.4	1.8	10
18	1.0	1.7	1.7	1.8	0.8	0.2	1.7	2.0	1.4	1.6	10
19	0.8	1.9	1.9	1.5	1.1	0.3			1.2	1.3	8
20											0
21											0
22											0
23	1.0	1.7	1.6	1.7	1.1	0.5	1.7	2.1	2.0	0.6	10
24	0.8	1.2	2.3	0.8	0.7	0.8	1.2	2.3	0.9	1.4	10
25											0
26											0
27											0
28											0
29											0
30	0.8	0.5	1.9	1.7	1.1	0.5	1.4	2.4		1.6	9
31											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.4

Positive Distribution Samples

Date	Monitoring station	Date	Repeat Monitoring Stations	Residual (mg/L) Free / Total	Present or Absent

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

[redacted]
Operator-in-Charge

November 2014
Month/Year

F-1R, F-2
Certification of Operator-in-Charge

F-1
Water Plant Classification

[redacted]
Signature of Operator-in-Charge

Genesee
County

DEQ
RESOURCE MANAGEMENT DIVISION
DEC 15 2014
LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	18.7	Million Gallons per Day
Rated Plant Capacity:	36	Million Gallons per Day
Average Filter Run:	76	Hours
Average Head Loss:	n/a	Feet *(filter head loss meters not operational)
Average Filtration Rate:	2.1	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	3.2	Gallons Per Square Feet per Minute
Average Wash Water Use:	3.2%	Percent of Treated Water

Chemical Data

Chlorine on hand:	12,000	lb.	Est. supply:	15	days
Primary Coagulant (Ferric Chloride) on hand:	194,500	lb.	Est. supply:	22	days
Lime (CaO) on hand:	393	tons	Est. supply:	38	days
Fluoride on Hand:	15,000	lb.	Est. supply:	40	days
Cost of All Chemicals per Million Gallons:	n/a	dollars			
Total Power Cost per Million Gallons:	n/a	dollars			

Remarks

	Confluence Point # 1 (N)	Confluence Point # 2 (S)
Number of filter confluence samples > 0.3 NTU:	0	0
Number of filter confluence samples collected:	227	227
Percent of filter confluence samples > 0.3 NTU:	0.0%	0.0%
Number of filter confluence samples > 1 NTU	0	0

Did any individual filter exceed:

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

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

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

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

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

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

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

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

COMPLETED

Coagulation Parameters & Softening Chemical Application

City of Flint Water Treatment Plant

WSSN: 2310

November 2014

Date	Million Gallons Treated	Ferric as Fe3+ mg/L	Lime Dosage (mg/L)	PW-340 Cationic Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
						Raw			Plate Settler	Applied
						Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	17.9	8.1	141.8	3.0	0.88	8	7.3	8.5	0.67	1.13
2	17.7	8.7	135.0	2.9	0.89	8	12.1	33.4	1.04	1.47
3	15.9	9.8	141.5	3.0	0.90	8	7.7	11.3	0.63	1.69
4	14.1	9.1	162.2	3.4	0.94	8	7.5	9.2	0.51	1.61
5	13.7	9.1	167.6	3.6	0.98	8	7.0	8.1	0.47	1.39
6	13.7	8.7	160.9	3.5	0.98	8	8.1	9.3	0.52	1.42
7	13.6	8.7	144.6	3.7	0.98	8	7.1	7.4	0.51	1.48
8	13.6	8.7	147.9	4.0	0.98	8	7.3	8.1	0.55	1.81
9	13.5	8.8	136.8	4.0	0.99	8	7.8	11.2	0.54	1.16
10	13.3	9.0	140.0	4.0	1.00	8	7.9	12.2	0.68	1.77
11	12.6	9.3	148.5	4.0	1.03	8	6.7	7.7	0.51	7.80
12	12.5	9.4	133.0	4.2	0.87	8	7.9	18.8	0.47	4.48
13	13.3	8.9	138.5	4.0	0.81	8	5.9	6.6	0.58	2.42
14	14.3	8.0	139.0	3.8	0.77	8	5.3	5.8	0.80	2.29
15	14.4	8.4	142.4	3.9	0.77	8	4.9	5.4	1.01	1.11
16	14.5	8.8	135.2	3.7	0.75	8	6.5	14.1	1.02	1.81
17	12.0	8.6	126.8	3.2	0.65	8	7.4	16.6	0.69	3.78
18	6.0	8.4	132.8	2.9	0.52	8	9.1	36.3	0.81	5.92
19	17.8	10.0	104.7	3.3	0.61	8	4.0	4.4	1.09	2.33
20	17.8	10.7	102.7	3.4	0.61	8	4.1	6.8	1.15	1.83
21	17.6	10.9	104.7	3.6	0.69	8	2.9	3.7	0.89	1.42
22	17.7	10.7	100.9	3.6	0.86	8	2.5	2.9	0.93	2.24
23	17.7	10.9	97.8	3.0	0.59	8	4.5	6.2	1.16	3.32
24	17.7	10.7	88.8	3.0	0.55	8	8.5	27.2	1.13	2.92
25	17.1	11.0	94.1	3.5	0.49	8	4.5	5.1	0.76	3.20
26	16.8	10.0	95.9	3.4	0.39	8	3.7	5.9	0.77	2.31
27	10.9	10.4	92.1	3.7	0.78	8	4.3	9.3	0.84	7.47
28	16.8	9.9	99.7	4.1	1.03	8	3.1	3.3	0.92	1.45
29	16.8	12.2	100.4	4.0	1.03	8	3.8	4.2	0.88	1.15
30	16.7	12.3	96.5	4.3	1.03	8	5.8	16.0	1.00	2.23
Avg.	14.9	9.6	125.1	3.6	0.81	8	6.17			2.55
Max.	17.9	12.3	167.6	4.3	1.03	8	12.1	36.3	1.16	7.80
Min.	6.0	8.0	88.8	2.9	0.39	8	2.50			1.11
Total	448.0									

Filter turbidity

City of Flint Water Treatment Plant

WSSN: 2310

Date	Turbidity, Units												
	Confluence Point, No.1 (N) North						Confluence Point, No.2 (S) South						Point of Entry
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Plant Tap NTU
1	8	0.09	0.14	6	0	0	8	0.10	0.12	6	0	0	0.11
2	8	0.10	0.13	6	0	0	8	0.09	0.11	6	0	0	0.10
3	8	0.10	0.13	6	0	0	8	0.10	0.13	6	0	0	0.11
4	8	0.10	0.11	6	0	0	8	0.11	0.13	6	0	0	0.12
5	8	0.08	0.11	6	0	0	8	0.08	0.09	6	0	0	0.09
6	8	0.09	0.11	6	0	0	8	0.09	0.11	6	0	0	0.11
7	8	0.10	0.12	6	0	0	8	0.10	0.12	6	0	0	0.12
8	8	0.10	0.17	6	0	0	8	0.09	0.12	6	0	0	0.11
9	8	0.11	0.13	6	0	0	8	0.10	0.13	6	0	0	0.11
10	8	0.11	0.15	6	0	0	8	0.10	0.15	6	0	0	0.12
11	8	0.10	0.18	6	0	0	8	0.09	0.14	6	0	0	0.11
12	8	0.10	0.14	6	0	0	8	0.08	0.10	6	0	0	0.10
13	8	0.08	0.09	6	0	0	8	0.07	0.09	6	0	0	0.09
14	8	0.07	0.09	6	0	0	8	0.07	0.09	6	0	0	0.09
15	8	0.07	0.08	6	0	0	8	0.07	0.09	6	0	0	0.08
16	8	0.07	0.09	6	0	0	8	0.08	0.13	6	0	0	0.08
17	5	0.07	0.09	5	0	0	5	0.07	0.09	5	0	0	0.07
18	2	0.10	0.12	2	0	0	2	0.08	0.10	2	0	0	0.07
19	8	0.08	0.10	6	0	0	8	0.07	0.09	6	0	0	0.07
20	8	0.08	0.10	6	0	0	8	0.06	0.07	6	0	0	0.07
21	8	0.08	0.09	6	0	0	8	0.07	0.09	6	0	0	0.08
22	8	0.08	0.12	6	0	0	8	0.07	0.09	6	0	0	0.07
23	8	0.08	0.08	6	0	0	8	0.08	0.09	6	0	0	0.07
24	8	0.08	0.12	6	0	0	8	0.08	0.09	6	0	0	0.08
25	8	0.09	0.12	6	0	0	8	0.08	0.10	6	0	0	0.07
26	8	0.09	0.10	6	0	0	8	0.08	0.10	6	0	0	0.07
27	4	0.08	0.09	4	0	0	4	0.07	0.09	4	0	0	0.07
28	8	0.08	0.09	6	0	0	8	0.08	0.11	6	0	0	0.06
29	8	0.08	0.08	6	0	0	8	0.08	0.15	6	0	0	0.06
30	8	0.09	0.11	6	0	0	8	0.09	0.11	6	0	0	0.08
Avg.	8	0.09	0.11	6	0	0	8	0.08	0.11	6	0	0	
Max.	8	0.11	0.18	6	0	0	8	0.11	0.15	6	0	0	0.12
Min.	2	0.07	0.08	2	0	0	2	0.06	0.07	2	0	0	

Fluoridation & Chlorination

City of Flint Water Treatment Plant

WSSN: 2310

November 2014

Date	Fluoriode Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.50	0.18	0.64		2.4	3.6	6.0	0.8	1.1	3.2	3.5	2.4	2.9
2	0.50	0.21	0.73		2.2	3.3	5.4	0.9	1.3	3.2	3.5	3.0	3.5
3	0.50	0.21	0.76		2.4	3.5	5.9	0.9	1.3	3.2	3.5	3.2	3.5
4	0.45	0.22	0.72	0.69	2.5	3.5	6.0	0.8	1.1	3.2	3.5	2.9	3.3
5	0.45	0.22	0.70		2.4	3.2	5.6	0.9	1.1	3.2	3.5	2.1	2.5
6	0.45	0.22	0.72		2.3	3.6	5.9	0.7	1.0	3.2	3.5	2.4	2.8
7	0.45	0.22	0.75		2.4	4.1	6.5	0.8	1.1	2.5	3.1	1.8	2.4
8	0.40	0.23	0.69		2.3	3.9	6.2	0.9	1.1	3.0	3.5	2.5	2.9
9	0.40	0.23	0.67		2.2	3.8	6.0	0.8	1.0	3.0	3.5	3.0	3.5
10	0.40	0.22	0.63		2.2	4.1	6.3	0.7	1.0	3.0	3.5	3.0	3.5
11	0.45	0.26	0.71	0.68	1.6	4.2	5.8	0.8	1.1	3.0	3.5	3.0	3.5
12	0.40	0.21	0.63		1.7	3.6	5.3	0.8	1.0	2.6	3.0	2.1	2.5
13	0.35	0.21	0.55		2.1	3.6	5.7	0.8	1.1	3.0	3.5	2.9	3.2
14	0.40	0.22	0.58		2.0	3.7	5.7	0.8	1.1	3.2	3.5	2.3	3.0
15	0.40	0.23	0.61		1.8	3.7	5.5	0.7	0.9	3.0	3.5	2.5	3.0
16	0.35	0.21	0.54		1.8	3.7	5.5	0.5	0.8	3.2	3.5	2.7	3.0
17	0.35	0.22	0.63		1.6	3.5	5.1	0.5	0.8	3.2	3.5	2.9	3.2
18	0.35	0.22	0.61	0.59	1.9	2.9	4.8	0.2	0.3	3.0	3.2	2.8	3.3
19	0.30	0.22	0.46		1.9	2.9	4.8	0.5	0.8	2.5	3.0	2.2	2.8
20	0.40	0.22	0.60		1.9	3.0	4.9	0.5	0.7	3.0	3.4	2.1	2.4
21	0.45	0.21	0.66		1.8	2.9	4.7	0.6	0.9	2.7	3.1	2.2	2.6
22	0.40	0.20	0.61		2.0	3.0	5.0	0.5	0.8	2.5	3.0	2.0	2.5
23	0.35	0.21	0.59		2.1	2.8	4.9	0.6	0.9	3.0	3.5	2.7	3.2
24	0.40	0.21	0.62		2.0	2.7	4.7	0.8	1.1	2.8	3.2	2.7	3.2
25	0.40	0.23	0.64		2.2	2.8	5.0	0.7	1.0	2.6	3.1	2.4	3.0
26	0.40	0.22	0.63		2.0	2.7	4.7	0.7	1.0	2.9	3.4	2.5	2.9
27	0.40	0.22	0.63		1.5	2.6	4.1	0.7	1.0	3.0	3.5	2.8	3.2
28	0.40	0.20	0.61		2.0	2.9	4.9	0.7	0.9	2.7	3.3	2.1	2.6
29	0.40	0.21	0.62		2.1	3.3	5.4	0.6	0.8	2.4	3.1	2.2	2.5
30	0.40	0.21	0.69		2.1	3.8	5.9	0.6	0.9	3.0	3.5	3.0	3.5
Avg.	0.41	0.22	0.64	0.65	2.0	3.4	5.4	0.7	1.0	2.9	3.4	2.5	3.0
Max.	0.50	0.26	0.76	0.69	2.5	4.2	6.5	0.9	1.3	3.2	3.5	3.2	3.5
Min.	0.30	0.18	0.46	0.59	1.5	2.6	4.1	0.2	0.3	2.4	3.0	1.8	2.4

Chemical Analyses

City of Flint Water Treatment Plant

November 2014

WSSN: 2310

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.32	7.75	281	168	225	91	56	77	101.8	64.1	6.8	1.0	45	67
2	8.43	8.17	286	163	238	81	48	82	89.8	47.3	15.1	10.7	44	67
3	8.41	8.11	285	175	230	84	55	91	93.0	49.7	12.6	11.7	45	70
4	8.39	7.29	285	172	233	78	52	94	93.0	54.5	13.1	9.2	46	70
5	8.41	7.61	290	162	240	81	50	81	90.6	51.3	15.6	8.7	49	72
6	8.40	7.72	288	160	235	81	53	79	89.0	46.5	15.6	9.2	46	69
7	8.41	7.71	289	167	236	82	53	85	102.6	59.9	8.3	4.9	45	68
8	8.41	7.77	291	164	232	78	59	86	102.6	60.1	8.3	3.4	47	69
9	8.46	7.80	297	160	236	78	61	82	86.6	42.5	19.4	13.1	48	71
10	8.44	7.82	294	166	241	83	53	83	93.0	43.3	14.6	14.1	47	70
11	8.52	8.09	296	168	237	84	59	84	107.4	60.1	7.3	3.4	48	70
12	8.50	7.81	297	167	244	81	53	86	96.2	50.5	13.1	9.2	45	71
13	8.51	7.39	300	163	241	78	59	85	112.2	59.3	4.9	4.4	48	70
14	8.53	7.59	301	148	241	60	60	88	115.4	59.3	3.4	1.5	46	69
15	8.54	7.77	302	146	235	64	67	82	109.0	52.1	7.8	4.9	47	68
16	8.54	8.13	301	149	247	64	54	85	100.2	41.7	11.7	10.2	49	72
17	8.57	7.57	313	152	249	64	64	88	101.8	40.9	13.6	11.2	47	71
18	8.48	7.53	307	152	254	70	53	82	95.4	44.9	17.5	8.7	47	72
19	8.51	7.59	308	183	248	90	60	93	104.2	65.7	11.7	3.9	47	68
20	8.42	7.50	313	187	248	95	65	92	104.2	64.9	12.2	5.8	47	73
21	8.31	8.14	310	191	251	100	59	91	113.8	70.5	6.8	2.9	47	72
22	8.31	7.92	308	202	249	113	59	89	103.4	68.9	12.2	6.8	48	74
23	8.38	7.97	321	213	252	122	69	91	101.0	64.1	17.0	12.6	48	76
24	8.36	8.34	312	211	246	121	66	90	85.0	56.1	23.8	18.0	50	75
25	8.25	7.85	311	209	250	111	61	98	105.0	70.1	11.2	6.8	50	75
26	8.22	8.29	311	196	251	108	60	88	107.4	71.3	10.2	4.4	47	72
27	8.40	8.24	310	189	255	100	55	89	99.4	54.5	14.6	12.6	48	72
28	8.32	8.23	304	179	248	100	56	79	116.2	64.9	3.9	1.0	48	69
29	8.16	8.45	302	192	245	102	57	90	109.8	64.1	7.3	7.3	47	72
30	8.20	8.04	309	197	149	102	160	95	102.6	61.7	12.6	10.2	46	77
Avg.	8.40	7.87	301	175	240	88	61	87	101.1	56.8	11.7	7.7	47	71
Max.	8.57	8.45	321	213	255	122	160	98	116.2	71.3	23.8	18.0	50	77
Min.	8.16	7.29	281	146	149	60	48	77	85.0	40.9	3.4	1.0	44	67

Bacteriological & Physical Parameters

City of Flint Water Treatment Plant

WSSN: 2310

November 2014

Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	564	12	0	1	0	860	< 2	0.39	10.8				
2	1	654	12	0	1	0	1060	< 2	0.38	8.8				
3	1	296	12	0	1	0	190	< 2	0.39	8.9				
4	1	218	12	0	1	0	160	< 2	0.36	9.6				
5	1	486	12	0	1	0	3780	< 2	0.36	9.0				
6	1	194	12	0	1	0	3660	< 2	0.36	9.8				
7	1	268	12	0	1	0	1770	< 2	0.40	10.2				
8	1	194	12	0	1	0	4180	< 2	0.37	9.3				
9	1	296	12	0	1	0	3420	< 2	0.39	8.1				
10	1	172	12	0	1	0	4460	2	0.40	8.8				
11	1	296	12	0	1	0	1720	< 2	0.40	8.3				
12	1	218	12	0	1	0	1600	< 2	0.37	7.7				
13	1	40	12	0	1	0	1420	< 2	0.39	7.0				
14	1	126	12	0	1	0	800	< 2	0.37	6.4				
15	1	104	12	0	1	0	420	< 2	0.37	6.3				
16	1	82	12	0	1	0	560	< 2	0.36	5.5				
17	1	104	10	0	1	0	340	< 2	0.37	4.7				
18	1	104	4	0	1	0	160	< 2	0.33	4.0				
19	1	40	12	0	1	0	40	< 2	0.40	4.9				
20	1	40	12	0	1	0	520	< 2	0.41	5.3				
21	1	20	12	0	1	0	80	2	0.42	5.4				
22	1	82	12	0	1	0	80	< 2	0.44	5.9				
23	1	168	12	0	1	0	340	2	0.46	5.8				
24	1	768	12	0	1	0	660	< 2	0.46	6.4				
25	1	596	12	0	1	0	420	< 2	0.46	6.2				
26	1	1008	12	0	1	0	340	< 2	0.43	5.6				
27	1	1240	8	0	1	0	460	2	0.36	5.1				
28	1	7308	12	0	1	0	2240	< 2	0.37	5.4				
29	1	9768	12	0	1	0	3120	< 2	0.38	6.3				
30	1	19608	12	0	1	0	5140	< 2	0.37	6.5				
Avg.									0.39	7.1				
Max.							5140	2	0.46	10.8				
Min.									0.33	4.0				

Distribution System Monitoring

City of Flint Water Treatment Plant

November 2014

WSSN: 2310

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2											0
3											0
4	0.4	1.6	1.2	1.5	0.8	0.1	0.3	1.9	0.8	1.8	10
5											0
6	0.3	1.2	1.1	1.6	1.0	0.1	0.2	1.5	1.5	1.0	10
7											0
8											0
9											0
10											0
11	0.5	1.4	1.7	1.8	0.9	0.1	0.5	1.8	1.2	2.0	10
12	0.1	1.0	1.1	1.6	0.5	0.1	0.1	2.7	0.8	0.7	10
13	0.5	1.1	1.5	1.8	0.3	0.1	0.5	2.2	1.7	0.5	10
14									0.6	1.8	2
15											0
16											0
17										1.3	1
18	0.1	0.3	1.7	0.4	0.4	0.1	0.2	1.7	0.3	0.7	10
19	0.5	0.3	1.3	1.8	0.5	0.1	1.0	1.8	3.5	1.5	10
20	0.7	1.3	1.4	1.9	0.5	0.1	0.7	1.7	1.7	1.8	10
21											0
22											0
23											0
24									1.1	0.5	2
25	0.5	1.6	1.6	0.9	0.3	0.1	1.5	1.5	0.9	1.6	10
26	0.6	0.7	1.9	1.7	1.0	0.2	0.6	1.7	1.8	1.7	10
27											0
28	0.1	0.8	1.5	1.4	0.6	0.6	1.5	1.7	0.7	1.4	10
29											0
30											0

Distribution Sample Summary	
Total # of routine distribution samples analyzed	115
Total # of routine distribution samples required	100

Distribution Disinfectant Total Residual Summary	
Percentage of samples with a detectable disinfectant residual	97%
Average disinfectant residual this month	1.0

Distribution Bacteriological Summary	
Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0%

See page 9 for positive sample information.

Distribution System Monitoring

City of Flint Water Treatment Plant

November 2014

WSSN: 2310

Date	Total Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2											0
3											0
4	0.7	1.8	1.4	1.7	1.0	1.5	0.5	2.3	1.2	2.1	10
5											0
6	0.5	1.5	1.5	1.9	1.3	0.2	0.3	2.0	1.8	1.4	10
7											0
8											0
9											0
10											0
11	0.9	1.7	2.2	2.1	1.3	0.2	0.8	2.2	1.5	2.3	10
12	0.3	1.3	1.4	1.9	0.8	0.2	0.3	3.2	1.1	1.0	10
13	0.8	1.5	1.8	2.0	0.5	0.2	0.9	2.5	2.0	0.8	10
14									0.8	2.1	2
15											0
16											0
17										1.6	1
18	0.2	0.5	2.0	0.6	0.6	0.2	0.3	2.2	0.5	1.0	10
19	0.8	0.5	1.7	2.3	0.8	0.4	1.4	2.2	3.5	1.8	10
20	1.0	1.6	1.7	2.2	0.8	0.2	1.1	2.1	1.9	2.4	10
21											0
22											0
23											0
24									1.4	0.8	2
25	0.8	1.9	2.0	1.3	0.6	0.3	1.8	1.8	1.3	2.0	10
26	1.1	1.0	1.7	2.1	1.3	0.3	0.9	2.1	2.1	2.0	10
27											0
28	0.2	1.2	1.8	1.7	0.9	0.9	1.8	2.1	1.1	1.7	10
29											0
30											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.3

Positive Distribution Samples

Date	Monitoring station	Date	Repeat Monitoring Stations	Residual (mg/L) Free / Total	Present or Absent

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

[redacted]
Operator-in-Charge

October 2014
Month/Year

F-1R, F-2
Certification of Operator-in-Charge

F-1
Water Plant Classification

[redacted]
Signature of Operator-in-Charge

Genesee
County

DEQ
RESOURCE MANAGEMENT DIVISION
NOV 17 2014
LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	23.3	Million Gallons per Day
Rated Plant Capacity:	36	Million Gallons per Day
Average Filter Run:	84	Hours
Average Head Loss:	n/a	Feet *(filter head loss meters not operational)
Average Filtration Rate:	1.9	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	3.3	Gallons Per Square Feet per Minute
Average Wash Water Use:	2.7%	Percent of Treated Water

Chemical Data

Chlorine on hand:	20,000	lb.	Est. supply:	25	days
Primary Coagulant (Ferric Chloride) on hand:	133,600	lb.	Est. supply:	16	days
Lime (CaO) on hand:	239	tons	Est. supply:	24	days
Fluoride on Hand:	10,000	lb.	Est. supply:	27	days
Cost of All Chemicals per Million Gallons:	n/a	dollars			
Total Power Cost per Million Gallons:	n/a	dollars			

Remarks

	Confluence Point # 1 (N)	Confluence Point # 2 (S)
Number of filter confluence samples > 0.3 NTU:	0	0
Number of filter confluence samples collected:	246	246
Percent of filter confluence samples > 0.3 NTU:	0.0%	0.0%
Number of filter confluence samples > 1 NTU	0	0

Did any individual filter exceed:

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

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

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

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

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

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

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

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

COMPLETED

[redacted]

Coagulation Parameters & Softening Chemical Application — City of Flint Water Treatment Plant — October 2014 — Page 2

WSSN: 2310

Date	Million Gallons Treated	Ferric as Fe3+ mg/L	Lime Dosage (mg/L)	PW-340 Cationic Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
						Raw			Plate Settler	Applied
						Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	15.6	7.3	140.2	3.3	0.82	7	10.9	21.4	0.50	1.28
2	14.2	6.6	142.1	2.8	0.84	8	10.4	14.5	0.48	1.80
3	13.8	6.4	133.2	3.3	0.90	8	11.9	17.9	0.53	0.77
4	14.1	6.2	132.1	3.3	0.84	8	13.1	31.4	0.50	1.11
5	13.8	6.9	149.7	3.2	0.86	8	13.1	29.3	1.29	1.07
6	13.8	7.1	131.5	3.5	0.88	8	12.2	18.9	0.75	1.59
7	13.9	8.3	133.2	3.4	0.85	8	10.4	17.1	0.62	0.72
8	13.8	8.3	137.5	3.3	0.86	8	9.7	13.1	0.61	0.80
9	13.8	8.2	131.8	3.3	0.86	8	8.5	12.3	0.65	0.96
10	13.6	8.5	119.8	3.4	0.87	8	8.4	10.9	0.67	1.34
11	13.5	8.5	126.0	3.4	0.88	8	7.5	8.8	0.74	1.70
12	13.7	8.4	118.0	3.4	0.87	8	8.3	11.1	0.80	1.55
13	13.7	8.4	126.3	3.4	0.87	8	10.5	30.2	0.82	1.03
14	13.6	8.4	126.8	3.4	0.87	8	7.3	9.0	0.76	0.93
15	13.4	8.5	129.5	3.4	0.89	7	11.1	16.1	0.80	1.21
16	13.3	8.6	130.2	3.5	0.89	7	7.9	9.3	0.77	0.91
17	16.6	9.1	132.7	3.2	0.88	8	7.8	10.2	1.15	0.74
18	19.5	10.8	126.2	3.3	1.02	8	6.8	9.6	0.87	1.57
19	18.7	11.7	127.7	3.3	1.02	8	7.2	16.9	0.60	1.17
20	18.3	11.7	125.9	3.1	1.04	8	6.1	7.9	0.61	0.77
21	18.3	11.6	128.1	3.0	1.04	7	8.8	18.2	0.76	0.59
22	18.4	10.8	131.0	2.9	0.93	8	6.1	7.3	0.84	0.85
23	18.3	11.4	154.3	2.9	0.94	8	8.6	24.6	0.79	1.20
24	18.5	11.3	155.8	2.8	0.93	8	5.7	6.0	0.77	0.99
25	18.5	10.9	153.2	2.9	0.93	8	5.8	6.1	0.80	1.45
26	15.6	10.1	143.5	3.1	0.90	8	9.9	18.8	0.56	1.56
27	13.9	6.3	149.3	3.3	0.86	8	15.7	48.2	0.51	1.10
28	13.7	5.9	130.6	3.3	0.86	8	9.3	10.7	0.49	0.91
29	13.7	6.0	150.6	3.3	0.87	8	11.6	25.3	0.48	1.03
30	18.0	8.3	126.8	2.7	0.81	8	8.9	11.3	0.52	1.53
31	18.3	8.2	129.4	2.7	0.79	8	6.7	7.1	0.54	1.28
Avg.	15.5	8.7	134.6	3.2	0.89	8	9.23			1.15
Max.	19.5	11.7	155.8	3.5	1.04	8	15.7	48.2	1.29	1.80
Min.	13.3	5.9	118.0	2.7	0.79	7	5.70			0.59
Total	479.9									

