City of Fremont
Water Treatment Plant
2017 Annual Report

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT
2017 ANNUAL REPORT

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City of Fremont
Water Treatment Plant
Annual Report 2017

The Water Treatment Plant is operated by a staff of 12. There are 3 people in maintenance, 1 laboratory technician, 5 shift operators, 2 in management and a part-time secretary shared with the Water Reclamation Center.

The following people hold OEPA Water licenses.

Class IV Stephen Lamale
Class III Juan Garza, Tom Brickley, Ed Metzger II, Lazaro Moreno
Class I Mark Hoffman, Mike Hrupcho, Allen Taulker
Distribution II Jon Wehring

All operators are operational certified by the OEPA for chemical analyses. Adjustments in the treatment process are made based on these analyses. Juan Garza and Lazaro Moreno are fully certified by the OEPA for Chemical and Bacteriological analyses in the laboratory.

The following is a brief summary of some of the year's activities.

RESERVOIR

Raw water flows to the treatment plant from the reservoir. The reservoir is filled by pumping water from the Sandusky River. It holds around 700 million gallons of water when full. The reservoir also provides opportunities for fishing, walking, and boating to the public. In 2017, 2,003 million gallons of water were pumped from the Sandusky River into the reservoir over a period of 189 days.

Testing continues for algal toxins in the raw water supply. There were no detections of algal toxins in 2017. We continue to test for cyanobacteria and toxins according to a schedule provided by the OEPA.

The reservoir was treated to prevent Harmful Algal Blooms (HAB) at a cost of $19,710.00 for the chemical and 88 man hours during 2017. In addition to the hours required for treatment, there were additional hours spent on surveillance of the reservoir.

The removal of the Ballville Dam was started in the fall by notching the dam. This lowered the water level in the river at the reservoir intake. Silt in the river was removed to allow water to get to the reservoir intake. The river bottom was also lowered to facilitate the pumping of water into the reservoir. Removal of the dam will continue in 2018. A chemical treatment building will be built at the reservoir so that water coming to the treatment plant can be treated with powdered activated carbon.

PLANT

The plant produced 2,056 million gallons of drinking water in 2017 at a chemical cost of around $300.00 per million gallons of water. We continue to repair and replace equipment at the treatment plant as needed. Chemical feed pumps have been replaced with newer peristaltic pumps. Transfer pumps used to fill day tanks have also been replaced.

In May of 2016 a plan was submitted to the OEPA to install a sodium hypochlorite feed system for disinfection. Approval for the installation was received in October of 2016. This system will replace the current disinfection system which uses gas chlorine. The sodium hypochlorite feed system will be much safer than the gas chlorine system because gas chlorine will no longer be stored onsite. The work to convert from gas chlorine to sodium hypochlorite is almost complete. Startup of the system will be in January 2018.

DISTRIBUTION SYSTEM

The Wilson elevated storage tank was painted in 2017.

