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 December 2013

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:

DEQ
RESOURCE MANAGEMENT DIVISION
JAN 16 2014
LANSING DISTRICT

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** **Dec-13**

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	23.27	10.99	12.29								3	0.08	0.09
2	23.49	11.39	12.11								3	0.08	0.09
3	22.66	9.72	12.94								3	0.08	0.08
4	22.99	10.25	12.74								3	0.10	0.12
5	21.67	9.51	12.16								3	0.08	0.10
6	22.22	9.91	12.31								3	0.07	0.09
7	21.68	9.44	12.24								3	0.07	0.08
8	21.25	9.06	12.19								3	0.08	0.08
9	21.15	8.97	12.18								3	0.07	0.08
10	22.01	9.96	12.05								3	0.08	0.08
11	22.38	10.26	12.11								3	0.08	0.09
12	22.26	9.88	12.38								3	0.08	0.09
13	23.10	10.02	13.08								3	0.09	0.09
14	22.29	10.39	11.90								0	n/a	n/a
15	23.66	11.70	11.96								3	0.09	0.10
16	23.79	11.07	12.72								3	0.09	0.09
17	23.51	9.71	13.80								3	0.12	0.12
18	22.37	10.41	11.96								3	0.09	0.10
19	23.70	10.24	13.46								3	0.10	0.13
20	24.63	10.35	14.28								3	0.11	0.13
21	25.11	10.58	14.52								3	0.11	0.12
22	23.85	11.30	12.55								3	0.10	0.11
23	23.97	10.87	13.11								3	0.07	0.08
24	24.92	11.83	13.09								3	0.07	0.08
25	25.86	12.17	13.69								3	0.08	0.08
26	25.39	12.18	13.22								3	0.10	0.15
27	24.91	10.98	13.93								3	0.12	0.12
28	24.17	10.77	13.40								3	0.08	0.10
29	24.04	10.50	13.54								3	0.08	0.09
30	22.93	10.28	12.65								3	0.09	0.10
31	22.90	10.29	12.61								3	0.08	0.11
AVG	23.29	10.48	12.81								3	0.09	0.10
MAX	25.86	12.18	14.52								3	0.12	0.15
MIN	21.15	8.97	11.90								0	0.07	0.08
Total	722.11	324.96	397.15										

Flouridation & Chlorination **WSSN 2310** **Dec-13**

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			0.43					0.8	1.0	0.8	0.8			0.9	
2			0.54					0.9	1.2	0.9	0.8			1.0	
3			0.57					0.7	1.0	0.8	0.8			0.9	
4			0.58					0.9	1.0	0.8	0.7			0.8	
5			0.54					0.7	1.0	0.8	0.8			0.9	
6			0.58					0.9	1.0	0.9	0.8			1.0	
7			0.57					0.9	1.0	0.8	0.8			1.0	
8			0.57					0.7	0.9	0.8	0.8			0.8	
9			0.61					0.9	1.0	0.8	0.8			0.9	
10			0.60					0.9	1.0	0.8	0.8			1.0	
11			0.61					0.9	1.0	0.9	0.9			1.0	
12			0.57					0.8	1.0	0.9	0.8			0.9	
13			0.61					0.9	1.0	0.8	0.9			1.0	
14			n.s.					n.s.	n.s.	n.s.	n.s.			0.9	
15			0.54					0.7	0.9	0.9	0.8			0.9	
16			0.60					0.9	1.0	0.9	0.9			0.9	
17			0.57					0.7	1.0	0.9	0.8			0.9	
18			0.62					0.9	1.0	0.9	0.8			0.9	
19			0.59					0.9	1.0	0.9	0.8			0.9	
20			0.64					1.0	1.0	0.9	0.9			0.9	
21			0.60					0.8	0.9	0.8	0.8			0.8	
22			0.63					0.7	0.9	0.9	0.8			0.9	
23			0.54					0.7	1.0	0.9	0.9			0.9	
24			0.59					0.8	0.9	0.9	0.8			0.9	
25			0.54					0.8	1.0	0.9	0.8			0.9	
26			0.50					0.8	1.0	0.9	0.8			1.0	
27			0.51					0.7	1.0	0.9	0.9			0.9	
28			0.49					0.7	1.0	0.9	0.9			0.9	
29			0.51					0.7	1.0	0.9	0.8			0.8	
30			0.55					0.8	1.0	0.9	0.8			0.9	
31			0.48					0.7	1.0	0.9	0.8			0.9	
AVG			0.56					0.8	1.0	0.9	0.8			0.9	
MAX			0.64					1.0	1.2	0.9	0.9			1.0	
MIN			0.43					0.7	0.9	0.8	0.7			0.8	

n.s. = no sample collected/tested

Chemical Analyses **WSSN 2310** **Dec-13**

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		7.36		100		72		28				30.5		5.8		
2		7.29		96		69		27				28.1		6.3		
3		7.30		98		69		29				29.7		5.8		
4		7.40		98		70		28				29.7		5.8		
5		7.35		96		71		25				28.9		5.8		
6		7.33		98		69		29				28.9		6.3		
7		7.34		98		70		28				28.9		6.3		
8		7.29		98		70		28				28.9		6.3		
9		7.36		98		70		28				29.7		5.8		
10		7.36		98		72		26				30.5		5.3		
11		7.40		98		71		27				28.9		6.3		
12		7.36		98		70		28				29.7		5.8		
13		7.38		96		73		23				28.9		5.8		
14		n.s		n.s		n.s		n/a				n.s.		n.s.		
15		7.24		98		71		27				29.7		5.8		
16		7.24		98		69		29				28.9		6.3		
17		7.26		98		68		30				29.7		6.3		
18		7.20		100		70		30				28.9		6.8		
19		7.30		100		70		30				29.7		6.3		
20		7.55		100		71		29				29.7		6.3		
21		7.23		100		68		32				28.9		6.8		
22		7.38		98		73		25				29.7		5.8		
23		7.22		100		72		28				29.7		6.3		
24		7.56		98		72		26				28.9		5.8		
25		7.31		100		73		27				28.9		6.8		
26		7.27		98		72		26				29.7		5.8		
27		7.28		98		65		33				29.7		6.3		
28		7.23		98		69		29				30.5		5.8		
29		7.20		98		73		25				28.9		6.3		
30		7.23		98		69		29				28.9		6.3		
31		7.15		98		73		25				29.7		5.8		
AVG		7.31		98		70		28				29.4		6.1		
MAX		7.56		100		73		33				30.5		6.8		
MIN		7.15		96		65		23				28.1		5.3		

n.s. = no sample collected/tested

Bacteriological & Physical Parameters WSSN 2310 Dec-13

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					16.2				
2	1/0		2/0	2/0	2/0	2/0					16.0				
3	1/0		2/0	2/0	2/0	2/0					15.3				
4	1/0		2/0	2/0	2/0	2/0					15.9				
5	1/0		2/0	2/0	2/0	2/0					15.3				
6	1/0		2/0	2/0	2/0	2/0					15.5				
7	1/0		2/0	2/0	2/0	2/0					15.2				
8	1/0		2/0	2/0	2/0	2/0					15.1				
9	1/0		2/0	2/0	2/0	2/0					14.7				
10	1/0		2/0	2/0	2/0	2/0					14.6				
11	1/0		2/0	2/0	2/0	2/0					15.2				
12	1/0		2/0	2/0	2/0	2/0			<2		16.6				
13	1/0		2/0	2/0	2/0	2/0					16.7				
14	0/0		0/0	0/0	0/0	2/0					n.s.				
15	1/0		2/0	2/0	2/0	2/0					15.3				
16	1/0		2/0	2/0	2/0	2/0					14.6				
17	1/0		2/0	2/0	2/0	2/0					14.9				
18	1/0		2/0	2/0	2/0	2/0					15.0				
19	1/0		2/0	2/0	2/0	2/0					14.1				
20	1/0		2/0	2/0	2/0	2/0					14.9				
21	1/0		2/0	2/0	2/0	2/0					14.6				
22	1/0		2/0	2/0	2/0	2/0					15.2				
23	1/0		2/0	2/0	2/0	2/0					14.9				
24	1/0		2/0	2/0	2/0	2/0					14.7				
25	1/0		2/0	2/0	2/0	2/0					13.0				
26	1/0		2/0	2/0	2/0	2/0					14.3				
27	1/0		2/0	2/0	2/0	2/0					14.4				
28	1/0		2/0	2/0	2/0	2/0					14.1				
29	1/0		2/0	2/0	2/0	2/0					14.1				
30	1/0		2/0	2/0	2/0	2/0					13.9				
31	1/0		2/0	2/0	2/0	2/0					12.5				
											14.9				
											16.7				
											12.5				

n.s. = no sample collected/tested

Distribution System Monitoring WSSN 2310 Dec-13

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	2
2									0.3	0.4	1.2	1.1	4
3									0.5	0.5	1.0	0.9	4
4	1.0	0.7	0.7	0.8	0.6	0.6	0.3	0.9	0.3	0.4	1.0	1.0	12
5	1.0	0.7	0.8	0.9	0.5	0.5	0.7	0.8	0.3	0.4	1.0	0.9	12
6									0.3	0.4	1.0	1.0	4
7											1.0	0.9	2
8											0.8	0.9	2
9									0.4	0.4	0.9	1.0	4
10									0.3	0.4	1.0	1.0	4
11									0.4	0.4	1.0	1.0	4
12	1.0	0.8	1.1	0.7	0.6	0.6	0.6	0.9	0.4	0.4	1.1	0.9	12
13									0.3	0.4	0.9	1.0	4
14													0
15											0.9	0.9	2
16	0.9	0.8	0.7						0.3	0.5	1.0	0.9	7
17				0.8	0.8	0.7	0.8	0.9	0.4	0.4	1.0	0.9	9
18									0.6	0.5	1.1	0.9	4
19	1.1	0.9	0.7	0.7	0.5	0.7	0.7	0.9	0.4	0.5	1.0	0.9	12
20									0.3	0.5	1.1	0.9	4
21											0.8	0.9	2
22											0.9	0.9	2
23											0.9	1.0	2
24											0.9	0.9	2
25											1.0	0.9	2
26											0.9	1.1	2
27											0.9	1.0	2
28											0.9	1.0	2
29											0.9	1.0	2
30											1.0	0.9	2
31											1.0	0.9	2

Monthly Cl_2 Avg.	**0.768**
Quarterly Cl_2 Avg.	**0.648**
Yearly Cl_2 Avg.	**0.726**
Total Samples	**130**

Distribution System Monitoring WSSN 2310 Dec-13

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											1.0	1.1	2
2									0.4	0.5	1.4	1.2	4
3									0.6	0.6	1.2	1.1	4
4	1.1	0.9	0.9	0.9	0.8	0.8	0.5	1.0	0.4	0.5	1.2	1.1	12
5	1.1	0.8	1.0	1.0	0.7	0.6	0.8	1.0	0.5	0.5	1.2	1.1	12
6									0.5	0.6	1.2	1.1	4
7											1.1	1.1	2
8											1.0	1.0	2
9									0.5	0.5	1.1	1.2	4
10									0.4	0.6	1.2	1.2	4
11									0.5	0.5	1.2	1.2	4
12	1.2	1.1	1.3	0.8	0.7	0.7	0.8	1.1	0.5	0.5	1.3	1.0	12
13									0.5	0.6	1.1	1.2	4
14													0
15											1.0	1.1	2
16	1.0	1.0	0.9						0.4	0.6	1.2	1.0	7
17				1.0	1.0	0.8	0.9	1.1	0.5	0.6	1.3	1.0	9
18									0.7	0.6	1.2	1.0	4
19	1.3	1.0	0.8	0.8	0.7	0.7	0.8	1.1	0.6	0.7	1.2	1.0	12
20									0.4	0.7	1.3	1.1	4
21											1.0	1.1	2
22											1.0	1.1	2
23											1.1	1.2	2
24											1.1	1.0	2
25											1.1	1.1	2
26											1.1	1.2	2
27											1.1	1.1	2
28											1.1	1.1	2
29											1.0	1.1	2
30											1.2	1.1	2
31											1.1	1.1	2

Monthly Cl_2 Avg.	**0.922**
Quarterly Cl_2 Avg.	**0.796**
Yearly Cl_2 Avg.	**0.892**
Total Samples	**130**

ROUTINE POSITIVE DISTRIBUTION SAMPLES Dec-13

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:				130			
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 November 2013

Flint Water Plant — NAME OF WATER SYSTEM
2310 — WSSN
Genesee — COUNTY

[redacted] — CERTIFIED OPERATOR
F-1R S-3 — CLASSIFICATION

[redacted] — SIGNATURE OF AUTHORIZED OFFICIAL

DEQ
RESOURCE MANAGEMENT DIVISION
DEC 18 2013
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** **Nov-13**

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	21.73	8.70	13.03								3	0.07	0.07
2	21.72	9.24	12.47								3	0.06	0.07
3	22.43	9.69	12.74								3	0.06	0.07
4	23.42	11.01	12.40								3	0.06	0.06
5	24.54	11.72	12.82								3	0.09	0.10
6	23.65	11.22	12.43								3	0.09	0.11
7	24.02	11.61	12.41								3	0.09	0.09
8	23.24	10.89	12.35								3	0.09	0.10
9	20.77	9.73	11.05								3	0.06	0.08
10	21.35	9.40	11.95								3	0.08	0.09
11	20.96	9.71	11.25								3	0.07	0.08
12	23.13	10.71	12.43								3	0.12	0.13
13	22.38	10.26	12.11								3	0.09	0.09
14	22.73	10.76	11.97								3	0.10	0.11
15	21.75	11.75	10.00								3	0.09	0.11
16	22.66	10.77	11.89								3	0.08	0.09
17	22.51	10.53	11.98								3	0.07	0.08
18	22.03	9.44	12.59								3	0.09	0.10
19	22.42	9.46	12.96								3	0.08	0.08
20	21.84	9.41	12.42								3	0.08	0.08
21	22.12	10.16	11.95								3	0.09	0.10
22	22.35	9.93	12.42								3	0.08	0.08
23	21.38	9.89	11.50								3	0.08	0.09
24	22.09	10.59	11.50								3	0.09	0.10
25	22.20	9.60	12.61								3	0.07	0.08
26	22.40	10.02	12.37								3	0.08	0.08
27	22.48	10.14	12.34								3	0.08	0.09
28	22.57	10.62	11.95								3	0.08	0.08
29	22.58	11.10	11.48								3	0.08	0.09
30	22.61	11.14	11.47								3	0.09	0.10
AVG	22.40	10.31	12.09								3	0.08	0.09
MAX	24.54	11.75	13.03								3	0.12	0.13
MIN	20.77	8.70	10.00								3	0.06	0.06
Total	672.01	309.20	362.82										

Flouridation & Chlorination **WSSN 2310** **Nov-13**

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			0.61					1.0	1.1	0.8	0.8			1.0	
2			0.62					1.0	1.0	0.7	0.8			0.9	
3			0.67					0.7	0.8	0.8	0.8			0.9	
4			0.67					0.9	0.9	0.8	0.8			0.9	
5			0.67					0.9	1.0	0.8	0.8			0.9	
6			0.67					0.8	1.0	0.8	0.8			0.9	
7			0.68					0.8	0.9	0.8	0.8			0.8	
8			0.67					0.9	0.9	0.7	0.8			0.9	
9			0.58					0.7	0.8	0.7	0.8			0.9	
10			0.61					0.7	0.8	0.7	0.6			0.8	
11			0.58					0.9	0.8	0.7	0.7			0.7	
12			0.61					0.7	0.9	0.7	0.7			0.8	
13			0.63					0.9	0.9	0.7	0.7			0.8	
14			0.52					0.7	0.9	0.7	0.6			0.8	
15			0.54					0.9	1.0	0.7	0.8			0.9	
16			0.53					0.7	0.8	0.7	0.7			0.8	
17			0.60					0.7	0.9	0.7	0.7			0.8	
18			0.62					0.9	0.9	0.8	0.8			0.9	
19			0.69					0.8	1.0	0.7	0.8			0.9	
20			0.59					0.8	0.9	0.8	0.7			0.9	
21			0.59					0.8	0.9	0.8	0.7			0.8	
22			0.60					0.9	1.0	0.8	0.8			1.0	
23			0.55					0.7	0.8	0.7	0.7			0.9	
24			0.56					0.7	0.9	0.7	0.7			0.8	
25			0.61					0.8	0.9	0.8	0.8			0.8	
26			0.58					0.7	1.0	0.8	0.7			0.8	
27			0.55					0.9	0.9	0.8	0.8			0.9	
28			0.50					0.7	0.9	0.8	0.8			0.9	
29			0.52					0.7	0.9	0.8	0.7			0.9	
30			0.53					0.8	0.9	0.8	0.7			0.8	
AVG			0.60					0.8	0.9	0.8	0.7			0.9	
MAX			0.69					1.0	1.1	0.8	0.8			1.0	
MIN			0.50					0.7	0.8	0.7	0.6			0.7	

Chemical Analyses **WSSN 2310** **Nov-13**

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		7.22		100		73		27				28.9		6.8		
2		7.34		98		71		27				27.3		7.3		
3		7.27		98		69		29				28.9		6.3		
4		7.23		98		72		26				28.9		6.3		
5		7.26		96		71		25				28.9		5.8		
6		7.30		96		73		23				30.5		4.9		
7		7.32		100		70		30				29.7		6.3		
8		7.35		98		70		28				28.9		6.3		
9		7.50		98		74		24				28.1		6.8		
10		7.42		96		68		28				28.9		5.8		
11		7.40		100		69		31				28.9		6.8		
12		7.36		98		74		24				28.9		6.3		
13		7.41		98		71		27				29.7		5.8		
14		7.38		100		70		30				29.7		6.3		
15		7.30		100		69		31				28.1		7.3		
16		7.32		98		68		30				30.5		5.3		
17		7.29		98		66		32				29.7		5.8		
18		7.33		98		74		24				28.9		6.3		
19		7.34		96		72		24				30.5		4.9		
20		7.43		98		71		27				29.7		5.8		
21		7.47		100		67		33				29.7		6.3		
22		7.29		98		71		27				28.9		6.3		
23		7.33		94		72		22				29.7		4.9		
24		7.40		100		71		29				29.7		6.3		
25		7.44		98		73		25				29.7		5.8		
26		7.41		98		68		30				29.7		5.8		
27		7.36		98		69		29				28.9		6.3		
28		7.29		100		73		27				28.9		6.3		
29		7.32		100		74		26				29.7		6.3		
30		7.38		98		72		26				28.9		6.3		
AVG		7.35		98		71		27				29.2		6.1		
MAX		7.50		100		74		33				30.5		7.3		
MIN		7.22		94		66		22				27.3		4.9		