City of Flint Water Treatment Plant

Filter turbidity

WSSN: 2310

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Plant Tap NTU
1	8	0.11	0.14	6	0	0	8	0.08	0.12	6	0	0	0.09
2	8	0.09	0.12	6	0	0	8	0.08	0.11	6	0	0	0.08
3	7	0.08	0.09	6	0	0	7	0.07	0.09	6	0	0	0.07
4	8	0.09	0.10	6	0	0	8	0.09	0.12	6	0	0	0.08
5	8	0.10	0.12	6	0	0	8	0.09	0.11	6	0	0	0.09
6	8	0.10	0.14	6	0	0	8	0.10	0.13	6	0	0	0.09
7	8	0.08	0.08	6	0	0	8	0.08	0.11	6	0	0	0.08
8	8	0.09	0.11	6	0	0	8	0.08	0.10	6	0	0	0.09
9	8	0.09	0.12	6	0	0	8	0.10	0.13	6	0	0	0.10
10	8	0.09	0.12	6	0	0	8	0.08	0.10	6	0	0	0.09
11	8	0.09	0.13	6	0	0	8	0.09	0.12	6	0	0	0.10
12	8	0.09	0.12	6	0	0	8	0.09	0.14	6	0	0	0.09
13	8	0.09	0.12	6	0	0	8	0.07	0.08	6	0	0	0.07
14	8	0.09	0.11	6	0	0	8	0.09	0.10	6	0	0	0.08
15	8	0.08	0.09	6	0	0	8	0.07	0.09	6	0	0	0.08
16	7	0.10	0.12	6	0	0	7	0.09	0.11	6	0	0	0.09
17	8	0.08	0.09	6	0	0	8	0.08	0.09	6	0	0	0.08
18	8	0.08	0.09	6	0	0	8	0.07	0.08	6	0	0	0.08
19	8	0.07	0.09	6	0	0	8	0.07	0.08	6	0	0	0.07
20	8	0.08	0.11	6	0	0	8	0.09	0.15	6	0	0	0.08
21	8	0.08	0.10	6	0	0	8	0.08	0.10	6	0	0	0.09
22	8	0.08	0.10	6	0	0	8	0.09	0.10	6	0	0	0.09
23	8	0.08	0.14	6	0	0	8	0.07	0.08	6	0	0	0.09
24	8	0.07	0.09	6	0	0	8	0.07	0.10	6	0	0	0.09
25	8	0.07	0.10	6	0	0	8	0.07	0.09	6	0	0	0.11
26	8	0.07	0.12	6	0	0	8	0.07	0.09	6	0	0	0.08
27	8	0.07	0.11	6	0	0	8	0.06	0.08	6	0	0	0.09
28	8	0.08	0.11	6	0	0	8	0.08	0.10	6	0	0	0.08
29	8	0.09	0.10	6	0	0	8	0.09	0.10	6	0	0	0.11
30	8	0.11	0.14	6	0	0	8	0.10	0.13	6	0	0	0.11
31	8	0.10	0.14	6	0	0	8	0.09	0.11	6	0	0	0.12
Avg.	8	0.09	0.11	6	0	0	8	0.08	0.10	6	0	0	
Max.	8	0.11	0.14	6	0	0	8	0.10	0.15	6	0	0	0.12
Min.	7	0.07	0.08	6	0	0	7	0.06	0.08	6	0	0	

Fluoridation & Chlorination

City of Flint Water Treatment Plant

WSSN: 2310

October 2014

Date	Fluoriode Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.5	0.20	0.68		2.6	4.0	6.6	0.7	1.1	3.2	3.5	2.5	3.2
2	0.5	0.21	0.70		2.7	4.0	6.7	0.7	0.9	3.0	3.5	2.5	3.1
3	0.5	0.21	0.72		2.9	4.1	7.0	0.5	0.7	2.7	3.5	2.5	3.1
4	0.4	0.22	0.72		2.7	3.9	6.6	0.7	1.1	3.2	3.5	2.4	2.9
5	0.4	0.20	0.67		2.9	4.2	7.1	1.1	1.4	3.2	3.7	1.9	2.4
6	0.5	0.21	0.70		2.6	3.9	6.5	0.6	0.9	3.2	3.5	2.3	2.8
7	0.5	0.20	0.71	0.62	2.6	3.9	6.5	0.6	0.8	3.2	3.5	2.4	2.7
8	0.4	0.23	0.69		2.6	4.0	6.6	0.8	1.0	3.2	3.5	2.5	3.1
9	0.4	0.19	0.66		2.5	3.9	6.4	0.7	1.0	3.2	3.5	2.5	3.0
10	0.4	0.20	0.62		2.4	3.8	6.2	0.7	0.9	3.0	3.5	2.4	3.1
11	0.4	0.21	0.63		2.3	3.9	6.2	0.7	0.9	3.0	3.5	2.7	3.1
12	0.4	0.21	0.66		2.3	3.8	6.1	0.6	0.8	2.8	3.5	1.9	2.5
13	0.4	0.20	0.63		2.4	4.1	6.5	0.8	1.1	3.2	3.5	3.2	3.5
14	0.4	0.22	0.68		2.5	4.0	6.5	0.6	0.9	2.9	3.5	2.8	3.2
15	0.4	0.21	0.64		2.5	3.9	6.4	0.7	1.1	3.2	3.5	2.8	3.5
16	0.4	0.21	0.74		2.5	4.0	6.5	0.7	1.0	3.0	3.5	3.0	3.5
17	0.4	0.20	0.70	0.68	2.6	4.0	6.6	0.5	0.8	3.1	3.5	3.2	3.5
18	0.5	0.21	0.62		2.7	3.3	6.0	0.6	1.1	3.0	3.5	3.2	3.5
19	0.4	0.21	0.63		2.6	3.4	6.0	0.9	1.2	3.0	3.5	3.0	3.5
20	0.4	0.21	0.59		2.4	3.7	6.1	0.6	0.9	3.0	3.5	3.0	3.5
21	0.4	0.20	0.66	0.62	2.4	3.7	6.1	0.5	0.9	3.0	3.5	2.7	3.1
22	0.4	0.22	0.65		2.4	3.8	6.2	0.5	0.8	2.6	3.5	2.1	2.6
23	0.4	0.20	0.64		2.5	3.6	6.1	0.7	0.9	3.0	3.5	2.8	3.0
24	0.4	0.22	0.67		2.4	3.5	5.9	0.7	1.0	2.9	3.5	2.2	2.7
25	0.5	0.21	0.68		2.3	3.6	5.9	0.6	0.9	2.8	3.5	2.2	2.7
26	0.4	0.20	0.66		2.2	3.7	5.9	0.8	1.0	3.0	3.5	3.0	3.5
27	0.4	0.20	0.64		2.1	4.5	6.6	0.7	1.0	3.0	3.5	2.9	3.3
28	0.4	0.21	0.67	0.65	2.1	3.9	6.0	0.5	0.8	2.7	3.5	2.7	3.2
29	0.5	0.21	0.67		2.3	4.1	6.4	0.6	0.8	3.0	3.5	2.3	2.8
30	0.5	0.20	0.66		2.2	3.4	5.6	0.6	1.1	3.0	3.5	3.0	3.5
31	0.5	0.18	0.71		2.2	3.4	5.6	0.6	0.8	2.9	3.5	2.1	2.6
Avg.	0.43	0.21	0.67	0.64	2.5	3.8	6.3	0.7	1.0	3.0	3.5	2.6	3.1
Max.	0.50	0.23	0.74	0.68	2.9	4.5	7.1	1.1	1.4	3.2	3.7	3.2	3.5
Min.	0.40	0.18	0.59	0.62	2.1	3.3	5.6	0.5	0.7	2.6	3.5	1.9	2.4

Chemical Analyses

City of Flint Water Treatment Plant

October 2014

WSSN: 2310

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.00	7.81	254	144	219	72	35	72	81.8	45.7	12.6	7.8	41	65
2	8.19	7.85	249	147	209	68	40	79	81.8	49.7	10.2	5.8	42	62
3	8.17	7.91	254	157	206	74	48	83	85.8	54.5	10.7	4.3	44	62
4	8.13	7.43	249	160	205	83	44	77	84.2	55.2	10.7	5.8	43	61
5	8.28	7.83	253	157	210	82	43	75	77.0	51.3	15.1	6.8	43	61
6	8.26	7.89	255	152	208	74	47	78	79.4	49.7	13.6	6.3	42	62
7	8.28	7.45	259	162	210	87	49	75	77.8	48.1	15.6	9.7	41	64
8	8.26	7.65	253	162	202	76	51	86	87.4	57.7	8.2	4.9	42	64
9	8.27	7.90	252	157	209	77	43	80	79.4	47.3	13.1	8.7	42	64
10	8.26	7.60	256	166	205	84	51	82	85.8	54.5	9.7	6.3	42	65
11	8.31	7.45	254	175	203	86	51	89	86.0	63.3	7.8	4.3	43	64
12	8.25	7.69	255	156	204	71	51	85	81.0	51.3	13.1	7.3	44	65
13	8.38	7.79	256	152	210	76	46	76	72.9	48.1	17.5	6.8	45	66
14	8.34	7.53	255	155	203	73	52	82	89.0	56.9	8.3	2.9	45	65
15	7.97	7.88	249	148	206	70	43	78	71.3	48.9	18.0	5.3	43	67
16	8.32	7.90	256	156	212	80	44	76	84.2	47.3	11.2	9.2	45	68
17	8.36	7.68	260	160	210	83	50	77	69.7	45.7	21.4	10.7	43	67
18	8.24	7.96	252	167	210	79	42	88	81.8	53.7	11.7	5.8	42	70
19	8.31	8.11	262	174	211	82	51	92	83.4	54.5	13.1	8.7	42	71
20	8.21	7.60	264	182	212	93	52	89	81.0	60.1	14.6	7.8	43	72
21	8.26	7.59	262	197	215	107	47	90	83.4	60.9	12.6	10.2	43	72
22	8.26	7.63	266	186	216	90	50	96	86.6	63.3	11.7	6.8	44	69
23	8.24	7.43	267	180	222	91	45	89	84.2	58.5	14.6	8.7	42	70
24	8.19	7.82	271	162	220	71	51	91	83.4	55.3	15.6	5.8	45	69
25	8.21	7.88	273	160	221	74	52	86	85.8	56.9	14.1	3.4	43	70
26	8.04	7.76	270	161	224	70	46	91	82.6	52.1	16.0	7.3	43	70
27	8.25	7.61	278	157	233	72	45	85	87.4	49.7	14.6	9.2	42	70
28	8.33	7.41	278	164	237	76	41	88	84.2	56.1	17.1	5.3	44	62
29	8.28	7.48	276	160	230	85	46	75	86.6	46.5	16.0	10.2	43	64
30	8.40	7.88	278	158	225	75	53	83	86.6	52.9	15.1	4.4	44	62
31	8.37	7.75	280	172	223	92	57	80	87.4	53.7	15.1	8.7	47	65
Avg.	8.25	7.71	261	163	214	80	47	83	82.5	53.2	13.5	6.9	43	66
Max.	8.40	8.11	280	197	237	107	57	96	89.0	63.3	21.4	10.7	47	72
Min.	7.97	7.41	249	144	202	68	35	72	69.7	45.7	7.8	2.9	41	61

Bacteriological & Physical Parameters

City of Flint Water Treatment Plant

WSSN: 2310

######

Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	6152	12	0	1	0	> 14760	< 2	0.39	12.9				
2	1	15402	12	0	1	0	4960	< 2	0.38	18.4				
3	1	15402	12	0	1	0	3660	< 2	0.35	18.2				
4	1	2878	12	0	1	0	4040	< 2	0.39	18.5				
5	1	2092	12	0	1	0	4620	< 2	0.39	17.2				
6	1	1498	12	0	1	0	5320	< 2	0.39	15.3				
7	1	900	12	0	1	0	200	< 2	0.38	14.3				
8	1	1646	12	0	1	0	1240	< 2	0.39	14.3				
9	1	766	12	0	1	0	1720	< 2	0.38	14.0				
10	1	1262	12	0	1	0	1940	< 2	0.38	13.6				
11	1	378	12	0	1	0	340	< 2	0.40	13.3				
12	1	524	12	0	1	0	2000	< 2	0.42	13.8				
13	1	672	12	0	1	0	2240	< 2	0.39	12.4				
14	1	728	12	0	1	0	2560	< 2	0.37	15.1				
15	1	4718	12	0	1	0	8800	< 2	0.36	15.6				
16	1	462	12	0	1	0	4180	< 2	0.36	15.3				
17	1	590	12	0	1	0	7100	< 2	0.38	15.0				
18	1	626	12	0	1	0	1600	< 2	0.38	15.7				
19	1	342	12	0	1	0	2400	< 2	0.39	14.8				
20	1	218	12	0	1	0	1300	< 2	0.43	13.1				
21	1	498	12	0	1	0	1800	< 2	0.44	13.8				
22	1	634	12	0	1	0	3780	< 2	0.44	13.3				
23	1	350	12	0	1	0	1540	< 2	0.43	14.3				
24	1	268	12	0	1	0	960	< 2	0.42	11.7				
25	1	312	12	0	1	0	860	< 2	0.39	11.4				
26	1	264	12	0	1	0	1940	< 2	0.38	12.2				
27	1	690	12	0	1	0	1180	< 2	0.38	11.9				
28	1	256	12	0	1	0	1120	< 2	0.38	11.7				
29	1	518	12	0	1	0	800	< 2	0.39	12.9				
30	1	148	12	0	1	0	660	< 2	0.38	13.2				
31	1	170	12	0	1	0	700	< 2	0.39	11.3				
Avg.									0.39	14.1				
Max.							8800	0	0.44	18.5				
Min.									0.35	11.3				

Distribution System Monitoring

City of Flint Water Treatment Plant

WSSN: 2310

October 2014

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1	0.3	1.4	0.1	0.6	0.2	0.1	0.5	1.8	1.0	1.3	10
2	0.4	1.1	0.1	0.5	0.3	0.1	0.6	1.9	1.2	1.3	10
3											0
4											0
5											0
6	0.3	1.8	0.1	0.6	0.4	0.1	0.1	1.9	1.1	2.0	10
7	0.3	0.1	0.1	0.3	0.1	0.1	0.2	1.8	0.5	0.2	10
8	0.4	0.0	0.1	0.3	0.1	0.1	0.3	1.9	1.5	0.5	10
9	0.3	0.0	0.1	0.5	0.1	0.2	0.1	2.2	0.5	1.5	10
10	0.4	0.0	0.1	0.5	0.2	0.1	0.6	2.3	1.5	1.5	10
11											0
12											0
13											0
14	0.6	0.0	0.1	0.7	0.1	0.1	0.5	2.2	0.7	1.2	10
15	0.3	0.0	0.1	0.5	0.1	0.1	0.3	2.2	0.6	1.0	10
16	0.5	0.0	0.1	0.5	0.3	0.1	0.2	2.6	1.7	0.6	10
17											0
18											0
19											0
20											0
21	0.4	0.2	0.2	0.4	0.3	0.1	0.2	1.5	1.0	1.5	10
22	0.6	0.8	0.4	0.6	0.1	0.1	0.6	2.2	1.9	1.4	10
23	0.4	1.7	0.4	1.0	0.7	0.1	0.5	1.7	1.7	1.7	10
24											0
25											0
26											0
27									1.3	1.0	2
28	0.4	1.7	0.9	0.8	0.7	0.1	0.6	2.0	1.5	1.4	10
29	0.2	1.1	0.1	1.0	0.6	0.1	0.1	1.8	1.4	1.2	10
30	0.1	0.6	0.6	0.7	0.9	0.1	0.3	2.1	1.5	1.1	10
31									1.5	1.3	2

Distribution Sample Summary	
Total # of routine distribution samples analyzed	164
Total # of routine distribution samples required	100

Distribution Bacteriological Summary	
Total # of positive routine distribution samples	5
Percent of routine distribution samples positive	3%

See page 9 for positive sample information.

Distribution Disinfectant Total Residual Summary	
Percentage of samples with a detectable disinfectant residual	96%
Average disinfectant residual this month	0.72

WSSN: 2310

Date	Total Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1	0.6	1.7	0.3	0.9	0.4	0.2	0.7	2.2	1.3	1.5	10
2	0.7	1.4	0.3	0.8	0.6	0.2	0.8	2.4	1.6	1.6	10
3											0
4											0
5											0
6	0.6	2.3	0.3	1.0	0.6	0.2	0.2	2.1	1.4	2.3	10
7	0.6	0.2	0.2	0.5	0.2	0.2	0.4	2.1	0.7	0.3	10
8	0.8	0.1	0.2	0.5	0.2	0.3	0.5	2.3	2.0	0.8	10
9	0.5	0.1	0.2	0.8	0.2	0.2	0.2	2.5	0.8	1.7	10
10	0.6	0.1	0.3	0.9	0.4	0.3	0.8	2.7	1.8	1.8	10
11											0
12											0
13											0
14	1.0	0.0	0.3	1.1	0.3	0.4	0.9	2.5	1.0	1.6	10
15	0.6	0.0	0.3	0.7	0.2	0.2	0.5	2.7	0.9	1.4	10
16	0.9	0.0	0.3	0.9	0.5	0.3	0.4	3.0	2.0	1.0	10
17											0
18											0
19											0
20											0
21	0.7	0.4	0.5	0.7	0.5	0.2	0.4	1.7	1.2	1.8	10
22	1.1	1.2	0.6	1.0	0.1	0.1	0.9	2.5	2.3	2.0	10
23	0.7	2.3	0.7	1.3	0.9	0.2	0.7	2.2	2.2	1.9	10
24											0
25											0
26											0
27									1.5	1.3	2
28	0.7	2.0	1.2	1.1	1.0	0.2	0.9	2.3	1.8	1.7	10
29	0.4	1.5	0.3	1.4	0.9	0.2	0.3	2.3	1.7	1.5	10
30	0.1	1.0	1.0	1.1	1.4	0.2	0.6	2.5	1.8	1.5	10
31									1.8	1.7	2

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.0

Positive Distribution Samples

Date	Monitoring station	Date	Repeat Monitoring Stations	Residual (mg/L) Free / Total	Present or Absent
10/2/2014	[redacted]	10/3/2014	[redacted]	0.5 / 0.8	Absent
				0.8 / 1.1	Absent
				0.4 / 0.6	Absent
10/10/2014	[redacted]	10/11/2014	[redacted]	0.4 / 0.6	Absent
				1.2 / 1.6	Absent
				0.1 / 0.2	Absent
10/14/2014	[redacted]	10/15/2014	[redacted]	0.0 / 0.0	Present
				0.1 / 0.1	Absent
				0.1 / 0.3	Absent
		10/16/2014	[redacted]	0.0 / 0.0	Absent
				0.0 / 0.1	Absent
				0.1 / 0.2	Absent
10/16/2014	[redacted]	10/17/2014	[redacted]	0.4 / 0.7	Absent
				0.7 / 1.0	Absent
				0.5 / 0.7	Absent

2310

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

[redacted]
Operator-in-Charge

September 2014
Month/Year

F-1R, F-2
Certification of Operator-in-Charge

F-1
Water Plant Classification

[redacted]
Signature of Operator-in-Charge

Genesee
County

DEQ
RESOURCE MANAGEMENT DIVISION
OCT 20 2014
LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	24.5	Million Gallons per Day
Rated Plant Capacity:	36	Million Gallons per Day
Average Filter Run:	97	Hours
Average Head Loss:	n/a	Feet *(filter head loss meters not operational)
Average Filtration Rate:	2.1	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	3.4	Gallons Per Square Feet per Minute
Average Wash Water Use:	1.9%	Percent of Treated Water

Chemical Data

Chlorine on hand:	16000	lb.	Est. supply:	15	days
Primary Coagulant (Ferric Chloride) on hand:	234,000	lb.	Est. supply:	27	days
Lime (CaO) on hand:	223	tons	Est. supply:	22	days
Fluoride on Hand:	16,630	lb.	Est. supply:	45	days
Cost of All Chemicals per Million Gallons:	n/a	dollars			
Total Power Cost per Million Gallons:	n/a	dollars			

Remarks

	Confluence Point # 1 (N)	Confluence Point # 2 (S)
Number of filter confluence samples > 0.3 NTU:	0	0
Number of filter confluence samples collected:	180	180
Percent of filter confluence samples > 0.3 NTU:	0.0%	0.0%
Number of filter confluence samples > 1 NTU	0	0

Did any individual filter exceed:

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

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

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

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

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

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

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

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

COMPLETED

Coagulation Parameters & Softening Chemical Application — City of Flint Water Treatment Plant — September 2014 — Page 2

WSSN: 2310

Date	Million Gallons Treated	Ferric as Fe3+ mg/L	Lime Dosage (mg/L)	PW-340 Catioinc Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
						Raw			Plate Settler	Applied
						Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	15.8	5.2	98.7	3.8	0.99	8	6.9	10.8	0.57	1.26
2	14.6	5.0	109.9	3.8	0.99	8	6.8	10.9	0.52	1.08
3	14.7	4.8	110.7	3.8	0.99	8	5.7	6.9	0.50	3.83
4	15.4	5.0	109.9	3.8	0.99	8	6.2	7.8	0.49	2.04
5	14.6	5.1	116.2	4.3	0.99	8	5.5	6.6	0.48	0.90
6	14.7	5.0	125.5	3.5	0.99	8	5.6	6.4	0.51	0.89
7	21.0	5.4	103.6	2.7	0.73	8	5.9	10.1	0.53	1.35
8	24.1	6.1	119.6	2.5	0.67	8	8.2	18.2	0.63	1.25
9	24.3	5.9	115.4	2.5	0.80	8	8.2	18.2	0.76	1.49
10	24.0	5.9	110.5	2.7	0.85	8	8.2	18.2	0.63	0.93
11	23.3	6.1	112.6	3.0	0.88	8	8.2	18.2	0.63	1.36
12	23.3	6.1	109.6	2.9	0.88	8	8.2	18.2	0.62	0.48
13	19.2	5.9	115.2	3.4	0.78	8	8.6	18.2	0.65	0.73
14	14.9	5.6	129.2	3.9	0.74	8	9.4	20.7	0.45	0.62
15	14.8	5.4	129.0	3.8	0.75	8	9.1	16.9	0.50	1.97
16	14.9	5.4	124.0	3.9	0.80	8	12.1	28.6	0.50	1.25
17	14.9	5.4	114.9	3.7	0.86	8	7.9	10.1	0.45	1.56
18	19.0	5.8	105.6	2.6	0.81	8	12.1	30.6	0.57	1.25
19	24.1	5.8	94.2	2.1	0.67	8	6.4	8.3	0.67	1.26
20	23.4	6.2	94.1	2.2	0.84	8	6.5	7.8	0.66	0.69
21	20.1	6.3	99.4	2.4	0.92	8	8.9	24.3	0.88	0.99
22	16.8	7.2	111.1	2.7	0.99	8	10.1	23.9	0.99	0.84
23	14.6	7.3	129.8	3.1	0.99	8	12.0	19.3	0.59	0.64
24	14.5	7.4	128.2	3.1	0.94	8	12.0	15.5	0.47	1.30
25	17.4	7.2	120.6	2.9	0.94	8	16.2	49.5	0.85	0.55
26	18.9	7.1	125.9	2.7	0.91	8	9.7	28.4	0.68	0.55
27	18.7	7.1	134.2	2.9	0.92	8	8.9	26.2	0.68	0.80
28	18.6	7.3	129.0	2.8	0.94	8	10.6	41.5	0.57	0.78
29	18.2	6.9	129.0	2.8	0.94	8	8.2	30.6	0.55	0.74
30	18.4	7.1	125.2	3.0	0.92	8	21.7	73.4	0.54	0.48
Avg.	18.4	6.1	116.0	3.1	0.88	8	9.13			1.13
Max.	24.3	7.4	134.2	4.3	0.99	8	21.7	73.4	0.99	3.83
Min.	14.5	4.8	94.1	2.1	0.67	8	5.50			0.48
Total	551.1									

Filter turbidity

City of Flint Water Treatment Plant

WSSN: 2310

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Plant Tap NTU
1	8	0.13	0.18	6	0	0	8	0.13	0.15	6	0	0	0.13
2	8	0.13	0.19	6	0	0	8	0.13	0.15	6	0	0	0.12
3	8	0.13	0.20	6	0	0	8	0.12	0.17	6	0	0	0.12
4	8	0.10	0.13	6	0	0	8	0.10	0.13	6	0	0	0.11
5	8	0.08	0.10	6	0	0	8	0.08	0.10	6	0	0	0.11
6	8	0.09	0.13	6	0	0	8	0.09	0.10	6	0	0	0.11
7	8	0.11	0.15	6	0	0	8	0.11	0.14	6	0	0	0.11
8	8	0.12	0.17	6	0	0	8	0.13	0.20	6	0	0	0.14
9	8	0.12	0.16	6	0	0	8	0.12	0.15	6	0	0	0.12
10	8	0.11	0.12	6	0	0	8	0.12	0.17	6	0	0	0.13
11	8	0.11	0.14	6	0	0	8	0.12	0.14	6	0	0	0.13
12	8	0.09	0.11	6	0	0	8	0.11	0.14	6	0	0	0.12
13	8	0.10	0.11	6	0	0	8	0.10	0.11	6	0	0	0.10
14	8	0.09	0.11	6	0	0	8	0.10	0.13	6	0	0	0.09
15	8	0.08	0.10	6	0	0	8	0.08	0.10	6	0	0	0.08
16	8	0.08	0.09	6	0	0	8	0.08	0.10	6	0	0	0.07
17	8	0.10	0.17	6	0	0	8	0.09	0.12	6	0	0	0.09
18	8	0.11	0.14	6	0	0	8	0.11	0.13	6	0	0	0.10
19	8	0.09	0.11	6	0	0	8	0.11	0.20	6	0	0	0.10
20	8	0.11	0.14	6	0	0	8	0.10	0.12	6	0	0	0.09
21	8	0.10	0.11	6	0	0	8	0.10	0.12	6	0	0	0.09
22	8	0.08	0.10	6	0	0	8	0.07	0.10	6	0	0	0.09
23	8	0.07	0.08	6	0	0	8	0.07	0.08	6	0	0	0.07
24	8	0.08	0.14	6	0	0	8	0.07	0.10	6	0	0	0.08
25	8	0.08	0.09	6	0	0	8	0.09	0.10	6	0	0	0.08
26	8	0.10	0.12	6	0	0	8	0.10	0.12	6	0	0	0.12
27	8	0.09	0.12	6	0	0	8	0.10	0.13	6	0	0	0.09
28	8	0.10	0.11	6	0	0	8	0.09	0.11	6	0	0	0.10
29	8	0.11	0.13	6	0	0	8	0.19	0.10	6	0	0	0.10
30	8	0.13	0.16	6	0	0	8	0.11	0.14	6	0	0	0.11
Avg.	8	0.10	0.13	6	0	0	8	0.10	0.13	6	0	0	
Max.	8	0.13	0.20	6	0	0	8	0.19	0.20	6	0	0	0.14
Min.	8	0.07	0.08	6	0	0	8	0.07	0.08	6	0	0	