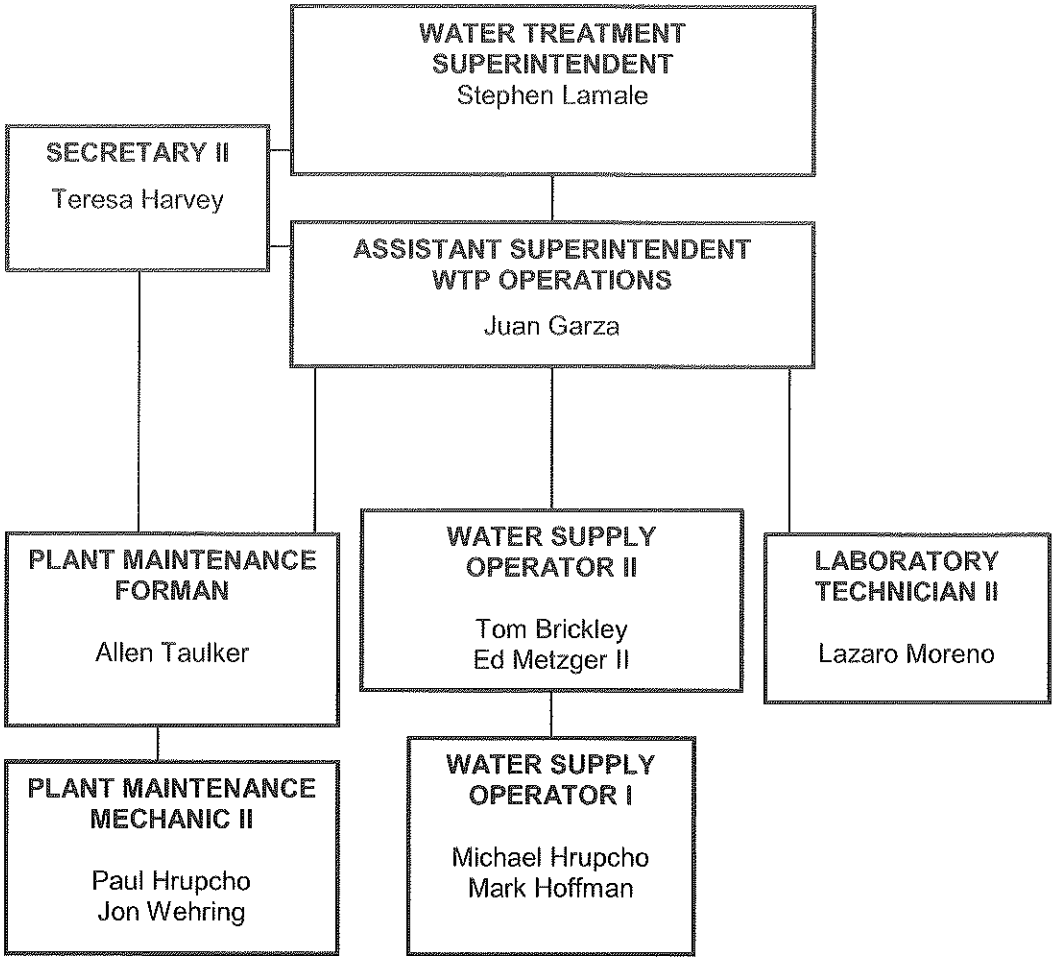
RESIDUAL SOLIDS HANDLING

Spent lime is a byproduct of the softening process. The spent lime can be pumped to the press or it can be pumped to a lagoon and removed at a later date. 3.3 million gallons of spent lime were pumped to the press in 2017. 2,545,820 pounds of spent lime was hauled from the press. 12985 cubic yards of spent lime was removed from the lagoons. The spent lime was applied to fields for agricultural use.

This annual report documents water flows, water quality and operations information for 2016.