Bacteriological & Physical Parameters **WSSN 2310** **Nov-13**

DATE	Total Coliform							Standard Plate Count		Wind Direction	Temp deg.C	Color		Odor	
	Plant Tap														
	B&P		Dort	3MG Well	Sta II	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					14.5				
2	1/0		2/0	2/0	2/0	2/0					14.1				
3	1/0		2/0	2/0	2/0	2/0					16.3				
4	1/0		2/0	2/0	2/0	2/0					13.5				
5	1/0		2/0	2/0	2/0	2/0					13.7				
6	1/0		2/0	2/0	2/0	2/0					13.5				
7	1/0		2/0	2/0	2/0	2/0					16.7				
8	1/0		2/0	2/0	2/0	2/0					17.0				
9	1/0		2/0	2/0	2/0	2/0					17.4				
10	1/0		2/0	2/0	2/0	2/0					17.6				
11	1/0		2/0	2/0	2/0	2/0					17.6				
12	1/0		2/0	2/0	2/0	2/0					17.7				
13	1/0		2/0	2/0	2/0	2/0					17.4				
14	1/0		2/0	2/0	2/0	2/0					18.1				
15	1/0		2/0	2/0	2/1	2/0					18.5				
16	1/0		2/0	2/0	2/0	2/0					17.2				
17	1/0		2/0	2/0	2/0	2/0					19.3				
18	1/0		2/0	2/0	2/0	2/0					18.9				
19	1/0		2/0	2/0	2/0	2/0					18.8				
20	1/0		2/0	2/0	2/0	2/0					19.1				
21	1/0		2/0	2/0	2/0	2/0					16.9				
22	1/0		2/0	2/0	2/0	2/0					18.1				
23	1/0		2/0	2/0	2/0	2/0					16.4				
24	1/0		2/0	2/0	2/0	2/0					16.9				
25	1/0		2/0	2/0	2/0	2/0					16.3				
26	1/0		2/0	2/0	2/0	2/0					15.4				
27	1/0		2/0	2/0	2/0	2/0					15.3				
28	1/0		2/0	2/0	2/0	2/0					15.6				
29	1/0		2/0	2/0	2/0	2/0					15.9				
30	1/0		2/0	2/0	2/0	2/0					15.5				
											16.6				
											19.3				
											13.5				

Distribution System Monitoring **WSSN 2310** **Nov-13**

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									0.2	0.3	1.0	1.1	4
2											0.9	1.0	2
3											0.8	0.8	2
4									0.3	0.3	0.9	0.9	4
5									0.5	0.3	0.9	1.0	4
6									0.3	0.3	1.0	1.0	4
7	0.9	0.6	0.7	0.6	0.5	0.4	0.4	0.7	0.4	0.3	0.9	0.8	12
8									0.3	0.3	0.9	0.8	4
9											0.8	0.8	2
10											0.8	0.8	2
11									0.2	0.3	0.8	0.8	4
12									0.4	0.3	0.9	0.8	4
13	0.9	0.5	0.5	0.3	0.6	0.4	0.3	0.6	0.2	0.3	0.9	0.8	12
14	0.9	0.6	0.6	0.5	0.5	0.5	0.4	0.7	0.3	0.3	0.9	0.9	12
15									0.3	0.3	1.0	0.9	4
16											0.8	0.8	2
17											0.9	0.8	2
18									0.2	0.3	0.9	0.9	4
19									0.5	0.4	1.0	1.0	4
20	0.3	0.7	0.4	0.3	0.5	0.7	0.3	0.8	0.2	0.4	0.9	0.9	12
21	0.9	0.7	0.5	0.7	0.6	0.5	0.5	0.7	0.3	0.4	0.9	0.9	12
22									0.3	0.4	1.0	1.0	4
23											0.8	0.8	2
24											0.8	0.9	2
25									0.3	0.3	0.9	0.9	4
26									0.5	0.4	1.0	0.9	4
27	0.8	0.7	0.4	0.4	0.6	0.8	0.3	0.8	0.3	0.3	0.9	0.9	12
28											0.9	0.9	2
29											0.9	0.8	2
30											0.9	0.9	2

Monthly Cl_2 Avg.	0.638
Quarterly Cl_2 Avg.	0.612
Yearly Cl_2 Avg.	0.718
Total Samples	146

Distribution System Monitoring **WSSN 2310** **Nov-13**

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									0.4	0.4	1.2	1.2	4
2											1.2	1.4	2
3											1.0	1.0	2
4									0.4	0.4	1.0	1.1	4
5									0.6	0.4	1.1	1.2	4
6									0.4	0.4	1.1	1.1	4
7	1.1	0.7	0.8	0.7	0.6	0.5	0.5	0.9	0.5	0.4	1.1	1.0	12
8									0.4	0.4	1.1	0.9	4
9											1.0	1.0	2
10											1.0	1.0	2
11									0.4	0.4	1.0	0.9	4
12									0.5	0.4	1.1	0.9	4
13	1.0	0.6	0.7	0.4	0.7	0.5	0.4	0.8	0.3	0.4	1.0	1.0	12
14	1.1	0.7	0.7	0.6	0.7	0.6	0.5	0.9	0.4	0.4	1.1	1.0	12
15									0.5	0.5	1.2	1.2	4
16											0.9	0.9	2
17											1.0	0.9	2
18									0.3	0.4	1.1	1.1	4
19									0.6	0.5	1.2	1.2	4
20	0.4	0.8	0.6	0.4	0.7	0.9	0.4	1.0	0.3	0.5	1.1	1.0	12
21	1.1	0.8	0.7	0.8	0.7	0.6	0.6	0.9	0.4	0.5	1.1	1.0	12
22									0.4	0.5	1.2	1.2	4
23											1.0	0.9	2
24											0.9	1.0	2
25									0.4	0.5	1.1	1.1	4
26									0.6	0.5	1.2	1.0	4
27	0.9	0.8	0.6	0.6	0.7	0.9	0.5	1.0	0.4	0.5	1.1	1.1	12
28											1.0	1.0	2
29											1.0	0.9	2
30											1.0	1.0	2

Monthly Cl_2 Avg.	**0.781**
Quarterly Cl_2 Avg.	**0.757**
Yearly Cl_2 Avg.	**0.886**
Total Samples	**146**

ROUTINE POSITIVE DISTRIBUTION SAMPLES Nov-13

Total number of positive routine samples:				Total Coliform: 1		Fecal Coliform:	
Date	Monitoring Station	Total Coliform	Fecal Coliform	Date	Retest of Station, Upstream & Downstream	Total Coliform	Fe Coli
11/15/2013	[redacted]	Present	Absent	11/16/2013	[redacted]	Absent	Abs
				11/16/2013		Absent	Abs
				11/16/2013		Absent	Abs
Total number of routine distribution samples analyzed:				146			
Total number of routine distribution samples required:				100			

0
cal
form
sent
sent
sent

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

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

23 IC

MONTHLY OPERATION REPORT
OF
WATER TREATMENT PLANT

For Month of October 2013

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:

DEQ
RESOURCE MANAGEMENT DIVISION
NOV 12 2013
LANSING DISTRICT

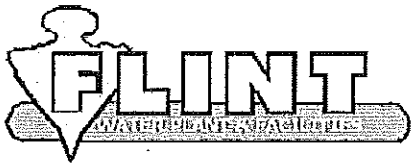
Submit to: [redacted]

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** **Oct-13**

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	24.17	11.12	13.06								3	0.16	0.21
2	23.97	10.99	12.98								3	0.11	0.14
3	24.45	11.12	13.33								3	0.13	0.15
4	25.60	13.32	12.28								3	0.13	0.14
5	25.36	12.57	12.79								3	0.13	0.13
6	27.32	12.50	14.82								3	0.18	0.20
7	26.72	12.87	13.85								3	0.14	0.15
8	27.02	13.25	13.77								3	0.13	0.15
9	28.06	13.77	14.29								3	0.12	0.15
10	26.09	13.49	12.60								3	0.12	0.14
11	25.48	12.43	13.06								3	0.13	0.14
12	24.17	11.14	13.03								3	0.11	0.12
13	24.13	9.79	14.34								3	0.10	0.10
14	22.79	10.03	12.77								3	0.11	0.11
15	23.27	9.53	13.74								3	0.10	0.11
16	22.78	9.08	13.70								3	0.08	0.09
17	24.04	11.27	12.77								3	0.09	0.10
18	23.76	11.64	12.12								3	0.11	0.11
19	23.61	11.88	11.73								3	0.10	0.11
20	22.67	11.11	11.56								0	n/a	n/a
21	23.39	10.70	12.69								3	0.12	0.13
22	21.98	10.00	11.97								3	0.10	0.11
23	22.38	10.26	12.12								3	0.10	0.10
24	23.32	10.62	12.70								3	0.11	0.13
25	22.53	9.39	13.15								3	0.11	0.13
26	20.68	9.72	10.96								3	0.07	0.08
27	20.42	8.85	11.58								3	0.07	0.08
28	21.55	9.24	12.30								3	0.07	0.07
29	22.99	9.72	13.27								3	0.08	0.09
30	22.84	10.09	12.76								3	0.09	0.11
31	21.98	8.79	13.19								3	0.10	0.12
AVG	23.85	10.98	12.88								3	0.11	0.12
MAX	28.06	13.77	14.82								3	0.18	0.21
MIN	20.42	8.79	10.96								0	0.07	0.07
Total	739.50	340.25	399.25										



Flouridation & Chlorination **WSSN 2310** **Oct-13**

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			0.64					0.7	0.8	0.7	0.7			0.8	
2			0.64					0.8	0.8	0.7	0.7			0.7	
3			0.66					0.7	0.9	0.7	0.6			0.8	
4			0.66					0.8	0.8	0.7	0.6			0.8	
5			0.71					0.8	0.8	0.7	0.7			0.8	
6			0.70					0.8	0.9	0.7	0.6			0.8	
7			0.69					0.9	0.9	0.7	0.7			0.8	
8			0.74					0.8	0.9	0.7	0.6			0.9	
9			0.75					0.9	0.9	0.7	0.7			0.8	
10			0.72					0.8	0.9	0.7	0.7			0.8	
11			0.75					0.8	0.9	0.8	0.7			0.9	
12			0.74					0.8	0.8	0.8	0.7			0.8	
13			0.63					0.8	0.9	0.7	0.7			0.8	
14			0.73					0.8	0.8	0.7	0.7			0.8	
15			0.74					0.7	0.9	0.7	0.6			0.8	
16			0.78					0.9	0.9	0.7	0.6			0.8	
17			0.79					0.8	0.9	0.7	0.6			0.9	
18			0.81					0.9	0.9	0.7	0.6			0.8	
19			0.77					0.9	0.8	0.7	0.7			0.8	
20			n.s					n.s	n.s	n.s	n.s			n.s	
21			0.73					0.9	1.0	0.7	0.7			0.9	
22			0.70					0.9	0.9	0.8	0.7			0.9	
23			0.67					0.9	1.0	0.6	0.7			0.9	
24			0.68					0.9	0.9	0.8	0.7			0.9	
25			0.70					0.8	1.0	0.7	0.7			0.9	
26			0.64					0.9	0.9	0.8	0.7			0.8	
27			0.60					0.7	0.8	0.7	0.7			0.8	
28			0.59					0.9	0.9	0.7	0.7			0.8	
29			0.66					0.8	0.9	0.7	0.6			0.8	
30			0.65					0.9	0.9	0.8	0.7			0.9	
31			0.60					0.6	0.9	0.7	0.7			0.9	
AVG			0.70					0.8	0.9	0.7	0.7			0.8	
MAX			0.81					0.9	1.0	0.8	0.7			0.9	
MIN			0.59					0.6	0.8	0.6	0.6			0.7	

n.s. = no sample collected/tested

Chemical Analyses **WSSN 2310** **Oct-13**

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		7.36		98		74		24				28.9		6.3		
2		7.51		98		71		27				28.1		6.8		
3		7.32		98		73		25				28.9		6.3		
4		7.31		100		73		27				30.5		5.8		
5		7.44		98		75		23				28.9		6.3		
6		7.37		98		71		27				28.1		6.8		
7		7.43		98		71		27				28.9		6.3		
8		7.40		98		70		28				28.9		6.3		
9		7.43		98		73		25				28.9		6.3		
10		7.43		98		71		27				28.9		6.3		
11		7.35		100		74		26				30.5		5.8		
12		7.36		100		73		27				29.7		6.3		
13		7.28		98		71		27				28.1		6.8		
14		7.34		98		70		28				28.9		6.3		
15		7.47		98		73		25				28.1		6.8		
16		7.41		100		71		29				28.9		6.8		
17		7.38		98		65		33				28.9		6.3		
18		7.34		98		68		30				28.9		6.3		
19		7.41		96		65		31				27.3		6.8		
20		n.s.		n.s.		n.s		n.s.				n.s		n.s		
21		7.46		96		68		28				29.7		5.3		
22		7.36		96		71		25				28.9		5.8		
23		7.29		96		70		26				28.9		5.8		
24		7.37		98		72		26				28.9		6.3		
25		7.31		98		71		27				28.9		6.3		
26		7.22		96		69		27				28.9		5.8		
27		7.28		98		71		27				28.9		6.3		
28		7.35		98		68		30				28.9		6.3		
29		7.36		98		70		28				28.9		6.3		
30		7.27		100		71		29				29.7		6.3		
31		7.30		98		70		28				29.7		6.3		
AVG		7.36		98		71		27				29.0		6.3		
MAX		7.51		100		75		33				30.5		6.8		
MIN		7.22		96		65		23				27.3		5.3		

n.s. = no sample collected/tested

Bacteriological & Physical Parameters **WSSN 2310** **Oct-13**

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					19.4				
2	1/0		2/0	2/0	2/0	2/0					19.4				
3	1/0		2/0	2/0	2/0	2/0					19.4				
4	1/0		2/0	2/0	2/0	2/0					20.9				
5	1/0		2/0	2/0	2/0	2/0					19.7				
6	1/0		2/0	2/0	2/0	2/0					19.6				
7	1/0		2/0	2/0	2/0	2/0					19.4				
8	1/0		2/0	2/0	2/0	2/0					19.3				
9	1/0		2/0	2/0	2/0	2/0					19.1				
10	1/0		2/0	2/0	2/0	2/0					18.2				
11	1/0		2/0	2/0	2/0	2/0					18.2				
12	1/0		2/0	2/0	2/0	2/0					18.4				
13	1/0		2/0	2/0	2/0	2/0					18.2				
14	1/0		2/0	2/0	2/0	2/0					18.8				
15	1/0		2/0	2/0	2/0	2/0					18.8				
16	1/0		2/0	2/0	2/0	2/0					18.5				
17	1/0		2/0	2/0	2/0	2/0			< 2		18.5				
18	1/0		2/0	2/0	2/0	2/0					18.5				
19	1/0		2/0	2/0	2/0	2/0					17.8				
20	0/0		0/0	0/0	0/0	0/0					n.s.				
21	1/0		2/0	2/0	2/0	2/0					17.7				
22	1/0		2/0	2/0	2/0	2/0					16.9				
23	1/0		2/0	2/0	2/0	2/0					16.7				
24	1/0		2/0	2/0	2/0	2/0					15.7				
25	1/0		2/0	2/0	2/0	2/0					14.9				
26	1/0		2/0	2/0	2/0	2/0					15.5				
27	1/0		2/0	2/0	2/0	2/0					14.8				
28	1/0		2/0	2/0	2/0	2/0					15.0				
29	1/0		2/0	2/0	2/0	2/0					15.9				
30	1/0		2/0	2/0	2/0	2/0					14.4				
31	1/0		2/0	2/0	2/0	2/0					14.8				
											17.7				
											20.9				
											14.4				

n.s. = no sample collected/tested

Distribution System Monitoring **WSSN 2310** **Oct-13**

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											0.8	0.8	2
2									0.1	0.2	0.8	0.8	4
3	0.6	0.5	0.4	0.5	0.6	0.3	0.3	0.6	0.3	0.2	0.9	0.8	12
4									0.1	0.2	0.8	0.8	4
5											0.8	0.8	2
6											0.9	0.9	2
7									0.2	0.2	0.9	0.9	4
8									0.2	0.2	0.9	0.9	4
9	0.8	0.6	0.3	0.2	0.2	0.3	0.2	0.8	0.2	0.2	0.9	0.9	12
10	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.6	0.2	0.2	0.9	0.9	12
11									0.1	0.2	0.9	0.9	4
12											0.8	0.8	2
13											0.9	0.8	2
14									0.3	0.2	0.8	0.8	4
15									0.3	0.3	0.9	0.9	4
16	0.6	0.5	0.5	0.4	0.4	0.4		0.7	0.3	0.2	0.9	0.8	11
17	0.7	0.5	0.5	0.5	0.5	0.3	0.3	0.6	0.3	0.2	0.9	0.9	12
18									0.2	0.2	0.8	0.9	4
19											0.8	0.8	2
20													0
21											1.0	1.0	2
22									0.5	0.2	0.9	0.9	4
23									0.2	0.2	1.0	0.9	4
24	0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.7	0.2	0.3	0.9	0.9	12
25									0.2	0.3	0.9	1.0	4
26											0.9	0.9	2
27											0.7	0.8	2
28									0.2	0.3	0.9	0.8	4
29									0.4	0.3	0.9	0.8	4
30									0.3	0.3	0.9	0.8	4
31	0.7	0.4	0.6	0.3	0.3	0.5	0.3	0.7	0.2	0.3	0.9	0.8	12

Monthly Cl_2 Avg.	**0.559**
Quarterly Cl_2 Avg.	**0.626**
Yearly Cl_2 Avg.	**0.717**
Total Samples	**157**

Distribution System Monitoring WSSN 2310 Oct-13

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											1.0	1.0	2
2									0.2	0.3	1.0	1.0	4
3	0.8	0.6	0.5	0.6	0.7	0.4	0.4	0.8	0.4	0.3	1.1	1.0	12
4									0.2	0.3	1.0	1.0	4
5											0.9	0.9	2
6											1.0	1.0	2
7									0.3	0.3	1.0	1.0	4
8									0.3	0.3	1.1	1.0	4
9	0.9	0.8	0.4	0.3	0.3	0.4	0.3	0.9	0.3	0.3	1.1	1.0	12
10	0.9	0.6	0.6	0.6	0.4	0.4	0.4	0.8	0.4	0.3	1.1	1.1	12
11									0.2	0.3	1.2	1.1	4
12											1.0	1.0	2
13											1.0	1.0	2
14									0.4	0.3	1.1	1.0	4
15									0.4	0.4	1.2	1.1	4
16	0.8	0.7	0.6	0.5	0.5	0.5		0.9	0.4	0.3	1.1	1.0	11
17	0.8	0.7	0.7	0.6	0.7	0.4	0.4	0.8	0.4	0.3	1.1	1.0	12
18									0.3	0.4	1.0	1.0	4
19											1.3	1.1	2
20													0
21											1.2	1.2	2
22									0.6	0.3	1.1	1.1	4
23									0.3	0.3	1.2	1.1	4
24	1.0	0.7	0.6	0.6	0.5	0.4	0.5	0.9	0.3	0.4	1.0	1.1	12
25									0.3	0.4	1.1	1.1	4
26											1.3	1.2	2
27											0.9	0.9	2
28									0.3	0.4	1.1	0.9	4
29									0.5	0.4	1.0	1.0	4
30									0.4	0.4	1.2	1.0	4
31	0.9	0.5	0.7	0.4	0.5	0.7	0.5	0.9	0.3	0.4	1.2	1.0	12