Date	Fluoriode Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.50	0.19	0.72		3.6	3.6	7.2	0.3	0.6	2.7	3.3	1.5	1.9
2	0.50	0.18	0.70	0.63	3.7	3.5	7.2	0.4	0.8	2.5	3.2	1.2	1.8
3	0.50	0.19	0.69		3.6	3.6	7.2	0.4	0.7	1.9	2.4	1.2	1.9
4	0.50	0.19	0.69		3.6	3.6	7.2	0.5	0.9	2.6	3.2	1.7	2.2
5	0.50	0.20	0.69		3.6	3.3	6.9	0.5	0.8	2.0	2.6	1.6	1.9
6	0.50	0.21	0.65		3.6	3.6	7.2	0.3	0.7	2.2	2.7	1.4	1.8
7	0.40	0.20	0.62		3.2	3.5	6.7	0.2	0.5	2.2	2.7	1.2	1.8
8	0.50	0.19	0.57		3.6	4.1	7.7	0.5	0.8	2.5	3.0	1.7	2.2
9	0.50	0.20	0.69	0.69	3.8	4.1	7.9	0.6	0.9	3.1	3.4	3.0	3.3
10	0.50	0.19	0.69		3.8	3.9	7.7	0.6	0.9	3.2	3.5	1.8	2.1
11	0.50	0.19	0.69		3.9	4.0	7.9	0.5	0.9	2.7	3.2	3.1	3.5
12	0.50	0.18	0.70		3.7	3.8	7.5	0.5	0.8	2.9	3.5	2.1	2.7
13	0.50	0.16	0.69		3.5	3.8	7.3	0.4	0.7	2.9	3.5	2.1	2.9
14	0.40	0.20	0.69		3.6	4.2	7.8	0.6	0.9	3.0	3.5	3.0	3.5
15	0.40	0.19	0.64		3.4	3.7	7.1	0.9	1.4	3.2	3.5	3.0	3.5
16	0.40	0.20	0.64	0.65	3.0	3.6	6.6	0.8	1.1	2.6	3.2	1.9	2.4
17	0.50	0.17	0.65		2.9	3.9	6.8	0.6	1.2	2.8	3.5	2.4	3.1
18	0.40	0.18	0.65		2.4	3.5	5.9	0.6	1.0	3.2	3.5	3.0	3.3
19	0.40	0.18	0.66		2.4	3.4	5.8	0.4	0.8	2.6	3.2	2.1	2.8
20	0.50	0.24	0.65		2.5	4.2	6.7	0.4	0.7	2.7	3.3	1.9	2.3
21	0.50	0.18	0.70		2.4	4.2	6.6	0.5	0.9	3.1	3.5	3.2	3.4
22	0.40	0.19	0.66		3.0	4.8	7.8	0.9	1.3	3.2	3.5	3.3	3.5
23	0.40	0.20	0.60	0.63	2.9	3.7	6.6	0.7	1.1	3.2	3.5	2.3	2.6
24	0.40	0.20	0.64		2.9	3.6	6.5	1.0	1.5	2.9	3.5	3.1	3.3
25	0.40	0.19	0.64		2.5	3.7	6.2	0.7	1.0	3.2	3.5	2.2	2.6
26	0.40	0.21	0.65		2.5	4.2	6.7	0.6	1.0	2.7	3.2	2.2	2.6
27	0.40	0.19	0.65		2.5	4.1	6.6	0.6	0.9	3.0	3.5	2.0	2.6
28	0.40	0.23	0.71		2.6	4.0	6.6	0.9	1.3	3.1	3.5	3.1	3.5
29	0.50	0.21	0.70		2.6	4.0	6.6	0.8	1.2	3.1	3.5	3.0	3.5
30	0.50	0.21	0.67	0.65	2.5	4.3	6.8	0.7	1.0	2.9	3.5	2.4	2.7
Avg.	0.46	0.19	0.67	0.65	3.1	3.9	7.0	0.6	0.9	2.8	3.3	2.3	2.7
Max.	0.50	0.24	0.72	0.69	3.9	4.8	7.9	1.0	1.5	3.2	3.5	3.3	3.5
Min.	0.40	0.16	0.57	0.63	2.4	3.3	5.8	0.2	0.5	1.9	2.4	1.2	1.8

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.06	7.47	248	170	200	104	48	66	72.1	61.7	14.6	3.4	41	60
2	7.90	7.79	235	160	200	97	35	63	71.3	54.5	14.1	4.4	44	61
3	8.00	7.92	240	165	196	97	44	68	82.6	64.1	7.8	1.9	40	66
4	8.04	7.93	238	160	200	97	38	63	74.5	56.9	12.6	3.9	40	59
5	8.09	7.61	241	146	198	81	43	65	76.2	57.7	11.7	1.0	42	57
6	7.95	7.94	239	148	198	79	41	69	79.4	57.7	10.2	1.0	40	57
7	8.09	7.77	238	153	202	97	36	56	65.7	48.1	18.5	2.9	41	58
8	7.97	7.88	240	169	203	94	37	75	77.0	54.5	11.7	8.3	42	59
9	7.88	7.89	241	170	203	103	38	67	73.7	57.5	13.6	6.3	43	62
10	7.78	7.95	242	170	202	95	40	75	81.8	60.1	16.5	6.3	42	60
11	7.91	7.92	244	169	204	96	40	73	80.2	64.9	10.2	4.4	43	59
12	8.00	7.66	240	168	197	101	43	67	81.0	65.7	9.7	1.0	42	60
13	8.04	7.61	245	175	199	96	46	79	76.2	63.3	13.6	3.9	43	59
14	8.18	7.44	247	162	206	85	41	77	79.4	55.3	12.2	5.8	42	59
15	8.24	7.62	246	150	204	81	42	69	72.9	45.7	15.6	6.3	41	61
16	8.22	7.61	246	153	206	83	40	70	68.5	46.5	18.2	8.3	42	61
17	8.23	7.89	246	142	197	72	49	70	81.8	53.7	11.2	2.4	42	59
18	8.29	7.99	246	147	208	76	38	71	76.2	44.9	13.6	7.3	41	60
19	8.29	8.11	251	145	205	71	46	74	79.4	52.7	10.7	2.4	42	56
20	8.26	8.02	248	156	202	89	46	67	79.4	55.3	12.2	3.4	43	58
21	8.23	7.84	247	162	209	93	38	69	77.0	49.7	13.6	9.2	43	61
22	8.22	8.05	245	160	205	79	40	81	78.6	52.9	12.2	8.3	43	62
23	8.35	7.88	249	144	204	64	45	80	70.5	38.5	17.5	11.2	42	63
24	8.41	7.96	243	120	199	51	44	69	85.0	40.1	8.3	4.9	44	62
25	8.40	7.77	239	138	202	66	37	72	72.1	41.7	12.6	7.8	40	61
26	8.35	7.90	242	139	197	60	45	79	89.0	49.7	11.2	3.9	42	60
27	8.23	7.85	240	133	192	60	48	73	92.2	50.5	9.7	2.4	42	61
28	8.23	7.85	246	128	204	62	42	66	72.9	40.9	15.6	5.3	41	63
29	8.15	7.84	242	144	202	68	40	76	72.9	43.3	14.6	7.8	41	63
30	8.01	7.52	247	153	205	68	42	85	93.8	56.1	11.2	3.9	42	62
Avg.	8.13	7.82	243	153	202	82	42	71	77.8	52.8	12.8	5.0	42	60
Max.	8.41	8.11	251	175	209	104	49	85	93.8	65.7	18.5	11.2	44	66
Min.	7.78	7.44	235	120	192	51	35	56	65.7	38.5	7.8	1.0	40	56

Bacteriological & Physical Parameters

City of Flint Water Treatment Plant

WSSN: 2310

September 2014

Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	8212	12	0	1	0	3780	2	0.42	24.0				
2	1	12262	12	0	1	0	4620	< 2	0.42	24.0				
3	1	3912	12	0	1	0	1360	< 2	n.t.	23.8				
4	1	2749	12	0	1	0	1600	< 2	0.42	26.1				
5	1	1918	12	0	1	0	1720	< 2	0.39	24.1				
6	1	8212	12	0	1	0	2160	< 2	0.39	23.9				
7	1	5510	12	0	1	0	2640	< 2	0.41	23.5				
8	1	2910	12	0	1	0	2480	< 2	0.44	23.0				
9	1	2708	12	0	1	0	6980	< 2	0.44	23.4				
10	1	7308	12	0	1	0	> 14760	< 2	n.t.	23.5				
11	1	6510	12	0	1	0	8800	< 2	0.43	22.1				
12	1	8704	12	0	1	0	8800	< 2	0.43	21.4				
13	1	3570	12	0	1	0	3120	< 2	0.44	20.9				
14	1	8212	12	0	1	0	1360	< 2	0.38	20.0				
15	1	6510	12	0	1	0	3540	< 2	0.37	18.1				
16	1	12262	12	0	1	0	1660	< 2	0.37	17.7				
17	1	9222	12	0	1	0	1940	< 2	0.38	17.5				
18	1	10950	12	0	1	0	2400	< 2	0.36	17.4				
19	1	6152	12	0	1	0	6220	< 2	0.37	17.0				
20	1	5818	12	0	1	0	6780	< 2	0.37	18.0				
21	1	4028	12	0	1	0	2740	< 2	0.40	18.4				
22	1	12262	12	0	1	0	3900	< 2	0.39	18.0				
23	1	10950	12	0	1	0	4780	< 2	0.39	17.5				
24	1	10344	12	0	1	0	2560	< 2	0.36	17.6				
25	1	8704	12	0	1	0	2640	< 2	0.35	18.2				
26	1	15402	12	0	1	0	5740	< 2	0.36	18.6				
27	1	5226	12	0	1	0	7440	< 2	0.36	18.5				
28	1	7746	12	0	1	0	6780	< 2	0.35	19.4				
29	1	3578	12	0	1	0	5320	< 2	0.37	19.5				
30	1	31062	12	0	1	0	3320	< 2	0.38	19.2				
Avg.									0.39	20.5				
Max.							8800	2	0.44	26.1				
Min.									0.35	17.0				

n.t.= not tested

WSSN: 2310

Date	Free Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2	0.1	0.4	0.1	0.2	0.0	0.1	0.1	0.8	0.4	0.9	10
3	0.1	0.3	0.1	0.2	0.0	0.1	0.1	0.7	0.5	0.5	10
4	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.8	0.2	0.8	10
5											0
6											0
7											0
8	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.7	0.6	0.7	10
9	0.3	0.6	0.1	0.1	0.1	0.1	0.2	1.5	1.5	0.5	10
10	0.3	0.8	0.1	0.1	0.2	0.1	0.2	1.5	3.5	1.2	10
11	0.3	0.9	0.1	0.4	0.2	0.1	0.1	1.3	1.4	1.6	10
12											0
13											0
14											0
15											0
16	0.2	0.6	0.1	0.4	0.1	0.2	0.1	1.3	0.9	1.3	10
17	0.3	1.2	0.1	1.0	0.2	0.0	0.1	1.7	2.7	1.5	10
18	0.2	0.7	0.1	0.4	0.2	0.2	0.2	1.7	0.8	1.4	10
19											0
20											0
21											0
22											0
23	0.3	1.6	0.1	0.8	0.2	0.2	0.3	2.3	1.1	0.9	10
24	0.5	1.5	0.2	0.7	0.6	0.1	1.0	2.1	1.7	2.1	10
25	0.3	0.1	0.1	0.7	0.2	0.1	0.2	1.7	3.5	2.3	10
26	0.5	0.1	0.1	0.9	0.5	0.1	0.4	2.2	3.5	1.7	10
27											0
28											0
29											0
30	0.5	0.1	0.1	0.7	0.1	0.1	0.6	2.4	1.8	1.7	10

Distribution Sample Summary	
Total # of routine distribution samples analyzed	150
Total # of routine distribution samples required	100

Distribution Disinfectant Total Residual Summary	
Percentage of samples with a detectable disinfectant residual	97%
Average disinfectant residual this month	0.64

Distribution Bacteriological Summary	
Total # of positive routine distribution samples	15
Percent of routine distribution samples positive	10%

See page 9 for positive sample information.

Distribution System Monitoring

City of Flint Water Treatment Plant

September 2014

WSSN: 2310

Date	Total Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WS	Number of Samples
1											0
2	0.3	0.7	0.2	0.4	0.1	0.2	0.2	1.2	0.7	1.2	10
3	0.3	0.7	0.2	0.5	0.2	0.4	0.3	1.2	0.9	1.0	10
4	0.3	0.6	0.2	0.3	0.2	0.2	0.2	1.1	0.3	1.1	10
5											0
6											0
7											0
8	0.2	0.4	0.1	0.2	0.2	0.1	0.1	1.0	0.9	1.0	10
9	0.6	1.3	0.3	0.3	0.3	0.2	0.4	1.8	1.8	0.8	10
10	0.5	1.1	0.2	0.2	0.4	0.2	0.4	1.8	3.5	1.4	10
11	0.6	1.2	0.3	0.8	0.4	0.3	0.3	1.6	1.8	2.0	10
12											0
13											0
14											0
15											0
16	0.4	1.0	0.2	0.7	0.3	0.3	0.3	1.7	1.2	1.7	10
17	0.5	1.6	0.3	1.4	0.5	0.2	0.3	2.1	3.5	2.0	10
18	0.3	1.0	0.2	0.7	0.3	0.4	0.3	2.1	1.0	1.7	10
19											0
20											0
21											0
22											0
23	0.5	1.9	0.3	1.1	0.3	0.3	0.5	2.5	1.6	1.1	10
24	0.9	0.2	0.4	1.3	1.0	0.3	1.5	2.5	2.0	1.7	10
25	0.6	0.2	0.2	0.9	0.5	0.2	0.4	2.2	3.5	3.0	10
26	0.9	0.3	0.3	1.4	1.1	0.3	0.7	2.7	3.5	2.0	10
27											0
28											0
29											0
30	0.8	0.3	0.3	1.1	0.3	0.2	1.1	2.7	2.2	2.1	10

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	0.9

Positive Distribution Samples

Date	Monitoring station	Date	Repeat Monitoring Stations	Residual (mg/L) Free / Total	Present or Absent
9/2/2014	[redacted]	9/3/2014	[redacted]	0.0 / 0.2	Present
			[redacted]	0.0 / 0.2	Present
			[redacted]	0.1 / 0.3	Absent
		9/4/2014	[redacted]	0.1 / 0.2	Present
			[redacted]	0.1 / 0.2	Present
			[redacted]	0.1 / 0.3	Present
		9/5/2014	[redacted]	0.1 / 0.2	Present
			[redacted]	0.1 / 0.3	Absent
			[redacted]	0.1 / 0.2	Present
		9/6/2014	[redacted]	0.2 / 0.3	Absent
			[redacted]	0.2 / 0.3	Absent
			[redacted]	0.1 / 0.2	Absent
		9/7/2014	[redacted]	0.2 / 0.3	Absent
			[redacted]	0.2 / 0.3	Absent
			[redacted]	0.0 / 0.2	Present
		9/8/2014	[redacted]	0.1 / 0.2	Absent
			[redacted]	0.1 / 0.1	Absent
9/4/2014	[redacted]	9/5/2014	[redacted]	0.2 / 0.3	Absent
			[redacted]	0.1 / 0.2	Present
			[redacted]	0.1 / 0.2	Present
		9/6/2014	[redacted]	0.1 / 0.2	Absent
			[redacted]	0.2 / 0.3	Absent
			[redacted]	0.0 / 0.1	Absent
		9/7/2014	[redacted]	0.1 / 0.3	Absent
			[redacted]	0.1 / 0.3	Absent
			[redacted]	0.2 / 0.3	Absent
9/10/2014	[redacted]	9/11/2014	[redacted]	0.4 / 0.8	Absent
			[redacted]	0.3 / 0.5	Absent
			[redacted]	0.7 / 1.0	Absent
9/16/2014	[redacted]	9/17/2014	[redacted]	1.0 / 1.4	Absent
			[redacted]	0.7 / 1.0	Absent
			[redacted]	1.5 / 2.0	Absent
9/17/2014	[redacted]	9/18/2014	[redacted]	0.1 / 0.2	Absent
			[redacted]	0.1 / 0.2	Absent
			[redacted]	0.1 / 0.2	Absent

2310

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

[redacted]
Operator-in-Charge

August 2014
Month/Year

F-1R, F-2
Certification of Operator-in-Charge

F-1
Water Plant Classification

[redacted]
Signature of Operator-in-Charge

Genesee
County

DEQ
RESOURCE MANAGEMENT DIVISION
SEP 17 2014
LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	24.4	Million Gallons per Day
Rated Plant Capacity:	36	Million Gallons per Day
Average Filter Run:	78	Hours
Average Head Loss:		Feet *(filter head loss meters not operational)
Average Filtration Rate:	2.2	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	3.3	Gallons Per Square Feet per Minute
Average Wash Water Use:	2.8%	Percent of Treated Water

Chemical Data

Chlorine on hand:	12000	lb.	Est. supply:	10	days
Primary Coagulant (Ferric Chloride) on hand:	209,000	lb.	Est. supply:	23	days
Lime (CaO) on hand:	78	tons	Est. supply:	8	days
Fluoride on Hand:	23,280	lb.	Est. supply:	38	days
Cost of All Chemicals per Million Gallons:		dollars			
Total Power Cost per Million Gallons:		dollars			

Remarks

	Confluence Point # 1 (N)	Confluence Point # 2 (S)
Number of filter confluence samples > 0.3 NTU:	0	0
Number of filter confluence samples collected:	186	186
Percent of filter confluence samples > 0.3 NTU:	0.00%	0.00%
Number of filter confluence samples > 1 NTU	0	0

Did any individual filter exceed:

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

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

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

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

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

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

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

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

COMPLETED

Date	Million Gallons Treated	Ferric as Fe3+ mg/L	Lime Dosage (mg/L)	PW-340 Cationic Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
						Raw			Plate Settler	Applied
						Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	14.50	16.4	124.4	2.6	0.20	6	7.3	8.4	1.77	1.45
2	14.45	14.2	117.6	2.5	0.19	6	5.8	6.0	1.75	0.97
3	14.40	13.8	119.8	2.7	0.20	6	4.8	5.5	0.42	0.97
4	20.07	9.7	113.4	2.3	0.16	6	4.8	6.1	0.62	1.07
5	23.58	9.5	124.1	1.9	0.12	6	6.2	7.1	0.71	3.10
6	20.82	11.0	124.6	2.2	0.14	6	6.2	7.0	0.64	3.23
7	22.15	9.9	107.7	2.2	0.17	6	6.2	7.0	0.87	2.36
8	17.36	9.6	113.9	2.5	0.24	6	5.2	5.6	0.57	3.83
9	14.43	7.8	110.0	2.7	0.20	6	4.7	5.6	0.52	4.84
10	14.49	7.4	127.3	3.3	0.20	6	5.0	5.6	0.48	1.44
11	14.51	6.3	115.0	3.3	0.16	6	6.2	10.6	0.49	3.64
12	16.56	7.8	118.9	4.0	0.14	6	11.3	19.3	0.96	9.76
13	16.83	8.2	104.6	3.3	0.17	6	6.0	15.4	0.80	5.19
14	17.02	8.1	97.7	3.3	0.15	6	6.2	7.0	0.50	2.53
15	17.60	7.6	94.1	3.2	0.27	6	6.2	8.6	0.58	5.06
16	16.43	7.4	94.1	3.1	0.27	6	6.2	8.0	0.56	2.89
17	17.95	6.8	94.1	3.1	0.26	6	6.2	8.0	0.56	1.40
18	18.05	6.8	107.7	3.1	0.26	6	6.2	7.9	0.53	0.97
19	16.89	7.0	107.8	3.3	0.34	6	6.2	13.7	0.49	2.40
20	14.69	7.0	117.4	3.8	0.39	6	8.1	11.7	0.54	1.20
21	15.22	7.0	110.8	3.8	0.39	6	6.7	7.6	0.45	0.74
22	15.24	7.0	117.3	3.8	0.39	6	7.1	12.4	0.44	0.97
23	14.60	6.8	116.5	3.9	0.39	6	5.8	6.9	0.41	4.19
24	14.64	6.8	110.5	3.8	0.39	6	6.6	10.4	0.41	0.90
25	14.55	6.7	108.6	3.8	0.39	6	6.1	9.4	0.40	1.49
26	14.58	6.7	119.2	3.8	0.39	6	6.2	10.6	0.40	0.62
27	14.54	6.7	108.0	3.9	0.39	6	7.1	11.7	0.46	0.98
28	20.09	6.8	101.5	3.0	0.31	6	5.5	6.3	0.52	1.26
29	23.80	7.1	94.3	2.4	0.24	6	5.4	6.2	0.57	1.66
30	21.68	7.0	97.2	2.4	0.24	6	5.4	6.2	0.57	3.88
31	15.63	3.6	110.4	3.7	0.37	6	6.4	10.3	0.53	4.16
Avg.	17.0	8.2	110.6	3.1	0.26	6	6.23			2.55
Max.	23.8	16.4	127.3	4.0	0.39	6	11.3	19.3	1.77	9.76
Min.	14.4	3.6	94.1	1.9	0.12	6	4.70			0.62
Total	527.3									

City of Flint Water Treatment Plant
WSSN: 2310

Filter turbidity

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Plant Tap NTU
1	6	0.07	0.11	6	0	0	6	0.07	0.08	6	0	0	0.08
2	6	0.06	0.08	6	0	0	6	0.07	0.09	6	0	0	0.08
3	6	0.06	0.07	6	0	0	6	0.08	0.09	6	0	0	0.08
4	6	0.09	0.11	6	0	0	6	0.09	0.10	6	0	0	0.08
5	6	0.11	0.13	6	0	0	6	0.10	0.11	6	0	0	0.10
6	6	0.08	0.10	6	0	0	6	0.08	0.10	6	0	0	0.09
7	6	0.11	0.13	6	0	0	6	0.11	0.14	6	0	0	0.10
8	6	0.08	0.09	6	0	0	6	0.09	0.10	6	0	0	0.09
9	6	0.09	0.12	6	0	0	6	0.09	0.12	6	0	0	0.09
10	6	0.11	0.14	6	0	0	6	0.08	0.09	6	0	0	0.10
11	6	0.10	0.11	6	0	0	6	0.09	0.13	6	0	0	0.10
12	6	0.09	0.10	6	0	0	6	0.11	0.16	6	0	0	0.11
13	6	0.13	0.16	6	0	0	6	0.12	0.15	6	0	0	0.12
14	6	0.12	0.13	6	0	0	6	0.11	0.11	6	0	0	0.12
15	6	0.14	0.16	6	0	0	6	0.15	0.17	6	0	0	0.14
16	6	0.19	0.23	6	0	0	6	0.18	0.19	6	0	0	0.17
17	6	0.16	0.21	6	0	0	6	0.13	0.15	6	0	0	0.13
18	6	0.15	0.16	6	0	0	6	0.14	0.16	6	0	0	0.13
19	6	0.11	0.13	6	0	0	6	0.11	0.14	6	0	0	0.13
20	6	0.09	0.11	6	0	0	6	0.08	0.15	6	0	0	0.10
21	6	0.07	0.08	6	0	0	6	0.08	0.19	6	0	0	0.07
22	6	0.09	0.11	6	0	0	6	0.07	0.08	6	0	0	0.09
23	6	0.08	0.09	6	0	0	6	0.08	0.10	6	0	0	0.09
24	6	0.08	0.09	6	0	0	6	0.07	0.10	6	0	0	0.09
25	6	0.09	0.12	6	0	0	6	0.07	0.08	6	0	0	0.09
26	6	0.10	0.16	6	0	0	6	0.10	0.11	6	0	0	0.09
27	6	0.10	0.13	6	0	0	6	0.10	0.12	6	0	0	0.11
28	6	0.11	0.13	6	0	0	6	0.10	0.12	6	0	0	0.10
29	6	0.12	0.14	6	0	0	6	0.12	0.14	6	0	0	0.11
30	6	0.11	0.15	6	0	0	6	0.10	0.12	6	0	0	0.12
31	6	0.13	0.16	6	0	0	6	0.12	0.13	6	0	0	0.15
Avg.	6	0.10	0.13	6	0	0	6	0.10	0.12	6	0	0	
Max.	6	0.19	0.23	6	0	0	6	0.18	0.19	6	0	0	0.17
Min.	6	0.06	0.07	6	0	0	6	0.07	0.08	6	0	0	

Fluoridation & Chlorination

City of Flint Water Treatment Plant
WSSN: 2310

August 2014

Date	Fluoride Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.50	0.18	0.64		3.3	3.9	7.2	0.6	0.8	2.5	2.9	1.8	2.1
2	0.50	0.19	0.66		3.2	3.8	7.0	0.7	0.9	2.3	2.7	1.3	1.5
3	0.50	0.20	0.68		3.0	4.0	7.0	0.6	0.8	2.4	2.9	1.5	1.8
4	0.50	0.19	0.71		3.1	3.5	6.6	0.4	0.6	1.9	2.3	1.3	1.6
5	0.50	0.20	0.68		3.6	3.7	7.3	0.7	1.0	2.8	3.2	2.2	2.5
6	0.50	0.20	0.76	0.72	3.8	3.9	7.7	0.9	1.2	3.0	3.5	3.3	3.5
7	0.40	0.19	0.67		3.4	4.3	7.7	0.5	0.8	2.6	2.9	1.9	2.3
8	0.50	0.19	0.67		3.4	3.4	6.8	0.7	1.0	3.2	3.5	2.0	2.5
9	0.50	0.18	0.70		3.2	2.9	6.1	0.4	0.6	1.9	2.3	1.5	1.7
10	0.50	0.18	0.71		3.2	3.4	6.6	0.5	0.8	1.9	2.4	1.3	1.6
11	0.50	0.19	0.69		3.1	3.3	6.4	0.7	1.1	2.8	3.3	2.2	2.6
12	0.50	0.19	0.72	0.68	2.6	3.8	6.4	1.1	1.3	3.0	3.5	1.5	2.0
13	0.40	0.17	0.57		2.8	4.4	7.2	0.3	0.5	3.0	3.5	2.2	2.7
14	0.40	0.17	0.58		3.5	3.9	7.4	0.2	0.3	2.0	2.5	1.1	1.5
15	0.40	0.18	0.59		3.5	3.5	7.0	0.4	0.6	2.3	2.7	1.2	1.6
16	0.40	0.20	0.59		3.3	3.6	6.9	0.4	0.6	1.9	2.3	1.4	1.8
17	0.40	0.19	0.59		3.1	3.7	6.8	0.3	0.6	2.0	2.5	1.6	1.9
18	0.40	0.19	0.58		3.2	3.6	6.8	0.3	0.6	2.2	3.0	1.0	1.4
19	0.40	0.18	0.57	0.57	3.8	3.4	7.2	0.7	1.2	3.0	3.5	1.8	2.3
20	0.30	0.20	0.57		3.4	3.0	6.4	0.6	1.0	2.6	3.0	0.8	1.0
21	0.50	0.18	0.53		3.4	3.0	6.4	0.7	0.9	2.1	2.7	1.4	1.6
22	0.50	0.18	0.70		3.4	2.8	6.2	0.6	1.0	2.3	3.0	1.6	2.2
23	0.50	0.16	0.67		3.3	3.0	6.3	0.4	0.7	2.3	2.8	1.1	1.5
24	0.50	0.19	0.68		3.3	2.9	6.2	0.5	0.9	2.5	3.1	1.0	1.5
25	0.50	0.18	0.63		3.0	3.2	6.2	0.6	1.0	2.4	3.3	1.1	1.5
26	0.50	0.19	0.77	0.64	3.0	3.6	6.6	0.2	0.4	2.4	2.9	0.8	1.1
27	0.50	0.19	0.71		3.3	3.5	6.8	0.4	0.7	2.5	3.0	1.8	2.3
28	0.50	0.20	0.71		3.4	3.3	6.7	0.3	0.6	2.0	2.5	1.2	1.6
29	0.40	0.18	0.55		3.3	3.5	6.8	0.3	0.6	2.3	2.8	1.2	1.6
30	0.40	0.18	0.63		3.6	3.6	7.2	0.2	0.6	2.1	2.6	1.0	1.3
31	0.40	0.19	0.83		4.1	4.4	8.5	0.8	1.3	3.0	3.5	3.0	3.4
Avg.	0.46	0.19	0.66	0.65	3.3	3.5	6.9	0.5	0.8	2.4	2.9	1.6	1.9
Max.	0.50	0.20	0.83	0.72	4.1	4.4	8.5	1.1	1.3	3.2	3.5	3.3	3.5
Min.	0.30	0.16	0.53	0.57	2.6	2.8	6.1	0.2	0.3	1.9	2.3	0.8	1.0