CITY OF FREMONT
WATER TREATMENT PLANT

ORGANIZATIONAL STRUCTURE



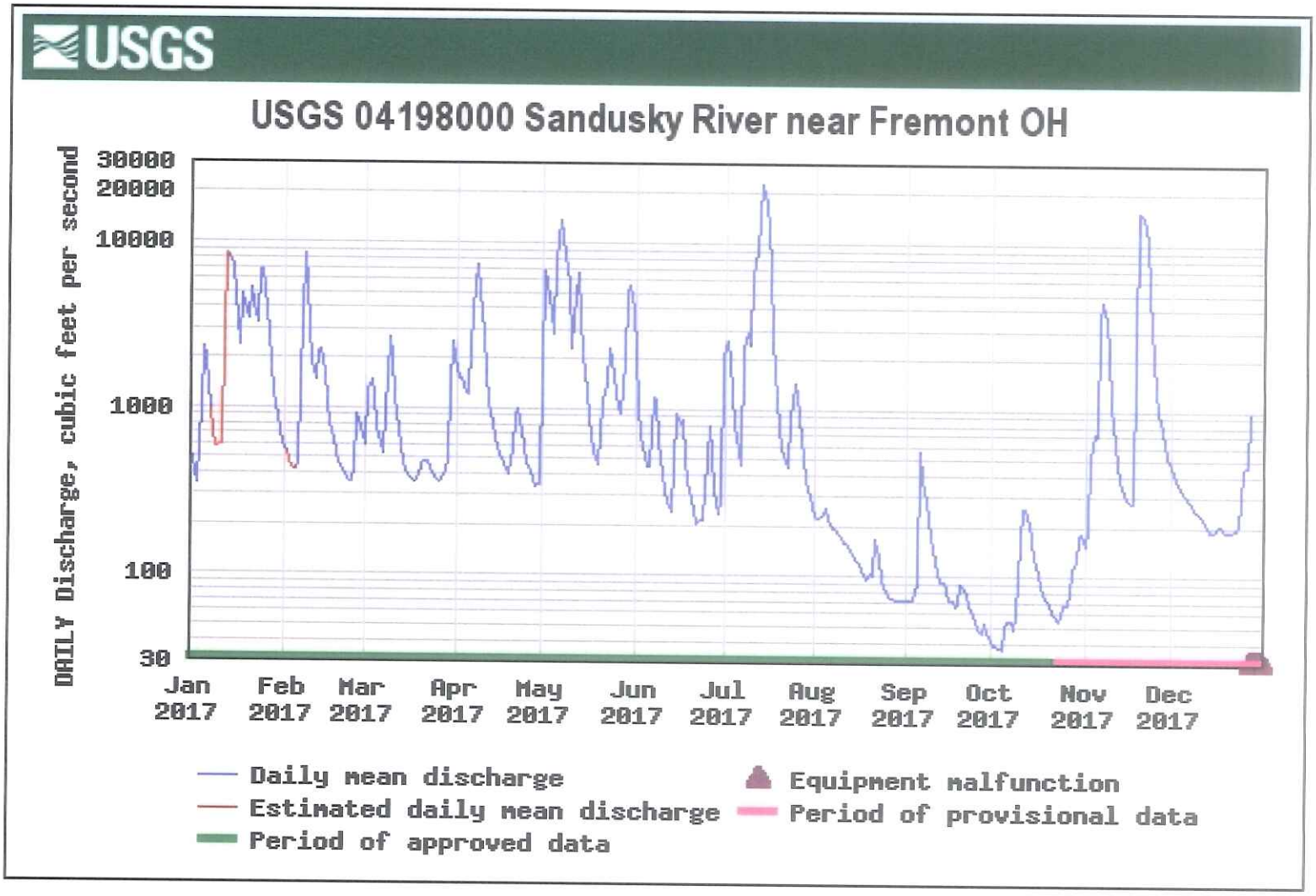
City of Fremont, Ohio

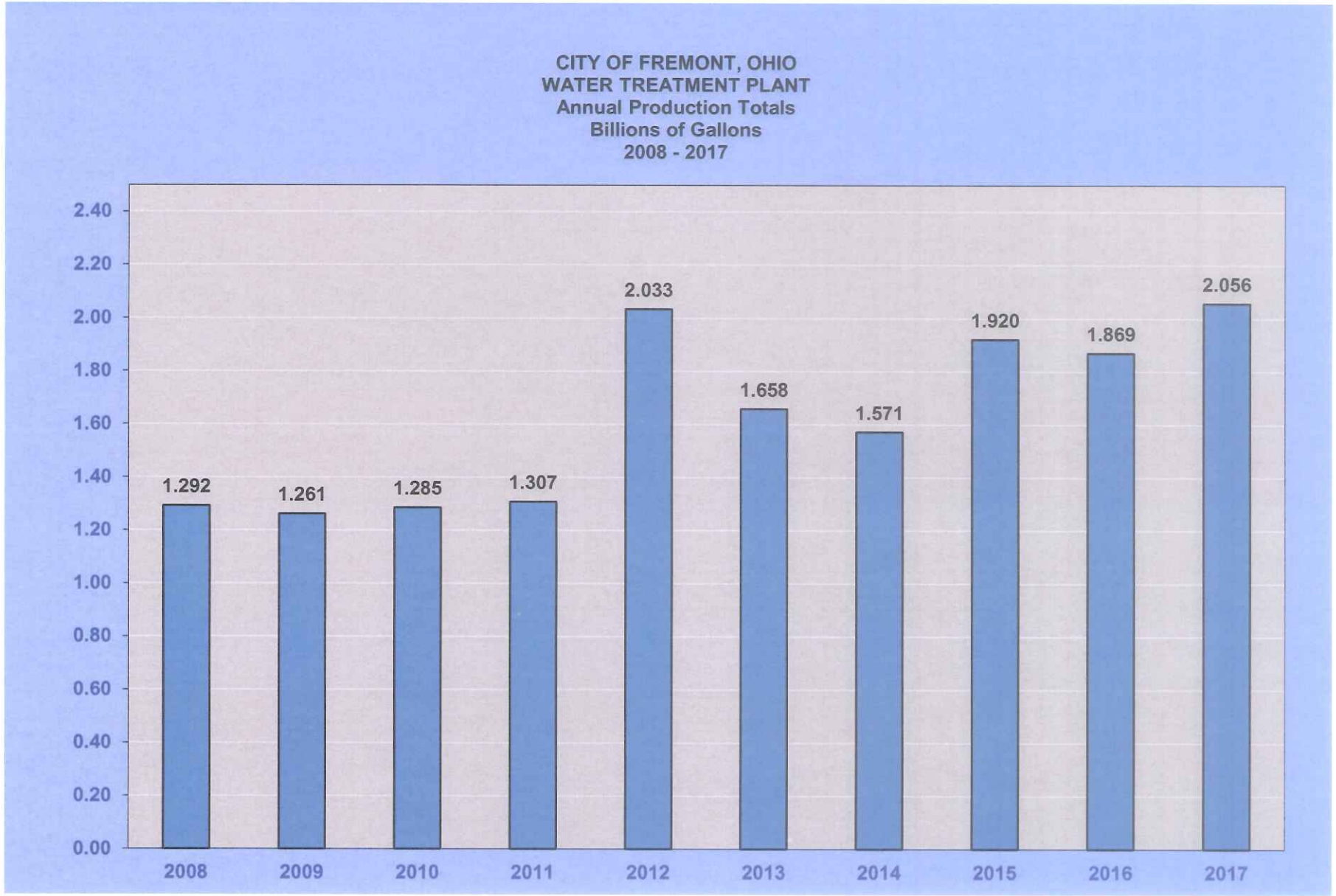
2017 Water Characteristics
(Averages)

Raw	
Total Hardness	272 mg/L
Noncarbonate Hardness	126 mg/L
Ca Hardness	183 mg/L
Mg Hardness	89 mg/L
Total Alkalinity	146 mg/L
Turbidity	2 NTU
Fluoride	0.39 mg/L
TDS	309 mg/L
pH	8.24