Monthly Cl_2 Avg.	**0.710**
Quarterly Cl_2 Avg.	**0.778**
Yearly Cl_2 Avg.	**0.887**
Total Samples	**157**

ROUTINE POSITIVE DISTRIBUTION SAMPLES Oct-13

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:	157
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 September 2013

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

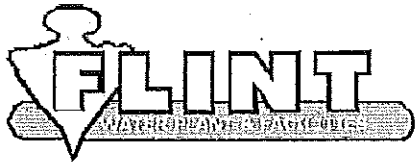
Remarks:

DEQ
RESOURCE MANAGEMENT DIVISION
OCT 14 2013
LANSING DISTRICT

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** **Sep-13**

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	22.76	12.02	10.74								3	0.12	0.13
2	24.29	13.28	11.01								3	0.11	0.11
3	25.95	12.62	13.32								3	0.15	0.19
4	27.67	13.65	14.02								3	0.14	0.17
5	28.30	14.32	13.98								3	0.19	0.25
6	27.26	13.73	13.54								3	0.13	0.20
7	27.02	14.34	12.68								1	0.19	0.19
8	25.30	15.01	10.30								3	0.13	0.13
9	25.65	13.94	11.72								3	0.12	0.14
10	29.40	14.27	15.14								3	0.17	0.18
11	26.74	13.89	12.85								3	0.20	0.22
12	25.49	12.77	12.72								3	0.13	0.17
13	25.93	13.00	12.93								3	0.11	0.12
14	24.83	12.03	12.79								3	0.11	0.12
15	23.43	13.38	10.05								3	0.10	0.11
16	25.90	13.32	12.58								3	0.10	0.12
17	28.32	12.29	16.03								3	0.18	0.21
18	26.72	12.67	14.05								3	0.12	0.13
19	26.68	12.02	14.67								3	0.08	0.09
20	26.62	12.87	13.75								3	0.10	0.13
21	27.34	13.31	14.03								2	0.10	0.13
22	26.71	13.08	13.62								3	0.13	0.16
23	25.44	11.95	13.50								3	0.09	0.10
24	25.20	11.33	13.87								3	0.12	0.15
25	25.70	11.92	13.78								3	0.11	0.12
26	26.75	13.36	13.39								3	0.11	0.12
27	27.79	13.89	13.90								3	0.12	0.14
28	27.66	14.90	12.77								3	0.12	0.14
29	26.74	14.58	12.16								3	0.14	0.15
30	25.12	12.43	12.69								3	0.14	0.18
AVG	26.29	13.20	13.08								3	0.13	0.15
MAX	29.40	15.01	16.03								3	0.20	0.25
MIN	22.76	11.33	10.05								1	0.08	0.09
Total	788.69	396.14	392.54										

Flouridation & Chlorination **WSSN 2310** **Sep-13**

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			0.64					0.8	0.9	0.8	0.7			0.8	
2			0.64					0.9	0.9	0.7	0.8			0.8	
3			0.66					0.8	0.9	0.7	0.7			0.9	
4			0.67					0.9	0.9	0.7	0.7			0.9	
5			0.63					0.6	0.9	0.7	0.7			0.9	
6			0.68					0.8	0.9	0.7	0.6			1.0	
7			0.62					n.s.	n.t.	n.t.	n.t.			n.t.	
8			0.64					0.7	0.9	0.7	0.6			0.8	
9			0.64					0.8	0.8	0.7	0.6			0.7	
10			0.65					n.s.	1.0	0.6	0.6			0.9	
11			0.66					0.9	0.9	0.7	0.6			0.8	
12			0.65					0.9	0.9	0.7	0.7			0.8	
13			0.64					1.0	0.9	0.7	0.6			0.8	
14			0.61					0.7	0.8	0.7	0.7			0.9	
15			0.69					0.7	0.9	0.7	0.6			0.8	
16			0.66					0.8	0.9	0.7	0.7			0.9	
17			0.65					0.7	0.9	0.7	0.7			0.9	
18			0.65					0.8	0.9	0.8	0.7			0.9	
19			0.71					0.7	0.9	0.6	0.7			0.9	
20			0.69					0.9	0.9	0.7	0.7			0.9	
21			0.63					0.9	1.0	0.6	0.6			0.9	
22			0.67					0.7	0.9	0.7	0.6			0.8	
23			0.69					0.9	0.8	0.7	0.7			0.8	
24			0.71					0.8	0.9	0.7	0.7			0.9	
25			0.66					0.8	0.9	0.7	0.7			0.8	
26			0.69					0.7	0.9	0.7	0.7			0.9	
27			0.72					0.7	0.9	0.7	0.6			0.9	
28			0.60					0.9	0.9	0.7	0.7			0.8	
29			0.59					0.9	1.0	0.7	0.7			0.9	
30			0.57					0.9	1.0	0.7	0.7			0.8	
AVG			0.65					0.8	0.9	0.7	0.7			0.9	
MAX			0.72					1.0	1.0	0.8	0.8			1.0	
MIN			0.57					0.6	0.8	0.6	0.6			0.7	

n.t. = not tested, n.s. = no sample collected

Chemical Analyses **WSSN 2310** **Sep-13**

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		7.22		100		72		28				28.9		6.8		
2		7.27		98		70		28				28.1		6.8		
3		7.30		98		68		30				28.1		6.3		
4		7.33		98		69		29				28.9		6.3		
5		7.34		98		69		29				28.9		6.3		
6		7.42		98		74		24				28.9		6.3		
7		n.t		100		70		30				28.9		6.8		
8		7.45		100		68		32				28.9		6.8		
9		7.43		96		70		26				28.1		6.3		
10		7.42		100		73		27				29.7		6.3		
11		7.39		98		71		27				28.9		6.3		
12		7.47		98		70		28				29.7		5.8		
13		7.29		94		69		25				28.1		5.8		
14		7.33		94		75		19				26.5		6.8		
15		7.28		98		73		25				28.9		6.3		
16		7.39		98		69		29				28.9		6.3		
17		7.45		98		69		29				28.9		6.3		
18		7.38		98		73		25				28.1		6.8		
19		7.36		98		74		24				29.7		5.8		
20		7.35		98		72		26				29.7		5.9		
21		7.45		98		73		25				29.7		5.8		
22		7.40		96		73		23				29.7		5.3		
23		7.39		98		73		25				30.5		5.3		
24		7.38		98		73		25				29.7		5.8		
25		7.44		98		67		31				28.9		6.3		
26		7.42		100		68		32				29.7		6.3		
27		7.44		98		68		30				28.9		6.3		
28		7.47		98		69		29				29.7		5.8		
29		7.31		100		72		28				29.7		6.3		
30		7.30		96		69		27				28.1		6.3		
AVG		7.37		98		71		27				29.0		6.2		
MAX		7.47		100		75		32				30.5		6.8		
MIN		7.22		94		67		19				26.5		5.3		

n.t. = not tested

Bacteriological & Physical Parameters **WSSN 2310** **Sep-13**

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					23.3				
2	1/0		2/0	2/0	2/0	2/0					21.6				
3	1/0		2/0	2/0	2/0	2/0					21.1				
4	1/0		2/0	2/0	2/0	2/0					21.9				
5	1/0		2/0	2/0	2/0	2/0					22.0				
6	1/0		2/0	2/0	2/0	2/0					21.8				
7	0/0		1/0	1/0	1/0	1/0					n.t.				
8	1/0		2/0	2/0	2/0	2/0					21.8				
9	1/0		2/0	2/0	2/0	2/0					22.2				
10	0/0		2/0	2/0	2/0	2/0					22.1				
11	1/0		2/0	2/0	2/0	2/0					22.3				
12	1/0		2/0	2/0	2/0	2/0					22.4				
13	1/0		2/0	2/0	2/0	2/0					21.4				
14	1/0		2/0	2/0	2/0	2/0					19.1				
15	1/0		2/0	2/0	2/0	2/0					21.1				
16	1/0		2/0	2/0	2/0	2/0					20.8				
17	1/0		2/0	2/0	2/0	2/0					20.1				
18	1/0		2/0	2/0	2/0	2/0					21.0				
19	1/0		2/0	2/0	2/0	2/0					20.9				
20	1/0		2/0	2/0	2/0	2/0					20.7				
21	1/0		2/0	2/0	2/0	2/0					20.3				
22	1/0		2/0	2/0	2/0	2/0					19.5				
23	1/0		2/0	2/0	2/0	2/0					19.3				
24	1/0		2/0	2/0	2/0	2/0					19.8				
25	1/0		2/0	2/0	2/0	2/0					19.6				
26	1/0		2/0	2/0	2/0	2/0					19.6				
27	1/0		2/0	2/0	2/0	2/0					19.3				
28	1/0		2/0	2/0	2/0	2/0					19.4				
29	1/0		2/0	2/0	2/0	2/0					19.7				
30	1/0		2/0	2/0	2/0	2/0					19.5				
											20.8				
											23.3				
											19.1				

n.t. = not tested

Distribution System Monitoring **WSSN 2310** **Sep-13**

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	0.8	2
2											0.8	0.9	2
3											0.9	0.9	2
4	0.7	0.6	0.5	0.5	0.3	0.5	0.5	0.8	0.3	0.3	0.9	0.8	12
5	0.7	0.6	0.4	0.5	0.2	0.3	0.4	0.6	0.3	0.3	0.9	0.9	12
6									0.2	0.3	0.9	0.9	4
7													0
8											0.9	0.9	2
9									0.3	0.2	0.8	0.8	4
10											0.9	1.0	2
11	0.7	0.6	0.5	0.2	0.2	0.5	0.2	0.7	0.1	0.2	0.9	0.8	12
12	0.8	0.6	0.4	0.2	0.3	0.4	0.3	0.6	0.2	0.3	0.9	0.8	12
13									0.3	0.2	0.9	0.9	4
14									0.3	0.3	0.8	0.8	4
15											0.9	0.9	2
16											0.9	0.9	2
17	0.6	0.6	0.3	0.3	0.3	0.4	0.2	0.7			0.9	0.9	10
18											0.8	0.9	2
19	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.6			0.9	0.9	10
20											0.9	0.9	2
21											0.9	1.0	2
22											0.8	0.9	2
23											0.8	0.8	2
24											0.9	0.8	2
25											0.9	0.9	2
26											0.9	0.9	2
27											0.9	0.9	2
28											0.9	0.8	2
29											1.0	1.0	2
30									0.2	0.2	1.0	0.9	4

Monthly Cl_2 Avg.	**0.627**
Quarterly Cl_2 Avg.	**0.671**
Yearly Cl_2 Avg.	**0.728**
Total Samples	**124**

Distribution System Monitoring **WSSN 2310** **Sep-13**

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											1.0	0.9	2
2											1.0	1.0	2
3											1.1	1.0	2
4	0.9	0.8	0.7	0.7	0.5	0.7	0.7	1.0	0.4	0.3	1.1	1.0	12
5	0.9	0.8	0.5	0.7	0.4	0.4	0.5	0.8	0.4	0.4	1.0	1.1	12
6									0.4	0.4	1.1	1.1	4
7													0
8											1.0	1.0	2
9									0.4	0.3	1.0	1.0	4
10											1.1	1.1	2
11	0.9	0.8	0.7	0.3	0.3	0.7	0.3	0.8	0.2	0.4	1.1	1.0	12
12	1.0	0.7	0.5	0.3	0.4	0.5	0.4	0.8	0.3	0.4	1.1	0.9	12
13									0.5	0.3	1.1	1.0	4
14									0.5	0.5	1.0	1.0	4
15											1.0	1.0	2
16											1.1	1.0	2
17	0.7	0.7	0.4	0.4	0.4	0.5	0.3	0.9			1.1	1.0	10
18											1.0	1.0	2
19	0.7	0.7	0.5	0.5	0.4	0.4	0.3	0.8			1.0	1.0	10
20											1.1	1.1	2
21											1.0	1.1	2
22											1.1	1.0	2
23											0.9	1.0	2
24											1.0	1.0	2
25											1.0	1.0	2
26											1.1	1.0	2
27											1.0	1.0	2
28											1.0	1.0	2
29											1.1	1.1	2
30									0.3	0.3	1.2	1.0	4

Monthly Cl_2 Avg.	**0.770**
Quarterly Cl_2 Avg.	**0.830**
Yearly Cl_2 Avg.	**0.900**
Total Samples	**124**

ROUTINE POSITIVE DISTRIBUTION SAMPLES Sept-13

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:	124
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 August 2013

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

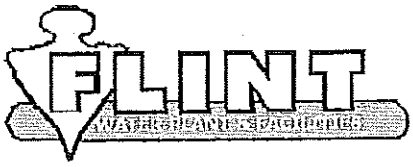
Remarks:

DEQ
RESOURCE MANAGEMENT DIVISION
SEP 17 2013
LANSING DISTRICT

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** **Aug-13**

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	27.39	13.70	13.69								3	0.13	0.13
2	27.18	13.17	14.01								3	0.13	0.13
3	26.95	13.21	13.74								3	0.11	0.13
4	26.54	13.63	12.91								1	0.17	0.17
5	26.04	13.17	12.88								3	0.10	0.12
6	25.22	12.39	12.83								3	0.12	0.13
7	25.44	12.44	13.01								3	0.12	0.12
8	24.75	11.24	13.51								3	0.12	0.15
9	24.49	11.68	12.81								3	0.09	0.10
10	24.44	12.84	11.60								3	0.11	0.11
11	24.94	12.89	12.04								3	0.12	0.14
12	25.64	13.40	12.24								3	0.12	0.14
13	26.92	13.65	13.27								3	0.17	0.18
14	26.90	13.92	12.98								3	0.14	0.15
15	26.77	13.39	13.39								3	0.16	0.19
16	27.60	14.40	13.20								3	0.14	0.16
17	27.51	15.07	12.43								3	0.14	0.15
18	27.72	15.40	12.32								3	0.14	0.15
19	27.97	14.89	13.09								3	0.15	0.17
20	28.87	15.03	13.84								3	0.14	0.15
21	30.45	16.49	13.96								3	0.14	0.16
22	29.24	17.91	11.32								3	0.16	0.18
23	30.78	17.00	13.78								3	0.16	0.17
24	30.88	17.27	13.61								3	0.14	0.15
25	30.21	18.19	12.02								3	0.15	0.15
26	28.74	15.98	12.76								3	0.15	0.18
27	29.08	13.21	15.87								3	0.17	0.20
28	26.33	12.13	14.20								3	0.15	0.17
29	27.13	13.25	13.88								3	0.12	0.13
30	27.23	13.57	13.66								3	0.14	0.15
31	26.66	13.32	13.34								3	0.14	0.16
AVG	27.29	14.12	13.17								3	0.14	0.15
MAX	30.88	18.19	15.87								3	0.17	0.20
MIN	24.44	11.24	11.32								1	0.09	0.10
Total	846.00	437.83	408.18										

Flouridation & Chlorination **WSSN 2310** **Aug-13**

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			0.63					0.8	1.0	0.7	0.7			1.0	
2			0.64					0.9	1.1	0.9	0.8			1.1	
3			0.62					0.9	1.0	0.9	0.7			0.9	
4			0.64					1.0	1.0	0.8	0.7			1.0	
5			0.64					1.0	1.0	0.9	0.8			1.0	
6			0.63					0.9	1.0	0.9	0.8			1.0	
7			0.65					0.9	1.0	0.8	0.8			0.9	
8			0.60					0.8	1.0	0.8	0.8			0.9	
9			0.64					0.9	1.0	0.9	0.9			1.0	
10			0.64					0.9	1.0	0.9	0.9			0.9	
11			0.61					0.8	0.9	0.8	0.8			0.8	
12			0.58					0.9	0.9	0.8	0.7			0.8	
13			0.61					0.7	0.8	0.8	0.7			0.8	
14			0.64					0.9	0.8	0.8	0.6			0.8	
15			0.58					0.7	0.9	0.7	0.7			0.8	
16			0.64					0.9	0.9	0.7	0.7			0.9	
17			0.59					0.7	0.9	0.8	0.8			0.9	
18			0.59					0.8	0.9	0.7	0.7			0.8	
19			0.60					0.9	0.9	0.8	0.7			0.8	
20			0.60					0.9	0.9	0.8	0.7			0.9	
21			0.61					0.9	0.9	0.8	0.7			0.7	
22			0.61					0.9	0.9	0.7	0.7			0.9	
23			0.55					0.7	1.0	0.8	0.7			1.0	
24			0.51					0.8	0.9	0.8	0.7			0.8	
25			0.55					0.8	0.9	0.8	0.7			0.7	
26			0.55					0.9	0.9	0.7	0.7			0.8	
27			0.58					0.8	0.9	0.7	0.7			0.8	
28			0.57					0.9	0.9	0.8	0.7			0.8	
29			0.57					0.7	0.9	0.7	0.7			0.8	
30			0.60					0.9	0.9	0.8	0.7			0.8	
31			0.63					0.9	0.9	0.7	0.7			0.9	
AVG			0.60					0.9	0.9	0.8	0.7			0.9	
MAX			0.65					1.0	1.1	0.9	0.9			1.1	
MIN			0.51					0.7	0.8	0.7	0.6			0.7	