Chemical Analyses

City of Flint Water Treatment Plant
WSSN: 2310

August 2014

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.10	7.74	237	173	196	77	41	96	88.2	64.9	4.4	3.4	41	75
2	8.14	7.62	240	173	195	77	45	96	89.8	66.5	7.3	2.0	40	77
3	8.22	7.45	239	176	199	86	40	90	70.5	57.5	15.1	7.8	41	76
4	8.36	7.43	233	172	193	84	40	88	72.1	65.7	13.1	2.9	39	74
5	8.02	8.05	229	149	194	74	35	75	70.5	44.1	11.7	11.2	40	64
6	7.96	7.74	232	144	192	50	40	94	69.7	44.1	14.1	8.3	40	65
7	7.99	7.89	231	163	195	85	36	78	67.3	48.9	14.6	8.3	41	67
8	7.96	7.94	248	153	196	70	52	83	67.3	44.9	21.4	9.2	38	65
9	8.39	7.75	242	150	195	75	47	75	64.9	56.1	19.9	2.9	42	62
10	8.20	7.97	239	152	197	72	42	80	87.4	56.1	5.3	2.4	43	62
11	8.32	7.93	236	142	197	75	39	67	70.5	48.1	14.6	6.8	39	64
12	8.19	7.87	235	143	193	79	42	64	68.1	47.3	15.6	4.4	38	58
13	7.98	7.71	221	148	185	89	36	59	60.9	44.1	15.6	7.3	39	61
14	7.59	7.64	227	159	190	92	37	67	66.5	52.1	14.6	7.8	38	61
15	8.02	7.88	235	169	193	98	42	71	87.4	62.5	6.8	3.9	40	60
16	8.09	7.99	237	174	191	101	46	73	85.0	62.5	5.8	4.9	41	59
17	8.01	8.09	231	164	192	92	39	72	88.2	60.9	6.8	3.4	39	60
18	8.07	7.72	236	153	196	92	40	61	63.3	46.5	18.9	8.7	39	60
19	7.97	7.99	236	151	197	85	39	66	87.4	52.1	4.9	3.9	39	62
20	8.04	7.65	226	147	189	87	37	60	67.3	48.1	13.8	7.3	38	61
21	8.13	7.94	233	139	192	79	41	60	71.3	48.9	13.6	3.4	41	60
22	8.33	7.64	234	149	189	84	45	65	70.5	48.1	13.1	8.3	39	59
23	8.13	7.88	229	146	195	69	34	77	68.9	49.7	14.1	5.8	40	57
24	8.26	7.80	230	149	195	88	35	61	70.5	50.5	12.2	5.3	42	60
25	8.14	7.65	235	142	194	77	41	65	71.3	48.9	13.1	3.4	40	60
26	8.15	7.61	234	155	194	87	40	68	88.2	54.4	6.3	4.4	41	58
27	8.01	7.61	242	152	200	86	42	66	76.2	52.9	12.2	3.9	40	60
28	8.06	7.73	243	157	198	87	45	70	89.8	60.1	5.8	1.0	42	60
29	7.95	8.01	241	153	197	83	44	70	86.6	56.9	5.3	1.9	44	63
30	7.85	7.75	235	160	193	86	42	74	85.8	56.9	5.3	4.9	43	60
31	8.02	7.77	239	157	200	91	39	66	77.0	50.5	11.7	5.8	45	65
Avg.	8.09	7.78	235	155	194	82	41	73	75.8	53.3	11.5	5.3	40	63
Max.	8.39	8.09	248	176	200	101	52	96	89.8	66.5	21.4	11.2	45	77
Min.	7.59	7.43	221	139	185	50	34	59	60.9	44.1	4.4	1.0	38	57

Bacteriological & Physical Parameters

City of Flint Water Treatment Plant
WSSN: 2310

August 2014

Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap	Tap	Raw	Raw	Tap	Raw	Tap
1	1	7380	12	0	1	0	8280	< 2	0.50	21.8				
2	1	5510	12	0	1	0	5740	< 2	0.50	22.3				
3	1	4962	12	0	1	0	1060	< 2	0.45	24.7				
4	1	4286	12	0	1	0	1940	< 2	0.44	24.9				
5	1	1976	12	0	1	0	2740	< 2	0.50	23.7				
6	1	10950	12	0	1	0	11100	< 2	0.39	23.5				
7	1	18416	12	0	1	0	8280	< 2	0.43	23.3				
8	1	22398	12	0	1	0	>14760	< 2	0.41	23.6				
9	1	4564	12	0	1	0	>14760	< 2	0.50	24.2				
10	1	2028	12	0	1	0	9400	< 2	0.50	23.9				
11	1	3214	12	0	1	0	2080	< 2	0.42	25.2				
12	1	2752	12	0	1	0	1940	< 2	0.40	23.9				
13	1	6152	12	0	1	0	>14760	< 2	0.37	22.5				
14	1	1618	12	0	1	0	>14760	< 2	0.43	22.4				
15	1	2134	12	0	1	0	5740	< 2	0.44	22.1				
16	1	1232	12	0	1	0	12460	< 2	0.44	21.9				
17	1	1424	12	0	1	0	5140	< 2	0.41	21.4				
18	1	2802	12	0	1	0	8280	< 2	0.40	22.0				
19	1	1672	12	0	1	0	5520	< 2	0.40	22.5				
20	1	6882	12	0	1	0	>14760	< 2	0.40	22.8				
21	1	7304	12	0	1	0	1360	2	0.38	22.9				
22	1	8704	12	0	1	0	3420	< 2	0.40	22.5				
23	1	4564	12	0	1	0	>14760	< 2	0.38	24.7				
24	1	3328	12	0	1	0	1300	< 2	0.39	23.2				
25	1	3446	12	0	1	0	900	< 2	0.39	24.5				
26	1	4196	12	0	1	0	2000	2	0.40	25.0				
27	1	4284	12	0	1	0	1060	< 2	0.40	23.9				
28	1	3446	12	0	1	0	1360	< 2	0.41	22.7				
29	1	1424	12	0	1	0	12460	< 2	0.43	23.4				
30	1	4028	12	0	1	0	14760	< 2	0.42	23.5				
31	1	3232	12	0	1	0	2320	< 2	0.42	23.8				
Avg.									0.42	23.3				
Max.							14760	2	0.50	25.2				
Min.									0.37	21.4				

Date	Free Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WR	Number of Samples
1											0
2											0
3											0
4											0
5											0
6	0.3	0.8	0.3	0.3	0.1	0.2	0.1	0.9	0.3	0.2	10
7	0.7	0.9	0.2	0.6	0.1	0.2	0.1	1.0	0.1	1.5	10
8											0
9											0
10											0
11									0.2	0.0	2
12	0.1	0.4	0.1	0.1	0.1	0.2	0.1	0.5	0.0	0.1	10
13	0.2	0.2	0.1	0.0	0.0	0.5	0.5	1.2	0.0	1.3	10
14	0.4	0.8	0.2	0.2	0.0	0.1	0.0	1.0	0.6	0.4	10
15											0
16											0
17											0
18											0
19	0.1	0.3	0.1	0.0	0.1	0.1	0.1	1.1	0.6	0.9	10
20	0.2	0.8	0.1	0.3	0.1	0.2	0.3	1.0	0.4	0.5	10
21	0.2	0.5	0.2	0.1	0.0	0.0	0.1	0.9	0.1	0.9	10
22	0.2	0.6	0.2	0.5	0.3	0.1	0.0	0.9	0.6	1.1	10
23											0
24											0
25											0
26	0.1	0.5	0.1	0.3	0.0	0.2	0.1	0.8	1.1	0.7	10
27	0.1	0.4	0.1	0.2	0.1	0.1	0.1	0.7	0.4	0.5	10
28	0.2	0.4	0.1	0.4	0.1	0.2	0.1	1.0	0.9	1.0	10
29									0.9	1.0	2
30											0
31											0

Distribution Sample Summary	
Total # of routine distribution samples analyzed	124
Total # of routine distribution samples required	100

Distribution Bacteriological Summary	
Total # of positive routine distribution samples	15
Percent of routine distribution samples positive	12%

Distribution Disinfectant Total Residual Summary	
Percentage of samples with a detectable disinfectant residual	91%
Average disinfectant residual this month	0.37

Positive Distribution Samples						
Date	Monitoring Station	Date	Repeat Monitorong Stations	Residual	Positive or Negative	
	See page 9					

Distribution System Monitoring

City of Flint Water Treatment Plant
WSSN: 2310

August 2014

Date	Total Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WR	Number of Samples
1											0
2											0
3											0
4											0
5											0
6	0.6	1.1	0.5	0.5	0.2	0.3	0.2	1.2	0.5	0.3	10
7	0.9	1.3	0.5	0.9	0.4	0.4	0.3	1.2	0.4	2.0	10
8											0
9											0
10											0
11											0
12	0.3	0.6	0.3	0.2	0.1	0.3	0.2	0.7	0.1	0.1	10
13	0.4	0.5	0.2	0.7	0.1	0.3	0.1	1.5	0.1	1.6	10
14	0.7	1.1	0.4	0.4	0.1	0.2	0.1	1.4	0.9	0.6	10
15											0
16											0
17											0
18											0
19	0.3	0.6	0.2	0.3	0.1	0.2	0.1	1.3	0.9	1.1	10
20	0.4	1.2	0.3	0.7	0.3	0.4	0.5	1.5	0.7	1.0	10
21	0.4	1.1	0.4	0.3	0.1	0.2	0.2	1.3	0.3	1.1	10
22	0.4	1.0	0.4	0.9	0.5	0.2	0.1	1.1	0.8	1.4	10
23											0
24											0
25											0
26	0.3	0.9	0.9	0.6	0.1	0.5	0.3	1.3	1.5	1.2	10
27	0.3	0.7	0.2	0.3	0.2	0.2	0.2	1.1	0.7	0.8	10
28	0.5	0.7	0.3	0.8	0.3	0.5	0.3	1.5	1.6	1.5	10
29									1.3	1.5	2
30											0
31											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	0.6

Positive Distribution Samples

Date	Monitoring station	Date	Repeat Monitoring Stations	Present or Absent
8/12/2014	[redacted]	8/13/2014	[redacted]	Present
		8/13/2014		Present
		8/13/2014		Present
8/12/2014	[redacted]	8/13/2014		Present
		8/13/2014		Present
		8/13/2014		Present
8/12/2014	[redacted]	8/13/2014		Present
		8/13/2014		Present
		8/13/2014		Absent
8/14/2014	[redacted]	8/15/2014		Absent
		8/15/2014		Present
		8/15/2014		Absent
		8/16/2014		Absent
		8/16/2014		Present
		8/16/2014		Absent
		8/17/2014		Absent
		8/18/2014		Absent
		8/18/2014		Absent
		8/18/2014		Absent
8/22/2014	[redacted]	8/23/2014		Absent
		8/23/2014		Absent
		8/23/2014		Absent

2310

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

[redacted]
Operator-in-Charge

July 2014
Month/Year

F-1R, F-2
Certification of Operator-in-Charge

F-1
Water Plant Classification

[redacted]
Signature of Operator-in-Charge

Genesee
County

DEQ
RESOURCE MANAGEMENT DIVISION
AUG 1 4 2014
SAGINAW BAY DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	24.5	Million Gallons per Day
Rated Plant Capacity:	36	Million Gallons per Day
Average Filter Run:	65	Hours
Average Head Loss:	*	Feet *(filter head loss measured upon backwash)
Average Filtration Rate:	2.3	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	3.8	Gallons Per Square Feet per Minute
Average Wash Water Use:	2.5%	Percent of Treated Water

Chemical Data

Chlorine on hand:	21000	lb.	Est. supply:	16	days
Primary Coagulant (Ferric Chloride) on hand:	174,603	lb.	Est. supply:	23	days
Lime (CaO) on hand:	219	tons	Est. supply:	21	days
Fluoride on Hand:	16,348	lb.	Est. supply:	27	days
Cost of All Chemicals per Million Gallons:		dollars			
Total Power Cost per Million Gallons:		dollars			

Remarks

	Confluence Point # 1 (N)	Confluence Point # 2 (S)
Number of filter confluence samples > 0.3 NTU:	0	0
Number of filter confluence samples collected:	186	186
Percent of filter confluence samples > 0.3 NTU:	0.00%	0.00%
Number of filter confluence samples > 1 NTU	0	0

Did any individual filter exceed:

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

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

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

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

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

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

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

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

COMPLETED
[redacted]

Coagulation Parameters & Softening Chemical Application — City of Flint Water Treatment Plant WSSN: 2310 — July 2014 —

Date	Million Gallons Treated	Ferric as Fe3+ mg/L	Lime Dosage (mg/L)	PW-340 Catioinc Polymer Dosage (mg/L)	P-142PWG Antonic Polymer Dosage (mg/L)	Turbidity, Units				
						Raw			Plate Settler	Applied
						Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	21.93	19.4	127.3	1.8	0.05	6	10.2	20.6	0.60	2.80
2	21.04	19.1	128.0	1.8	0.05	6	6.2	7.1	0.77	4.92
3	20.96	19.8	122.0	1.8	0.05	6	7.7	22.7	0.62	3.45
4	21.33	18.5	115.7	1.8	0.05	6	5.2	6.3	0.62	3.25
5	21.34	19.0	113.3	1.8	0.05	6	4.9	5.7	0.84	1.56
6	22.92	18.2	109.7	1.7	0.04	6	6.7	14.3	0.83	2.55
7	21.18	25.8	128.7	1.9	0.05	6	10.9	20.1	1.28	5.19
8	20.80	22.4	146.7	1.9	0.05	6	9.9	20.6	1.20	11.04
9	20.99	22.7	128.1	1.8	0.05	6	19.7	49.5	1.51	4.63
10	21.57	21.1	105.0	1.8	0.05	6	16.9	20.3	1.40	6.27
11	24.46	18.5	98.4	1.6	0.04	6	8.1	12.9	1.90	1.75
12	24.17	19.1	116.6	1.6	0.04	6	7.6	8.1	2.29	2.28
13	23.78	20.0	121.2	1.6	0.04	6	9.4	10.1	2.51	2.05
14	16.55	22.4	153.0	2.4	0.07	6	9.6	13.9	1.36	4.97
15	14.25	17.9	167.5	2.7	0.07	6	10.6	12.6	0.52	2.09
16	14.60	16.9	160.2	2.6	0.07	6	10.5	11.5	0.49	2.52
17	14.45	16.7	159.3	2.6	0.07	6	11.6	14.7	0.57	1.01
18	14.34	16.7	162.7	2.7	0.07	6	10.9	12.8	0.46	3.11
19	14.65	15.0	148.9	2.6	0.07	6	8.2	12.8	0.38	2.63
20	14.80	15.5	145.5	2.6	0.07	6	6.1	12.0	0.40	5.06
21	14.86	16.3	140.2	2.6	0.07	6	5.8	7.4	0.64	3.05
22	20.74	13.8	128.0	1.9	0.06	6	5.1	6.3	0.45	3.40
23	23.50	12.6	122.2	1.6	0.04	6	6.1	6.8	0.63	2.96
24	22.23	12.6	118.5	1.7	0.04	6	6.2	6.5	0.80	1.93
25	21.20	15.0	117.4	1.9	0.06	6	6.4	6.7	0.87	2.01
26	14.39	18.6	132.9	2.6	0.07	6	6.1	7.0	0.30	3.21
27	14.47	18.3	133.9	2.6	0.07	6	6.6	7.9	0.33	1.19
28	14.59	17.6	125.9	2.6	0.07	6	6.6	7.3	0.33	1.17
29	14.62	16.7	133.5	2.6	0.07	6	6.7	7.8	0.40	0.67
30	14.68	14.7	133.6	2.6	0.07	6	7.5	10.0	0.57	0.84
31	14.63	14.2	133.7	2.6	0.07	6	6.7	7.6	1.20	1.70
Avg.	18.7	17.9	131.5	2.1	0.06	6	8.41			3.07
Max.	24.5	25.8	167.5	2.7	0.07	6	19.7	49.5	2.51	11.04
Min.	14.3	12.6	98.4	1.6	0.04	6	4.90			0.67
Total	580.0									

City of Flint Water Treatment Plant
WSSN: 2310

Filter turbidity

Date	Turbidity, Units												
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						Point of Entry
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Plant Tap NTU
1	6	0.07	0.10	6	0	0	6	0.07	0.10	6	0	0	0.11
2	6	0.08	0.10	6	0	0	6	0.07	0.11	6	0	0	0.21
3	6	0.08	0.10	6	0	0	6	0.08	0.12	6	0	0	0.11
4	6	0.08	0.09	6	0	0	6	0.08	0.10	6	0	0	0.11
5	6	0.07	0.08	6	0	0	6	0.07	0.08	6	0	0	0.11
6	6	0.07	0.09	6	0	0	6	0.06	0.08	6	0	0	0.11
7	6	0.06	0.10	6	0	0	6	0.07	0.11	6	0	0	0.09
8	6	0.07	0.10	6	0	0	6	0.07	0.12	6	0	0	0.20
9	6	0.08	0.11	6	0	0	6	0.07	0.13	6	0	0	0.14
10	6	0.07	0.10	6	0	0	6	0.07	0.11	6	0	0	0.11
11	6	0.08	0.10	6	0	0	6	0.07	0.10	6	0	0	0.08
12	6	0.06	0.10	6	0	0	6	0.08	0.17	6	0	0	0.08
13	6	0.08	0.14	6	0	0	6	0.07	0.11	6	0	0	0.08
14	6	0.07	0.09	6	0	0	6	0.07	0.08	6	0	0	0.08
15	6	0.06	0.08	6	0	0	6	0.07	0.10	6	0	0	0.08
16	6	0.06	0.08	6	0	0	6	0.06	0.09	6	0	0	0.08
17	6	0.07	0.10	6	0	0	6	0.05	0.07	6	0	0	0.08
18	6	0.06	0.07	6	0	0	6	0.05	0.06	6	0	0	0.08
19	6	0.06	0.07	6	0	0	6	0.06	0.08	6	0	0	0.08
20	6	0.06	0.09	6	0	0	6	0.06	0.09	6	0	0	0.08
21	6	0.11	0.10	6	0	0	6	0.08	0.15	6	0	0	0.08
22	6	0.09	0.10	6	0	0	6	0.07	0.09	6	0	0	0.08
23	6	0.09	0.10	6	0	0	6	0.09	0.09	6	0	0	0.08
24	6	0.09	0.10	6	0	0	6	0.09	0.09	6	0	0	0.08
25	6	0.09	0.10	6	0	0	6	0.09	0.11	6	0	0	0.08
26	6	0.08	0.10	6	0	0	6	0.07	0.09	6	0	0	0.08
27	6	0.07	0.10	6	0	0	6	0.08	0.10	6	0	0	0.08
28	6	0.09	0.11	6	0	0	6	0.08	0.09	6	0	0	0.08
29	6	0.08	0.09	6	0	0	6	0.07	0.09	6	0	0	0.08
30	6	0.08	0.11	6	0	0	6	0.08	0.09	6	0	0	0.08
31	6	0.08	0.09	6	0	0	6	0.08	0.10	6	0	0	0.08
Avg.	6	0.07	0.10	6	0	0	6	0.07	0.10	6	0	0	
Max.	6	0.11	0.14	6	0	0	6	0.09	0.17	6	0	0	0.21
Min.	6	0.06	0.07	6	0	0	6	0.05	0.06	6	0	0	

Fluoridation & Chlorination

City of Flint Water Treatment Plant
WSSN: 2310

July 2014

Date	Fluoriode Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.00	0.15	0.14		4.1	3.3	7.4	0.7	1.0	1.3	1.7	1.3	1.6
2	0.04	0.15	0.56	0.15	4.0	4.0	8.0	0.9	1.1	2.5	3.2	1.9	2.2
3	0.04	0.19	0.54		3.9	4.1	8.0	0.5	0.6	3.2	3.5	1.8	1.9
4	0.04	0.19	0.56		3.8	4.1	7.9	0.5	0.8	1.9	2.4	1.4	1.7
5	0.04	0.17	0.59		3.7	4.5	8.2	0.6	0.8	2.0	2.5	1.5	1.7
6	0.30	0.17	0.58		3.5	4.6	8.1	0.6	0.9	2.0	2.4	1.7	1.9
7	0.40	0.17	0.61		3.9	5.2	9.1	0.8	1.2	2.4	3.0	1.8	2.3
8	0.50	0.15	0.64		3.6	4.7	8.3	0.5	0.7	2.9	3.5	2.1	2.3
9	0.40	0.17	0.64		3.3	4.8	8.1	0.2	0.6	2.8	3.2	1.9	2.2
10	0.50	0.17	0.73		3.4	4.6	8.0	0.6	1.0	2.7	3.5	1.5	2.0
11	0.30	0.20	0.59	0.65	2.9	4.3	7.2	0.3	0.7	1.9	2.6	1.5	1.9
12	0.40	0.15	0.66		2.8	4.3	7.1	0.3	0.6	2.0	2.4	1.5	1.9
13	0.40	0.19	0.68		2.8	4.3	7.1	0.4	0.6	1.9	2.3	1.6	1.8
14	0.40	0.20	0.72		4.3	5.1	9.4	0.7	1.0	2.1	2.6	1.9	2.2
15	0.40	0.19	0.70		4.6	4.2	8.8	0.7	1.0	2.5	3.0	2.2	2.5
16	0.40	0.19	0.71	0.66	4.3	3.6	7.9	0.7	0.9	2.2	2.7	1.9	2.2
17	0.40	0.19	0.69		4.1	3.7	7.8	0.5	0.7	2.8	3.2	1.9	2.2
18	0.40	0.22	0.65		4.5	3.6	8.1	0.8	1.1	2.5	3.0	1.9	2.3
19	0.40	0.17	0.67		4.4	3.1	7.5	0.8	1.1	2.4	2.8	1.8	2.0
20	0.40	0.21	0.66		4.3	3.1	7.4	0.7	1.0	2.5	2.9	1.8	2.1
21	0.50	0.18	0.75		4.0	2.7	6.7	0.8	1.1	2.4	2.8	1.7	2.0
22	0.40	0.19	0.65		3.4	3.4	6.8	0.6	0.8	1.8	2.2	1.4	1.7
23	0.40	0.19	0.59	0.66	3.5	4.2	7.7	0.8	1.0	2.3	2.9	1.9	2.2
24	0.40	0.19	0.64		3.6	4.1	7.7	0.6	0.8	2.2	2.8	2.1	2.6
25	0.40	0.21	0.62		4.1	4.2	8.3	0.5	0.7	2.4	2.8	1.9	2.2
26	0.60	0.21	0.88		5.3	2.7	8.0	1.4	1.7	2.5	3.1	1.9	2.3
27	0.50	0.17	0.79		4.6	2.6	7.2	0.9	1.2	2.7	3.1	1.7	1.9
28	0.50	0.19	0.72		4.7	2.7	7.4	0.9	1.1	2.1	2.6	1.6	1.8
29	0.50	0.19	0.70		4.8	2.6	7.4	1.1	1.3	2.2	2.6	1.7	2.0
30	0.50	0.19	0.28	0.62	4.5	2.7	7.2	1.1	1.5	2.2	2.6	1.8	2.1
31	0.50	0.18	0.61		3.2	3.9	7.1	0.5	0.8	2.1	2.4	1.7	2.0
Avg.	0.37	0.18	0.63	0.55	3.9	3.8	7.8	0.7	0.9	2.3	2.8	1.8	2.1
Max.	0.60	0.22	0.88	0.66	5.3	5.2	9.4	1.4	1.7	3.2	3.5	2.2	2.6
Min.	0.00	0.15	0.14	0.15	2.8	2.6	6.7	0.2	0.6	1.3	1.7	1.3	1.6

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.04	7.81	260	158	214	58	46	100	88.2	55.4	9.7	5.3	43	88
2	8.08	7.59	258	150	24	54	234	96	89.8	50.5	8.3	5.8	45	90
3	8.25	7.51	260	176	224	54	36	122	93.0	63.3	8.6	4.4	44	87
4	8.21	7.67	273	190	222	84	51	106	81.0	64.1	15.6	5.8	45	87
5	8.23	7.66	272	193	226	75	46	118	88.2	65.7	13.1	7.3	45	91
6	8.24	7.62	273	171	225	71	48	100	85.8	57.7	14.6	4.9	45	91
7	8.17	7.43	241	173	204	43	37	130	81.8	60.9	5.8	5.1	45	89
8	8.27	7.49	247	179	209	35	38	144	95.4	68.1	5.3	4.4	45	101
9	8.11	7.49	246	164	208	64	38	100	85.0	60.1	8.3	3.4	46	96
10	7.92	7.35	232	150	187	31	45	119	69.7	48.9	13.6	7.8	41	98
11	7.96	7.63	227	160	182	52	45	108	81.8	56.9	5.8	4.4	43	85
12	7.68	7.85	248	190	198	85	50	105	77.0	60.9	11.2	8.3	41	88
13	7.89	7.69	242	180	201	81	41	99	83.4	59.3	8.3	7.8	42	87
14	8.16	7.61	262	175	225	63	37	112	85.0	65.7	12.6	5.3	46	89
15	8.14	7.56	254	172	223	60	31	112	65.7	56.9	22.8	8.3	45	88
16	8.16	7.58	253	152	211	38	42	114	93.0	52.9	5.8	3.9	44	83
17	8.17	7.41	251	169	212	59	39	110	89.0	59.3	8.3	3.4	43	84
18	8.14	7.61	251	151	204	40	47	111	88.2	57.7	7.0	2.0	40	82
19	8.30	7.74	251	157	202	44	49	113	90.6	58.5	6.3	2.4	39	82
20	8.51	7.62	254	147	195	45	59	102	88.2	49.7	8.7	2.6	41	78
21	8.28	7.60	243	164	203	59	40	95	80.2	54.5	10.7	4.4	42	81
22	8.24	7.54	246	162	198	62	48	100	89.0	58.5	6.3	3.4	42	71
23	8.00	7.78	244	162	198	80	46	82	84.2	53.7	7.8	5.3	39	68
24	7.87	7.75	241	175	199	74	42	101	90.6	61.7	3.9	4.4	40	74
25	7.92	7.88	242	169	198	68	44	101	85.8	60.9	7.3	4.9	40	71
26	8.31	7.94	241	178	199	73	42	105	89.0	63.3	4.9	6.3	42	79
27	8.25	7.60	241	183	199	80	42	103	92.2	62.5	8.3	5.8	45	83
28	8.13	7.56	237	176	200	77	37	99	57.7	57.7	7.3	7.3	82	82
29	8.09	7.55	243	181	198	80	45	101	89.8	67.3	8.7	2.0	41	79
30	8.11	7.47	236	172	200	76	36	96	89.9	67.3	2.9	1.0	42	73
31	8.19	7.68	240	166	194	68	46	98	90.6	64.1	3.9	2.4	41	76
Avg.	8.13	7.62	249	169	199	62	49	107	85.1	59.5	8.8	4.8	44	84
Max.	8.51	7.94	273	193	226	85	234	144	95.4	68.1	22.8	8.3	82	101
Min.	7.68	7.35	227	147	24	31	31	82	57.7	48.9	2.9	1	39	68