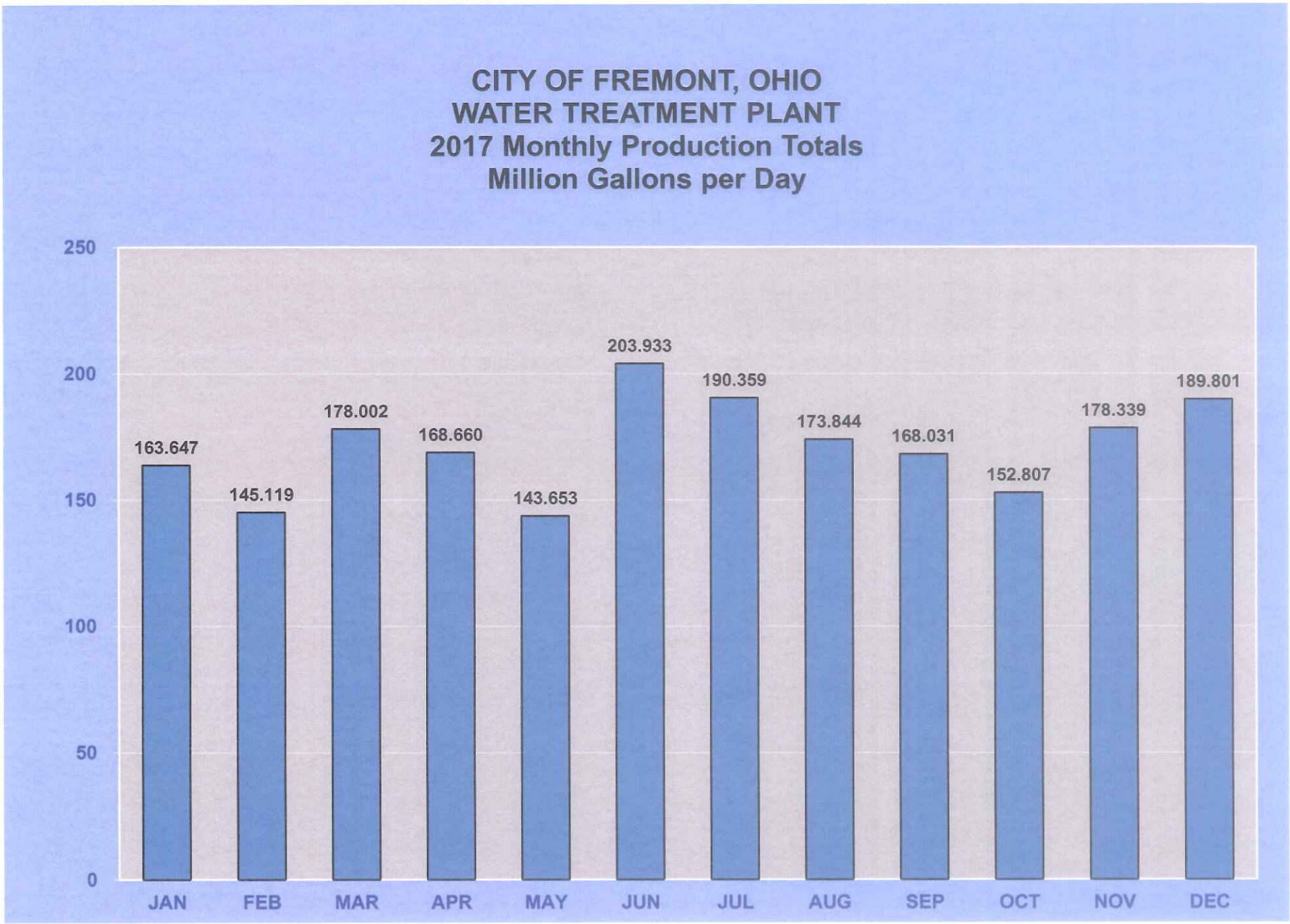
Finished	
Total Hardness	196 mg/L
Noncarbonate Hardness	146 mg/L
Ca Hardness	165 mg/L
Mg Hardness	31 mg/L
Total Alkalinity	51 mg/L
Phenol Alkalinity	12 mg/L
Turbidity	0.05 NTU
Fluoride	0.98 mg/L
TDS	275 mg/L
Nitrates	2.91 mg/L
pH	9.27
Stability Index	+1.11
Free Chlorine	1.71 mg/L
Combined Chlorine	0.17 mg/L
Total Chlorine	1.87 mg/L
Temp	17.4 °C