Chemical Analyses **WSSN 2310** **Aug-13**

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		7.44		98		71		27				28.9		6.3		
2		7.34		98		73		25				29.7		5.8		
3		7.26		98		72		26				28.9		6.3		
4		n/a		100		75		25				28.9		6.8		
5		7.37		98		72		26				28.9		6.3		
6		7.42		96		72		24				28.1		6.3		
7		7.37		98		70		28				28.9		6.3		
8		7.28		98		71		27				28.1		6.8		
9		7.35		96		72		24				28.9		5.8		
10		7.29		96		69		27				28.1		6.3		
11		7.30		98		74		24				29.7		5.8		
12		7.28		98		69		29				28.9		6.3		
13		7.35		98		74		24				28.9		6.3		
14		7.39		100		73		27				28.9		6.8		
15		7.44		98		71		27				29.7		6.3		
16		7.44		96		73		23				28.9		5.8		
17		7.37		98		66		32				29.7		5.8		
18		7.32		98		72		26				28.9		6.3		
19		7.37		98		67		31				28.9		6.3		
20		7.35		100		74		26				28.1		7.3		
21		7.29		98		67		31				28.9		6.3		
22		7.29		98		67		31				28.1		6.8		
23		7.45		98		72		26				28.9		6.3		
24		7.29		98		74		24				28.9		6.3		
25		7.29		96		67		29				28.9		5.8		
26		7.39		100		74		26				28.9		6.8		
27		7.40		98		74		24				28.1		6.8		
28		7.37		98		70		28				28.9		6.3		
29		7.40		96		71		25				28.9		5.8		
30		7.30		98		73		25				28.9		6.3		
31		7.36		96		73		23				28.9		5.8		
AVG		7.35		98		71		26				28.8		6.3		
MAX		7.45		100		75		32				29.7		7.3		
MIN		7.26		96		66		23				28.1		5.8		

Bacteriological & Physical Parameters **WSSN 2310** **Aug-13**

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					19.8				
2	1/0		2/0	2/0	2/0	2/0					19.4				
3	1/0		2/0	2/0	2/0	2/0					20.7				
4	1/0		2/0	2/0	2/0	2/0					n/a				
5	1/0		2/0	2/0	2/0	2/0					19.8				
6	1/0		2/0	2/0	2/0	2/0					19.9				
7	1/0		2/0	2/0	2/0	2/0					20.4				
8	1/0		2/0	2/0	2/0	2/0					20.6				
9	1/0		2/0	2/0	2/0	2/0					20.2				
10	1/0		2/0	2/0	2/0	2/0					21.2				
11	1/0		2/0	2/0	2/0	2/0					20.5				
12	1/0		2/0	2/0	2/0	2/0					20.3				
13	1/0		2/0	2/0	2/0	2/0					20.3				
14	1/0		2/0	2/0	2/0	2/0			< 2		20.2				
15	1/0		2/0	2/0	2/0	2/0					20.6				
16	1/0		2/0	2/0	2/0	2/0					20.8				
17	1/0		2/0	2/0	2/0	2/0					20.8				
18	1/0		2/0	2/0	2/0	2/0					21.0				
19	1/0		2/0	2/0	2/0	2/0					20.7				
20	1/0		2/0	2/0	2/0	2/0					24.1				
21	1/0		2/0	2/0	2/0	2/0					20.9				
22	1/0		2/0	2/0	2/0	2/0					20.8				
23	1/0		2/0	2/0	2/0	2/0					20.8				
24	1/0		2/0	2/0	2/0	2/0					21.1				
25	1/0		2/0	2/0	2/0	2/0					21.0				
26	1/0		2/0	2/0	2/0	2/0					22.8				
27	1/0		2/0	2/0	2/0	2/0					21.7				
28	1/0		2/0	2/0	2/0	2/0					21.6				
29	1/0		2/0	2/0	2/0	2/0					21.3				
30	1/0		2/0	2/0	2/0	2/0					21.0				
31	1/0		2/0	2/0	2/0	2/0					21.4				
											20.9				
											24.1				
											19.4				

Distribution System Monitoring WSSN 2310 Aug-13

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	2
2											1.1	1.1	2
3											0.9	1.0	2
4											1.0	1.0	2
5											1.0	1.0	2
6									0.3	0.3	1.0	1.0	4
7	0.9	0.6	0.5	0.5	0.5	0.6	0.3	0.9	0.3	0.3	1.0	0.9	12
8	1.0	0.7	0.6	0.7	0.5	0.4	0.4	0.8	0.4	0.3	1.1	0.9	12
9									0.1	0.3	1.0	0.9	4
10											1.0	0.9	2
11											0.8	0.9	2
12									0.3	0.2	0.9	0.9	4
13											0.8	0.8	2
14	0.5	0.7	0.5	0.4	0.3	0.5	0.3	0.7	0.2	0.2	0.8	0.8	12
15	0.8	0.5	0.4	0.6	0.5	0.3	0.3	0.6	0.3	0.2	0.9	0.9	12
16									0.1	0.2	0.9	0.8	4
17											0.9	0.9	2
18											0.9	0.9	2
19									0.3	0.2	0.9	0.9	4
20									0.2	0.3	0.9	0.9	4
21	0.4	0.6	0.4	0.4	0.3	0.6	0.2	0.7	0.2	0.2	0.9	0.9	12
22									0.3	0.2	0.9	0.9	4
23											0.9	1.0	2
24											0.9	0.9	2
25											0.9	0.9	2
26									0.4	0.3	0.9	0.9	4
27											0.9	0.9	2
28	0.8	0.7	0.4	0.3	0.3	0.3	0.3	0.7	0.3	0.3	0.9	0.9	12
29	0.7	0.6	0.5	0.2	0.2	0.2	0.3	0.7	0.3	0.3	0.9	0.9	12
30									0.1	0.3	0.9	0.8	4
31											0.9	0.9	2

Monthly Cl_2 Avg.	**0.625**
Quarterly Cl_2 Avg.	**0.713**
Yearly Cl_2 Avg.	**0.724**
Total Samples	**150**

Distribution System Monitoring WSSN 2310 Aug-13

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	1.2	2
2											1.3	1.3	2
3											1.1	1.1	2
4											1.1	1.1	2
5											1.2	1.2	2
6									0.4	0.5	1.2	1.2	4
7	1.0	0.8	0.7	0.7	0.6	0.8	0.5	1.0	0.5	0.4	1.2	1.0	12
8	1.2	0.8	0.7	0.9	0.6	0.5	0.6	1.0	0.6	0.4	1.3	0.1	12
9									0.3	0.4	1.2	1.1	4
10											1.1	1.0	2
11											1.0	1.1	2
12									0.3	0.2	1.0	1.0	4
13											0.9	0.9	2
14	0.7	0.8	0.7	0.6	0.4	0.7	0.4	0.9	0.3	0.3	0.9	1.0	12
15	1.0	0.6	0.6	0.7	0.6	0.4	0.4	0.8	0.4	0.3	1.0	1.0	12
16									0.3	0.3	1.1	1.0	4
17											1.1	1.1	2
18											1.1	1.1	2
19									0.4	0.3	1.0	1.1	4
20									0.3	0.4	1.0	1.0	4
21	0.5	0.8	0.5	0.6	0.4	0.7	0.3	0.9	0.3	0.3	1.1	1.1	12
22									0.4	0.3	1.1	1.1	4
23											1.1	1.1	2
24											1.1	1.1	2
25											1.1	1.1	2
26									0.5	0.4	1.1	1.0	4
27											1.1	1.0	2
28	1.0	0.9	0.5	0.5	0.4	0.4	0.4	0.9	0.5	0.4	1.1	1.0	12
29	0.8	0.7	0.7	0.3	0.4	0.3	0.5	0.9	0.4	0.4	1.1	1.1	12
30									0.3	0.4	1.1	1.0	4
31											1.1	1.1	2

Monthly Cl_2 Avg.	**0.768**
Quarterly Cl_2 Avg.	**0.879**
Yearly Cl_2 Avg.	**0.897**
Total Samples	**150**

ROUTINE POSITIVE DISTRIBUTION SAMPLES

Aug-13

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:				150			
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

ENTERED

For Month of July 2013

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
AUG 15 2013
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** **Jul-13**

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	24.72	12.34	12.38								3	0.09	0.09
2	24.24	11.39	12.85								3	0.08	0.08
3	23.45	11.51	11.94								3	0.10	0.14
4	24.12	11.80	12.32								3	0.11	0.12
5	24.61	13.27	11.34								2	0.10	0.10
6	25.94	13.75	12.19								3	0.13	0.14
7	26.13	13.83	12.30								3	0.12	0.13
8	26.16	13.86	12.30								3	0.09	0.10
9	27.07	13.15	13.92								3	0.11	0.11
10	27.01	13.13	13.88								3	0.11	0.12
11	26.66	12.94	13.71								3	0.08	0.08
12	25.86	12.86	13.00								3	0.10	0.10
13	27.36	14.15	13.22								3	0.10	0.10
14	27.92	14.41	13.50								3	0.11	0.13
15	29.32	15.07	14.25								3	0.11	0.12
16	32.67	17.23	15.44								3	0.22	0.23
17	34.88	21.78	13.10								3	0.24	0.25
18	34.49	19.44	15.05								3	0.29	0.37
19	35.05	18.40	16.65								3	0.19	0.23
20	30.53	15.58	14.95								3	0.18	0.22
21	29.25	15.89	13.37								3	0.12	0.15
22	31.97	17.01	14.96								3	0.16	0.20
23	30.00	15.83	14.17								3	0.13	0.15
24	27.86	13.50	14.36								3	0.09	0.10
25	28.35	14.84	13.51								3	0.15	0.17
26	27.20	15.46	11.74								3	0.10	0.11
27	27.27	13.50	13.78								3	0.11	0.12
28	27.08	13.58	13.49								3	0.09	0.10
29	26.96	13.84	13.12								3	0.07	0.08
30	28.00	13.53	14.47								3	0.11	0.12
31	26.93	13.23	13.70								3	0.10	0.10
AVG	28.03	14.52	13.52								3	0.13	0.14
MAX	35.05	21.78	16.65								3	0.29	0.37
MIN	23.45	11.39	11.34								2	0.07	0.08
Total	869.05	450.08	418.97										

Flouridation & Chlorination **WSSN 2310** **Jul-13**

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			0.60					0.7	0.8	0.7	0.6			0.80	
2			0.59					0.7	0.8	0.7	0.7			0.80	
3			0.62					0.7	0.8	0.6	0.6			0.70	
4			0.58					0.7	0.7	0.6	0.6			0.70	
5			0.61					0.6	0.7	0.5	0.5			0.80	
6			0.60					0.6	0.6	0.5	0.5			0.60	
7			0.59					0.7	0.8	0.6	0.5			0.70	
8			0.66					0.7	0.9	0.5	0.6			0.80	
9			0.64					0.8	0.9	0.6	0.5			0.80	
10			0.65					0.8	0.9	0.6	0.6			0.90	
11			0.62					0.9	0.8	0.6	0.7			0.80	
12			0.65					0.8	0.8	0.8	0.7			0.90	
13			0.62					0.9	0.9	0.7	0.7			0.80	
14			0.61					0.8	0.9	0.7	0.7			0.80	
15			0.60					0.8	0.9	0.7	0.7			0.80	
16			0.62					0.8	0.9	0.7	0.7			0.90	
17			0.63					0.9	0.9	0.7	0.6			0.90	
18			0.62					0.7	1.0	0.8	0.7			1.00	
19			0.62					0.9	1.0	0.8	0.8			1.00	
20			0.59					0.8	1.0	0.8	0.8			0.90	
21			0.61					0.9	1.0	0.8	0.8			0.90	
22			0.59					1.0	1.1	0.8	0.8			1.10	
23			0.63					0.8	1.1	0.8	0.8			1.00	
24			0.63					0.9	0.9	0.9	0.9			0.90	
25			0.66					0.8	0.9	0.8	0.8			0.80	
26			0.63					0.9	0.9	0.8	0.8			0.90	
27			0.62					0.8	0.9	0.8	0.8			0.90	
28			0.66					0.7	0.9	0.7	0.7			1.00	
29			0.64					0.8	0.9	0.7	0.7			0.90	
30			0.65					0.9	0.9	0.8	0.7			0.90	
31			0.62					0.9	0.9	0.8	0.7			0.90	
AVG			0.62					0.8	0.9	0.7	0.7			0.9	
MAX			0.66					1.0	1.1	0.9	0.9			1.1	
MIN			0.58					0.6	0.6	0.5	0.5			0.6	

Chemical Analyses **WSSN 2310** **Jul-13**

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		100		70		30				29.7		6.3		
2		7.38		98		72		26				29.4		5.8		
3		7.36		98		72		26				28.9		6.3		
4		7.32		98		73		25				28.9		6.3		
5		7.39		106		69		37				27.3		9.2		
6		7.42		98		70		28				27.3		7.3		
7		7.42		98		71		27				28.9		6.3		
8		7.32		96		71		25				28.9		5.8		
9		7.41		100		71		29				28.9		6.8		
10		7.38		98		72		26				28.1		6.8		
11		7.45		98		70		28				28.9		6.3		
12		7.39		96		72		24				28.9		5.8		
13		7.44		96		72		24				28.9		5.8		
14		7.42		98		73		25				30.5		5.3		
15		7.36		96		70		26				28.9		5.8		
16		7.40		96		71		25				28.9		5.8		
17		7.37		100		69		31				28.9		6.8		
18		7.44		98		73		25				28.9		6.3		
19		7.37		100		71		29				28.1		7.3		
20		7.40		98		71		27				28.9		6.3		
21		7.42		98		74		24				28.9		6.3		
22		7.39		100		68		32				28.9		6.8		
23		7.40		98		71		27				28.9		6.3		
24		7.42		100		72		28				29.7		6.3		
25		7.45		96		74		22				28.9		5.8		
26		7.43		96		69		27				32.1		3.9		
27		7.38		98		70		28				29.7		5.8		
28		7.30		98		71		27				28.9		6.3		
29		7.58		100		73		27				28.9		6.8		
30		7.41		100		69		31				29.7		6.3		
31		7.37		98		70		28				28.9		6.3		
AVG		7.40		98		71		27				29.0		6.3		
MAX		7.58		106		74		37				32.1		9.2		
MIN		7.30		96		68		22				27.3		3.9		

Bacteriological & Physical Parameters **WSSN 2310** **Jul-13**

DATE	Total Coliform Plant Tap							Standard Plate Count		Wind Direction	Temp deg.C	Color		Odor	
	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					17.7				
2	1/0		2/0	2/0	2/0	2/0					17.9				
3	1/0		2/0	2/0	2/0	2/0					17.8				
4	1/0		2/0	2/0	2/0	2/0					18.7				
5	1/0		2/0	2/0	2/0	2/0					19.0				
6	1/0		2/0	2/0	2/0	2/0					19.4				
7	1/0		2/0	2/0	2/0	2/0					19.8				
8	1/0		2/0	2/0	2/0	2/0					20.3				
9	1/0		2/0	2/0	2/0	2/0					19.7				
10	1/0		2/0	2/0	2/0	2/0					21.1				
11	1/0		2/0	2/0	2/0	2/0					20.6				
12	1/0		2/0	2/0	2/0	2/0					20.5				
13	1/0		2/0	2/0	2/0	2/0					19.8				
14	1/0		2/0	2/0	2/0	2/0					20.3				
15	1/0		2/0	2/0	2/0	2/0					21.6				
16	1/0		2/0	2/0	2/0	2/0					22.3				
17	1/0		2/0	2/0	2/0	2/0					22.9				
18	1/0		2/0	2/0	2/0	2/0					23.2				
19	1/0		2/0	2/0	2/0	2/0					22.8				
20	1/0		2/0	2/0	2/0	2/0					21.2				
21	1/0		2/0	2/0	2/0	2/0					22.1				
22	1/0		2/0	2/0	2/0	2/0					21.7				
23	1/0		2/0	2/0	2/0	2/0					20.9				
24	1/0		2/0	2/0	2/0	2/0					21.1				
25	1/0		2/0	2/0	2/0	2/0					20.2				
26	1/0		2/0	2/0	2/0	2/0					19.9				
27	1/0		2/0	2/0	2/0	2/0					20.8				
28	1/0		2/0	2/0	2/0	2/0					20.5				
29	1/0		2/0	2/0	2/0	2/0			<2		20.4				
30	1/0		2/0	2/0	2/0	2/0					20.4				
31	1/0		2/0	2/0	2/0	2/0					20.6				
											20.5				
											23.2				
											17.7				

Distribution System Monitoring WSSN 2310 Jul-13

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									0.5	0.4	0.8	0.8	4
2	0.7	0.5	0.4	0.5	0.4	0.3	0.4	0.6	0.3	0.4	0.8	0.8	12
3	0.7	0.6	0.6	0.5	0.5		0.1	0.5	0.3	0.4	0.8	0.8	11
4											0.7	0.7	2
5											0.7	0.6	2
6											0.6	0.5	2
7											0.8	0.8	2
8											0.8	0.9	2
9	0.5	0.4	0.4	0.4	0.5	0.4	0.6	0.6			0.9	0.9	10
10									0.4	0.4	0.9	0.8	4
11											0.8	0.8	2
12	0.7	0.6	0.5	0.5	0.5	0.6	0.4	0.9			0.8	0.8	10
13											0.8	0.9	2
14											0.8	0.9	2
15											0.8	0.9	2
16	0.8	0.6	0.5	0.5	0.4	0.5	0.3	0.8			0.8	0.9	10
17											0.9	0.9	2
18									0.4	0.4	1.0	0.9	4
19									0.3	0.3	1.0	1.0	4
20											1.0	1.0	2
21											1.0	1.0	2
22											1.1	1.0	2
23	0.9	1.0	0.9	0.7	0.6	0.8	0.4	1.0			1.1	1.0	10
24											0.9	0.9	2
25	0.7	0.8	0.6	0.6	0.6		0.5	0.9			0.9	0.9	9
26											0.8	0.9	2
27											0.9	0.9	2
28											0.9	0.9	2
29											0.9	0.9	2
30											0.9	0.9	2
31									0.3	0.3	0.9	0.9	4

Monthly Cl_2 Avg.	**0.692**
Quarterly Cl_2 Avg.	**0.781**
Yearly Cl_2 Avg.	**0.719**
Total Samples	**130**

Distribution System Monitoring WSSN 2310 Jul-13

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									0.6	0.6	1.0	1.0	4
2	0.9	0.7	0.6	0.7	0.5	0.4	0.5	0.7	0.4	0.5	1.0	1.0	12
3	0.9	0.7	0.8	0.7	0.6		0.3	0.7	0.4	0.5	1.0	1.0	11
4											0.9	0.9	2
5											0.9	0.8	2
6											0.8	0.7	2
7											0.9	0.9	2
8											0.9	1.0	2
9	0.7	0.6	0.6	0.5	0.6	0.5	0.7	0.8			1.0	1.0	10
10									0.6	0.5	1.0	1.0	4
11	0.8	0.7	0.7	0.7	0.7	0.8	0.5	1.0			1.0	1.0	10
12											1.0	1.1	2
13											1.0	1.0	2
14											1.0	1.1	2
15											1.0	1.0	2
16	1.0	0.9	0.7	0.7	0.6	0.7	0.5	1.0			1.0	1.1	10
17											1.1	1.1	2
18									0.6	0.6	1.2	1.1	4
19									0.5	0.5	1.1	1.2	4
20											1.2	1.2	2
21											1.2	1.2	2
22	1.1	1.2	1.0	0.9	0.7	1.0	0.6	1.1			1.3	1.4	10
23											1.2	1.1	2
24											1.1	1.1	2
25	0.8	1.0	0.8	0.8	0.7		0.7	1.0			1.1	1.1	9
26											1.0	1.1	2
27											1.1	1.1	2
28											1.1	1.1	2
29											1.1	1.1	2
30											1.1	1.1	2
31									0.5	0.4	1.1	1.1	4

Monthly Cl_2 Avg.	**0.865**
Quarterly Cl_2 Avg.	**0.958**
Yearly Cl_2 Avg.	**0.894**
Total Samples	**130**

FLINT
WATER PLANT & FACILITIES

ROUTINE POSITIVE DISTRIBUTION SAMPLES Jul-13

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:				130			
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

ENTERED

For Month of June 2013

Flint Water Plant — NAME OF WATER SYSTEM
2310 — WSSN
Genesee — COUNTY

[redacted] — CERTIFIED OPERATOR

F-1R S-3 — CLASSIFICATION

[redacted] — SIGNATURE OF AUTHORIZED OFFICIAL

DEQ
RESOURCE MANAGEMENT DIVISION
JUL 1 2013
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.