205 Ave
187 min

Bacteriological & Physical Parameters

City of Flint Water Treatment Plant
WSSN: 2310

July 2014

Date	Total Coliform						Standard Plate Count (Simplate MPN)		Conductivity (mS)	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap		Raw	Raw	Tap	Raw	Tap
1	1	39726	12	0	1	0	10140	< 2	0.50	25.4				
2	1	5510	12	0	1	0	1940	< 2	0.50	25.2				
3	1	4764	12	0	1	0	1600	< 2	0.60	25.4				
4	1	4564	12	0	1	0	8280	< 2	0.60	25.4				
5	1	3316	12	0	1	0	7440	< 2	0.60	24.3				
6	1	2752	12	0	1	0	3540	< 2	0.50	26.1				
7	1	14540	12	0	1	0	2080	< 2	0.60	24.6				
8	1	4962	12	0	1	0	2480	< 2	0.60	24.8				
9	1	9222	12	0	1	0	14760	< 2	0.50	24.3				
10	1	15402	12	0	1	0	14760	< 2	0.50	23.8				
11	1	3130	12	1	1	0	4460	2	0.50	24.0				
12	1	3700	12	1	1	0	4620	< 2	0.60	24.0				
13	1	6152	12	0	1	0	7440	< 2	0.60	24.4				
14	1	5446	12	0	1	0	3780	< 2	0.42	24.6				
15	1	7746	12	0	1	0	5980	< 2	0.50	24.6				
16	1	5226	12	0	1	0	14760	< 2	0.50	24.0				
17	1	6152	12	0	1	0	2160	< 2	0.50	23.7				
18	1	3578	12	0	1	0	7440	< 2	0.50	23.0				
19	1	5206	12	0	1	0	2640	< 2	0.50	23.2				
20	1	4764	12	0	1	0	7100	< 2	0.50	24.3				
21	1	4978	12	0	1	0	1180	< 2	0.42	23.9				
22	1	3316	12	0	1	0	14760	< 2	0.50	24.5				
23	1	1866	12	0	1	0	14760	< 2	0.50	25.0				
24	1	10950	12	0	1	0	10140	< 2	0.50	24.5				
25	1	48329	12	0	1	0	14760	< 2	0.50	24.8				
26	1	4620	12	0	1	0	6780	< 2	0.50	25.3				
27	1	5510	12	0	1	0	7100	< 2	0.60	24.2				
28	1	16328	12	0	1	0	4460	< 2	0.47	23.3				
29	1	15402	12	0	1	0	4180	< 2	0.50	23.6				
30	1	7746	12	0	1	0	4620	< 2	0.50	22.7				
31	1	5818	12	0	1	0	14760	< 2	0.50	22.4				
Avg.									0.52	24.3				
Max.							14760	2	0.60	26.1				
Min.									0.42	22.4				

Date	Free Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WR	Number of Samples
1									0.6	0.5	2
2	1.0	1.3	0.5	0.5	0.3	0.9	0.4	1.4	0.2	1.4	10
3	0.9	1.4	0.8	0.8	0.1	1.2	0.3	1.6			8
4											0
5											0
6											0
7									0.9	1.5	2
8									3.0	1.8	2
9	1.4	1.6	1.1	1.2	0.4	1.2	0.8	1.1	0.9	1.0	10
10	1.3	1.5	1.1	1.4	0.8	1.1	0.9	1.7	1.0	1.0	10
11									0.9	1.1	2
12											0
13											0
14									0.5	1.1	2
15	1.1	1.3	0.9	1.1	0.3	0.6	0.5	1.5	1.0	0.2	10
16	0.8	1.1	0.7	0.1	0.1	0.9	0.4	1.6	0.1	0.5	10
17	0.8	1.3	0.6	0.2	0.2	0.9	0.4	1.5	0.1	0.9	10
18									0.3	0.1	2
19											0
20											0
21									0.3	0.1	2
22									0.1	1.1	2
23	0.8	1.3	0.8	0.9	0.1	0.7	0.3	1.6	0.8	0.1	10
24	0.8	0.6	0.7	0.8	0.1	0.8	0.3	1.3	1.3	0.0	10
25									0.5	1.2	2
26											0
27											0
28									0.5	0.0	2
29	0.2	1.1	0.4	0.7	0.1	0.6	0.2	1.3	0.3	1.0	10
30	0.5	0.8	0.5	0.3	0.0	0.3	0.2	1.2	0.1	0.0	10
31											0

Distribution Sample Summary	
Total # of routine distribution samples analyzed	128
Total # of routine distribution samples required	100

Distribution Disinfectant Free Residual Summary	
Percent samples with a detectable disinfectant residual	98%
Average disinfectant residual this month	0.8

Distribution Bacteriological Summary	
Total # of positive routine distribution samples	2
Percent of routine distribution samples positive	2%

Positive Distribution Samples					
Date	Monitoring Station	Date	Repeat Monitoring Stations	Residual	Positive or Negative
7/22/2014	[redacted]	7/23/2014	[redacted]	0.8 / 1.2	Negative
		7/23/2014		0.4 / 0.7	Negative
		7/23/2014		0.1 / 0.3	Negative
7/30/2014	[redacted]	7/31/2014	[redacted]	0.1 / 0.3	Negative
		7/31/2014		0.0 / 0.1	Negative
		7/31/2014		0.0 / 0.1	Negative

Date	Total Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WR	Number of Samples
1									0.9	0.8	2
2	1.3	1.7	0.8	0.8	0.6	1.3	0.6	1.6	0.3	0.8	10
3	1.1	1.7	1.0	1.2	0.3	1.8	0.5	2.0			8
4											0
5											0
6											0
7									1.1	1.8	2
8									3.4	2.2	2
9	1.6	1.9	1.4	1.6	0.7	1.8	1.0	1.4	1.2	1.3	10
10	1.7	2.0	1.4	1.6	1.1	1.5	1.1	2.0	1.5	1.3	10
11									1.1	1.3	2
12											0
13											0
14									0.8	1.4	2
15	1.5	1.7	1.3	1.4	0.5	1.0	0.7	1.8	1.5	0.3	10
16	1.1	1.4	1.2	0.3	0.2	1.3	0.8	1.6	0.3	0.7	10
17	0.9	1.6	0.9	0.3	0.3	1.3	0.6	1.8	0.3	1.3	10
18									0.4	0.2	2
19											0
20											0
21									0.5	0.3	2
22									0.2	1.4	2
23	1.0	1.6	0.9	1.1	0.1	0.9	0.5	2.0	1.2	0.2	10
24	1.2	1.1	1.1	1.0	0.2	1.2	0.6	1.8	1.7	0.1	10
25									0.7	1.6	2
26											0
27											0
28									0.7	0.2	2
29	0.4	1.4	0.6	1.0	0.3	0.8	0.8	1.6	0.5	1.3	10
30	0.7	1.1	0.7	0.6	0.1	0.4	0.2	1.4	0.1	0.1	10
31											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.0

2310

CITY of FLINT WATER TREATMENT PLANT MONTHLY OPERATION REPORT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

[redacted]
Operator-in-Charge

June 2014
Month/Year

F-1R, F-2
Certification of Operator-in-Charge

F-1
Water Plant Classification

DEQ RESOURCE MANAGEMENT DIVISION

[redacted]
Signature of Operator-in-Charge

Genesee
County

JUL 28 2014
LANSING DISTRICT

Treatment Rate and Filter Data

Maximum Treatment Rate:	25	Million Gallons per Day
Rated Plant Capacity:	36	Million Gallons per Day
Average Filter Run:	74	Hours
Average Head Loss:	*	Feet *(filter head loss meters not operational)
Average Filtration Rate:	2.5	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	3.5	Gallons Per Square Feet per Minute
Average Wash Water Use:	3.6%	Percent of Treated Water

Chemical Data

Chlorine on hand:	24000	lb.	Est. supply:	20	days
Primary Coagulant (Ferric Chloride) on hand:	63450	lb.	Est. supply:	10	days
Lime (CaO) on hand:	169	tons	Est. supply:	18	days
Fluoride on Hand:	9064	lb.	Est. supply:	16	days
Cost of All Chemicals per Million Gallons:	*	dollars			
Total Power Cost per Million Gallons:	*	dollars			

Remarks

	Confluence Point # 1 (N)	Confluence Point # 2 (S)
Number of filter confluence samples > 0.3 NTU:	0	0
Number of filter confluence samples collected:	180	180
Percent of filter confluence samples > 0.3 NTU:	0.00%	0.00%
Number of filter confluence samples > 1 NTU	0	0

Did any individual filter exceed:

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

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

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

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

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

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

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

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

COMPLETED

Coagulation Parameters & Softening Chemical Application City of Flint Water Treatment Plant **WSSN: 2310** June 2014

Date	Million Gallons Treated	Ferric as Fe^{3+} mg/L	Lime Dosage (mg/L)	PW-340 Catioinc Polymer Dosage (mg/L)	P-142PWG Anionic Polymer Dosage (mg/L)	Turbidity, Units				
						Raw			Plate Settler	Applied
						Number of Samples	Avg.	Max.	Effluent Avg.	Applied Avg.
1	20.2	16.9	46.8	2.2	0.06	6	2.70	4.10	0.38	4.51
2	21.7	14.5	45.8	2.2	0.06	6	2.70	5.90	0.52	3.37
3	20.8	14.4	39.5	1.9	0.05	6	6.70	9.20	0.58	3.50
4	20.6	14.7	55.4	2.0	0.05	6	11.3	30.2	0.48	3.33
5	23.1	14.9	63.7	1.8	0.04	6	6.00	6.70	0.74	4.15
6	23.3	16.2	42.4	1.9	0.05	6	5.30	5.90	0.51	4.52
7	21.1	15.2	0.0	0.0	0.00	6	4.30	5.60	0.38	0.95
8	20.0	15.6	0.0	0.0	0.00	6	2.80	3.90	0.37	0.75
9	20.1	14.7	0.0	0.0	0.00	6	2.60	5.30	0.32	0.56
10	18.5	16.6	120.7	1.9	0.05	6	4.30	5.50	0.32	7.62
11	21.4	18.5	136.0	1.9	0.05	6	3.30	5.20	0.27	2.61
12	24.2	18.1	122.2	1.8	0.05	6	4.70	5.60	0.28	7.06
13	23.4	15.8	113.9	1.8	0.05	6	3.90	4.20	0.41	7.51
14	22.7	14.9	109.3	1.8	0.05	6	4.40	5.00	0.45	4.09
15	24.4	15.1	140.7	1.8	0.05	6	4.60	5.70	0.41	2.34
16	24.3	15.2	137.1	1.8	0.05	6	5.10	7.10	0.37	1.63
17	21.8	17.0	155.0	2.0	0.05	6	4.30	5.50	0.27	2.55
18	20.8	19.2	168.0	2.2	0.05	6	4.90	7.20	0.26	2.15
19	20.5	18.4	152.9	2.1	0.05	6	2.70	4.30	0.24	1.23
20	23.0	18.7	144.3	2.2	0.05	6	6.60	39.4	0.29	1.14
21	22.4	18.0	147.6	2.2	0.06	6	3.40	12.0	0.31	1.20
22	21.4	18.3	122.5	2.2	0.06	6	5.10	26.2	0.29	1.82
23	21.2	18.2	147.6	2.2	0.06	6	3.10	6.70	0.27	1.02
24	21.0	19.4	161.8	2.3	0.06	6	3.60	8.20	0.27	1.55
25	21.5	19.7	175.1	2.4	0.06	6	3.60	10.6	0.24	2.93
26	21.6	18.9	143.9	2.4	0.06	6	2.40	3.60	0.26	2.67
27	16.1	19.0	149.8	2.4	0.06	6	1.90	2.70	0.29	1.91
28	18.3	19.1	137.8	2.2	0.06	6	5.80	12.2	0.33	2.56
29	20.4	19.6	115.1	1.8	0.05	6	8.20	19.5	0.44	1.87
30	21.0	19.2	116.8	1.8	0.05	6	6.20	10.5	0.51	2.74
Avg.	21.4	17.1	107.1	1.8	0.05	6	4.55			2.86
Max.	24.4	19.7	175.1	2.4	0.06	6	11.3	39.4	0.74	7.62
Min.	16.1	14.4	0.0	0.0	0.00	6	1.90			0.56
Total	640.5									

City of Flint Water Treatment Plant
WSSN: 2310

Filter turbidity

Date	Turbidity, Units												Point of Entry
	Confluence Point. No.1 (N) North						Confluence Point. No.2 (S) South						
	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Plant Tap NTU
1	6	0.09	0.12	6	0	0	6	0.09	0.11	6	0	0	0.07
2	6	0.11	0.16	6	0	0	6	0.10	0.14	6	0	0	0.09
3	6	0.14	0.23	6	0	0	6	0.12	0.19	6	0	0	0.11
4	6	0.14	0.19	6	0	0	6	0.09	0.11	6	0	0	0.10
5	6	0.18	0.24	6	0	0	6	0.15	0.22	6	0	0	0.15
6	6	0.13	0.15	6	0	0	6	0.12	0.16	6	0	0	0.12
7	6	0.14	0.18	6	0	0	6	0.12	0.14	6	0	0	0.12
8	6	0.12	0.20	6	0	0	6	0.15	0.20	6	0	0	0.12
9	6	0.15	0.25	6	0	0	6	0.14	0.22	6	0	0	0.11
10	6	0.21	0.26	6	0	0	6	0.14	0.23	6	0	0	0.14
11	6	0.11	0.16	6	0	0	6	0.12	0.23	6	0	0	0.16
12	6	0.11	0.13	6	0	0	6	0.10	0.13	6	0	0	0.09
13	6	0.09	0.12	6	0	0	6	0.09	0.11	6	0	0	0.08
14	6	0.11	0.13	6	0	0	6	0.09	0.12	6	0	0	0.10
15	6	0.11	0.18	6	0	0	6	0.10	0.15	6	0	0	0.10
16	6	0.11	0.14	6	0	0	6	0.09	0.10	6	0	0	0.09
17	6	0.09	0.13	6	0	0	6	0.07	0.13	6	0	0	0.07
18	6	0.09	0.13	6	0	0	6	0.08	0.20	6	0	0	0.08
19	6	0.08	0.14	6	0	0	6	0.09	0.17	6	0	0	0.08
20	6	0.08	0.10	6	0	0	6	0.07	0.09	6	0	0	0.16
21	6	0.07	0.08	6	0	0	6	0.08	0.20	6	0	0	0.08
22	6	0.08	0.11	6	0	0	6	0.09	0.12	6	0	0	0.08
23	6	0.08	0.10	6	0	0	6	0.08	0.11	6	0	0	0.07
24	6	0.09	0.14	6	0	0	6	0.10	0.26	6	0	0	0.13
25	6	0.07	0.14	6	0	0	6	0.08	0.19	6	0	0	0.09
26	6	0.08	0.10	6	0	0	6	0.08	0.10	6	0	0	0.09
27	6	0.09	0.11	6	0	0	6	0.08	0.10	6	0	0	0.09
28	6	0.08	0.10	6	0	0	6	0.09	0.10	6	0	0	0.10
29	6	0.10	0.14	6	0	0	6	0.09	0.12	6	0	0	0.11
30	6	0.10	0.11	6	0	0	6	0.09	0.14	6	0	0	0.15
Avg.	6	0.11	0.15	6	0	0	6	0.10	0.15	6	0	0	
Max.	6	0.21	0.26	6	0	0	6	0.15	0.26	6	0	0	0.16
Min.	6	0.07	0.08	6	0	0	6	0.07	0.09	6	0	0	

Date	Fluoriode Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0.00	0.15	0.17		4.8	1.5	6.3	1.3	1.6	1.5	2.0	1.2	1.7
2	0.00	0.16	0.17		4.7	1.7	6.4	1.1	1.5	1.6	2.0	1.3	1.5
3	0.00	0.16	0.16		5.4	1.8	7.2	1.0	1.5	1.5	2.0	1.3	1.7
4	0.50	0.18	0.20		5.3	2.0	7.3	1.4	1.8	1.8	2.1	1.7	2.0
5	0.50	0.14	0.45	0.25	4.5	2.0	6.5	0.9	1.2	1.6	1.9	1.3	1.7
6	0.00	0.15	0.16		4.7	2.4	7.1	0.7	1.0	1.6	1.9	1.4	1.7
7	0.00	0.14	0.18		5.5	2.8	8.3	0.7	1.0	1.6	2.0	1.3	1.6
8	0.00	0.17	0.19		5.2	2.7	7.9	0.7	0.9	1.5	1.9	1.3	1.7
9	0.00	0.17	0.18		5.1	2.7	7.8	0.5	0.9	1.7	2.1	1.3	1.8
10	0.00	0.16	0.18		4.8	2.5	7.3	0.3	0.6	1.4	1.8	1.2	1.6
11	0.00	0.17	0.14		4.8	3.1	7.9	0.9	1.2	1.7	2.2	1.6	1.9
12	0.00	0.14	0.13	0.18	4.2	2.9	7.1	0.8	1.2	2.0	2.4	1.9	2.3
13	0.00	0.16	0.14		4.4	3.4	7.8	0.6	0.8	2.4	2.8	2.1	2.4
14	0.00	0.16	0.14		4.2	3.5	7.7	0.7	1.0	2.4	2.8	2.0	2.4
15	0.00	0.16	0.13		4.1	3.5	7.6	0.4	0.8	2.3	2.9	1.7	2.0
16	0.00	0.16	0.13		4.2	3.5	7.7	0.8	1.0	2.6	3.1	2.1	2.5
17	0.00	0.15	0.13		4.6	3.1	7.7	1.1	1.5	2.5	2.9	2.2	2.5
18	0.00	0.16	0.13		5.0	2.6	7.6	1.3	1.5	2.5	3.0	2.0	2.5
19	0.00	0.14	0.13	0.18	5.0	2.9	7.9	1.4	1.6	2.7	3.1	2.1	2.4
20	0.00	0.16	0.13		5.0	3.1	8.1	1.3	1.5	2.3	2.8	1.7	2.1
21	0.00	0.16	0.13		5.0	4.0	9.0	1.1	1.4	2.3	2.8	2.0	2.2
22	0.00	0.17	0.13		4.9	4.0	8.9	0.8	1.0	2.4	3.0	2.1	2.4
23	0.00	0.16	0.13		4.7	2.6	7.3	1.4	1.7	2.5	2.8	2.2	2.7
24	0.00	0.16	0.13		4.8	2.9	7.7	1.3	1.5	2.5	2.9	2.7	3.0
25	0.00	0.16	0.13		4.7	2.9	7.6	1.2	1.5	2.5	2.9	2.0	2.4
26	0.00	0.17	0.12	0.15	3.9	3.0	6.9	1.0	1.4	2.2	2.6	2.5	3.0
27	0.00	0.16	0.13		4.9	2.7	7.6	1.2	1.5	2.9	3.2	2.1	2.5
28	0.00	0.16	0.14		4.6	3.0	7.6	1.5	1.8	2.3	3.0	2.4	3.0
29	0.00	0.15	0.14		3.8	3.5	7.3	0.8	1.2	2.3	2.8	1.9	2.3
30	0.00	0.15	0.13		4.1	3.2	7.3	0.6	0.9	2.5	3.3	1.8	2.1
Avg.	0.03	0.16	0.16	0.19	4.7	2.9	7.5	1.0	1.3	2.1	2.6	1.8	2.2
Max.	0.50	0.18	0.45	0.25	5.5	4.0	9.0	1.5	1.8	2.9	3.3	2.7	3.0
Min.	0.00	0.14	0.12	0.15	3.8	1.5	6.3	0.3	0.6	1.4	1.8	1.2	1.5

City of Flint Water Treatment Plant
WSSN: 2310

June 2014

Chemical Analyses

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.28	7.81	270	234	216	132	54	102	85.8	84.2	13.6	5.8	41	87
2	8.02	7.58	262	236	218	132	44	104	84.2	82.6	12.6	7.3	40	83
3	8.17	7.39	278	248	218	140	60	108	93.0	77.8	6.3	13.1	43	75
4	8.25	7.49	276	238	220	144	56	94	80.2	79.4	18.5	9.2	41	79
5	8.26	7.49	274	236	220	148	54	88	89.0	79.4	12.6	9.2	44	80
6	8.16	7.52	262	234	216	146	46	88	85.0	77.0	12.2	10.2	43	93
7	8.21	7.27	268	260	226	172	42	88	87.4	85.0	12.2	11.7	42	80
8	8.26	7.36	260	262	222	170	38	92	81.0	82.6	13.6	12.2	43	80
9	8.17	7.36	268	266	220	164	48	102	93.0	85.8	8.3	10.2	44	79
10	8.18	7.21	270	260	226	172	44	88	96.2	94.6	4.9	5.8	45	78
11	8.10	7.38	266	192	220	100	46	92	83.4	64.1	14.1	7.8	43	86
12	8.11	7.44	268	192	222	100	46	92	84.2	64.1	14.1	7.8	42	80
13	8.01	7.56	264	218	218	110	46	108	85.8	70.5	12.2	10.2	42	81
14	7.94	7.65	272	210	216	114	56	96	90.6	68.1	11.2	9.7	40	78
15	8.27	7.57	268	188	226	100	42	88	85.8	67.3	13.1	4.9	43	79
16	8.34	7.75	266	186	220	94	46	92	84.2	64.9	13.1	5.8	44	80
17	8.12	7.66	262	190	222	92	40	98	90.6	68.9	7.3	4.4	43	80
18	8.24	7.24	268	184	230	94	38	90	87.4	66.5	12.2	3.4	40	81
19	8.13	7.61	272	182	228	88	44	94	91.4	62.5	8.3	6.3	42	81
20	8.01	7.33	264	180	222	88	42	92	89.0	60.9	10.2	8.7	42	83
21	7.98	7.35	252	182	226	82	26	100	86.6	64.1	9.0	5.3	43	84
22	8.00	7.45	264	180	224	84	40	96	87.4	59.3	11.2	7.8	42	81
23	7.98	7.00	260	168	224	74	36	94	89.8	53.7	8.7	8.3	46	88
24	7.92	7.60	274	194	222	82	52	112	89.0	60.9	10.7	10.2	45	87
25	7.98	7.68	276	168	228	70	48	98	91.4	58.5	11.7	5.3	43	90
26	7.88	7.72	280	186	226	80	54	106	86.6	65.7	15.6	5.3	46	90
27	7.92	7.12	254	176	224	66	30	110	89.8	67.3	7.3	1.9	39	92
28	7.97	7.64	272	176	230	74	42	102	85.0	64.1	14.6	3.9	43	85
29	8.26	7.49	276	178	232	76	44	102	87.4	55.3	12.2	9.7	40	90
30	7.94	7.70	268	156	230	66	38	90	92.2	56.9	9.2	3.4	44	91
Avg.	8.10	7.48	268	205	223	108	45	97	87.7	69.7	11.4	7.5	43	83
Max.	8.34	7.81	280	266	232	172	60	112	96.2	94.6	18.5	13.1	46	93
Min.	7.88	7.00	252	156	216	66	26	88	80.2	53.7	4.9	1.94	39	75

Bacteriological & Physical Parameters

City of Flint Water Treatment Plant
WSSN: 2310

June 2014

Date	Total Coliform						Standard Plate Count (Simplate MPN)		Wind Direction	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap		Raw	Raw	Tap	Raw	Tap
1	1	320	12	1	1	0	3020	<2		21.7				
2	1	62	12	0	1	0	7840	<2		20.5				
3	1	1710	12	0	1	0	4180	<2		22.4				
4	1	3232	12	0	1	0	5980	<2		22.1				
5	1	3232	12	0	1	0	1368	<2		21.5				
6	1	4286	12	2	1	0	1540	<2		22.2				
7	1	4374	12	0	1	0	11100	<2		22.5				
8	1	3328	12	0	1	0	7840	<2		21.7				
9	1	1768	12	0	1	0	9400	<2		21.5				
10	1	6152	12	0	1	0	11100	<2		23.9				
11	1	12262	12	0	1	0	3660	<2		23.4				
12	1	8704	12	0	1	0	12460	<2		22.9				
13	1	4978	12	0	1	0	1720	<2		22.3				
14	1	4092	12	0	1	0	1240	<2		20.9				
15	1	3912	12	0	1	0	1660	<2		21.7				
16	1	3440	12	0	1	0	1940	<2		22.7				
17	1	2748	12	0	1	0	1600	<2		23.3				
18	1	2338	12	0	1	0	2080	<2		23.3				
19	1	1542	12	0	1	0	7840	<2		22.8				
20	1	1678	12	0	1	0	1180	<2		22.4				
21	1	1672	12	0	1	0	960	<2		21.8				
22	1	7308	12	0	1	0	7440	<2		22.0				
23	1	4028	12	0	1	0	3900	<2		21.6				
24	1	1234	12	0	1	0	3780	<2		22.5				
25	1	2100	12	0	1	0	2240	<2		22.5				
26	1	2396	12	0	1	0	5140	<2		22.0				
27	1	1968	12	0	1	0	2000	<2		22.9				
28	1	1976	12	0	1	0	11100	<2		22.9				
29	1	2802	12	0	1	0	6780	<2		25.8				
30	1	9572	12	0	1	0	2560	<2		24.8				
Avg.										22.5				
Max.							12460	0		25.8				
Min.										20.5				

Date	Free Chlorine Residual at Bacteriological Monitoring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WR	Number of Samples
1											0
2									0.5	0.0	2
3									0.2	0.0	2
4	0.5	0.9	0.5	0.5	0.2	0.5	0.4	0.9	0.2	0.0	10
5	0.4	0.2	0.5	0.4	0.1	0.6	0.3	0.9	0.1	0.0	10
6									0.1	0.0	2
7											0
8											0
9									0.1	0.0	2
10	0.6	1.1	0.4	0.6	0.2	0.6	0.3	0.7	0.3	0.0	10
11									0.0	0.0	2
12	1.2	1.8	0.9	1.3	0.6	0.9	0.5	1.8	1.4	0.0	10
13									0.1	0.0	2
14											0
15											0
16									1.2	0.0	2
17	1.3	1.5	1.0	0.5	0.7	1.5	0.9	2.0	0.2	0.3	10
18	1.4	1.1	1.2	1.1	0.3	1.2	0.9	1.4	0.6	0.1	10
19									0.2	0.1	2
20											0
21											0
22											0
23											0
24											0
25	1.3	1.3	1.1	1.0	0.3	0.8	1.0	1.5	0.9	0.4	10
26	1.1	1.4	0.9	0.0	0.0	1.4	0.8	2.1	0.9	0.6	10
27									0.7	1.1	2
28											0
29											0
30									0.6	1.3	2

Distribution Sample Summary	
Total # of routine distribution samples analyzed	100
Total # of routine distribution samples required	100

Distribution Disinfectant Free Residual Summary	
Percent samples with a detectable disinfectant residual	86%
Average disinfectant residual this month	0.7

Distribution Bacteriological Summary	
Total # of positive routine distribution samples	2
Percent of routine distribution samples positive	2%

Positive Distribution Samples					
Date	Monitoring Station	Date	Repeat Monitoring Stations	Residual	Positive or Negative
6/10/2014	[redacted]	6/11/2014	[redacted]	.10/.30	ABSENT
		6/11/2014		.10/.30	ABSENT
		6/11/2014		0/.10	ABSENT
6/11/2014	[redacted]	6/12/2014		0.2/0.4	ABSENT
		6/12/2014		0.2/0.3	ABSENT
		6/12/2014		1.4/1.8	ABSENT

Date	Total Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WR	Number of Samples
1											0
2									0.8	0.2	2
3									0.3	0.2	2
4	1.0	1.3	0.8	0.9	0.3	1.0	0.6	1.1	0.3	0.2	10
5	0.8	0.6	0.8	0.6	0.3	0.8	0.6	1.1	0.3	0.2	10
6									0.3	0.2	2
7											0
8											0
9									0.2	0.2	2
10	1.0	1.6	0.7	1.1	0.6	1.2	0.7	1.2	0.5	0.2	10
11									0.2	0.1	2
12	1.7	2.5	1.3	1.7	0.9	1.2	0.9	2.3	1.8	0.1	10
13									0.3	0.2	2
14											0
15											0
16									1.6	0.2	2
17	1.9	1.9	1.3	0.7	1.0	2.0	1.3	2.9	0.3	0.5	10
18	2.0	1.5	1.8	1.5	0.6	1.6	1.4	2.1	0.9	0.3	10
19									0.3	0.3	2
20											0
21											0
22											0
23											0
24											0
25	1.8	1.9	1.6	1.4	0.5	1.1	1.4	2.0	1.1	0.7	10
26	1.5	1.9	1.3	0.1	0.1	1.8	1.1	2.5	1.1	0.8	10
27									1.0	1.5	2
28											0
29											0
30									0.9	1.3	2

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residual	100%
Average disinfectant residual this month	1.0

MONTHLY OPERATION REPORT OF WATER TREATMENT PLANT

SUPPLY NAME: CITY of FLINT WATER PLANT
WSSN: 2310

[redacted]
Operator-In-Charge

May 2014
Month/Year

F-1R, F-2
Certification of Operator-In-Charge

F-1
Water Plant Classification

[redacted]
Signature of Operator-In-Charge

Genesee
County

Treatment Rate and Filter Data

Maximum Treatment Rate:	26.9	Million Gallons per Day
Rated Plant Capacity:	36	Million Gallons per Day
Average Filter Run:	101	Hours
Average Head Loss:	*	Feet
Average Filtration Rate:	2.6	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	3.8	Gallons Per Square Feet per Minute
Average Wash Water Use:	2	Percent of Treated Water

Chemical Data

Chlorine on hand:	22000	lb.	Est. supply:	20	days
Primary Coagulant (Ferric Chloride) on hand:	83765	lb.	Est. supply:	14	days
Cost of All Chemicals per Million Gallons:	*	dollars			
Total Power Cost per Million Gallons:	*	dollars			

Remarks

Number of filter confluence samples > 0.3 NTU:	3
Number of filter confluence samples collected:	350
Percent of filter confluence samples > 0.3 NTU:	0.86%
Number of filter confluence samples > 1 NTU	0

Did any individual filter exceed:

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

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

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

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

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

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

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

Was continuous POE chlorine residual monitoring equipment off-line during the month? YES*
If yes, indicate date(s) and duration on a separate sheet.