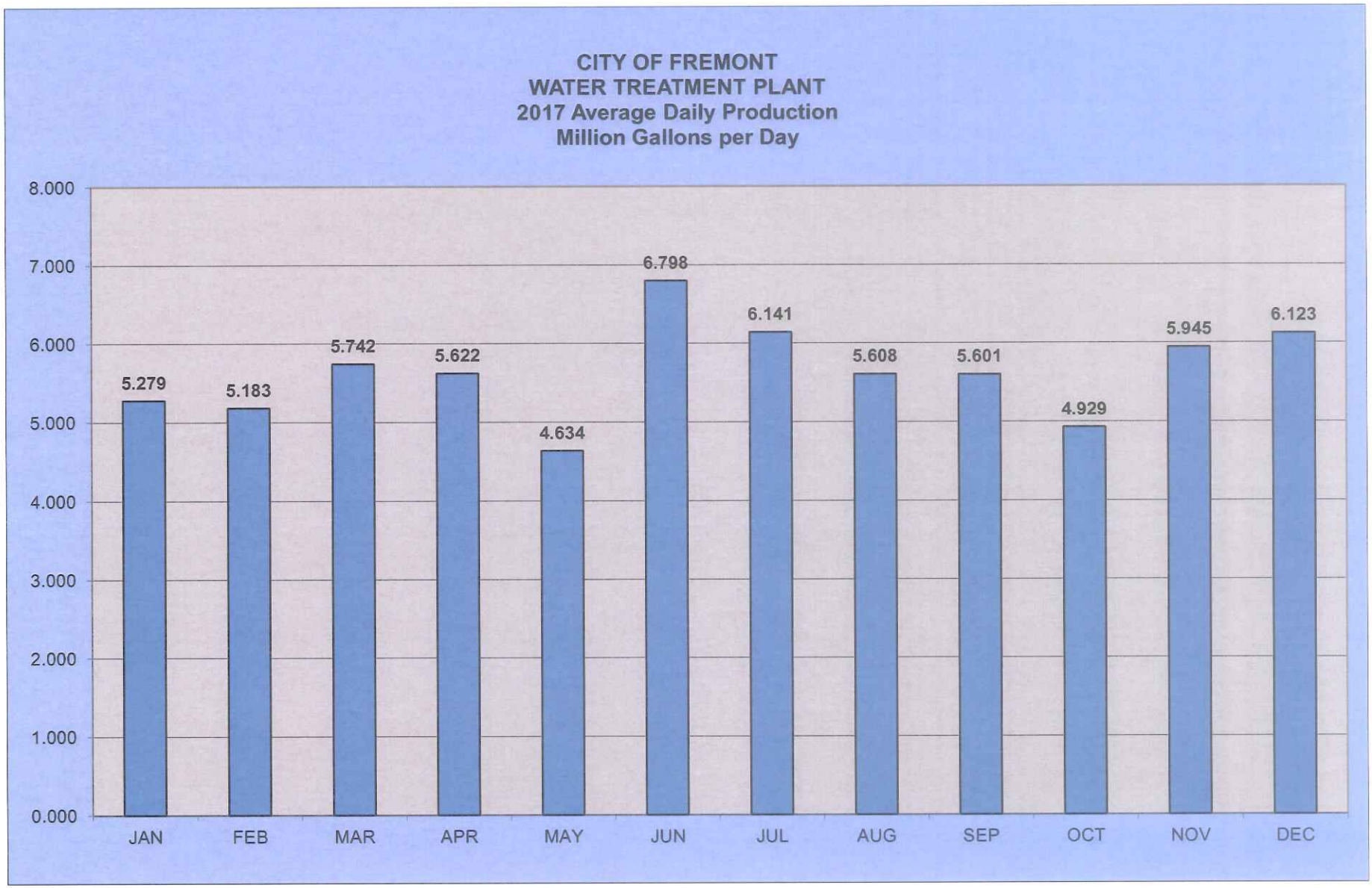
City of Fremont, Ohio
Water Treatment Plant
2017 Daily Mean River Flows at USGS Gauging Station
Max Day: 14.476 BG (7/4/17)
Min Day: 23.265 MG (10/4/17)