Coagulation Parameters **WSSN 2310** **Jun-13**

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	24.01	11.14	12.86								3	0.06	0.07
2	24.36	12.04	12.32								3	0.07	0.08
3	25.34	12.16	13.19								3	0.07	0.09
4	24.75	11.45	13.30								3	0.07	0.07
5	25.11	12.68	12.43								3	0.07	0.07
6	24.49	11.58	12.91								3	0.07	0.08
7	26.23	14.26	11.97								3	0.08	0.09
8	28.54	16.50	12.04								3	0.07	0.08
9	28.24	16.39	11.85								3	0.13	0.17
10	27.15	14.45	12.70								3	0.12	0.13
11	25.28	12.15	13.13								3	0.08	0.08
12	25.49	11.63	13.86								3	0.08	0.09
13	25.08	12.25	12.84								3	0.08	0.09
14	25.10	12.67	12.43								3	0.08	0.09
15	25.69	12.35	13.34								3	0.08	0.08
16	25.20	11.84	13.37								3	0.11	0.12
17	25.81	13.64	12.17								3	0.09	0.10
18	25.82	12.86	12.96								3	0.09	0.10
19	23.71	10.99	12.71								3	0.09	0.09
20	25.50	12.38	13.12								3	0.09	0.10
21	25.50	12.55	12.95								3	0.11	0.12
22	26.65	14.96	11.68								3	0.14	0.14
23	28.73	16.63	12.10								3	0.13	0.14
24	29.48	15.64	13.85								3	0.16	0.19
25	28.90	15.52	13.38								3	0.12	0.13
26	28.13	15.06	13.07								3	0.10	0.10
27	29.27	15.68	13.59								3	0.09	0.11
28	29.26	16.65	12.61								3	0.08	0.10
29	28.50	16.77	11.73								3	0.08	0.09
30	29.00	16.63	12.37								3	0.07	0.08
AVG	26.48	13.72	12.76								3	0.09	0.10
MAX	29.48	16.77	13.86								3	0.16	0.19
MIN	23.71	10.99	11.68								3	0.06	0.07
Total	794.28	411.46	382.82										

Flouridation & Chlorination **WSSN 2310** **Jun-13**

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			0.55					0.7	0.9	0.7	0.8			0.8	
2			0.50					0.8	0.9	0.8	0.7			0.9	
3			0.55					0.9	1.1	0.9	0.8			0.9	
4			0.55					0.9	1.0	0.8	0.8			1.0	
5			0.52					0.9	1.0	0.9	0.8			1.0	
6			0.48					0.8	1.0	0.8	0.7			0.8	
7			0.54					0.9	1.0	0.9	0.9			1.0	
8			0.56					0.9	0.9	0.9	0.9			0.9	
9			0.54					0.7	1.0	0.9	0.8			0.9	
10			0.55					0.8	1.0	0.8	0.8			0.9	
11			0.54					0.8	1.0	0.9	0.8			0.8	
12			0.58					0.8	0.9	0.8	0.8			0.8	
13			0.55					0.7	0.9	0.8	0.8			0.8	
14			0.56					0.8	0.8	0.8	0.7			0.8	
15			0.55					0.9	1.0	0.7	0.7			1.0	
16			0.56					0.8	0.9	0.9	0.8			1.0	
17			0.54					0.8	0.9	0.8	0.7			0.8	
18			0.55					0.8	0.9	0.8	0.8			0.8	
19			0.57					0.9	0.9	0.8	0.7			0.8	
20			0.57					0.7	0.9	0.8	0.7			0.8	
21			0.60					0.7	0.8	0.7	0.7			0.8	
22			0.61					0.9	0.8	0.7	0.7			0.8	
23			0.60					0.7	0.8	0.7	0.6			0.8	
24			0.58					0.8	0.9	0.7	0.7			0.8	
25			0.55					0.7	0.8	0.6	0.5			0.8	
26			0.60					0.8	0.9	0.6	0.5			0.8	
27			0.53					0.9	0.9	0.7	0.6			0.9	
28			0.57					0.7	0.9	0.7	0.7			0.9	
29			0.61					0.8	0.8	0.7	0.7			0.8	
30			0.59					0.8	0.8	0.7	0.7			0.7	
AVG			0.56					0.8	0.9	0.8	0.7			0.9	
MAX			0.61					0.9	1.1	0.9	0.9			1.0	
MIN			0.48					0.7	0.8	0.6	0.5			0.7	

Chemical Analyses **WSSN 2310** **Jun-13**

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		7.22		98		73		25				28.1		6.8		
2		7.36		96		71		25				28.1		6.3		
3		7.34		96		70		26				28.1		6.8		
4		7.34		98		73		25				29.7		5.8		
5		7.39		96		72		24				32.9		3.4		
6		7.50		98		68		30				29.7		5.8		
7		7.33		98		68		30				32.1		4.4		
8		7.40		98		66		32				30.5		5.3		
9		7.24		98		69		29				28.9		6.3		
10		7.36		98		69		29				28.9		6.3		
11		7.42		98		71		27				28.9		6.3		
12		7.50		98		72		26				29.7		5.8		
13		7.38		98		72		26				29.7		5.8		
14		7.35		98		72		26				26.5		7.8		
15		7.38		96		72		24				27.3		5.3		
16		7.43		102		72		30				32.1		5.3		
17		7.42		98		72		26				28.9		6.3		
18		7.43		98		69		29				28.9		6.3		
19		7.37		98		72		26				28.9		6.3		
20		7.45		98		72		26				29.7		5.8		
21		7.35		96		74		22				29.7		5.3		
22		7.41		100		73		27				29.7		6.3		
23		7.39		98		70		28				28.9		6.3		
24		7.40		98		69		29				28.9		6.3		
25		7.36		98		74		24				28.9		6.3		
26		7.49		98		74		24				28.9		6.3		
27		7.38		98		73		25				28.9		6.3		
28		7.32		98		69		29				28.9		6.3		
29		7.34		98		74		24				29.7		5.8		
30		7.38		98		70		28				28.9		6.3		
AVG		7.38		98		71		27				29.3		6.0		
MAX		7.50		102		74		32				32.9		7.8		
MIN		7.22		96		66		22				26.5		3.4		

Bacteriological & Physical Parameters **WSSN 2310** **Jun-13**

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					14.6				
2	1/0		2/0	2/0	2/0	2/0					14.0				
3	1/0		2/0	2/0	2/0	2/0					13.4				
4	1/0		2/0	2/0	2/0	2/0					13.4				
5	1/0		2/0	2/0	2/0	2/0					12.8				
6	1/0		2/0	2/0	2/0	2/0			< 2		13.6				
7	1/0		2/0	2/0	2/0	2/0					14.0				
8	1/0		2/0	2/0	2/0	2/0					14.5				
9	1/0		2/0	2/0	2/0	2/0					14.6				
10	1/0		2/0	2/0	2/0	2/0					15.5				
11	1/0		2/0	2/0	2/0	2/0					16.2				
12	1/0		2/0	2/0	2/0	2/0					16.3				
13	1/0		2/0	2/0	2/0	2/0					16.2				
14	1/0		2/0	2/0	2/0	2/0					15.7				
15	1/0		2/0	2/0	2/0	2/0					15.5				
16	1/0		2/0	2/0	2/0	2/0					16.9				
17	1/0		2/0	2/0	2/0	2/0					16.1				
18	1/0		2/0	2/0	2/0	2/0					17.0				
19	1/0		2/0	2/0	2/0	2/0					15.9				
20	1/0		2/0	2/0	2/0	2/0					16.3				
21	1/0		2/0	2/0	2/0	2/0					17.7				
22	1/0		2/0	2/0	2/0	2/0					17.3				
23	1/0		2/0	2/0	2/0	2/0					18.2				
24	1/0		2/0	2/0	2/0	2/0					18.6				
25	1/0		2/0	2/0	2/0	2/0					18.4				
26	1/0		2/0	2/0	2/0	2/0					18.2				
27	1/0		2/0	2/0	2/0	2/0					18.4				
28	1/0		2/0	2/0	2/0	2/0					18.5				
29	1/0		2/0	2/0	2/0	2/0					18.3				
30	1/0		2/0	2/0	2/0	2/0					17.2				
											16.1				
											18.6				
											12.8				

Distribution System Monitoring **WSSN 2310** **Jun-13**

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									0.6	0.6	1.1	1.0	4
4											1.0	1.0	2
5	0.9	0.6	0.7	0.7	0.6	0.7	0.5	0.8	0.4	0.5	1.1	0.9	12
6	0.9	0.8	0.7	0.8	0.7	0.5	0.4	0.7	0.5	0.5	1.0	0.9	12
7											1.0	1.0	2
8											0.9	0.9	2
9											1.0	0.9	2
10									0.5	0.5	1.0	0.9	4
11											1.0	0.9	2
12	0.9	0.7	0.5	0.7	0.5	0.7	0.4	0.8	0.5	0.5	0.9	0.9	12
13											0.9	0.9	2
14											0.7	0.8	2
15											0.9	1.0	2
16											0.9	0.9	2
17									0.5	0.5	0.9	0.9	4
18											0.9	0.9	2
19	0.8	0.6	0.7	0.7	0.6	0.5	0.3	0.8	0.4	0.5	0.8	0.9	12
20									0.5	0.6	0.9	0.8	4
21											0.8	0.8	2
22											0.8	0.7	2
23											0.8	0.8	2
24									0.4	0.5	0.9	0.9	4
25											0.8	0.8	2
26	0.7	0.4	0.5	0.6	0.4	0.4	0.4	0.7	0.4	0.4	0.9	0.9	12
27											0.9	0.9	2
28											0.9	0.9	2
29											0.8	0.8	2
30											0.8	0.8	2

Monthly Cl_2 Avg.	**0.739**
Quarterly Cl_2 Avg.	**0.824**
Yearly Cl_2 Avg.	**0.714**
Total Samples	**120**

Distribution System Monitoring **WSSN 2310** **Jun-13**

DATE	Total Chlorine Residual at Bacteriological Monitoring 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	1.0	2
2											1.1	1.1	2
3									0.8	0.8	1.2	1.2	4
4											1.2	1.2	2
5	1.0	0.8	0.9	0.9	0.8	0.9	0.7	1.0	0.6	0.7	1.2	1.0	12
6	1.2	1.0	0.9	0.9	0.9	0.7	0.5	1.0	0.6	0.7	1.2	1.0	12
7											1.1	1.2	2
8											1.1	1.1	2
9											1.2	1.1	2
10									0.7	0.7	1.2	1.1	4
11											1.2	1.0	2
12	1.0	0.9	0.7	0.9	0.7	0.9	0.6	0.9	0.7	0.7	1.2	1.0	12
13											1.0	1.0	2
14											0.9	1.0	2
15											1.2	1.3	2
16											1.1	1.1	2
17									0.7	0.7	1.1	1.1	4
18											1.0	1.1	2
19	1.0	0.7	0.9	0.9	0.8	0.7	0.5	0.9	0.5	0.7	1.0	1.1	12
20									0.7	0.8	1.0	1.0	4
21											1.0	0.9	2
22											0.9	0.9	2
23											0.9	0.9	2
24									0.6	0.6	1.0	1.0	4
25											1.0	0.9	2
26	0.9	0.6	0.8	0.8	0.6	0.6	0.5	0.9	0.6	0.6	1.1	1.1	12
27											1.1	1.1	2
28											1.1	1.0	2
29											1.0	0.9	2
30											1.0	1.0	2

Monthly Cl_2 Avg.	**0.918**
Quarterly Cl_2 Avg.	**1.004**
Yearly Cl_2 Avg.	**0.888**
Total Samples	**120**

ROUTINE POSITIVE DISTRIBUTION SAMPLES

Jun-13

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:				120			
Total number of routine distribution samples required:				100			

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

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

231c

MONTHLY OPERATION REPORT
OF
WATER TREATMENT PLANT

ENTERED

For Month of May 2013

Flint Water Plant — NAME OF WATER SYSTEM

2310 — WSSN

Genesee — COUNTY

RESOURCE MANAGEMENT DIVISION

[redacted] — CERTIFIED OPERATOR

JUN 07 2013

F-1R S-3 — CLASSIFICATION

[redacted] — SIGNATURE OF APPROPRIATE OFFICIAL

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

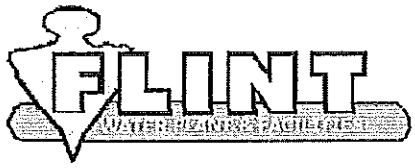
7. Chlorine on hand _____ lbs.: Estimated supply _____ days
8. Lime (CaO) on hand _____ lbs.: Estimated supply _____ days
9. Alum (Al3+) on hand _____ lbs.: Estimated supply _____ days
10. Cost of All Chemicals per Million Gallons _____
11. Total Power Cost per Million Gallons _____

Remarks:

Submit to: [redacted]

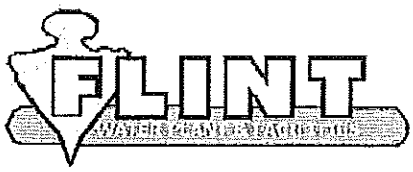
Failure to complete this form is a violation of Act 399, P.A. 1976 and is subject to penalties as outlined in the Act.

[redacted]



Coagulation Parameters **WSSN 2310** **May-13**

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	22.89	9.40	13.48								3	0.06	0.07
2	24.21	10.02	14.18								3	0.07	0.07
3	24.65	10.54	14.11								3	0.07	0.07
4	22.91	10.16	12.75								3	0.08	0.08
5	23.36	10.46	12.89								3	0.07	0.08
6	25.31	10.80	14.51								3	0.08	0.09
7	24.29	10.26	14.03								3	0.08	0.10
8	24.90	10.77	14.14								3	0.07	0.08
9	25.06	10.63	14.43								3	0.07	0.08
10	25.00	11.34	13.67								3	0.07	0.07
11	24.63	11.66	12.98								3	0.07	0.07
12	24.32	11.99	12.33								3	0.06	0.07
13	24.63	11.25	13.38								3	0.07	0.07
14	24.80	10.56	14.24								3	0.07	0.08
15	25.27	10.71	14.56								3	0.09	0.10
16	25.49	11.62	13.87								3	0.10	0.11
17	25.15	11.65	13.50								3	0.12	0.13
18	24.88	11.98	12.90								3	0.08	0.08
19	23.64	11.06	12.58								3	0.07	0.09
20	27.74	14.04	13.70								3	0.09	0.10
21	24.12	9.15	14.97								3	0.18	0.20
22	26.49	13.14	13.34								3	0.14	0.15
23	24.70	11.94	12.76								3	0.11	0.13
24	24.22	10.72	13.50								3	0.08	0.10
25	23.98	11.54	12.44								3	0.06	0.09
26	22.84	11.27	11.57								3	0.06	0.07
27	23.67	11.70	11.97								3	0.07	0.08
28	25.30	11.47	13.83								3	0.06	0.09
29	25.88	12.54	13.34								3	0.07	0.07
30	26.03	12.98	13.05								3	0.07	0.09
31	25.50	12.23	13.27								3	0.07	0.08
AVG	24.70	11.28	13.43								3	0.08	0.09
MAX	27.74	14.04	14.97								3	0.18	0.20
MIN	22.84	9.15	11.57								3	0.06	0.07
Total	765.83	349.56	416.28										



Flouridation & Chlorination **WSSN 2310** **May-13**

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			0.57					0.9	1.0	0.9	0.9			0.9	
2			0.54					0.7	1.0	1.0	0.9			0.9	
3			0.56					0.9	1.0	0.9	0.9			1.0	
4			0.58					0.9	0.9	0.7	0.7			1.0	
5			0.56					0.7	0.9	0.9	0.9			0.9	
6			0.63					0.9	1.0	0.9	0.9			1.0	
7			0.54					0.7	1.0	0.8	0.8			0.8	
8			0.56					1.0	1.0	0.9	0.8			0.9	
9			0.51					0.8	1.0	0.8	0.8			0.9	
10			0.54					0.9	1.0	0.9	0.9			1.0	
11			0.52					0.9	1.0	0.9	0.9			1.0	
12			0.51					0.7	0.9	0.9	0.8			0.9	
13			0.50					0.8	1.0	0.9	0.8			0.9	
14			0.50					0.7	1.0	0.8	0.7			0.9	
15			0.50					0.9	0.9	0.8	0.7			0.9	
16			0.54					0.8	1.0	0.8	0.7			0.8	
17			0.55					0.8	1.0	0.8	0.8			0.9	
18			0.55					0.9	0.9	0.9	0.8			0.9	
19			0.52					0.8	0.9	0.8	0.7			0.9	
20			0.56					0.8	1.0	0.8	0.7			0.9	
21			0.62					0.8	0.9	0.7	0.8			0.9	
22			0.57					0.8	1.0	0.9	0.7			0.9	
23			0.58					0.9	1.0	0.9	0.7			0.8	
24			0.57					0.9	0.9	0.8	0.8			0.9	
25			0.54					0.8	0.9	0.8	0.7			1.0	
26			0.57					0.8	0.9	0.9	0.8			0.9	
27			0.55					0.7	1.0	0.9	0.9			0.8	
28			0.54					0.8	1.0	0.9	0.8			0.9	
29			0.52					0.9	1.0	0.8	0.8			0.9	
30			0.54					0.7	1.0	0.9	0.8			0.8	
31			0.59					0.9	0.9	0.9	0.8			1.0	
AVG			0.55					0.8	1.0	0.9	0.8			0.9	
MAX			0.63					1.0	1.0	1.0	0.9			1.0	
MIN			0.50					0.7	0.9	0.7	0.7			0.8	