City of Flint Water Treatment Plant
WSSN: 2310

May 2014

Coagulation Parameters

Date	Million Gallons Treated	Ferric as Fe3+ mg/L	Turbidity, Units: Raw Number of Samples	Raw Avg.	Raw Max.	Applied Applied Avg.	Confluence Point. No.1 (N) North Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Confluence Point. No.2 (S) South Number of Samples	Avg.	Max	No. of 4 Hr. Compliance periods	No. of 4 Hr. Compliance periods >0.3 NTU	No. of Samples >0.3 NTU	Point of Entry Plant Tap NTU
1	15.1	10.9	6	9.60	12.7	5.04	6	0.10	0.19	6	0	0	6	0.07	0.08	6	0	0	0.09
2	14.7	11.3	6	10.1	10.7	7.12	6	0.06	0.07	6	0	0	6	0.07	0.10	6	0	0	0.09
3	21.4	12.3	6	11.2	12.6	7.40	6	0.15	0.18	6	0	0	6	0.11	0.15	6	0	0	0.11
4	21.4	11.8	6	26.2	31.2	8.65	6	0.11	0.13	6	0	0	6	0.10	0.11	6	0	0	0.12
5	21.8	12.3	6	12.6	14.5	5.80	6	0.16	0.23	6	0	0	6	0.14	0.18	6	0	0	0.12
6	22.3	12.1	6	15.0	20.3	4.53	6	0.21	0.27	6	0	0	6	0.18	0.21	6	0	0	0.19
7	21.9	12.1	6	15.5	14.8	5.23	6	0.13	0.16	6	0	0	6	0.12	0.17	6	0	0	0.11
8	22.7	11.7	6	12.6	15.5	4.74	6	0.16	0.25	6	0	0	6	0.11	0.13	6	0	0	0.16
9	22.2	12.0	6	9.30	9.60	4.33	6	0.12	0.15	6	0	0	6	0.11	0.16	6	0	0	0.14
10	21.8	12.2	6	13.2	15.3	5.60	6	0.11	0.18	6	0	0	6	0.09	0.10	6	0	0	0.09
11	19.1	13.8	6	12.6	14.1	6.43	6	0.19	0.29	6	0	0	6	0.08	0.09	6	0	0	0.09
12	8.5	15.3	2	12.0	13.9	8.46	1	0.09	0.09	1	0	0	1	0.07	0.07	1	0	0	0.08
13	0.0	12.9	2	11.3	14.1	n/a	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a	0.10
14	22.2	12.3	6	30.8	71.7	11.8	6	0.24	0.37	6	1	1	6	0.23	0.31	6	1	1	0.16
15	16.6	20.6	6	45.2	63.0	5.68	6	0.21	0.28	6	0	0	6	0.24	0.28	6	0	0	0.22
16	20.2	18.7	6	28.2	37.3	5.21	6	0.21	0.38	6	1	1	6	0.22	0.45	6	1	1	0.22
17	21.0	20.0	6	14.3	19.3	4.90	6	0.12	0.22	6	0	0	6	0.09	0.08	6	0	0	0.11
18	20.8	18.3	6	9.50	10.7	6.03	6	0.14	0.28	6	0	0	6	0.08	0.09	6	0	0	0.09
19	22.0	18.2	6	9.20	11.3	4.59	6	0.12	0.17	6	0	0	6	0.07	0.10	6	0	0	0.09
20	22.1	18.0	6	7.20	8.40	4.63	6	0.11	0.11	6	0	0	6	0.09	0.11	6	0	0	0.09
21	21.0	19.4	6	7.80	8.90	6.27	6	0.11	0.18	6	0	0	6	0.08	0.08	6	0	0	0.09
22	21.0	18.6	6	9.40	11.3	6.50	6	0.11	0.16	6	0	0	6	0.07	0.09	6	0	0	0.08
23	21.0	18.9	6	9.10	10.4	6.24	6	0.11	0.13	6	0	0	6	0.08	0.09	6	0	0	0.08
24	20.8	17.9	6	7.10	8.30	5.38	6	0.12	0.18	6	0	0	6	0.08	0.09	6	0	0	0.09
25	21.0	18.3	6	6.00	7.30	5.62	6	0.14	0.22	6	0	0	6	0.18	0.25	6	0	0	0.10
26	22.0	18.0	6	5.20	5.60	3.23	6	0.12	0.14	6	0	0	6	0.10	0.13	6	0	0	0.11
27	20.6	19.4	6	5.70	7.30	2.78	6	0.13	0.18	6	0	0	6	0.12	0.14	6	0	0	0.10
28	20.1	20.0	6	4.20	5.30	3.52	6	0.11	0.13	6	0	0	6	0.08	0.08	6	0	0	0.08
29	19.7	20.0	6	5.20	10.3	3.72	6	0.09	0.12	6	0	0	6	0.07	0.08	6	0	0	0.06
30	19.3	16.1	6	3.50	5.30	3.54	6	0.11	0.16	6	0	0	6	0.07	0.07	6	0	0	0.06
31	18.0	17.6	6	3.50	4.40	2.23	6	0.09	0.12	6	0	0	6	0.08	0.09	6	0	0	0.08
Avg.	19.4	15.8	6	12.3		5.51	6	0.13	0.19	6	0	0	6	0.11	0.14	6	0	0	
Max.	22.7	20.6	6	45.2	71.7	11.8	6	0.24	0.38	6	1	1	6	0.24	0.45	6	1	1	0.22
Min.	0.0	10.9	2	3.50		2.23	0	0.06	0.07	0	0	0	0	0.07	0.07	0	0	0	
Total	602.1																		

Date	Fluoriode Applied as F- mg/L	Fluoride Analysis (mg/L)			Chlorine Application (mg/L)			Chlorine Residual (mg/L)					
					Intermediate Chlorine	Post Chlorine	Total Chlorine	Filtered		3 MG Well		Tap	
		Raw	Tap	Dist.				Free	Total	Free	Total	Free	Total
1	0	0.14	0.19		3.4	0.0	3.4	1.4	1.6	1.4	1.6	1.2	1.5
2	0	0.15	0.34		4.0	0.0	4.0	1.2	1.3	1.6	2.0	1.3	1.6
3	0	0.14	0.18		4.0	0.0	4.0	1.8	2.2	1.7	2.0	1.5	1.7
4	0	0.15	0.24		4.4	0.0	4.4	2.2	2.6	1.5	1.7	1.8	2.2
5	0	0.14	0.13		4.7	0.0	4.7	1.9	2.2	1.8	2.1	1.2	1.4
6	0	0.14	0.13		4.9	0.0	4.9	1.9	2.3	1.7	1.9	1.2	1.5
7	0	0.15	0.14		4.9	0.0	4.9	1.8	2.2	2.0	2.3	1.9	2.2
8	0	0.15	0.14	0.17	4.7	0.0	4.7	1.8	2.3	1.8	2.2	1.7	2.1
9	0	0.15	0.13		5.1	0.0	5.1	1.5	1.9	1.7	2.0	1.5	1.9
10	0	0.15	0.14		5.2	0.0	5.2	2.0	2.5	1.7	2.1	1.5	2.0
11	0	0.16	0.14		5.6	0.0	5.6	2.1	2.6	2.0	2.6	1.7	2.1
12	0	0.15	0.13		6.9	0.0	6.9	1.8	2.4	1.7	2.2	1.4	2.0
13	0	0.15	0.25		5.0	0.0	5.0	n/a	n/a	1.7	2.0	1.5	1.8
14	0	0.15	0.13	0.23	4.9	0.0	4.9	1.9	2.3	1.5	1.9	1.5	1.8
15	0	0.14	0.14		6.2	0.0	6.2	2.0	2.4	2.0	2.5	2.2	2.6
16	0	0.14	0.13		5.3	0.0	5.3	1.9	2.3	1.6	2.0	1.4	1.7
17	0	0.15	0.14		5.1	0.6	5.7	1.7	2.1	1.6	1.9	1.6	2.0
18	0	0.16	0.15		5.1	0.6	5.7	1.5	1.9	1.6	1.9	1.4	1.7
19	0	0.15	0.14		4.7	0.2	4.9	1.6	1.8	1.9	2.3	1.5	1.7
20	0	0.15	0.15		5.0	0.5	5.5	1.9	2.3	2.1	2.6	1.6	1.9
21	0	0.15	0.16		4.9	0.4	5.3	1.8	2.3	2.0	2.4	1.8	2.3
22	0	0.15	0.14		5.0	0.2	5.2	1.7	2.1	2.1	2.5	1.5	1.8
23	0	0.14	0.13		4.9	0.4	5.3	1.5	1.8	1.8	2.3	1.6	2.1
24	0	0.15	0.15		5.0	0.9	5.9	1.5	2.0	1.5	2.0	1.3	1.7
25	0	0.15	0.14		5.0	1.0	6.0	1.4	1.8	1.6	2.0	1.5	1.9
26	0	0.15	0.16		5.0	0.9	5.9	1.5	1.8	1.7	2.3	1.7	2.0
27	0	0.16	0.17		5.3	0.9	6.2	1.5	1.7	1.8	2.2	1.5	1.7
28	0	0.15	0.16	0.19	5.7	1.0	6.7	1.6	2.0	1.9	2.3	1.6	2.0
29	0	0.16	0.16		5.1	0.8	5.9	1.5	1.8	1.8	2.1	1.2	1.4
30	0	0.16	0.17		5.1	1.1	6.2	1.4	1.7	1.6	1.8	1.4	1.7
31	0	0.15	0.16		5.4	1.4	6.8	1.4	1.7	1.6	2.0	1.2	1.6
Avg.	0	0.15	0.16	0.20	5.0	0.4	5.4	1.7	2.1	1.7	2.1	1.5	1.9
Max.	0	0.16	0.34	0.23	6.9	1.4	6.9	2.2	2.6	2.1	2.6	2.2	2.6
Min.	0	0.14	0.13	0.17	3.4	0.0	3.4	1.2	1.3	1.4	1.6	1.2	1.4

WSSN: 2310

Date	pH (S.U.)		Total Hardness as CaCO3 (mg/L)		Total Alkalinity as CaCO3 (mg/L)		Non-Carbonate Hardness as CaCO3 (mg/L)		Calcium as Ca2+ (mg/L)		Magnesium as Mg2+ (mg/L)		Chloride as Cl- (mg/L)	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
1	8.44	7.71	246	146	196	66	50	80	56.7	48.1	20.9	7.8	43.0	67.0
2	8.27	7.07	250	162	196	80	54	82	83.4	48.1	10.2	10.2	44.0	41.0
3	8.26	7.47	250	132	200	60	50	72	82.6	42.5	10.7	6.3	40.0	60.0
4	8.39	7.50	256	120	196	70	60	50	86.6	60.9	6.3	6.3	47.0	60.0
5	8.39	7.41	232	152	204	76	28	76	78.6	54.5	8.7	3.9	45.0	75.0
6	8.25	7.21	240	160	202	90	38	70	80.2	54.5	9.7	7.3	53.0	71.0
7	8.24	7.24	266	210	212	130	54	80	71.3	66.5	21.4	10.7	51.0	76.0
8	8.33	7.13	272	218	210	128	62	90	86.6	84.2	10.7	2.4	n/a	n/a
9	8.29	7.22	264	224	210	130	54	94	86.6	75.4	11.7	8.7	50.0	80.0
10	8.38	7.36	260	216	214	122	46	94	81.8	73.7	13.6	7.8	48.0	80.0
11	8.35	7.46	286	230	216	126	70	104	81.0	73.7	20.4	11.2	46.0	82.0
12	8.33	7.43	266	218	208	120	58	98	99.4	72.1	4.4	9.2	45.0	76.0
13	8.28	7.24	278	202	216	114	62	88	85.8	59.3	15.6	13.1	48.0	66.0
14	8.23	7.30	264	220	208	138	56	82	68.9	68.1	22.4	12.2	45.0	72.0
15	8.06	7.42	242	206	184	122	58	84	66.5	65.7	18.5	10.2	43.0	73.0
16	8.05	7.12	234	214	196	118	38	96	81.0	69.7	7.8	9.7	41.0	90.0
17	8.16	7.21	246	206	200	98	46	108	85.8	65.7	7.8	10.2	41.0	85.0
18	8.29	7.27	280	212	206	116	74	96	77.0	64.9	14.6	12.2	47.0	80.0
19	8.24	7.27	266	214	214	120	52	94	85.8	69.7	12.6	9.7	43.0	78.0
20	8.22	7.44	254	220	212	124	42	96	85.8	70.5	9.7	10.7	43.0	80.0
21	8.23	7.42	246	226	208	118	38	108	77.8	74.5	12.6	9.7	45.0	85.0
22	8.33	7.50	244	216	208	118	36	96	79.4	72.1	11.2	8.7	42.0	85.0
23	8.22	7.49	248	222	208	114	40	108	82.6	72.9	10.2	9.7	48.0	87.0
24	8.24	7.52	258	228	208	118	50	110	78.6	72.9	15.1	11.2	42.0	80.0
25	8.30	7.49	240	228	208	124	32	104	8.6	75.4	9.7	11.2	42.0	82.0
26	8.28	7.30	248	220	208	120	40	100	84.2	81.0	9.2	4.4	41.0	80.0
27	8.21	7.55	242	226	208	126	34	100	78.6	77.0	11.2	8.3	41.0	84.0
28	8.28	7.46	242	240	208	126	34	114	82.6	80.2	8.8	9.7	43.0	87.0
29	8.23	7.46	254	224	210	114	44	110	83.4	78.6	11.2	6.8	42.0	88.0
30	8.33	7.49	256	230	216	132	40	98	83.4	79.4	11.7	7.8	42.0	88.0
31	8.32	7.41	248	242	212	130	36	112	77.8	74.5	13.1	13.6	40.0	78.0
Avg.	8.27	7.37	254	206	207	113	48	93	78.3	68.6	12.3	9.1	44.4	77.2
Max.	8.44	7.71	286	242	216	138	74	114	99.4	84.2	22.4	13.6	53	90
Min.	8.05	7.07	232	120	184	60	28	50	8.6	42.5	4.4	2.4	40	41

Date	Total Coliform						Standard Plate Count		Wind Direction	Temp. C	Color		Odor	
	Raw (Colilert MPN)		Filter Confluence (N&S)		Plant Tap									
	# Samples	Count	# Samples	# pos	# Samples	# pos	Raw	Tap		Raw	Raw	Tap	Raw	Tap
1	1	1166	12	0	1	0	14760	<2		12.6				
2	1	864	12	0	1	0	800	<2		13.2				
3	1	930	12	0	1	0	1300	<2		12.0				
4	1	974	12	0	1	0	>14760	<2		13.6				
5	1	882	12	0	1	0	>14760	<2		12.5				
6	1	618	12	0	1	0	12460	<2		14.9				
7	1	728	12	0	1	0	>14760	<2		14.3				
8	1	426	12	0	1	0	9400	<2		13.4				
9	1	342	12	0	1	0	>14760	<2		16.6				
10	1	610	12	0	1	0	>14760	2		17.6				
11	1	220	12	0	1	0	>14760	2		18.1				
12	1	218	12	0	1	0	>14760	<2		18.3				
13	1	126	12	0	1	0	11100	<2		19.5				
14	1	2910	12	0	1	0	>14760	<2		19.6				
15	1	16328	12	0	1	0	14760	<2		17.4				
16	1	12588	12	0	1	0	5980	<2		13.2				
17	1	3720	12	1	1	0	3320	2		14.3				
18	1	1618	12	0	1	0	7840	<2		16.7				
19	1	4494	12	0	1	0	16.1	<2		16.1				
20	1	1816	12	0	1	0	860	<2		17.2				
21	1	4764	12	0	1	0	14760	<2		18.2				
22	1	2934	12	0	1	0	7440	<2		19.0				
23	1	960	12	0	1	0	7840	<2		18.0				
24	1	682	12	0	1	0	3780	<2		18.3				
25	1	398	12	0	1	0	14760	2		18.7				
26	1	482	12	0	1	0	>14760	<2		21.4				
27	1	2034	12	0	1	0	1600	<2		20.6				
28	1	2028	12	0	1	0	7440	<2		21.1				
29	1	918	12	0	1	0	5740	<2		20.6				
30	1	852	12	0	1	0	2160	<2		22.3				
31	1	1166	12	0	1	0	3320	<2		22.7				
Avg.										17.2				
Max.							> 14760	2		22.7				
Min.										12.0				

Date	Free Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WR	Number of Samples
1									0.6	0.8	2
2									0.6	0.8	2
3											0
4											0
5									0.7	0.6	2
6									1.1	1.4	2
7	1.0	1.3	0.9	1.0	0.9	0.9	0.9	1.3	0.4	0.6	10
8	1.1	1.3	1.0	1.4	0.9	1.1	0.9	1.4	0.8	0.6	10
9									0.7	0.6	2
10											0
11											0
12									0.3	0.4	2
13									0.3	0.4	2
14	1.0	0.7	1.0	1.0	0.7	0.7	0.9	0.7	0.3	0.4	10
15	0.6	0.5	0.5	0.3	0.2	0.3	0.2	0.4	0.2		9
16									0.3		1
17											0
18											0
19									0.4	0.3	2
20									0.3	0.3	2
21	0.3	1.2	0.7	0.8	0.5	1.0	0.7	1.2	0.3	0.3	10
22	0.8	0.9	0.7	0.4					0.3	0.2	6
23									0.3	0.2	2
24											0
25											0
26									0.3	0.1	2
27									0.2	0.0	2
28	0.7	0.9	0.6	0.1	0.5	0.6	0.5	1.0	0.2	0.1	10
29	0.7	1.1	0.6	0.9	0.3	0.9	0.9	1.1	0.3	0.1	10
30											0
31											0

Distribution Sample Summary	
Total # of routine distribution samples analyzed	100
Total # of routine distribution samples required	100

Distribution Disinfectant Free Residual Summary	
Percent samples with a detectable disinfectant residual	99
Average disinfectant residual this month	0.7

Distribution Bacteriological Summary	
Total # of positive routine distribution samples	0
Percent of routine distribution samples positive	0

Positive Distribution Samples					
Date	Monitoring Station	Date	Repeat Monitorong Stations	Residual	Positive or Negative

Date	Total Chlorine Residual at Bacteriological Montioring Stations mg/l										
	1	2	3	4	5	6	7	8	CS	WR	Number of Sample
1									0.7	1.0	2
2									0.7	0.8	2
3											0
4											0
5									1.0	0.8	2
6									1.9	0.9	2
7	1.5	1.7	1.4	1.4	1.1	1.1	1.1	1.7	0.6	0.9	10
8	1.6	1.9	1.2	1.7	1.3	1.7	1.3	1.7	0.9	1.1	10
9									0.9	0.8	2
10											0
11											0
12									0.4	0.6	2
13									0.4	0.7	2
14	1.3	1.0	1.4	1.3	1.0	1.1	1.2	0.9	0.4	0.7	10
15	0.8	0.7	1.0	0.6	0.5	0.7	0.7	0.7	0.3		9
16									0.4		1
17											0
18											0
19									0.5	0.5	2
20									0.4	0.5	2
21	0.4	1.9	1.2	1.3	1.0	1.5	1.1	1.6	0.4	0.4	10
22	1.2	1.5	1.0	1.7					0.5	0.3	6
23									0.4	0.3	2
24											0
25											0
26											0
27									0.4	0.2	2
28	1.1	1.2	1.0	0.3	0.8	1.1	0.9	1.4	0.3	0.2	10
29	1.1	1.5	1.1	1.1	0.5	1.1	1.1	1.2	0.5	0.3	10
30											0
31											0

Distribution Disinfectant Total Residual Summary	
Percent samples with a detectable disinfectant residua	100
Average disinfectant residual this month	1.0

Cover Page Notes:

1. Filter head loss meters are not operational on our SCADA. They will be operational after our SCADA upgrades are complete. The SCADA upgrades are out for bid at the moment.

2. No cost analysis done for chemicals or power. An accurate chemical cost could not be determined due to polymer usage. We were given significant quantities (4-5 days) of polymer to use as a trial on two different occasions. No power cost was determined because I am trying to gain access to the correct monthly power cost.

3. POE continuous chlorine residual monitoring equipment has not been installed. We plan to move the continuous chlorine analyzer from the 3MG Well to the discharge side of the high service pumps. At this time we are taking residuals in the 3MG well, and using our lab tap to represent POE.

Report Notes:

1. Plant operations were shut down on 5/12 until 5/14. This was done to drain a softening clarifier and change plant set-up to test a new polymer. Storage reservoirs were utilized during this time.

2310

DEQ
RESOURCE MANAGEMENT DIVISION

MAY 15 2014

LANSING DISTRICT

FLINT WATER PLANT & FACILITIES

Coagulation Parameters **WSSN 2310** **Apr-14**

DATE	Total Million Gallons Purchased	Million Gallons to County	Million Gallons to Flint			Ferric Chloride as Fe 3+ mg/l	Turbidity, NTU units						
							Raw				Plant Tap		
							# of Samples	Avg.	Max		# of Samples	Avg.	Max
	1	1A	1B	4	5	6	7	8	9	10	11	12	13
1		0.00									3	0.12	0.18
2		0.00									3	0.08	0.08
3		0.00									3	0.07	0.08
4		0.00									3	0.08	0.08
5		0.00									3	0.07	0.08
6		0.00									3	0.07	0.08
7		0.00									2	0.08	0.10
8		0.00									3	0.08	0.08
9		0.00									3	0.08	0.10
10		0.00									3	0.07	0.08
11		0.00									3	0.06	0.07
12		0.00									3	0.08	0.08
13		0.00									3	0.06	0.06
14		0.00									1	0.09	0.09
15		0.00									1	0.11	0.11
16		0.00									0	n.s	n.s
17		0.00									3	0.07	0.08
18		0.00									3	0.06	0.07
19		0.00									3	0.06	0.07
20		0.00									0	n.s	n.s
21		0.00									3	0.08	0.08
22		0.00									3	0.07	0.08
23		0.00									3	0.07	0.07
24		0.00									3	0.07	0.08
25		0.00					2	10.2	11.8		1	0.10	0.10
26		0.00					2	11.4	13.4		2	0.08	0.10
27		0.00					2	11.4	13.7		2	0.07	0.08
28		0.00					2	14.6	15.6		2	0.07	0.07
29		0.00					2	11.3	13.2		2	0.06	0.07
30		0.00					2	10.5	11.1		2	0.08	0.10
AVG	#DIV/0!	0.00	######				2	11.6	13.1		2	0.08	0.08
MAX	0.00	0.00	0.00				2	14.6	15.6		3	0.12	0.18
MIN	0.00	0.00	0.00				2	10.2	11.1		0	0.06	0.06
Total	0.00	0.00	0.00										