Chemical Analyses **WSSN 2310** **May-13**

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		7.23		98		69		29				29.7		5.8		
2		7.32		98		71		27				28.9		6.3		
3		7.30		98		71		27				29.7		5.8		
4		7.21		98		73		25				27.3		7.3		
5		7.28		98		71		27				29.7		5.8		
6		7.36		96		65		31				31.3		4.4		
7		7.33		98		71		27				29.7		5.8		
8		7.50		98		73		25				29.7		5.8		
9		7.43		98		71		27				28.9		6.3		
10		7.38		98		67		31				31.3		4.9		
11		7.31		96		73		23				31.3		4.4		
12		7.34		98		71		27				28.1		6.8		
13		7.44		98		66		32				29.7		5.8		
14		7.30		98		70		28				29.7		5.8		
15		7.38		98		72		26				28.9		6.3		
16		7.37		98		72		26				29.7		5.8		
17		7.40		98		73		25				30.5		4.9		
18		7.32		98		72		26				31.3		4.9		
19		7.22		98		72		26				28.9		6.3		
20		7.37		98		69		29				29.7		5.8		
21		7.37		96		68		28				28.9		5.8		
22		7.39		98		71		27				29.7		5.8		
23		7.41		98		72		26				28.9		6.3		
24		7.38		96		68		28				31.3		4.4		
25		7.30		96		70		26				29.7		5.3		
26		7.25		96		66		30				29.7		5.3		
27		7.38		98		71		27				29.7		5.8		
28		7.29		98		74		24				29.7		5.8		
29		7.30		96		67		29				28.9		5.8		
30		7.29		98		73		25				29.7		5.8		
31		7.30		100		68		32				30.5		5.8		
AVG		7.34		98		70		27				29.7		5.7		
MAX		7.50		100		74		32				31.3		7.3		
MIN		7.21		96		65		23				27.3		4.4		

Bacteriological & Physical Parameters **WSSN 2310** **May-13**

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					12.1				
2	1/0		2/0	2/0	2/0	2/0					11.7				
3	1/0		2/0	2/0	2/0	2/0					12.2				
4	1/0		2/0	2/0	2/0	2/0					11.0				
5	1/0		2/0	2/0	2/0	2/0					10.9				
6	1/0		2/0	2/0	2/0	2/0					11.8				
7	1/0		2/0	2/0	2/0	2/0					11.4				
8	1/0		2/0	2/0	2/0	2/0					12.5				
9	1/0		2/0	2/0	2/0	2/0			< 2		12.2				
10	1/0		2/0	2/0	2/0	2/0					13.0				
11	1/0		2/0	2/0	2/0	2/0					12.2				
12	1/0		2/0	2/0	2/0	2/0					11.5				
13	1/0		2/0	2/0	2/0	2/0					10.8				
14	1/0		2/0	2/0	2/0	2/0					11.1				
15	1/0		2/0	2/0	2/0	2/0					12.4				
16	1/0		2/0	2/0	2/0	2/0					12.2				
17	1/0		2/0	2/0	2/0	2/0					13.5				
18	1/0		2/0	2/0	2/0	2/0					12.6				
19	1/0		2/0	2/0	2/0	2/0					12.3				
20	1/0		2/0	2/0	2/0	2/0					12.5				
21	1/0		2/0	2/0	2/0	2/0					13.1				
22	1/0		2/0	2/0	2/0	2/0					14.3				
23	1/0		2/0	2/0	2/0	2/0					13.0				
24	1/0		2/0	2/0	2/0	2/0					12.5				
25	1/0		2/0	2/0	2/0	2/0					12.8				
26	1/0		2/0	2/0	2/0	2/0					11.9				
27	1/0		2/0	2/0	2/0	2/0					12.1				
28	1/0		2/0	2/0	2/0	2/0					13.3				
29	1/0		2/0	2/0	2/0	2/0					12.6				
30	1/0		2/0	2/0	2/0	2/0					14.6				
31	1/0		2/0	2/0	2/0	2/0					14.5				
											12.4				
											14.6				
											10.8				

Distribution System Monitoring WSSN 2310 May-13

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	0.6	0.8	0.7	0.8	0.8	1.0	0.8	0.6	0.7	1.0	0.9	12
2	1.1	0.7	0.8	0.9	0.7	0.6	0.7	0.8	0.6	0.7	1.0	1.0	12
3									0.6	0.7	1.0	1.0	4
4											0.9	0.9	2
5											0.9	0.9	2
6									0.7	0.7	1.0	1.0	4
7											1.0	0.9	2
8	0.9	0.9	0.9	0.9	0.7	0.7	0.8	0.8	0.5	0.7	1.0	0.9	12
9	0.9	0.8	0.7	0.9	0.5	0.5	0.6	0.7	0.7	0.6	1.0	0.9	12
10									0.5	0.6	1.0	1.0	4
11											1.0	1.0	2
12											0.9	0.9	2
13									0.6	0.6	1.0	0.9	4
14											1.0	0.9	2
15	0.9	0.9	1.0	0.9	0.8		0.7	0.9	0.5	0.6	0.9	0.9	11
16	1.0	0.8	0.8	0.8	0.7	0.5	0.7	0.7	0.7	0.6	1.0	0.9	12
17									0.4	0.7	1.0	0.9	4
18											0.9	0.9	2
19											0.9	0.9	2
20											1.0	1.0	2
21									0.7	0.7	0.8	1.0	4
22	0.6	0.7	0.9	0.8	0.7	0.8	0.7	0.9	0.6	0.6	1.0	0.9	12
23	0.9	0.8	0.7	0.8	0.7	0.5	0.6	0.8	0.6	0.6	1.0	0.9	12
24									0.5	0.6	0.9	0.9	4
25											0.8	0.9	2
26											0.8	0.9	2
27											1.1	0.9	2
28											1.0	0.9	2
29									0.5	0.5	1.0	1.0	4
30	1.0	0.8	0.7	0.8	0.6	0.3	0.6	0.7	0.7	0.6	1.0	0.9	12
31									0.4	0.6	0.9	0.9	4

Monthly Cl_2 Avg.	**0.796**
Quarterly Cl_2 Avg.	**0.837**
Yearly Cl_2 Avg.	**0.702**
Total Samples	**169**

Distribution System Monitoring WSSN 2310 May-13

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	1.0	0.7	1.0	0.9	1.0	1.0	1.1	1.0	0.8	0.9	1.2	1.0	12
2	1.3	0.9	1.0	1.1	0.9	0.8	0.9	1.1	0.8	0.9	1.2	1.1	12
3									0.8	1.0	1.2	1.2	4
4											1.0	1.0	2
5											1.1	1.0	2
6									0.9	0.9	1.1	1.1	4
7											1.2	1.0	2
8	1.0	1.1	1.0	1.0	0.9	0.9	1.0	1.1	0.7	0.9	1.1	1.0	12
9	1.1	1.0	0.9	1.0	0.7	0.7	0.8	0.9	0.8	0.8	1.2	1.1	12
10									0.7	0.8	1.2	1.1	4
11											1.2	1.1	2
12											1.0	1.0	2
13									0.8	0.8	1.2	1.0	4
14											1.1	1.0	2
15	1.0	1.0	1.1	1.0	0.9		0.9	1.0	0.7	0.8	1.2	1.0	11
16	1.2	1.0	1.0	1.0	0.9	0.7	1.0	0.9	0.8	0.9	1.2	1.0	12
17									0.6	0.9	1.2	1.0	4
18											1.1	1.1	2
19											1.0	1.0	2
20											1.1	1.1	2
21									0.8	0.9	1.0	1.1	4
22	0.7	0.9	1.0	0.9	0.8	0.9	0.9	1.0	0.7	0.7	1.2	1.0	12
23	1.0	0.9	0.8	1.0	0.9	0.6	0.7	1.0	0.8	0.8	1.2	1.0	12
24									0.7	0.8	1.1	1.1	4
25											1.0	1.0	2
26											1.0	1.0	2
27											1.3	1.0	2
28											1.2	1.1	2
29									0.7	0.8	1.2	1.1	4
30	1.2	0.9	0.8	0.9	0.8	0.5	0.8	1.0	0.8	0.8	1.2	1.1	12
31									0.6	0.8	1.2	1.0	4

Monthly Cl_2 Avg.	**0.963**
Quarterly Cl_2 Avg.	**1.021**
Yearly Cl_2 Avg.	**0.875**
Total Samples	**169**

ROUTINE POSITIVE DISTRIBUTION SAMPLES

May-13

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:				169			
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 April 2013

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
MAY 13 2013
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** **Apr-13**

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	23.13	9.26	13.87								3	0.07	0.07
2	22.12	8.10	14.02								3	0.06	0.07
3	21.09	7.61	13.47								3	0.06	0.07
4	22.83	9.47	13.36								3	0.06	0.06
5	23.06	10.06	13.00								3	0.06	0.07
6	22.69	10.29	12.40								3	0.08	0.09
7	22.29	9.62	12.68								3	0.07	0.08
8	23.30	9.63	13.66								3	0.07	0.08
9	23.82	9.73	14.10								3	0.08	0.10
10	23.86	10.18	13.68								3	0.10	0.10
11	23.38	9.45	13.94								3	0.08	0.09
12	22.96	9.84	13.12								3	0.09	0.09
13	23.40	9.73	13.68								3	0.07	0.08
14	22.95	9.62	13.33								3	0.08	0.09
15	21.86	7.93	13.92								3	0.07	0.08
16	22.71	8.35	14.36								3	0.06	0.07
17	24.00	9.54	14.46								3	0.06	0.07
18	23.74	9.81	13.92								3	0.06	0.07
19	23.32	9.75	13.57								3	0.06	0.06
20	23.74	9.93	13.81								3	0.06	0.07
21	23.27	10.07	13.20								3	0.06	0.07
22	23.67	9.77	13.90								3	0.06	0.08
23	24.23	10.15	14.08								3	0.08	0.10
24	23.64	9.61	14.03								3	0.08	0.09
25	23.23	10.00	13.23								3	0.09	0.14
26	24.22	9.91	14.31								3	0.08	0.09
27	23.77	11.00	12.76								3	0.09	0.09
28	24.24	11.84	12.40								3	0.07	0.08
29	23.51	10.53	12.98								3	0.06	0.06
30	24.05	10.51	13.54								3	0.07	0.09
AVG	23.27	9.71	13.56								3	0.07	0.08
MAX	24.24	11.84	14.46								3	0.10	0.14
MIN	21.09	7.61	12.40								3	0.06	0.06
Total	698.07	291.30	406.77										

Flouridation & Chlorination **WSSN 2310** **Apr-13**

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			0.72					0.9	1.0	1.0	1.0			1.0	
2			0.70					0.9	1.1	1.0	1.0			1.1	
3			0.70					1.0	1.1	1.0	1.0			1.0	
4			0.59					0.8	1.1	1.0	0.9			0.8	
5			0.63					1.0	1.0	1.0	1.0			1.1	
6			n/a					1.0	1.0	1.0	0.9			1.0	
7			0.63					0.7	1.0	1.0	1.0			0.9	
8			0.57					0.9	1.1	0.9	0.9			0.9	
9			0.57					0.9	1.1	1.0	0.9			1.0	
10			0.57					0.9	1.0	1.0	0.9			1.0	
11			0.52					0.8	1.1	1.0	1.0			1.0	
12			0.54					0.9	1.2	1.0	1.0			1.2	
13			0.53					0.7	1.0	0.9	0.9			0.9	
14			0.47					0.7	1.0	0.9	0.9			0.9	
15			0.55					0.8	0.9	0.9	0.9			0.9	
16			0.57					0.8	0.9	0.8	0.9			0.9	
17			0.54					0.7	1.0	1.0	0.9			1.1	
18			0.55					0.7	1.0	0.9	0.8			1.0	
19			0.54					0.8	1.1	0.9	1.0			1.1	
20			0.57					0.9	1.0	0.9	0.9			1.0	
21			0.46					0.7	0.9	0.9	0.8			0.9	
22			0.55					0.9	1.0	0.9	0.9			0.9	
23			0.54					0.7	0.9	0.9	0.9			0.9	
24			0.54					0.9	1.0	0.9	0.9			1.0	
25			0.52					0.8	1.0	0.8	0.8			0.9	
26			0.54					0.9	1.1	0.9	0.9			1.0	
27			0.54					1.0	1.1	1.0	0.9			1.1	
28			0.52					0.9	1.0	0.9	0.8			0.8	
29			0.51					0.8	1.0	0.8	0.8			0.9	
30			0.55					0.7	1.0	0.9	0.8			0.9	
AVG			0.56					0.8	1.0	0.9	0.9			1.0	
MAX			0.72					1.0	1.2	1.0	1.0			1.2	
MIN			0.46					0.7	0.9	0.8	0.8			0.8	

Chemical Analyses **WSSN 2310** **Apr-13**

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		7.31		98		72		26				27.3		7.3		
2		7.32		96		73		23				32.1		3.9		
3		7.43		100		71		29				31.3		5.3		
4		7.37		96		71		25				29.7		5.3		
5		7.31		98		70		28				29.7		5.8		
6		7.40		100		76		24				28.1		7.3		
7		7.32		98		73		25				29.7		5.8		
8		7.45		98		72		26				30.5		5.3		
9		7.30		100		70		30				31.3		5.3		
10		7.36		100		72		28				30.5		5.8		
11		7.25		100		72		28				30.5		5.3		
12		7.29		100		72		28				31.3		5.3		
13		7.28		98		73		25				29.7		5.8		
14		7.24		98		74		24				29.7		5.8		
15		7.26		98		72		26				30.5		5.3		
16		7.28		98		73		25				29.7		5.8		
17		7.26		98		72		26				29.7		5.8		
18		7.30		98		70		28				29.7		5.8		
19		7.30		100		73		27				33.7		3.9		
20		7.29		98		69		29				31.3		4.9		
21		7.33		94		74		20				30.5		4.4		
22		7.28		98		66		32				30.5		5.3		
23		7.28		98		70		28				31.3		4.9		
24		7.41		96		72		24				30.5		4.9		
25		7.47		98		74		24				30.5		5.3		
26		7.27		98		72		26				30.5		5.3		
27		7.31		98		72		26				30.5		5.3		
28		7.26		98		75		23				29.7		5.8		
29		7.33		98		68		30				29.7		5.8		
30		7.26		98		64		34				30.5		5.3		
AVG		7.32		98		72		27				30.3		5.4		
MAX		7.47		100		76		34				33.7		7.3		
MIN		7.24		94		64		20				27.3		3.9		

Bacteriological & Physical Parameters **WSSN 2310** **Apr-13**

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					11.8				
2	1/0		2/0	2/0	2/0	2/0					11.2				
3	1/0		2/0	2/0	2/0	2/0					10.5				
4	1/0		2/0	2/0	2/0	2/0					11.4				
5	1/0		2/0	2/0	2/0	2/0					11.5				
6	1/0		2/0	2/0	2/0	2/0					9.3				
7	1/0		2/0	2/0	2/0	2/0					10.3				
8	1/0		2/0	2/0	2/0	2/0					9.9				
9	1/0		2/0	2/0	2/0	2/0					11.2				
10	1/0		2/0	2/0	2/0	2/0					10.2				
11	1/0		2/0	2/0	2/0	2/0					11.5				
12	1/0		2/0	2/0	2/0	2/0					11.5				
13	1/0		2/0	2/0	2/0	2/0					11.2				
14	1/0		2/0	2/0	2/0	2/0					11.6				
15	1/0		2/0	2/0	2/0	2/0					11.4				
16	1/0		2/0	2/0	2/0	2/0					10.2				
17	1/0		2/0	2/0	2/0	2/0					9.8				
18	1/0		2/0	2/0	2/0	2/0					10.4				
19	1/0		2/0	2/0	2/0	2/0					11.2				
20	1/0		2/0	2/0	2/0	2/0					10.5				
21	1/0		2/0	2/0	2/0	2/0					9.8				
22	1/0		2/0	2/0	2/0	2/0					10.3				
23	1/0		2/0	2/0	2/0	2/0					10.6				
24	1/0		2/0	2/0	2/0	2/0			< 2		11.3				
25	1/0		2/0	2/0	2/0	2/0					10.5				
26	1/0		2/0	2/0	2/0	2/0					12.1				
27	1/0		2/0	2/0	2/0	2/0					9.4				
28	1/0		2/0	2/0	2/0	2/0					10.3				
29	1/0		2/0	2/0	2/0	2/0					10.2				
30	1/0		2/0	2/0	2/0	2/0					10.3				
											10.7				
											12.1				
											9.3				

Distribution System Monitoring WSSN 2310 Apr-13

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									0.7	0.8	1.0	1.0	4
2									0.7	0.8	1.1	1.1	4
3	0.8	0.8	0.9	0.9	0.7	0.9	0.9	1.0	0.7	0.8	1.1	1.1	12
4	1.1	0.9	0.8	1.1	1.0	0.9	1.0	1.0	0.7	0.7	1.1	1.0	12
5									0.7	0.8	1.0	1.0	4
6											0.9	1.0	2
7											1.0	1.0	2
8									0.6	0.8	1.1	1.0	4
9									0.7	0.8	1.1	1.0	4
10	1.1	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.7	0.9	1.0	1.0	12
11	1.2	0.9	0.9	1.1	0.8	0.8	1.1	0.9	0.8	0.8	1.1	1.1	12
12									0.6	0.9	1.2	1.2	4
13											0.9	1.0	2
14											1.0	0.9	2
15											0.9	0.9	2
16											0.9	0.9	2
17									0.7	0.8	1.0	1.0	4
18	1.1	0.8	0.8	1.0	1.0	0.9	0.9	0.8	0.8	0.7	1.0	0.9	12
19											1.1	1.0	2
20											1.0	1.0	2
21											0.9	0.9	2
22									0.5	0.7	1.0	0.9	4
23											0.9	0.9	2
24	0.8	0.7	0.8	0.8	0.6	0.8	0.9	0.8	0.6	0.8	1.1	0.9	12
25	1.1	0.9	0.8	0.9	0.8	0.6	0.7	0.9	0.6	0.7	1.1	0.9	12
26									0.6	0.7	1.1	1.1	4
27											1.1	1.1	2
28											1.0	0.9	2
29											0.9	1.0	2
30											1.0	1.0	2