COMPLETED

FLINT WATER PLANT & FACILITIES

Flouridation & Chlorination **WSSN 2310** **Apr-14**

DATE	Fluoride Applied F- mg/l	Fluoride Analyses mg/l			Chlorine App. Mg/l			Chlorine Residual mg/l							
						Chlorine (prior to filtration) mg/L OCl-	Post Chlorine mg/L	B&P	Sta II	Dort	3MG Well		Tap		
		Raw	Tap	Dist				Free	Free	Free	Free			Free	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1			0.59					0.8	0.9	0.9	0.9			0.9	
2			0.58					1.0	1.0	0.9	0.9			0.9	
3			0.63					0.8	1.1	1.0	0.9			0.9	
4			0.65					1.0	1.1	0.9	1.0			1.0	
5			0.66					1.0	1.1	1.1	1.0			1.1	
6			0.65					1.0	1.0	1.0	1.0			0.9	
7			0.71					n.s	n.s	n.s	n.s			1.0	
8			0.68					0.8	1.0	0.9	0.9			0.9	
9			0.64					1.0	1.0	0.9	0.9			0.8	
10			0.68					0.9	1.0	0.9	0.9			0.8	
11			0.64					1.0	1.2	1.0	1.0			1.0	
12			0.63					0.8	0.9	0.8	0.8			1.0	
13			0.67					0.9	1.0	0.9	0.8			0.9	
14			0.62					0.9	1.0	1.0	0.9			1.0	
15			0.54					0.9	1.1	1.0	n/a			1.0	
16			0.54					0.9	1.0	0.9	n/a			0.8	
17			0.59					0.8	1.1	0.9	n/a			0.9	
18			0.54					0.9	1.0	1.0	n/a			1.0	
19			0.57					0.8	1.0	0.9	n/a			1.0	
20			n/a					n.s	n.s	n.s	n/a			n.s	
21			0.61					0.9	1.0	0.9	n/a			1.0	
22			0.66					0.8	1.1	0.9	n/a			1.0	
23			0.61					0.8	1.0	0.9	n/a			0.8	
24			0.61					n.s	1.0	0.9	n/a			0.9	
25		0.14	0.59			3.5		n.s	n/a	n.s	1.7			0.8	
26		0.14	0.53			3.5		n.s	n/a	n.s	1.6			0.9	
27		0.13	0.53			3.6		n.s	n/a	n.s	1.5			1.0	
28		0.13	0.19			3.7		n.s	n/a	n.s	1.4			0.9	
29		0.15	0.58			3.7		n.s	n/a	n.s	1.5			0.9	
30		0.15	0.62			3.5		n.s	n/a	n.s	1.7			0.8	
AVG		0.14	0.60			3.6		0.9	1.0	0.9	1.1			0.9	
MAX		0.15	0.71			3.7		1.0	1.2	1.1	1.7			1.1	
MIN		0.13	0.19			3.5		0.8	0.9	0.8	0.8			0.8	

n.s. = no sample collected/tested

FLINT WATER PLANT & FACILITIES

Chemical Analyses **WSSN 2310** **Apr-14**

DATE	pH		Total Hard as $CaCO_3$ mg/l		Total Alk as $CaCO_3$ mg/l		NonCarbonate Hardness as $CaCO_3$ mg/l				Calcium Ca ++ mg/l		Magnesium as Mg ++ mg/l		Chloride as Cl - mg/l	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1		7.57		98		74		24				30.5		5.3		
2		7.36		98		73		25				29.7		5.8		
3		7.33		98		74		24				30.5		5.3		
4		7.32		100		75		25				32.1		4.9		
5		7.44		100		76		24				30.5		5.8		
6		7.32		98		74		24				28.9		6.3		
7		7.41		100		73		27				31.3		5.3		
8		7.62		98		69		29				28.9		6.3		
9		7.46		98		72		26				29.7		5.8		
10		7.39		98		71		27				28.9		6.3		
11		7.34		100		75		25				31.3		5.3		
12		7.56		102		71		31				28.1		7.8		
13		7.37		96		64		32				28.9		5.8		
14		7.32		96		75		21				28.9		5.8		
15		7.46		98		73		25				28.9		6.3		
16		7.47		96		66		30				28.9		5.8		
17		7.32		96		71		25				29.7		5.3		
18		7.30		98		73		25				31.3		4.9		
19		7.28		100		72		28				28.9		6.8		
20		n.s		n.s		n.s		n.s				n.s		n.s		
21		7.34		98		74		24				29.7		5.8		
22		7.26		98		72		26				29.7		5.8		
23		7.25		98		71		27				29.7		5.8		
24		7.46		96		71		25				29.7		5.3		
25		7.39		96		75	0	21				29.7		5.3		
26	8.31	7.28	255	98	200	73	55	25			77.9	29.7	13.6	5.8	48	24
27	8.34	7.32	249	98	199	70	50	28			75.4	30.5	14.6	5.8	42	32
28	8.39	8.46	247	92	205	60	42	32			82.6	46.5	9.8	8.3	43	68
29	8.46	7.35	230	98	190	70	40	28			76.2	30.5	9.7	5.3		
30	8.41	7.30	248	98	208	73	40	25			72.1	29.7	17.5	5.8	45	17
AVG		7.42		98		72		26				30.4		5.9		
MAX		8.46		102		76		32				46.5		8.3		
MIN		7.25		92		60		21				28.1		4.9		

n.s. = no sample collected/tested

FLINT WATER PLANT & FACILITIES

Bacteriological & Physical Parameters **WSSN 2310** **Apr-14**

DATE	Total Coliform							Standard Plate Count		Wind Direction	Temp deg.C	Color		Odor	
	Plant Tap														
	B&P	C.F.E.	Dort	3MG Well	C.S. #2	Lab Tap		Raw	Tap			Raw	Tap	Raw	Tap
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
1	1/0		2/0	2/0	2/0	2/0					10.1				
2	1/0		2/0	2/0	2/0	2/0					10.1				
3	1/0		2/0	2/0	2/0	2/0					11.7				
4	1/0		2/0	2/0	2/0	2/0					11.7				
5	1/0		2/0	2/0	2/0	2/0					10.9				
6	1/0		2/0	2/0	2/0	2/0					10.7				
7	0/0		0/0	0/0	0/0	2/0					11.3				
8	1/0		2/0	2/0	2/0	2/0					9.9				
9	1/0		2/0	2/0	2/0	2/0					10.2				
10	1/0		2/0	2/0	2/0	2/0			< 2		8.8				
11	1/0		2/0	2/0	2/0	2/0					9.1				
12	1/0		2/0	2/0	2/0	2/0					10.1				
13	1/0		2/0	2/0	2/0	2/0					9.8				
14	1/0		2/0	2/0	2/0	2/0					9.9				
15	1/0		2/0	2/0	2/0	2/0					8.9				
16	1/0		2/0	2/0	2/0	2/0					10.6				
17	1/0		2/0	0/0	2/0	2/0					9.4				
18	1/0		1/0	0/0	1/0	2/0					9.2				
19	1/0		2/0	0/0	2/0	2/0					8.3				
20	0/0		0/0	0/0	0/0	0/0					n.s				
21	1/0		2/0	0/0	2/0	2/0					8.1				
22	1/0		2/0	0/0	2/0	2/0					7.7				
23	1/0		2/0	0/0	2/0	2/0					9.3				
24	1/0		2/0	2/0	2/0	2/0					8.7				
25	1/0	10/0	0/0	1/0	n/a	1/0			< 2		8.7				
26	1/0	12/0	0/0	1/0	n/a	1/0		> 1476	< 2		9.0				
27	1/0	12/0	0/0	1/0	n/a	1/0		142	< 2		8.8				
28	1/0	12/0	0/0	1/0	n/a	1/0		532	< 2		7.9				
29	1/0	4/0	0/0	1/0	n/a	1/0			< 2		8.5				
30	1/0	6/0	0/0	1/0	n/a	1/0		1246	< 2		10.3				
											9.6				
											11.7				
											7.7				

C.F.E. = Combined Filter Effluent

n.s. = no sample collected/tested

FLINT WATER PLANT & FACILITIES

Distribution System Monitoring WSSN 2310 Apr-14

DATE	Free Chlorine Residual at Bacteriological Montioring Stations mg/l												
	1	2	3	4	5	6	7	8	CS	WR	STA II AM	STA II PM	Number of Samples
1									0.9	1.0	0.9	0.9	4
2	1.0	0.8	0.9	0.8	0.8	0.9	0.9	1.1	0.9	1.1	0.9	1.0	12
3									0.9	1.1	1.0	1.1	4
4									0.9	1.0	1.1	1.1	4
5											1.1	1.1	2
6											0.9	1.0	2
7													0
8									0.8	1.0	1.0	0.9	4
9	0.9	0.9	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.9	1.0	0.9	12
10	1.2	1.1	1.1	0.9	0.9	0.5	0.8	1.0	0.8	1.0	1.0	0.9	12
11									0.8	0.9	1.2	1.1	4
12											0.8	0.9	2
13											1.0	1.0	2
14									0.8	0.9	1.0	1.0	4
15											1.0	1.1	2
16	1.1	0.9	1.0	0.9	1.0	1.0	1.1	1.0	0.8	0.9	1.0	0.9	12
17											1.0	1.1	2
18											1.0		1
19											1.0	0.9	2
20													0
21											1.0	1.0	2
22											1.1	1.0	2
23									0.8		1.0	1.0	3
24	1.0	0.8	1.0	0.8	0.8	0.9	0.8	1.0			1.0	1.0	10
25													0
26													0
27													0
28													0
29	1.0	0.8	1.0	0.7	0.8	0.8	1.1	0.8	0.7	0.9			10
30													0

Monthly Cl_2 Avg.	0.939
Quarterly Cl_2 Avg.	0.873
Yearly Cl_2 Avg.	0.756
Total Samples	114

FLINT WATER PLANT & FACILITIES

Distribution System Monitoring WSSN 2310 Apr-14

DATE	Total Chlorine Residual at Bacteriological Montioring Stations mg/l												
	1	2	3	4	5	6	7	8	CS	WR	STA II AM	STA II PM	Number of Samples
1									1.1	1.3	1.0	1.1	4
2	1.2	1.0	1.1	1.0	1.0	1.1	1.1	1.2	1.1	1.3	1.2	1.2	12
3									1.1	1.3	1.2	1.3	4
4									1.0	1.2	1.3	1.2	4
5											1.3	1.2	2
6											1.1	1.1	2
7													0
8									1.0	1.2	1.1	1.1	4
9	1.1	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.1	12
10	1.3	1.2	1.3	1.0	1.2	0.8	1.0	1.2	1.0	1.2	1.2	1.0	12
11									1.0	1.1	1.3	1.3	4
12											1.0	1.1	2
13											1.1	1.1	2
14									1.0	1.1	1.3	1.1	4
15											1.2	1.2	2
16	1.3	1.1	1.1	1.0	1.1	1.1	1.2	1.1	1.0	1.1	1.2	1.1	12
17											1.1	1.2	2
18											1.2		1
19											1.2	1.1	2
20													0
21											1.2	1.2	2
22											1.2	1.1	2
23									1.0		1.1	1.1	3
24	1.2	1.0	1.1	1.0	1.0	1.1	1.0	1.1			1.1	1.1	10
25													0
26													0
27													0
28													0
29	1.2	1.0	1.2	0.9	0.9	0.9	1.3	0.9	0.8	1.0			10
30													0

Monthly Cl_2 Avg.	**1.11**
Quarterly Cl_2 Avg.	**1.042**
Yearly Cl_2 Avg.	**0.919**
Total Samples	**114**

FLINT WATER PLANT & FACILITIES

ROUTINE POSITIVE DISTRIBUTION SAMPLES

Apr-14

Total number of positive routine samples:				Total Coliform: 0		Fecal Coliform: 0	
Date	Monitoring Station	Total Coliform	Fecal Coliform	Date	Retest of Station, Upstream & Downstream	Total Coliform	Fecal Coliform
Total number of routine distribution samples analyzed:				114			
Total number of routine distribution samples required:				100			

D-5a 1/86
Authority: Act 399, P.A. 1976

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

2310

MONTHLY OPERATION REPORT
OF
WATER TREATMENT PLANT

For Month of March 2014

Flint Water Plant — NAME OF WATER SYSTEM

2310 — WSSN

Genesee — COUNTY

[redacted] — CERTIFIED OPERATOR

F-1R S-3 — CLASSIFICATION

[redacted] — SIGNATURE OF APPROPRIATE OFFICIAL

DEQ
RESOURCE MANAGEMENT DIVISION
APR 14 2014
LANSING DISTRICT

TREATMENT RATE AND FILTER DATA

1. Treatment Rate, Maximum____ Million Gallons Per Day
2. Treatment Rate, Approved Rated Plant Capacity____Million Gallons per Day
3. Average Filter Run___ Hours, Average Head Loss _____Feet
4. Average Filtration Rate _____ Gallons per Square Ft. per Minute
5. Maximum Filtration Rate _____ Gallons per Square Ft. per Minute
6. Average Wash Water Use _____ percent of Treated Water

CHEMICAL DATA

7. Chlorine on hand _____ lbs.: Estimated supply _____ days
8. Lime (CaO) on hand _____ lbs.: Estimated supply _____ days
9. Alum (Al3+) on hand _____ lbs.: Estimated supply _____ days
10. Cost of All Chemicals per Million Gallons
11. Total Power Cost per Million Gallons

Remarks:

Submit to: [redacted]

Failure to complete this form is a violation of Act 399, P.A. 1976 and is subject to penalties as outlined in the Act.

[redacted]

Coagulation Parameters **WSSN 2310** **Mar-14**

DATE	Total Million Gallons Purchased	Million Gallons to County	Million Gallons to Flint			Ferric Chloride as Fe 3+ mg/l	Turbidity, NTU units						
							Raw				Plant Tap		
							# of Samples	Avg.	Max		# of Samples	Avg.	Max
	1	1A	1B	4	5	6	7	8	9	10	11	12	13
1	34.37	10.40	23.97								3	0.26	0.31
2	33.65	10.55	23.10								3	0.23	0.46
3	33.76	11.75	22.01								3	0.10	0.10
4	35.78	11.62	24.16								3	0.17	0.19
5	35.08	10.62	24.46								3	0.18	0.19
6	33.39	9.26	24.13								3	0.17	0.22
7	33.81	9.37	24.44								3	0.17	0.24
8	33.05	8.99	24.06								3	0.19	0.23
9	29.24	8.67	20.58								3	0.10	0.11
10	31.58	9.33	22.26								3	0.10	0.13
11	32.52	9.50	23.03								3	0.09	0.10
12	30.94	8.58	22.36								3	0.07	0.08
13	32.34	9.14	23.20								3	0.09	0.09
14	32.60	9.43	23.17								3	0.10	0.11
15	34.03	9.95	24.08								3	0.09	0.10
16	32.20	9.92	22.28								3	0.09	0.10
17	32.25	9.26	22.99								3	0.08	0.09
18	32.76	9.32	23.44								3	0.08	0.10
19	31.34	8.96	22.38								3	0.09	0.09
20	30.69	8.64	22.05								3	0.08	0.08
21	30.47	8.43	22.04								3	0.07	0.07
22	30.55	8.99	21.57								3	0.07	0.08
23	30.60	8.96	21.64								3	0.08	0.09
24	31.21	9.73	21.48								3	0.08	0.08
25	29.90	8.75	21.14								3	0.08	0.09
26	31.07	8.75	22.32								3	0.09	0.11
27	29.48	8.46	21.03								3	0.08	0.08
28	28.28	5.65	22.64								3	0.07	0.08
29	27.65	7.54	20.12								3	0.07	0.08
30	27.04	7.33	19.71								3	0.08	0.10
31	28.55	7.89	20.66								3	0.08	0.09
AVG	31.62	9.15	22.47								3	0.11	0.13
MAX	35.78	11.75	24.46								3	0.26	0.46
MIN	27.04	5.65	19.71								3	0.07	0.07
Total	980.17	283.69	696.48										

Flouridation & Chlorination **WSSN 2310** **Mar-14**

DATE	Fluoride Applied F- mg/l	Fluoride Analyses mg/l			Chlorine App. Mg/l			Chlorine Residual mg/l							
						Chlorine (prior to filtration) mg/L OCl-	Post Chlorine mg/L	B&P	Sta II	Dort	3MG Well		Tap		
		Raw	Tap	Dist				Free	Free	Free	Free			Free	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1			0.48					0.7	1.2	0.9	0.9			0.9	
2			0.51					0.8	1.0	0.9	0.8			0.9	
3			0.49					0.8	1.0	0.9	0.8			1.0	
4			0.51					0.9	1.0	1.0	0.9			1.0	
5			0.52					0.9	1.0	0.9	0.9			0.8	
6			0.53					0.7	1.0	1.0	0.9			1.0	
7			0.52					0.9	1.0	0.9	0.9			1.0	
8			0.52					0.9	1.1	1.0	1.0			1.1	
9			0.49					0.7	1.0	0.9	0.8			0.8	
10			0.51					0.8	0.9	0.9	0.9			1.0	
11			0.52					0.9	1.0	0.9	0.8			1.0	
12			0.51					0.9	1.0	1.0	0.9			0.9	
13			0.49					0.8	1.2	0.9	0.8			0.9	
14			0.48					0.9	1.0	1.0	0.9			1.0	
15			0.43					0.9	1.0	0.9	0.8			1.0	
16			0.48					0.8	1.1	0.9	0.8			1.1	
17			0.53					0.9	1.0	0.9	0.9			0.9	
18			0.54					0.8	1.1	1.0	0.9			0.9	
19			0.54					0.9	1.2	1.0	0.9			1.0	
20			0.52					0.8	1.0	0.9	0.9			1.0	
21			0.52					1.0	1.2	1.0	0.9			1.1	
22			0.54					0.8	1.1	1.0	1.0			1.0	
23			0.58					0.8	1.0	0.9	0.9			1.0	
24			0.50					0.9	1.1	1.1	1.0			1.0	
25			0.53					0.9	1.1	1.0	1.0			1.1	
26			0.53					0.9	1.2	0.9	0.9			0.9	
27			0.54					0.9	1.1	1.0	1.1			1.1	
28			0.54					1.0	1.2	1.0	0.9			1.0	
29			0.61					0.9	1.0	0.8	0.9			1.0	
30			0.58					0.8	1.2	0.9	0.9			1.0	
31			0.55					0.8	1.0	0.9	0.9			1.0	
AVG			0.52					0.9	1.1	0.9	0.9			1.0	
MAX			0.61					1.0	1.2	1.1	1.1			1.1	
MIN			0.43					0.7	0.9	0.8	0.8			0.8	

n.s. = no sample collected/tested

Chemical Analyses **WSSN 2310** **Mar-14**

DATE	pH		Total Hard as $CaCO_3$ mg/l		Total Alk as $CaCO_3$ mg/l		NonCarbonate Hardness as $CaCO_3$ mg/l				Calcium Ca ++ mg/l		Magnesium as Mg ++ mg/l		Chloride as Cl - mg/l	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1		7.35		98		71		27				29.7		5.8		
2		7.36		98		65		33				28.9		6.3		
3		7.36		98		71		27				29.7		5.8		
4		7.37		98		73		25				28.9		6.3		
5		7.56		100		75		25				29.7		6.3		
6		7.41		98		71		27				29.7		5.8		
7		7.36		98		75		23				30.5		5.3		
8		7.49		98		70		28				28.1		6.8		
9		7.32		98		64		34				29.7		5.8		
10		7.36		96		74		22				31.3		4.4		
11		7.45		98		72		26				29.7		5.8		
12		7.39		98		72		26				29.7		5.8		
13		7.45		98		72		26				29.7		5.8		
14		7.34		98		74		24				30.9		5.1		
15		7.40		98		69		29				29.7		5.8		
16		7.33		98		65		33				29.7		5.8		
17		7.40		98		65		33				29.7		5.8		
18		7.30		98		74		24				29.7		5.8		
19		7.41		98		75		23				29.7		5.8		
20		7.44		98		70		28				29.7		5.8		
21		7.38		98		74		24				29.7		5.8		
22		7.42		98		72		26				28.1		6.8		
23		7.31		98		72		26				29.7		5.8		
24		7.41		98		75		23				32.1		3.6		
25		7.44		98		74		24				31.3		4.9		
26		7.45		98		73		25				28.9		6.3		
27		7.41		102		77		25				30.5		6.3		
28		7.47		102		77		25				31.3		5.8		
29		7.33		98		74		24				29.7		5.8		
30		7.22		98		70		28				29.7		5.8		
31		7.35		100		74		26				29.7		6.3		
AVG		7.39		98		72		26				29.8		5.8		
MAX		7.56		102		77		34				32.1		6.8		
MIN		7.22		96		64		22				28.1		3.6		

n.s. = no sample collected/tested

Bacteriological & Physical Parameters **WSSN 2310** **Mar-14**

DATE	Total Coliform							Standard Plate Count		Wind Direction	Temp deg.C	Color		Odor	
	Plant Tap														
	B&P		Dort	3MG Well	Pump	Lab Tap		Raw	Tap			Raw	Tap	Raw	Tap
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
1	1/0		2/0	2/0	2/0	2/0					11.4				
2	1/0		2/0	2/0	2/0	2/0					11.8				
3	1/0		2/0	2/0	2/0	2/0					12.1				
4	1/0		2/0	2/0	2/0	2/0					11.1				
5	1/0		2/0	2/0	2/0	2/0			< 2		13.3				
6	1/0		2/0	2/0	2/0	2/0					11.1				
7	1/0		2/0	2/0	2/0	2/0					11.4				
8	1/0		2/0	2/0	2/0	2/0					10.7				
9	1/0		2/0	2/0	2/0	2/0					13.1				
10	1/0		2/0	2/0	2/0	2/0					10.5				
11	1/0		2/0	2/0	2/0	2/0					11.7				
12	1/0		2/0	2/0	2/0	2/0					11.6				
13	1/0		2/0	2/0	2/0	2/0					12.2				
14	1/0		2/0	2/0	2/0	2/0					11.7				
15	1/0		2/0	2/0	2/0	2/0					11.9				
16	1/0		2/0	2/0	2/0	2/0					11.3				
17	1/0		2/0	2/0	2/0	2/0					11.1				
18	1/0		2/0	2/0	2/0	2/0					10.5				
19	1/0		2/0	2/0	2/0	2/0					10.0				
20	1/0		2/0	2/0	2/0	2/0					10.6				
21	1/0		2/0	2/0	2/0	2/0					13.1				
22	1/0		2/0	2/0	2/0	2/0					11.7				
23	1/0		2/0	2/0	2/0	2/0					12.1				
24	1/0		2/0	2/0	2/0	2/0					11.7				
25	1/0		2/0	2/0	2/0	2/0					10.6				
26	1/0		2/0	2/0	2/0	2/0					10.8				
27	1/0		2/0	2/0	2/0	2/0					11.1				
28	1/0		2/0	2/0	2/0	2/0					12.7				
29	1/0		2/0	2/0	2/0	2/0					12.9				
30	1/0		2/0	2/0	2/0	2/0					12.6				
31	1/0		2/0	2/0	2/0	2/0					10.6				
											11.6				
											13.3				
											10.0				

n.s. = no sample collected/tested

Distribution System Monitoring WSSN 2310 Mar-14

DATE	Free Chlorine Residual at Bacteriological Montioring Stations mg/l												
	1	2	3	4	5	6	7	8	CS	WR	STA II AM	STA II PM	Number of Samples
1											1.3	1.0	2
2											1.0	1.0	2
3											1.0	0.9	2
4									0.8	0.9	1.0	1.0	4
5	1.0	0.9	0.9	0.8	0.8	1.0	0.9	1.0	0.7	0.8	1.1	0.9	12
6	1.2	1.1	1.0	1.0	0.9	0.8	1.1	0.9	0.8	0.8	1.0	1.0	12
7										0.8	1.1	0.9	3
8											1.1	1.0	2
9											0.9	1.0	2
10									0.9	0.9	0.9	0.9	4
11									0.8	0.9	1.0	1.0	4
12	1.0	0.8	1.0	0.8	0.8	cl	n/a	0.8	0.7	0.8	1.1	0.9	10
13	1.2	1.0	1.1	1.0	1.0	0.7	1.0	0.9	0.6	0.8	1.1	1.2	12
14									0.7	0.8	1.1	0.9	4
15											0.9	1.1	2
16											1.0	1.1	2
17											1.0	1.0	2
18									1.0	0.9	1.0	1.1	4
19	1.0	0.9	0.8	0.8	0.9	1.0	0.8	0.9	0.7	0.9	1.2	1.1	12
20									0.8	0.9	1.0	1.0	4
21									0.8	0.8	1.2	1.2	4
22											1.0	1.1	2
23											1.0	1.0	2
24									0.9	1.0	1.1	1.1	4
25									0.9	1.0	1.1	1.1	4
26	1.0	0.9	0.9	0.8	0.9	1.0	0.9	1.0	0.7	0.9	1.1	1.2	12
27	1.3	0.7	1.0	1.1	1.0	0.7	1.1	1.1	0.8	1.0	1.1	1.0	12
28									0.7	1.0	1.2	1.1	4
29											1.0	1.0	2
30											1.2	1.1	2
31									1.2	1.1	1.0	1.0	4

Monthly Cl_2 Avg.	**0.961**
Quarterly Cl_2 Avg.	**0.879**
Yearly Cl_2 Avg.	**0.758**
Total Samples	**153**

Distribution System Monitoring WSSN 2310 Mar-14

DATE	Total Chlorine Residual at Bacteriological Montioring Stations mg/l												
	1	2	3	4	5	6	7	8	CS	WR	STA II AM	STA II PM	Number of Samples
1											1.5	1.1	2
2											1.1	1.1	2
3											1.1	1.1	2
4									0.9	1.1	1.2	1.2	4
5	1.3	1.1	1.1	1.0	1.0	1.1	1.0	1.2	0.9	1.0	1.3	1.0	12
6	1.4	1.2	1.2	1.2	1.1	0.9	1.3	1.1	1.0	1.1	1.2	1.2	12
7										1.0	1.3	1.1	3
8											1.4	1.2	2
9											1.1	1.1	2
10									1.0	1.2	1.1	1.0	4
11									1.0	1.1	1.1	1.1	4
12	1.2	1.0	1.1	1.0	1.0	cl	n/a	1.0	0.9	1.0	1.3	1.1	10
13	1.3	1.2	1.3	1.0	1.2	0.8	1.2	1.2	0.8	1.0	1.2	1.4	12
14									0.9	0.9	1.3	1.1	4
15											1.0	1.3	2
16											1.1	1.2	2
17											1.1	1.1	2
18									1.2	1.1	1.2	1.2	4
19	1.2	1.1	1.0	1.0	1.1	1.3	1.0	1.1	0.9	1.1	1.3	1.2	12
20									0.9	1.1	1.1	1.2	4
21									1.0	1.1	1.3	1.4	4
22											1.4	1.4	2
23											1.2	1.2	2
24									1.0	1.2	1.3	1.3	4
25									1.0	1.2	1.3	1.2	4
26	1.2	1.0	1.1	1.0	1.1	1.2	1.1	1.1	1.0	1.1	1.3	1.4	12
27	1.4	0.8	1.2	1.3	1.2	0.8	1.3	1.2	1.0	1.2	1.3	1.2	12
28									0.9	1.2	1.3	1.3	4
29											1.1	1.2	2
30											1.3	1.3	2
31									1.3	1.3	1.1	1.1	4

Monthly Cl_2 Avg.	**1.14**
Quarterly Cl_2 Avg.	**1.050**
Yearly Cl_2 Avg.	**0.922**
Total Samples	**153**

ROUTINE POSITIVE DISTRIBUTION SAMPLES

Mar-14

Total number of positive routine samples:				Total Coliform: 0		Fecal Coliform: 0	
Date	Monitoring Station	Total Coliform	Fecal Coliform	Date	Retest of Station, Upstream & Downstream	Total Coliform	Fecal Coliform
Total number of routine distribution samples analyzed:				153			
Total number of routine distribution samples required:				100			

D-5a 2/86
Authority; Act 399, P.A. 1976

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

2310

MONTHLY OPERATION REPORT
OF
WATER TREATMENT PLANT

For Month of February 2014

Flint Water Plant — NAME OF WATER SYSTEM

2310 — WSSN

Genesee — COUNTY

[redacted] — CERTIFIED OPERATOR

F-1R S-3 — CLASSIFICATION

[redacted] — SIGNATURE OF APPROPRIATE OFFICIAL

DEQ
RESOURCE MANAGEMENT DIVISION
MAR 13 2014
LANSING DISTRICT

TREATMENT RATE AND FILTER DATA

1. Treatment Rate, Maximum____ Million Gallons Per Day
2. Treatment Rate, Approved Rated Plant Capacity____Million Gallons per Day
3. Average Filter Run___ Hours, Average Head Loss _____Feet
4. Average Filtration Rate _____ Gallons per Square Ft. per Minute
5. Maximum Filtration Rate _____ Gallons per Square Ft. per Minute
6. Average Wash Water Use _____ percent of Treated Water

CHEMICAL DATA

7. Chlorine on hand _____ lbs.: Estimated supply _____ days
8. Lime (CaO) on hand _____ lbs.: Estimated supply _____ days
9. Alum (Al3+) on hand _____ lbs.: Estimated supply _____ days
10. Cost of All Chemicals per Million Gallons
11. Total Power Cost per Million Gallons

Remarks:

Submit to: [redacted]

Failure to complete this form is a violation of Act 399, P.A. 1976 and is subject to penalties as outlined in the Act.