Monthly Cl_2 Avg.	**0.899**
Quarterly Cl_2 Avg.	**0.817**
Yearly Cl_2 Avg.	**0.690**
Total Samples	**148**

Distribution System Monitoring WSSN 2310 Apr-13

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									0.8	1.0	1.2	1.2	4
2									0.9	1.0	1.3	1.3	4
3	1.0	1.0	1.1	1.1	0.9	1.1	1.0	1.1	0.8	1.0	1.2	1.2	12
4	1.3	1.1	1.1	1.3	1.2	1.0	1.2	1.3	0.9	1.0	1.3	1.2	12
5									0.9	1.0	1.3	1.2	4
6											1.1	1.2	2
7											1.2	1.2	2
8									0.8	1.0	1.3	1.1	4
9									0.9	1.0	1.3	1.1	4
10	1.3	1.1	1.0	1.0	1.0	1.0	1.0	1.1	0.9	1.1	1.1	1.1	12
11	1.3	1.1	1.1	1.3	1.1	1.0	1.3	1.2	0.9	1.0	1.3	1.3	12
12									0.8	1.1	1.4	1.4	4
13											1.1	1.1	2
14											1.1	1.1	2
15											1.1	1.1	2
16											1.0	1.1	2
17									0.9	1.0	1.2	1.2	4
18	1.2	0.9	1.0	1.1	1.2	1.0	1.0	1.1	0.9	1.0	1.2	1.1	12
19											1.2	1.2	2
20											1.2	1.2	2
21											1.1	1.0	2
22									0.7	0.9	1.2	1.1	4
23											1.0	1.2	2
24	1.0	0.9	1.0	1.0	0.8	1.0	1.1	1.0	0.8	1.0	1.3	1.1	12
25	1.3	1.1	1.0	1.1	1.0	0.7	0.9	1.1	0.8	1.0	1.3	1.0	12
26									0.8	0.9	1.3	1.3	4
27											1.3	1.3	2
28											1.1	1.0	2
29											1.1	1.1	2
30											1.2	1.2	2

Monthly Cl_2 Avg.	**1.085**
Quarterly Cl_2 Avg.	**1.002**
Yearly Cl_2 Avg.	**0.864**
Total Samples	**148**

ROUTINE POSITIVE DISTRIBUTION SAMPLES Apr-13

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:				148			
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

ENTERED

For Month of March 2013

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 17 2013

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-13**

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	26.18	10.66	15.52								3	0.06	0.07
2	26.51	10.42	16.09								3	0.07	0.07
3	25.67	10.29	15.38								3	0.07	0.07
4	26.85	10.94	15.91								3	0.06	0.07
5	26.32	10.40	15.92								3	0.07	0.08
6	24.86	10.48	14.38								3	0.07	0.07
7	24.76	9.92	14.84								3	0.07	0.09
8	24.07	9.30	14.77								3	0.07	0.07
9	23.84	8.88	14.97								3	0.07	0.07
10	22.49	8.48	14.01								3	0.06	0.06
11	23.36	8.45	14.91								3	0.07	0.08
12	24.19	8.57	15.62								3	0.08	0.09
13	23.77	9.34	14.43								3	0.08	0.11
14	24.44	10.20	14.24								3	0.08	0.09
15	25.18	10.57	14.62								3	0.08	0.09
16	24.49	10.41	14.08								3	0.08	0.09
17	24.31	10.21	14.10								3	0.09	0.11
18	26.08	10.96	15.12								3	0.09	0.10
19	25.56	10.90	14.66								3	0.08	0.09
20	25.33	10.78	14.55								3	0.08	0.08
21	25.16	10.22	14.94								3	0.07	0.09
22	22.97	8.72	14.24								3	0.06	0.06
23	22.12	8.58	13.54								3	0.06	0.06
24	22.91	8.71	14.21								3	0.06	0.07
25	22.68	8.49	14.20								3	0.07	0.07
26	23.98	9.21	14.77								3	0.08	0.10
27	24.15	10.37	13.78								3	0.06	0.07
28	24.49	10.20	14.29								3	0.07	0.08
29	24.70	10.72	13.98								3	0.07	0.07
30	24.10	10.82	13.28								3	0.07	0.07
31	23.58	11.16	12.41								3	0.06	0.07
AVG	24.49	9.91	14.57								3	0.07	0.08
MAX	26.85	11.16	16.09								3	0.09	0.11
MIN	22.12	8.45	12.41								3	0.06	0.06
Total	759.08	307.35	451.73										

Flouridation & Chlorination **WSSN 2310** **Mar-13**

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					0.9	1.0	1.0	1.0			1.1	
2			0.58					1.0	1.1	1.1	1.0			1.1	
3			0.57					0.7	0.9	0.8	0.9			0.8	
4			0.58					0.9	1.0	0.9	0.8			1.0	
5			0.54					0.8	1.0	0.9	0.8			0.9	
6			0.56					0.9	1.0	0.9	0.9			1.0	
7			0.56					0.9	1.0	0.9	0.8			0.9	
8			0.62					0.9	1.1	1.0	0.9			1.1	
9			0.65					0.9	1.0	1.0	1.0			1.0	
10			0.68					0.7	1.0	1.0	0.9			0.9	
11			0.66					0.8	0.9	0.9	0.8			0.8	
12			0.65					0.7	1.0	0.9	0.8			0.9	
13			0.65					0.9	1.0	0.9	0.9			1.0	
14			0.60					0.7	1.0	0.9	0.9			0.9	
15			0.64					0.8	1.0	0.9	0.9			0.9	
16			0.64					0.7	0.9	0.9	0.8			0.8	
17			0.56					0.7	1.0	0.9	0.8			0.9	
18			0.64					0.9	1.1	1.0	0.9			1.1	
19			0.67					0.9	1.0	0.9	0.9			1.0	
20			0.70					0.9	1.0	0.9	0.9			1.0	
21			0.63					0.7	1.1	0.9	0.9			0.9	
22			0.65					0.9	1.1	1.0	0.9			1.1	
23			0.68					1.0	1.1	1.0	1.0			1.1	
24			0.65					0.5	1.0	1.0	0.9			0.9	
25			0.68					0.9	1.0	1.0	0.9			0.9	
26			0.70					0.7	1.1	1.0	0.9			1.0	
27			0.70					0.9	1.1	1.0	1.0			1.0	
28			0.65					1.0	1.1	1.0	0.9			1.0	
29			0.68					1.0	1.2	1.1	1.0			1.1	
30			0.67					0.9	1.1	1.0	1.0			1.1	
31			0.67					0.9	1.1	1.0	1.0			1.0	
AVG			0.64					0.8	1.0	1.0	0.9			1.0	
MAX			0.70					1.0	1.2	1.1	1.0			1.1	
MIN			0.54					0.5	0.9	0.8	0.8			0.8	

Chemical Analyses **WSSN 2310** **Mar-13**

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		7.24		96		64		32				32.1		3.9		
2		7.21		98		72		26				29.7		5.8		
3		7.20		100		72		28				32.1		4.9		
4		7.24		98		67		31				30.5		5.3		
5		7.25		100		71		29				31.3		5.3		
6		7.29		98		71		27				30.5		5.3		
7		7.22		98		73		25				32.1		4.4		
8		7.27		102		75		27				32.1		5.3		
9		7.31		102		69		33				37.7		4.4		
10		7.25		98		70		28				31.3		5.3		
11		7.31		100		72		28				33.7		3.9		
12		7.31		100		70		30				31.3		5.3		
13		7.41		98		71		27				31.3		4.9		
14		7.27		98		69		29				31.3		4.9		
15		7.18		104		72		32				32.9		5.3		
16		7.27		100		74		26				32.9		4.4		
17		7.33		98		70		28				32.9		3.9		
18		7.23		96		71		25				30.5		4.9		
19		7.22		98		70		28				29.7		5.8		
20		7.34		100		66		34				31.3		5.3		
21		7.30		98		72		26				29.7		5.8		
22		7.17		100		71		29				30.5		5.8		
23		7.23		98		71		27				32.1		4.4		
24		7.26		98		67		31				30.5		5.3		
25		7.38		98		70		28				29.7		5.8		
26		7.34		98		68		30				29.7		5.8		
27		7.30		98		69		29				29.7		5.8		
28		7.30		98		72		26				29.7		5.8		
29		7.20		94		66		28				30.5		6.8		
30		7.23		96		71		25				32.1		3.9		
31		7.20		96		70		26				27.3		6.8		
AVG		7.27		99		70		28				31.2		5.2		
MAX		7.41		104		75		34				37.7		6.8		
MIN		7.17		94		64		25				27.3		3.9		

Bacteriological & Physical Parameters **WSSN 2310** **Mar-13**

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					9.2				
2	1/0		2/0	2/0	2/0	2/0					9.5				
3	1/0		2/0	2/0	2/0	2/0					10.1				
4	1/0		2/0	2/0	2/0	2/0					10.3				
5	1/0		2/0	2/0	2/0	2/0					10.0				
6	1/0		2/0	2/0	2/0	2/0			< 2		10.6				
7	1/0		2/0	2/0	2/0	2/0					10.5				
8	1/0		2/0	2/0	2/0	2/0					10.7				
9	1/0		2/0	2/0	2/0	2/0					10.1				
10	1/0		2/0	2/0	2/0	2/0					10.9				
11	1/0		2/0	2/0	2/0	2/0					10.7				
12	1/0		2/0	2/0	2/0	2/0					10.7				
13	1/0		2/0	2/0	2/0	2/0					10.7				
14	1/0		2/0	2/0	2/0	2/0					10.3				
15	1/0		2/0	2/0	2/0	2/0					10.3				
16	1/0		2/0	2/0	2/0	2/0					10.7				
17	1/0		2/0	2/0	2/0	2/0					10.3				
18	1/0		2/0	2/0	2/0	2/0					11.1				
19	1/0		2/0	2/0	2/0	2/0					10.8				
20	1/0		2/0	2/0	2/0	2/0					10.5				
21	1/0		2/0	2/0	2/0	2/0					9.9				
22	1/0		2/0	2/0	2/0	2/0					10.7				
23	1/0		2/0	2/0	2/0	2/0					11.0				
24	1/0		2/0	2/0	2/0	2/0					9.6				
25	1/0		2/0	2/0	2/0	2/0					11.2				
26	1/0		2/0	2/0	2/0	2/0					10.6				
27	1/0		2/0	2/0	2/0	2/0					10.7				
28	1/0		2/0	2/0	2/0	2/0					10.7				
29	1/0		2/0	2/0	2/0	2/0					12.3				
30	1/0		2/0	2/0	2/0	2/0					11.0				
31	1/0		2/0	2/0	2/0	2/0					10.6				
											10.5				
											12.3				
											9.2				

Distribution System Monitoring **WSSN 2310** **Mar-13**

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

Monthly Cl_2 Avg.	**0.863**
Quarterly Cl_2 Avg.	**0.761**
Yearly Cl_2 Avg.	**0.669**
Total Samples	**153**

Distribution System Monitoring WSSN 2310 Mar-13

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									0.6	0.8	1.3	1.2	4
2											1.2	1.3	2
3											1.0	1.0	2
4									0.8	0.8	1.2	1.1	4
5											1.3	1.1	2
6	1.1	1.0	1.1	0.8	1.0	1.1	1.0	1.1	0.7	0.8	1.3	1.2	12
7	1.3	1.1	1.2	0.8	1.2	0.7	1.2	1.2	0.6	0.9	1.3	1.2	12
8									0.7	0.9	1.3	1.2	4
9											1.2	1.2	2
10											1.1	1.2	2
11									0.8	0.9	1.1	1.1	4
12											1.2	1.0	2
13									0.7	0.9	1.2	1.2	4
14	1.2	1.0	1.1	1.0	1.1	0.8	0.9	1.1	0.7	0.9	1.3	1.0	12
15									0.8	0.9	1.2	1.1	4
16											1.0	1.1	2
17											1.1	1.1	2
18									0.8	0.9	1.3	1.2	4
19									0.6	0.9	1.2	1.1	4
20	1.1	1.1	1.1	0.8	0.9	1.0	1.1	1.0	0.7	0.9	1.3	1.0	12
21	1.3	1.0	1.1	0.8	1.0	0.9	1.2	1.2	0.8	0.9	1.3	1.1	12
22									0.8	0.9	1.4	1.3	4
23											1.3	1.3	2
24											1.1	1.2	2
25									0.8	0.9	1.1	1.2	4
26									0.7	0.8	1.3	1.2	4
27	1.4	1.0	1.0	1.0	1.2	1.2	1.1	1.2	0.8	0.9	1.3	1.2	12
28	1.1	1.0	1.1	0.9	0.9	1.0		1.1			1.3	1.1	9
29									0.9	1.0	1.2	1.3	4
30											1.3	1.2	2
31											1.2	1.2	2

Monthly Cl_2 Avg.	**1.05**
Quarterly Cl_2 Avg.	**0.942**
Yearly Cl_2 Avg.	**0.841**
Total Samples	**153**

ROUTINE POSITIVE DISTRIBUTION SAMPLES Mar-13

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			

2310

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

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

MONTHLY OPERATION REPORT
OF
WATER TREATMENT PLANT

ENTERED

For Month of February 2013

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 2013
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-13**

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	26.85	11.79	15.06								3	0.09	0.09
2	24.73	11.47	13.26								3	0.07	0.07
3	26.16	11.80	14.36								3	0.06	0.06
4	26.57	10.52	16.05								3	0.08	0.10
5	25.40	9.01	16.39								1	0.07	0.07
6	24.04	8.76	15.28								3	0.09	0.11
7	24.77	8.48	16.29								3	0.07	0.08
8	23.85	8.90	14.95								3	0.06	0.07
9	24.52	9.10	15.42								3	0.09	0.11
10	25.75	9.89	15.86								3	0.06	0.08
11	26.88	11.05	15.84								3	0.06	0.08
12	27.94	11.26	16.68								3	0.10	0.12
13	26.18	10.88	15.31								3	0.08	0.09
14	25.16	10.71	14.45								3	0.07	0.09
15	24.13	9.47	14.67								3	0.08	0.09
16	24.92	9.04	15.88								3	0.11	0.13
17	25.02	11.03	13.99								3	0.09	0.10
18	24.96	8.91	16.05								3	0.09	0.09
19	25.88	9.69	16.20								3	0.08	0.09
20	26.85	9.48	17.37								3	0.10	0.11
21	24.82	8.05	16.77								3	0.09	0.10
22	25.64	10.02	15.61								3	0.09	0.09
23	25.45	9.72	15.73								3	0.08	0.08
24	25.12	9.84	15.28								3	0.09	0.13
25	25.52	9.44	16.07								3	0.08	0.08
26	27.85	10.93	16.92								3	0.08	0.08
27	26.34	10.31	16.03								3	0.10	0.11
28	25.96	10.56	15.40								3	0.06	0.07
AVG	25.62	10.00	15.61								3	0.08	0.09
MAX	27.94	11.80	17.37								3	0.11	0.13
MIN	23.85	8.05	13.26								1	0.06	0.06
Total	717.27	280.12	437.15										

Flouridation & Chlorination **WSSN 2310** **Feb-13**

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			0.62					0.8	1.0	0.9	0.9			1.0	
2			0.57					0.8	0.9	0.7	0.8			0.8	
3			0.63					0.7	0.9	0.8	0.8			0.8	
4			0.60					0.8	0.9	0.9	0.8			0.8	
5			0.60					0.8	0.9	0.9	0.8			0.9	
6			0.59					0.8	0.8	0.8	0.8			0.9	
7			0.60					0.7	1.0	0.9	0.8			0.8	
8			0.61					0.8	1.0	0.9	0.8			1.1	
9			0.64					1.0	1.1	1.0	1.0			n.r.	
10			0.54					0.5	0.9	0.8	0.7			0.9	
11			0.54					0.8	1.0	0.9	0.8			0.9	
12			0.52					0.8	1.0	0.9	0.8			0.9	
13			0.54					0.7	1.0	0.9	0.9			0.9	
14			0.52					0.8	0.9	0.9	0.9			1.0	
15			0.56					0.8	1.0	0.9	0.9			1.0	
16			0.53					1.0	1.1	1.0	0.9			1.0	
17			0.54					0.9	1.0	0.9	0.9			1.0	
18			0.59					0.9	1.0	0.9	0.9			1.0	
19			0.61					0.9	1.0	0.9	0.9			1.0	
20			0.59					0.9	1.0	0.8	0.8			0.9	
21			0.58					0.8	1.0	0.8	0.7			0.9	
22			0.60					0.9	1.0	0.9	0.9			1.0	
23			0.61					0.9	1.1	1.0	1.0			1.1	
24			0.59					0.7	0.9	0.8	0.9			0.9	
25			0.60					0.9	1.1	0.9	0.9			0.9	
26			0.56					0.7	1.0	0.9	0.8			0.8	
27			0.59					0.9	1.0	1.0	0.9			1.0	
28			0.50					0.9	1.0	0.9	0.9			0.9	
AVG			0.58					0.8	1.0	0.9	0.9			0.9	
MAX			0.64					1.0	1.1	1.0	1.0			1.1	
MIN			0.50					0.5	0.8	0.7	0.7			0.8	

n.r. = Not recorded or not tested

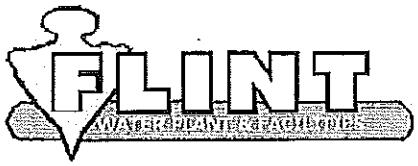
Chemical Analyses **WSSN 2310** **Feb-13**

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		7.26		100		63		37				36.9		1.9		
2		7.45		100		71		29				36.9		1.9		
3		7.21		98		64		34				34.5		2.9		
4		7.23		98		69		29				33.7		3.4		
5		7.26		98		66		32				34.5		2.9		
6		7.39		98		67		31				32.9		3.9		
7		7.30		98		68		30				33.7		3.4		
8		7.27		100		72		28				31.3		5.3		
9		7.29		98		72		26				29.7		5.3		
10		7.35		100		66		34				32.1		4.9		
11		7.59		98		66		32				31.3		4.9		
12		7.21		98		68		30				35.3		2.4		
13		7.36		98		72		26				32.9		3.9		
14		7.23		96		70		26				31.3		4.4		
15		7.26		100		66		34				30.5		5.8		
16		7.24		96		72		24				30.5		4.9		
17		7.30		100		69		31				29.7		6.3		
18		7.30		96		68		28				28.9		5.8		
19		7.23		100		72		28				30.5		5.8		
20		7.24		100		72		28				31.3		5.1		
21		7.20		98		70		28				32.1		4.4		
22		7.22		98		71		27				30.5		5.3		
23		7.22		96		68		28				31.3		4.4		
24		7.16		98		69		29				33.7		3.4		
25		7.23		98		71		27				31.3		4.9		
26		7.26		98		69		29				31.3		4.9		
27		7.40		98		69		29				31.3		4.9		
28		7.20		100		70		30				32.1		4.9		
AVG		7.28		98		69		29				32.2		4.4		
MAX		7.59		100		72		37				36.9		6.3		
MIN		7.16		96		63		24				28.9		1.9		