[redacted]

Coagulation Parameters **WSSN 2310** **Feb-14**

DATE	Total Million Gallons Purchased	Million Gallons to County	Million Gallons to Flint			Ferric Chloride as Fe 3+ mg/l	Turbidity, NTU units						
							Raw				Plant Tap		
							# of Samples	Avg.	Max		# of Samples	Avg.	Max
	1	1A	1B	4	5	6	7	8	9	10	11	12	13
1	31.70	12.74	18.96								3	0.08	0.09
2	31.73	11.33	20.40								3	0.10	0.10
3	31.70	10.81	20.89								3	0.14	0.14
4	30.57	10.58	19.99								3	0.09	0.10
5	29.73	10.72	19.01								3	0.12	0.14
6	29.84	10.32	19.52								3	0.11	0.12
7	28.87	10.09	18.78								3	0.12	0.14
8	29.80	10.01	19.78								3	0.08	0.09
9	30.37	10.77	19.60								3	0.09	0.11
10	30.63	11.20	19.43								3	0.09	0.09
11	29.63	11.03	18.60								3	0.11	0.12
12	31.55	11.04	20.50								3	0.12	0.14
13	31.43	11.34	20.10								3	0.10	0.11
14	30.83	11.43	19.40								3	0.10	0.11
15	31.02	10.77	20.25								3	0.10	0.14
16	30.77	10.54	20.23								3	0.09	0.10
17	32.58	10.70	21.89								3	0.09	0.10
18	31.61	10.69	20.93								3	0.09	0.10
19	31.44	10.66	20.78								3	0.07	0.08
20	32.06	10.88	21.18								3	0.10	0.11
21	32.12	10.62	21.50								3	0.09	0.10
22	32.91	11.91	21.00								3	0.09	0.10
23	32.88	11.47	21.40								3	0.13	0.18
24	32.66	11.33	21.33								3	0.08	0.09
25	32.23	10.86	21.37								3	0.10	0.11
26	32.09	10.78	21.31								3	0.09	0.10
27	32.47	10.33	22.14								3	0.12	0.14
28	33.48	10.37	23.11								3	0.13	0.15
AVG	31.38	10.90	20.48								3	0.10	0.11
MAX	33.48	12.74	23.11								3	0.14	0.18
MIN	28.87	10.01	18.60								3	0.07	0.08
Total	878.69	305.33	573.37										

FLINT WATER PLANT & FACILITIES

Flouridation & Chlorination **WSSN 2310** **Feb-14**

DATE	Fluoride Applied F- mg/l	Fluoride Analyses mg/l			Chlorine App. Mg/l			Chlorine Residual mg/l							
						Chlorine (prior to filtration) mg/L OCl-	Post Chlorine mg/L	B&P	Sta II	Dort	3MG Well		Tap		
		Raw	Tap	Dist				Free	Free	Free	Free			Free	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1			0.50					1.1	1.2	0.8	0.8			1.0	
2			0.49					0.8	1.0	0.9	0.9			0.9	
3			0.51					0.9	1.0	1.0	0.9			1.0	
4			0.52					0.9	1.0	1.0	0.9			1.0	
5			0.52					1.0	1.1	1.0	1.0			1.1	
6			0.50					0.9	1.0	0.9	0.9			0.9	
7			0.54					0.8	1.0	1.0	0.9			1.0	
8			0.54					1.0	1.1	1.0	1.0			1.1	
9			0.57					0.8	1.0	1.0	0.9			0.9	
10			0.59					1.1	1.1	1.0	0.9			0.9	
11			0.58					0.9	1.1	1.1	1.0			1.1	
12			0.56					0.9	1.2	1.1	1.0			1.0	
13			0.54					0.9	1.2	1.0	1.0			0.9	
14			0.57					1.0	1.2	1.0	1.0			1.0	
15			0.56					0.9	1.1	1.0	1.0			1.1	
16			0.54					0.8	1.0	1.0	0.9			1.0	
17			0.48					1.1	1.2	1.0	0.9			0.9	
18			0.51					1.0	1.0	1.0	1.0			0.9	
19			0.51					1.1	1.3	1.1	1.0			1.1	
20			0.51					0.9	1.1	1.0	1.0			1.0	
21			0.51					0.9	1.1	1.1	1.0			1.0	
22			0.48					0.8	1.0	0.9	0.9			1.0	
23			0.47					0.8	1.1	1.0	0.9			0.9	
24			0.52					0.8	0.9	0.9	0.8			0.9	
25			0.49					0.7	1.0	0.9	0.8			1.0	
26			0.50					0.9	1.1	1.0	0.9			1.0	
27			0.51					0.9	1.1	1.0	0.9			1.0	
28			0.51					0.9	1.1	1.0	0.9			1.0	
AVG			0.52					0.9	1.1	1.0	0.9			1.0	
MAX			0.59					1.1	1.3	1.1	1.0			1.1	
MIN			0.47					0.7	0.9	0.8	0.8			0.9	

FLINT WATER PLANT & FACILITIES

Chemical Analyses **WSSN 2310** **Feb-14**

DATE	pH		Total Hard as $CaCO_3$ mg/l		Total Alk as $CaCO_3$ mg/l		NonCarbonate Hardness as $CaCO_3$ mg/l				Calcium Ca ++ mg/l		Magnesium as Mg ++ mg/l		Chloride as Cl - mg/l	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1		7.30		98		72		26				28.9		6.3		
2		7.26		98		69		29				28.1		6.8		
3		7.38		98		69		29				28.9		6.3		
4		7.36		96		74		22				32.9		3.4		
5		7.24		98		70		28				29.7		5.8		
6		7.43		96		70		26				28.9		5.8		
7		7.37		98		72		26				29.7		5.8		
8		7.44		96		74		22				29.7		5.3		
9		7.40		96		68		28				28.9		5.8		
10		7.40		98		71		27				29.7		5.8		
11		7.43		98		74		24				31.3		4.9		
12		7.32		96		74		22				31.3		4.4		
13		7.30		98		69		29				29.7		5.8		
14		7.30		96		74		22				30.5		4.9		
15		7.35		96		73		23				30.5		4.9		
16		7.25		98		71		27				28.9		6.3		
17		7.34		96		70		26				29.7		5.3		
18		7.24		98		70		28				29.7		5.8		
19		7.40		98		69		29				30.5		5.3		
20		7.34		98		70		28				30.5		5.3		
21		7.39		98		74		24				30.5		5.3		
22		7.29		98		71		27				28.9		6.3		
23		7.43		98		69		29				29.7		5.8		
24		7.32		96		69		27				30.5		4.9		
25		7.39		96		71		25				29.7		5.3		
26		7.39		98		73		25				30.5		5.3		
27		7.35		96		73		23				31.3		4.4		
28		7.37		98		72		26				30.5		5.3		
AVG		7.35		97		71		26				30.0		5.5		
MAX		7.44		98		74		29				32.9		6.8		
MIN		7.24		96		68		22				28.1		3.4		

Bacteriological & Physical Parameters **WSSN 2310** **Feb-14**

DATE	Total Coliform							Standard Plate Count		Wind Direction	Temp deg.C	Color		Odor	
	Plant Tap														
	B&P		Dort	3MG Well	Pump	Lab Tap		Raw	Tap			Raw	Tap	Raw	Tap
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
1	1/0		2/0	2/0	2/0	2/0					12.9				
2	1/0		2/0	2/0	2/0	2/0					11.2				
3	1/0		2/0	2/0	2/0	2/0					11.3				
4	1/0		2/0	2/0	2/0	2/0					12.7				
5	1/0		2/0	2/0	2/0	2/0					11.8				
6	1/0		2/0	2/0	2/0	2/0					13.0				
7	1/0		2/0	2/0	2/0	2/0					13.2				
8	1/0		2/0	2/0	2/0	2/0					12.5				
9	1/0		2/0	2/0	2/0	2/0					12.8				
10	1/0		2/0	2/0	2/0	2/0					13.7				
11	1/0		2/0	2/0	2/0	2/0					13.6				
12	1/0		2/0	2/0	2/0	2/0			< 2		13.1				
13	1/0		2/0	2/0	2/0	2/0					12.7				
14	1/0		2/0	2/0	2/0	2/0					13.5				
15	1/0		2/0	2/0	2/0	2/0					13.7				
16	1/0		2/0	2/0	2/0	2/0					14.8				
17	1/0		2/0	2/0	2/0	2/0					11.2				
18	1/0		2/0	2/0	2/0	2/0					11.7				
19	1/0		2/0	2/0	2/0	2/0					11.7				
20	1/0		2/0	2/0	2/0	2/0					12.3				
21	1/0		2/0	2/0	2/0	2/0					12.3				
22	1/0		2/0	2/0	2/0	2/0					11.3				
23	1/0		2/0	2/0	2/0	2/0					9.3				
24	1/0		2/0	2/0	2/0	2/0					11.9				
25	1/0		2/0	2/0	2/0	2/0					11.3				
26	1/0		2/0	2/0	2/0	2/0					12.7				
27	1/0		2/0	2/0	2/0	2/0					12.1				
28	1/0		2/0	2/0	2/0	2/0					11.0				
											12.3				
											14.8				
											9.3				

FLINT WATER PLANT & FACILITIES

Distribution System Monitoring **WSSN 2310** **Feb-14**

DATE	Free Chlorine Residual at Bacteriological Montioring Stations mg/l												
	1	2	3	4	5	6	7	8	CS	WR	STA II AM	STA II PM	Number of Samples
1											1.1	1.2	2
2											0.9	1.1	2
3									0.5	0.7	1.1	0.9	4
4									0.7	0.8	1.0	1.0	4
5									0.5	0.6	1.1	1.1	4
6	1.2	1.1	0.9	1.0	0.9	0.6	1.1	1.1	0.5	0.6	1.1	0.9	12
7									0.5	0.7	1.0	1.0	4
8											1.1	1.1	2
9											0.9	1.0	2
10									0.6	0.6	1.2	0.9	4
11									0.6	0.8	1.1	1.1	4
12	1.2	1.1	1.0	1.0	1.0	0.9	1.0	1.1	0.6	0.7	1.2	1.1	12
13	1.2	1.1	1.0	1.1	1.1	0.8	0.8	1.0	0.5	0.8	1.2	1.1	12
14									0.6	0.8	1.2	1.1	4
15											1.1	1.1	2
16											1.0	1.0	2
17									0.6	0.9	1.2	1.1	4
18									0.6	0.8	1.1	0.9	4
19	0.6	0.9	0.9	0.6	0.9	0.8	0.7	1.0	0.5	0.8	1.3	1.3	12
20	1.2	1.1	1.0	1.1	0.9	0.8	0.9	1.0	0.6	0.9	1.1	1.0	12
21									0.6	0.9	1.1	1.1	4
22											1.0	1.0	2
23											1.0	1.1	2
24											0.9	0.9	2
25									0.7	0.9	0.9	1.0	4
26									0.6	0.8	1.1	1.1	4
27	1.2	1.0	0.9	1.1	0.8	0.6	1.1	1.0	0.6	0.8	1.1	1.0	12
28									0.5	0.9	1.1	1.0	4

Monthly Cl_2 Avg.	**0.926**
Quarterly Cl_2 Avg.	**0.798**
Yearly Cl_2 Avg.	**0.749**
Total Samples	**142**

Distribution System Monitoring WSSN 2310 Feb-14

DATE	Total Chlorine Residual at Bacteriological Montioring Stations mg/l												
	1	2	3	4	5	6	7	8	CS	WR	STA II AM	STA II PM	Number of Samples
1											1.3	1.3	2
2											1.1	1.2	2
3									0.7	0.9	1.3	1.1	4
4									0.8	0.9	1.3	1.2	4
5									0.7	0.9	1.3	1.3	4
6	1.4	1.3	1.1	1.1	1.1	0.7	1.3	1.3	0.7	0.8	1.3	1.1	12
7									0.7	0.9	1.3	1.2	4
8											1.5	1.4	2
9											1.0	1.3	2
10									0.7	0.8	1.4	1.2	4
11									0.7	1.0	1.4	1.3	4
12	1.4	1.2	1.2	1.2	1.1	1.0	1.2	1.2	0.8	1.0	1.4	1.2	12
13	1.4	1.2	1.2	1.3	1.3	0.9	1.0	1.2	0.7	1.0	1.4	1.3	12
14									0.7	1.0	1.4	1.3	4
15											1.3	1.3	2
16											1.1	1.1	2
17									0.8	1.1	1.3	1.4	4
18									0.8	1.1	1.3	1.1	4
19	0.7	1.1	1.1	0.8	1.1	1.0	0.9	1.2	0.7	1.0	1.4	1.5	12
20	1.3	1.3	1.2	1.2	1.1	0.9	1.2	1.2	0.8	1.1	1.2	1.1	12
21									0.8	1.1	1.3	1.3	4
22											1.1	1.1	2
23											1.1	1.3	2
24											1.1	1.1	2
25									0.9	1.1	1.1	1.1	4
26									0.8	1.0	1.3	1.2	4
27	1.4	1.1	1.1	1.2	1.0	0.7	1.3	1.2	0.8	1.0	1.3	1.2	12
28									0.8	1.1	1.3	1.1	4

Monthly Cl_2 Avg.	**1.11**
Quarterly Cl_2 Avg.	**0.961**
Yearly Cl_2 Avg.	**0.915**
Total Samples	**142**

FLINT WATER PLANT & FACILITIES

ROUTINE POSITIVE DISTRIBUTION SAMPLES

Feb-14

Total number of positive routine samples:				Total Coliform: 0		Fecal Coliform: 0	
Date	Monitoring Station	Total Coliform	Fecal Coliform	Date	Retest of Station, Upstream & Downstream	Total Coliform	Fecal Coliform
Total number of routine distribution samples analyzed:				142			
Total number of routine distribution samples required:				100			

D-5a 1/86
Authority: Act 399, P.A. 1976

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

MONTHLY OPERATION REPORT OF WATER TREATMENT PLANT

For Month of January 2014

Flint Water Plant
NAME OF WATER SYSTEM

2310
WSSN

Genesee
COUNTY

[redacted]
CERTIFIED OPERATOR

F-1R S-3
CLASSIFICATION

[redacted]
SIGNATURE OF APPROPRIATE OFFICIAL

TREATMENT RATE AND FILTER DATA

1. Treatment Rate, Maximum____ Million Gallons Per Day
2. Treatment Rate, Approved Rated Plant Capacity____Million Gallons per Day
3. Average Filter Run___ Hours, Average Head Loss _____Feet
4. Average Filtration Rate _____ Gallons per Square Ft. per Minute
5. Maximum Filtration Rate _____ Gallons per Square Ft. per Minute
6. Average Wash Water Use _____ percent of Treated Water

CHEMICAL DATA

7. Chlorine on hand _____ lbs.: Estimated supply _____ days
8. Lime (CaO) on hand _____ lbs.: Estimated supply _____ days
9. Alum (Al3+) on hand _____ lbs.: Estimated supply _____ days
10. Cost of All Chemicals per Million Gallons
11. Total Power Cost per Million Gallons

Remarks:

Submit to: [redacted]ct

Failure to complete this form is a violation of Act 399, P.A. 1976 and is subject to penalties as outlined in the Act.

FLINT WATER PLANT & FACILITIES

Coagulation Parameters **WSSN 2310** **Jan-14**

DATE	Total Million Gallons Purchased	Million Gallons to County	Million Gallons to Flint			Ferric Chloride as Fe 3+ mg/l	Turbidity, NTU units						
							Raw				Plant Tap		
							# of Samples	Avg.	Max		# of Samples	Avg.	Max
	1	1A	1B	4	5	6	7	8	9	10	11	12	13
1	23.19	10.32	12.87								3	0.07	0.08
2	22.83	9.72	13.11								3	0.07	0.09
3	22.70	9.74	12.96								3	0.07	0.07
4	23.31	9.84	13.47								3	0.08	0.09
5	23.72	9.69	14.04								3	0.10	0.11
6	24.40	12.68	11.72								3	0.08	0.09
7	26.88	11.74	15.13								3	0.07	0.07
8	26.38	12.22	14.16								3	0.09	0.10
9	27.12	13.03	14.09								3	0.09	0.09
10	27.63	11.53	16.10								3	0.09	0.09
11	25.34	10.28	15.06								3	0.08	0.09
12	25.96	9.91	16.05								3	0.07	0.08
13	26.93	10.63	16.30								3	0.07	0.07
14	27.31	11.17	16.14								3	0.06	0.07
15	27.76	11.98	15.78								3	0.07	0.08
16	28.29	11.76	16.53								3	0.08	0.09
17	26.25	10.28	15.97								3	0.07	0.08
18	24.40	9.21	15.19								3	0.06	0.08
19	23.08	8.82	14.26								3	0.09	0.14
20	23.13	8.31	14.82								3	0.07	0.09
21	25.85	10.30	15.55								3	0.06	0.08
22	27.40	11.75	15.65								3	0.07	0.07
23	26.91	10.96	15.95								3	0.07	0.08
24	27.04	9.72	17.31								3	0.10	0.16
25	25.43	9.71	15.72								3	0.09	0.12
26	27.79	12.10	15.69								3	0.06	0.08
27	27.57	10.97	16.61								3	0.08	0.08
28	27.77	11.33	16.44								3	0.11	0.14
29	28.62	11.18	17.44								3	0.15	0.19
30	30.98	12.39	18.58								3	0.16	0.18
31	30.76	12.93	17.83								3	0.08	0.09
AVG	26.22	10.84	15.37								3	0.08	0.10
MAX	30.98	13.03	18.58								3	0.16	0.19
MIN	22.70	8.31	11.72								3	0.06	0.07
Total	812.70	336.17	476.53										

FLINT WATER PLANT & FACILITIES

Flouridation & Chlorination **WSSN 2310** **Jan-14**

DATE	Fluoride Applied F- mg/l	Fluoride Analyses mg/l			Chlorine App. Mg/l			Chlorine Residual mg/l							
						Chlorine (prior to filtration) mg/L OCl-	Post Chlorine mg/L	B&P	Sta II	Dort	3MG Well		Tap		
		Raw	Tap	Dist				Free	Free	Free	Free			Free	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1			0.51					0.8	0.9	0.8	0.8			0.9	
2			0.47					0.7	0.9	0.8	0.8			0.9	
3			0.48					0.8	0.9	0.8	0.8			0.9	
4			0.51					0.6	1.0	0.8	0.8			0.9	
5			0.48					0.7	1.0	0.9	0.9			0.8	
6			0.49					n.s.	1.0	0.8	0.8			1.1	
7			0.50					0.9	1.0	0.8	0.8			0.9	
8			0.52					0.9	1.0	0.8	0.8			0.9	
9			0.45					0.7	1.0	0.8	0.8			0.8	
10			0.51					1.0	1.1	0.8	0.8			0.9	
11			0.48					0.8	0.9	0.9	0.8			1.0	
12			0.49					0.7	0.9	0.8	0.8			0.9	
13			0.46					0.9	1.0	0.9	0.8			0.9	
14			0.47					0.80	1.00	0.90	0.90			0.9	
15			0.47					0.9	1.0	0.9	0.9			0.9	
16			0.46					0.7	1.0	0.9	0.9			0.9	
17			0.45					0.9	1.1	0.9	0.9			1.0	
18			0.40					0.8	1.0	0.9	0.9			0.9	
19			0.45					0.5	0.9	0.9	0.9			0.9	
20			0.45					0.8	1.0	0.9	0.8			1.0	
21			0.49					0.8	1.0	0.9	0.8			0.9	
22			0.52					1.0	1.1	0.9	0.9			1.0	
23			0.50					0.9	1.1	0.9	0.9			1.0	
24			0.49					1.0	1.1	0.9	0.9			1.0	
25			0.49					0.9	1.2	1.1	1.0			1.0	
26			0.53					0.8	1.0	0.8	0.8			0.9	
27			0.54					0.8	1.0	0.9	0.9			0.9	
28			0.50					0.7	1.0	1.0	0.9			1.0	
29			0.53					0.9	1.1	0.9	0.9			0.9	
30			0.47					0.9	1.0	0.9	0.9			0.9	
31			0.51					1.0	1.1	0.9	0.8			1.0	
AVG			0.49					0.8	1.0	0.9	0.9			0.9	
MAX			0.54					1.0	1.2	1.1	1.0			1.1	
MIN			0.40					0.5	0.9	0.8	0.8			0.8	

n.s. = no sample collected/tested

FLINT WATER PLANT & FACILITIES

Chemical Analyses **WSSN 2310** **Jan-14**

DATE	pH		Total Hard as $CaCO_3$ mg/l		Total Alk as $CaCO_3$ mg/l		NonCarbonate Hardness as $CaCO_3$ mg/l				Calcium Ca ++ mg/l		Magnesium as Mg ++ mg/l		Chloride as Cl - mg/l	
	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1		7.32		98		62		36				28.9		6.3		
2		7.20		98		73		25				30.5		5.8		
3		7.35		100		73		27				28.9		6.8		
4		7.44		98		70		28				28.9		6.3		
5		7.39		98		70		28				29.7		5.8		
6		7.29		98		62		36				27.3		7.3		
7		7.33		102		65		37				31.3		5.8		
8		7.36		96		71		25				28.9		5.8		
9		7.25		100		68		32				29.7		6.3		
10		7.24		100		71		29				31.3		5.3		
11		7.30		96		66		30				28.9		5.8		
12		7.31		98		67		31				28.9		6.3		
13		7.40		98		69		29				28.1		6.8		
14		7.37		98		65		33				28.9		6.3		
15		7.35		98		68		30				28.9		6.3		
16		7.29		98		68		30				28.1		6.8		
17		7.26		96		69		27				32.1		3.9		
18		7.36		98		71		27				28.9		6.3		
19		7.47		96		63		33				28.9		5.8		
20		7.22		96		67		29				28.1		6.3		
21		7.28		98		67		31				28.9		6.3		
22		7.29		94		72		22				30.5		4.4		
23		7.38		94		72		22				32.1		3.4		
24		7.34		94		70		24				32.1		3.4		
25		7.38		96		71		25				28.9		5.8		
26		7.29		96		69		27				28.1		6.3		
27		7.34		98		68		30				28.1		6.8		
28		7.35		98		68		30				28.9		6.3		
29		7.34		98		68		30				28.1		6.8		
30		7.24		98		69		29				28.1		6.8		
31		7.32		96		73		23				28.9		5.8		
AVG		7.32		97		69		29				29.3		5.9		
MAX		7.47		102		73		37				32.1		7.3		
MIN		7.20		94		62		22				27.3		3.4		

n.s. = no sample collected/tested

FLINT WATER PLANT & FACILITIES

Bacteriological & Physical Parameters

WSSN 2310 **Jan-14**

DATE	Total Coliform							Standard Plate Count		Wind Direction	Temp deg.C	Color		Odor	
	Plant Tap														
	B&P		Dort	3MG Well	Pump	Lab Tap		Raw	Tap			Raw	Tap	Raw	Tap
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
1	1/0		2/0	2/0	2/0	2/0					13.1				
2	1/0		2/0	2/0	2/0	2/0					12.4				
3	1/0		2/0	2/0	2/0	2/0					12.5				
4	1/0		2/0	2/0	2/0	2/0					11.7				
5	1/0		2/0	2/0	2/0	2/0					13.2				
6	0/0		2/0	2/0	2/0	2/0					11.7				
7	1/0		2/0	2/0	2/0	2/0					11.3				
8	1/0		2/0	2/0	2/0	2/0					14.2				
9	1/0		2/0	2/0	2/0	2/0					11.3				
10	1/0		2/0	2/0	2/0	2/0					13.3				
11	1/0		2/0	2/0	2/0	2/0					12.7				
12	1/0		2/0	2/0	2/0	2/0					12.7				
13	1/0		2/0	2/0	2/0	2/0					13.4				
14	1/0		2/0	2/0	2/0	2/0					14.2				
15	1/0		2/0	2/0	2/0	2/0					13.6				
16	1/0		2/0	2/0	2/0	2/0				<2	12.4				
17	1/0		2/0	2/0	2/0	2/0					14.0				
18	1/0		2/0	2/0	2/0	2/0					14.6				
19	1/0		2/0	2/0	2/0	2/0					13.5				
20	1/0		2/0	2/0	2/0	2/0					14.0				
21	1/0		2/0	2/0	2/0	2/0					14.3				
22	1/0		2/0	2/0	2/0	2/0					13.1				
23	1/0		2/0	2/0	2/0	2/0					13.4				
24	1/0		2/0	2/0	2/0	2/0					12.5				
25	1/0		2/0	2/0	2/0	2/0					11.3				
26	1/0		2/0	2/0	2/0	2/0					12.5				
27	1/0		2/0	2/0	2/0	2/0					12.9				
28	1/0		2/0	2/0	2/0	2/0					12.4				
29	1/0		2/0	2/0	2/0	2/0					12.7				
30	1/0		2/0	2/0	2/0	2/0					12.5				
31	1/0		2/0	2/0	2/0	2/0					14.3				
											13.0				
											14.6				
											11.3				

n.s. = no sample collected/tested

FLINT WATER PLANT & FACILITIES

Distribution System Monitoring **WSSN 2310** **Jan-14**

DATE	Free Chlorine Residual at Bacteriological Montioring Stations mg/l												
	1	2	3	4	5	6	7	8	CS	WR	STA II AM	STA II PM	Number of Samples
1											0.9	0.9	2
2											0.9	0.9	2
3											0.9	0.9	2
4											1.0	1.0	2
5											1.0	0.9	2
6											1.0	1.0	2
7									0.5	0.6	1.0	0.9	4
8	0.9		0.9	0.5	0.9						1.1	0.9	6
9	1.1	0.8	0.9	0.8	0.8	0.8	0.8	0.9	0.4	0.7	1.0	0.9	12
10									0.4	0.7	1.1	1.0	4
11											0.9	0.9	2
12											0.9	0.9	2
13									0.5	0.7	1.0	0.9	4
14											1.0	0.9	2
15		0.8				0.9	0.9	0.9			1.1	0.9	6
16	1.1	0.8	0.7	0.8	0.7	0.6	0.8	0.9	0.5	0.6	1.0	1.0	12
17									0.4	0.7	1.0	1.1	4
18											1.0	1.0	2
19											0.9	0.9	2
20											0.9	1.0	2
21											1.0	0.9	2
22									0.4	0.6	1.1	1.1	4
23	1.1	0.8	0.8	1.0	0.8	0.8	0.9	0.9	0.5	0.7	1.1	1.1	12
24									0.5	0.6	1.1	1.0	4
25											1.2	1.2	2
26											0.9	1.1	2
27									0.3	0.7	1.1	0.9	4
28											0.9	1.0	2
29	0.9	0.8	1.0	0.6	0.7	0.9	0.9	0.9	0.5	0.6	1.0	1.1	12
30	1.1	0.9	1.0	1.0	0.9	0.8	0.9	1.0	0.4	0.6	1.1	0.9	12
31									0.5	0.6	1.1	1.0	4

Monthly Cl_2 Avg.	0.860
Quarterly Cl_2 Avg.	0.706
Yearly Cl_2 Avg.	0.738
Total Samples	136

Distribution System Monitoring **WSSN 2310** **Jan-14**

DATE	Total Chlorine Residual at Bacteriological Montioring Stations mg/l												
	1	2	3	4	5	6	7	8	CS	WR	STA II AM	STA II PM	Number of Samples
1											1.1	1.1	2
2											1.0	1.0	2
3											1.1	1.1	2
4											1.1	1.1	2
5											1.1	1.0	2
6											1.2	1.2	2
7									0.7	0.7	1.2	1.2	4
8	1.0		1.0	0.7	1.0						1.3	1.1	6
9	1.2	0.9	1.1	1.0	1.0	0.9	1.0	1.1	0.6	0.8	1.2	1.1	12
10									0.5	0.9	1.3	1.2	4
11											1.1	1.1	2
12											1.1	1.1	2
13									0.7	0.9	1.2	1.1	4
14											1.2	1.1	2
15		1.0				1.0	1.0	1.0			1.3	1.1	6
16	1.3	0.9	0.9	0.9	0.9	0.7	1.0	1.1	0.6	0.8	1.2	1.1	12
17									0.5	0.9	1.2	1.3	4
18											1.1	1.2	2
19											1.0	1.1	2
20											1.0	1.1	2
21											1.2	1.1	2
22									0.6	0.8	1.3	1.3	4
23	1.3	1.1	1.1	1.1	1.0	0.9	1.2	1.1	0.7	0.9	1.2	1.2	12
24									0.7	0.8	1.3	1.2	4
25											1.5	1.5	2
26											1.1	1.2	2
27									0.5	0.8	1.2	1.1	4
28											1.0	1.2	2
29	1.0	1.0	1.2	0.7	0.9	1.1	1.0	1.0	0.6	0.8	1.2	1.3	12
30	1.3	1.0	1.2	1.1	1.1	0.9	1.1	1.2	0.6	0.7	1.3	1.2	12
31									0.7	0.8	1.3	1.3	4

Monthly Cl_2 Avg.	**1.03**
Quarterly Cl_2 Avg.	**0.861**
Yearly Cl_2 Avg.	**0.904**
Total Samples	**136**

ROUTINE POSITIVE DISTRIBUTION SAMPLES

Jan-14

Total number of positive routine samples:				Total Coliform: 0		Fecal Coliform: 0	
Date	Monitoring Station	Total Coliform	Fecal Coliform	Date	Retest of Station, Upstream & Downstream	Total Coliform	Fecal Coliform

Total number of routine distribution samples analyzed:	136
Total number of routine distribution samples required:	100