Bacteriological & Physical Parameters **WSSN 2310** **Feb-13**

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		1/0	2/0	2/0	2/0					9.5				
2	1/0		2/0	2/0	2/0	2/0					9.8				
3	1/0		2/0	2/0	2/0	2/0					9.9				
4	1/0		2/0	2/0	2/0	2/0					9.3				
5	1/0		2/0	2/0	2/0	2/0					n.r.				
6	1/0		2/0	2/0	2/0	2/0					9.5				
7	1/0		2/0	2/0	2/0	2/0					8.7				
8	1/0		2/0	2/0	2/0	2/0					9.5				
9	1/0		2/0	2/0	2/0	2/0					7.7				
10	1/0		2/0	2/0	2/0	2/0					8.9				
11	1/0		2/0	2/0	2/0	2/0					9.7				
12	1/0		2/0	2/0	2/0	2/0					8.8				
13	1/0		2/0	2/0	2/0	2/0			< 2		9.1				
14	1/0		2/0	2/0	2/0	2/0					12.2				
15	1/0		2/0	2/0	2/0	2/0					12.5				
16	1/0		2/0	2/0	2/0	2/0					8.9				
17	1/0		2/0	2/0	2/0	2/0					10.4				
18	1/0		2/0	2/0	2/0	2/0					9.6				
19	1/0		2/0	2/0	2/0	2/0					10.6				
20	1/0		2/0	2/0	2/0	2/0					9.3				
21	1/0		2/0	2/0	2/0	2/0					9.5				
22	1/0		2/0	2/0	2/0	2/0					10.3				
23	1/0		2/0	2/0	2/0	2/0					9.7				
24	1/0		2/0	2/0	2/0	2/0					9.2				
25	1/0		2/0	2/0	2/0	2/0					9.0				
26	1/0		2/0	2/0	2/0	2/0					10.0				
27	1/0		2/0	2/0	2/0	2/0					9.7				
28	1/0		2/0	2/0	2/0	2/0					10.3				
											9.7				
											12.5				
											7.7				

n.r. = Not recorded or not tested



Distribution System Monitoring **WSSN 2310** **Feb-13**

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									0.3	0.6	0.9	1.0	4
2											0.9	0.9	2
3											0.9	0.9	2
4									0.3	0.6	0.9	0.9	4
5									0.3	0.5	0.9	0.9	4
6									0.3	0.6	0.8	0.8	4
7	1.0	0.6	0.9	0.6	0.7	0.6	0.8	0.8	0.3	0.6	1.0	1.0	12
8									0.4	0.6	0.9	1.0	4
9											1.1	1.1	2
10											0.9	0.8	2
11									0.5	0.6	1.0	0.9	4
12											1.0	0.9	2
13	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.9	0.4	0.6	1.0	0.9	12
14	1.0	0.7	0.8	1.0	0.7	0.6	0.8	0.8	0.5	0.6	0.8	0.9	12
15									0.4	0.6	0.9	1.0	4
16											1.1	1.0	2
17											1.0	1.0	2
18									0.5	0.6	1.0	1.0	4
19											1.0	1.0	2
20	1.0	0.8	0.8	0.8	0.6	0.8	0.7	0.9	0.4	0.6	1.0	1.0	12
21	0.7	0.8	0.9	1.1	0.9	0.6	0.9	0.9	0.6	0.6	1.0	0.9	12
22									0.4	0.6	1.0	1.0	4
23											1.0	1.1	2
24											0.9	0.9	2
25									0.4	0.6	1.1	1.0	4
26											1.0	0.9	2
27	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.9	0.5	0.6	1.0	0.9	12
28	1.1	0.9	0.7	1.0	0.8	0.7	0.7	0.9	0.6	0.6	1.0	0.9	12

Monthly Cl_2 Avg.	**0.791**
Quarterly Cl_2 Avg.	**0.701**
Yearly Cl_2 Avg.	**0.655**
Total Samples	**146**

Distribution System Monitoring WSSN 2310 Feb-13

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									0.5	0.8	1.1	1.2	4
2											1.1	1.0	2
3											1.0	1.0	2
4									0.5	0.8	1.1	1.1	4
5									0.5	0.8	1.1	1.1	4
6									0.5	0.9	1.2	1.1	4
7	1.2	0.8	1.0	0.8	0.8	0.7	1.0	1.1	0.5	0.8	1.2	1.2	12
8									0.6	0.8	1.1	1.2	4
9											1.3	1.3	2
10											1.1	1.0	2
11									0.7	0.9	1.2	1.1	4
12											1.2	1.1	2
13	1.1	1.0	1.0	1.0	0.9	0.9	1.0	1.1	0.6	0.9	1.2	1.1	12
14	1.3	0.9	1.0	1.1	0.8	0.7	1.1	1.1	0.6	0.8	1.1	1.1	12
15									0.6	0.8	1.2	1.1	4
16											1.3	1.2	2
17											1.1	1.1	2
18									0.7	0.9	1.2	1.2	4
19											1.2	1.2	2
20	1.1	0.9	1.0	0.9	0.8	1.0	0.9	1.0	0.5	0.8	1.2	1.1	12
21	0.8	0.9	1.0	1.3	1.0	0.7	1.1	1.1	0.7	0.8	1.2	1.1	12
22									0.5	0.9	1.2	1.2	4
23											1.2	1.2	2
24											1.1	1.1	2
25									0.6	0.8	1.3	1.1	4
26											1.2	1.1	2
27	0.9	1.0	1.0	1.0	0.9	0.9	0.9	1.0	0.7	0.8	1.2	1.1	12
28	1.3	1.1	0.9	1.2	1.1	0.8	1.0	1.2	0.7	0.9	1.2	1.0	12

Monthly Cl_2 Avg.	**0.983**
Quarterly Cl_2 Avg.	**0.877**
Yearly Cl_2 Avg.	**0.824**
Total Samples	**146**

ROUTINE POSITIVE DISTRIBUTION SAMPLES

Feb-13

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:				146			
Total number of routine distribution samples required:				100			

D-5a 1/96
Authority: Act 399, P.A. 1976

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

2310

MONTHLY OPERATION REPORT
OF
WATER TREATMENT PLANT

RECEIVED

For Month of January 2013

Flint Water Plant — NAME OF WATER SYSTEM

2310 — WSSN

Genesee — COUNTY

DEQ
RESOURCE MANAGEMENT DIVISION

FEB 13 2013

LANSING DISTRICT

[redacted] — CERTIFIED OPERATOR

F-1R S-3 — CLASSIFICATION

[redacted] — SIGNATURE OF APPROPRIATE

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 _____

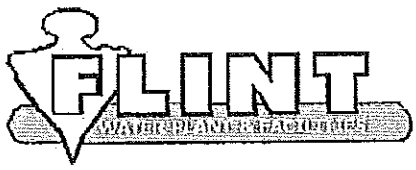
Remarks:

A turbidity spike(inline alarm) was encountered on 1/20/2013 at 5:20pm at Baxter & Potter Rd. A coliform bacteria and turbidity sample were collected at 11:30pm. The sample showed a 0.9 NTU turbidity, a free chlorine residual of 0.8 mg/L, and was absent of coliform bacteria. On 1/21/2013, the daily B&P sample collected at 12:00pm, showed turbidity of .147 NTU. The turbidity event lasted between 12 to 18 hours. The turbidity spike reached Control Station #2 at 3:00pm on the 1/21/2013, and was diverted to Dort Well to allow for some dilution and possible settling for a few days. Daily samples collected from CS# 2 and Dort Well on the 21st and throughout the remainder of the month displayed good chlorine residuals and were absent of coliform bacteria. Lab testing later in the month showed higher levels of calcium, which leads us to believe the spike may have been from a slug of scale in the pipeline.

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** **Jan-13**

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	22.05	9.97	12.08								3	0.07	0.07
2	22.31	9.24	13.07								3	0.09	0.09
3	23.13	9.06	14.07								3	0.10	0.10
4	23.63	8.39	15.25								3	0.09	0.09
5	22.94	8.43	14.51								3	0.10	0.10
6	21.98	8.40	13.58								3	0.07	0.08
7	22.42	9.29	13.13								3	0.08	0.08
8	23.56	9.26	14.30								3	0.08	0.10
9	23.11	9.50	13.61								3	0.07	0.08
10	23.04	9.84	13.20								3	0.06	0.07
11	22.78	10.43	12.35								3	0.06	0.07
12	22.92	9.92	13.00								3	0.06	0.07
13	23.01	10.25	12.76								3	0.05	0.06
14	23.62	9.59	14.03								3	0.06	0.07
15	21.16	9.33	11.84								3	0.07	0.07
16	21.80	9.00	12.80								3	0.06	0.07
17	23.73	9.26	14.47								3	0.11	0.14
18	24.12	9.52	14.60								3	0.11	0.16
19	23.25	10.07	13.18								3	0.06	0.07
20	22.36	9.78	12.58								3	0.07	0.08
21	22.93	9.30	13.63								3	0.30	0.77
22	22.88	9.60	13.28								3	0.10	0.10
23	23.10	9.78	13.32								3	0.08	0.10
24	23.43	10.05	13.39								3	0.07	0.08
25	23.72	9.75	13.97								3	0.08	0.10
26	24.77	9.84	14.94								3	0.09	0.09
27	24.12	9.81	14.31								3	0.07	0.08
28	25.75	10.48	15.28								3	0.08	0.08
29	26.94	10.72	16.22								3	0.08	0.09
30	27.10	12.05	15.05								3	0.13	0.14
31	27.25	11.54	15.70								3	0.08	0.10
AVG	23.51	9.72	13.79								3	0.09	0.11
MAX	27.25	12.05	16.22								3	0.30	0.77
MIN	21.16	8.39	11.84								3	0.05	0.06
Total	728.91	301.43	427.48										

Flouridation & Chlorination **WSSN 2310** **Jan-13**

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			0.64					0.6	0.8	0.7	0.7			0.9	
2			0.66					0.8	0.9	0.9	0.8			0.8	
3			0.68					0.6	0.9	0.8	0.8			0.8	
4			0.67					0.8	0.9	0.9	0.9			0.9	
5			0.61					0.5	0.8	0.7	0.8			0.8	
6			0.62					0.8	0.9	0.8	0.7			0.8	
7			0.68					0.8	1.0	0.8	0.7			0.9	
8			0.69					0.6	1.0	0.8	0.7			0.8	
9			0.60					0.8	0.9	0.8	0.8			0.7	
10			0.67					0.6	0.9	0.8	0.8			0.9	
11			0.71					0.8	1.0	0.8	0.8			0.9	
12			0.65					0.7	0.8	0.7	0.7			0.9	
13			0.66					0.6	0.9	0.8	0.7			0.8	
14			0.70					0.7	0.9	0.8	0.8			0.8	
15			0.71					0.7	0.9	0.9	0.7			0.8	
16			0.69					0.8	0.9	0.9	0.8			0.9	
17			0.60					0.7	0.8	0.8	0.7			0.8	
18			0.69					0.8	0.9	0.8	0.8			0.7	
19			0.66					0.7	0.9	0.8	0.8			0.8	
20			0.64					0.7	0.9	0.8	0.7			0.8	
21			0.68					0.7	0.9	0.8	0.8			0.8	
22			0.65					0.7	0.9	0.8	0.8			0.8	
23			0.65					0.8	0.9	0.8	0.8			0.9	
24			0.63					0.8	1.0	0.9	0.8			0.9	
25			0.63					1.1	1.0	0.9	0.8			1.0	
26			0.65					0.8	1.0	0.8	0.9			0.9	
27			0.63					0.6	1.0	0.8	0.8			0.9	
28			0.60					0.8	0.7	0.9	0.8			0.8	
29			0.57					0.7	1.0	0.8	0.8			0.9	
30			0.62					0.8	1.0	0.9	0.8			0.9	
31			0.55					0.7	0.9	0.9	0.8			0.9	
AVG			0.65					0.7	0.9	0.8	0.8			0.8	
MAX			0.71					1.1	1.0	0.9	0.9			1.0	
MIN			0.55					0.5	0.7	0.7	0.7			0.7	

Chemical Analyses **WSSN 2310** **Jan-13**

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		7.18		98		70		28				29.7		5.8		
2		7.22		98		70		28				29.7		5.8		
3		7.32		100		71		29				29.7		6.3		
4		7.25		100		68		32				29.7		6.3		
5		7.19		100		66		34				28.9		6.8		
6		7.21		100		66		34				28.9		6.8		
7		7.25		100		69		31				29.7		6.3		
8		7.21		100		70		30				29.7		6.3		
9		7.27		100		70		30				29.7		6.3		
10		7.27		98		71		27				29.7		5.8		
11		7.28		98		68		30				29.7		5.8		
12		7.21		100		68		32				29.7		6.3		
13		7.22		98		69		29				28.9		6.3		
14		7.50		98		69		29				28.9		6.3		
15		7.36		98		69		29				28.9		6.3		
16		7.34		98		71		27				29.7		5.8		
17		7.39		100		67		33				29.7		5.8		
18		7.34		100		74		26				29.7		6.3		
19		7.29		100		72		28				28.9		6.8		
20		7.25		98		67		31				29.7		5.8		
21		7.25		98		68		30				29.7		5.8		
22		7.33		98		73		25				28.1		6.8		
23		7.33		96		70		26				28.9		5.8		
24		7.32		96		69		27				28.9		5.8		
25		7.32		98		64		34				28.9		6.3		
26		7.29		92		66		26				26.5		6.3		
27		7.16		98		69		29				29.7		5.8		
28		7.26		98		68		30				29.7		5.8		
29		7.28		100		70		30				36.1		2.4		
30		7.31		98		71		27				34.5		2.9		
31		7.29		98		70		28				36.1		1.9		
AVG		7.28		98		69		29				29.9		5.8		
MAX		7.50		100		74		34				36.1		6.8		
MIN		7.16		92		64		25				26.5		1.9		

Bacteriological & Physical Parameters **WSSN 2310** **Jan-13**

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					13.3				
2	1/0		2/0	2/0	2/0	2/0					13.3				
3	1/0		2/0	2/0	2/0	2/0					12.2				
4	1/0		2/0	2/0	2/0	2/0					13.9				
5	1/0		2/0	2/0	2/0	2/0					12.0				
6	1/0		2/0	2/0	2/0	2/0					12.0				
7	1/0		2/0	2/0	2/0	2/0					11.3				
8	1/0		2/0	2/0	2/0	2/0					10.9				
9	1/0		2/0	2/0	2/0	2/0					12.5				
10	1/0		2/0	2/0	2/0	2/0					11.7				
11	1/0		2/0	2/0	2/0	2/0					12.7				
12	1/0		2/0	2/0	2/0	2/0					12.5				
13	1/0		2/0	2/0	2/0	2/0					12.7				
14	1/0		2/0	2/0	2/0	2/0					12.2				
15	1/0		2/0	2/0	2/0	2/0					10.2				
16	1/0		2/0	2/0	2/0	2/0					10.8				
17	1/0		2/0	2/0	2/0	2/0					9.5				
18	1/0		2/0	2/0	2/0	2/0					9.1				
19	1/0		2/0	2/0	2/0	2/0					10.5				
20	2/0		2/0	2/0	2/0	2/0					10.1				
21	1/0		2/0	2/0	2/0	2/0					9.2				
22	1/0		2/0	2/0	2/0	2/0					9.3				
23	1/0		2/0	2/0	2/0	2/0					10.8				
24	1/0		2/0	2/0	2/0	2/0					12.2				
25	1/0		2/0	2/0	2/0	2/0					11.7				
26	1/0		2/0	2/0	2/0	2/0					9.6				
27	1/0		2/0	2/0	2/0	2/0					10.4				
28	1/0		2/0	2/0	2/0	2/0					10.7				
29	1/0		2/0	2/0	2/0	2/0					9.9				
30	1/0		2/0	2/0	2/0	2/0					9.9				
31	1/0		2/0	2/0	2/0	2/0			<2		9.2				
											11.2				
											13.9				
											9.1				

Distribution System Monitoring WSSN 2310 Jan-13

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											0.8	0.8	2
2									0.4	0.6	0.9	0.8	4
3	0.7	0.7	0.6	0.6	0.6	0.7	0.4	0.7	0.4	0.6	0.9	0.8	12
4									0.4		0.9	0.9	3
5											0.8	0.8	2
6											0.9	0.9	2
7									0.5	0.6	1.0	0.9	4
8											1.0	0.9	2
9	0.8	0.7	0.6		0.5	0.6	0.7	0.9	0.4	0.6	0.9	0.9	11
10	0.8	0.7	0.6	0.2	0.6	0.2	0.6	0.7	0.4	0.5	0.9	0.9	12
11									0.3	0.6	1.0	0.9	4
12											0.8	0.8	2
13											0.8	0.9	2
14											0.9	0.9	2
15											0.9	0.9	2
16									0.3	0.5	0.9	0.9	4
17	0.9	0.7	0.7	0.6	0.6	0.5	0.6	0.8	0.4	0.6	0.8	0.8	12
18									0.3	0.6	0.9	0.8	4
19											0.9	0.8	2
20											0.9	0.8	2
21											0.9	0.9	2
22									0.4	0.6	0.9	0.8	4
23									0.3	0.6	0.9	0.9	4
24	0.7	0.7	0.7	0.6	0.6	0.5	0.7	0.7	0.3	0.6	1.0	0.9	12
25									0.2	0.6	1.0	1.0	4
26											1.0	0.9	2
27											0.9	1.0	2
28										0.6	0.6	0.8	3
29											1.0	0.9	2
30	0.9	0.8	0.8	0.5	0.7	0.8	0.7	0.8	0.3	0.5	1.0	0.9	12
31	0.9	0.7	0.8	0.9	0.6	0.6	0.8	0.8	0.5	0.6	0.9	0.9	12

Monthly Cl_2 Avg.	**0.717**
Quarterly Cl_2 Avg.	**0.677**
Yearly Cl_2 Avg.	**0.648**
Total Samples	**149**

Distribution System Monitoring WSSN 2310 Jan-13

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

Monthly Cl_2 Avg.	**0.889**
Quarterly Cl_2 Avg.	**0.849**
Yearly Cl_2 Avg.	**0.814**
Total Samples	**149**

ROUTINE POSITIVE DISTRIBUTION SAMPLES

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:				149			
Total number of routine distribution samples required:				100			