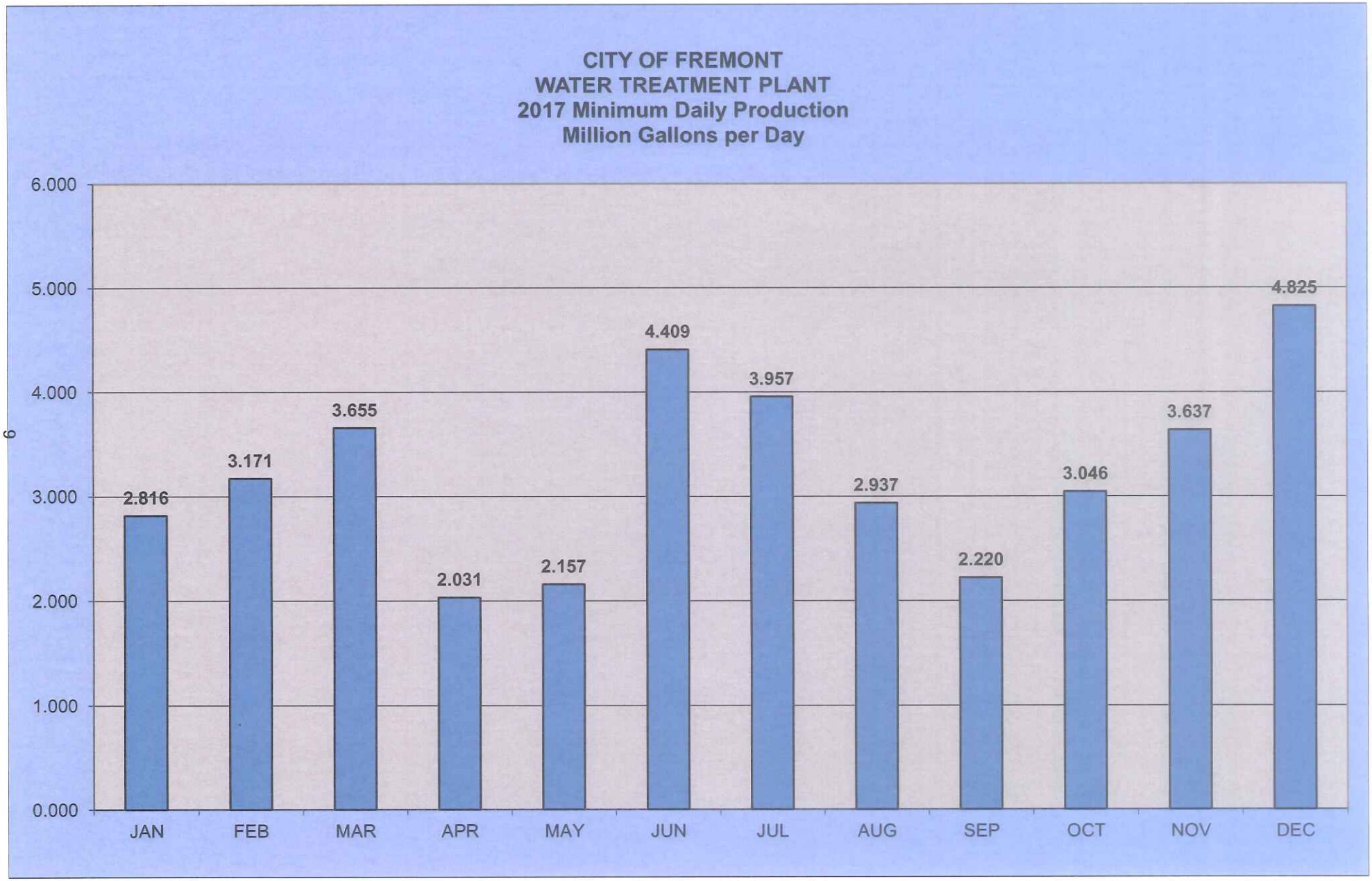


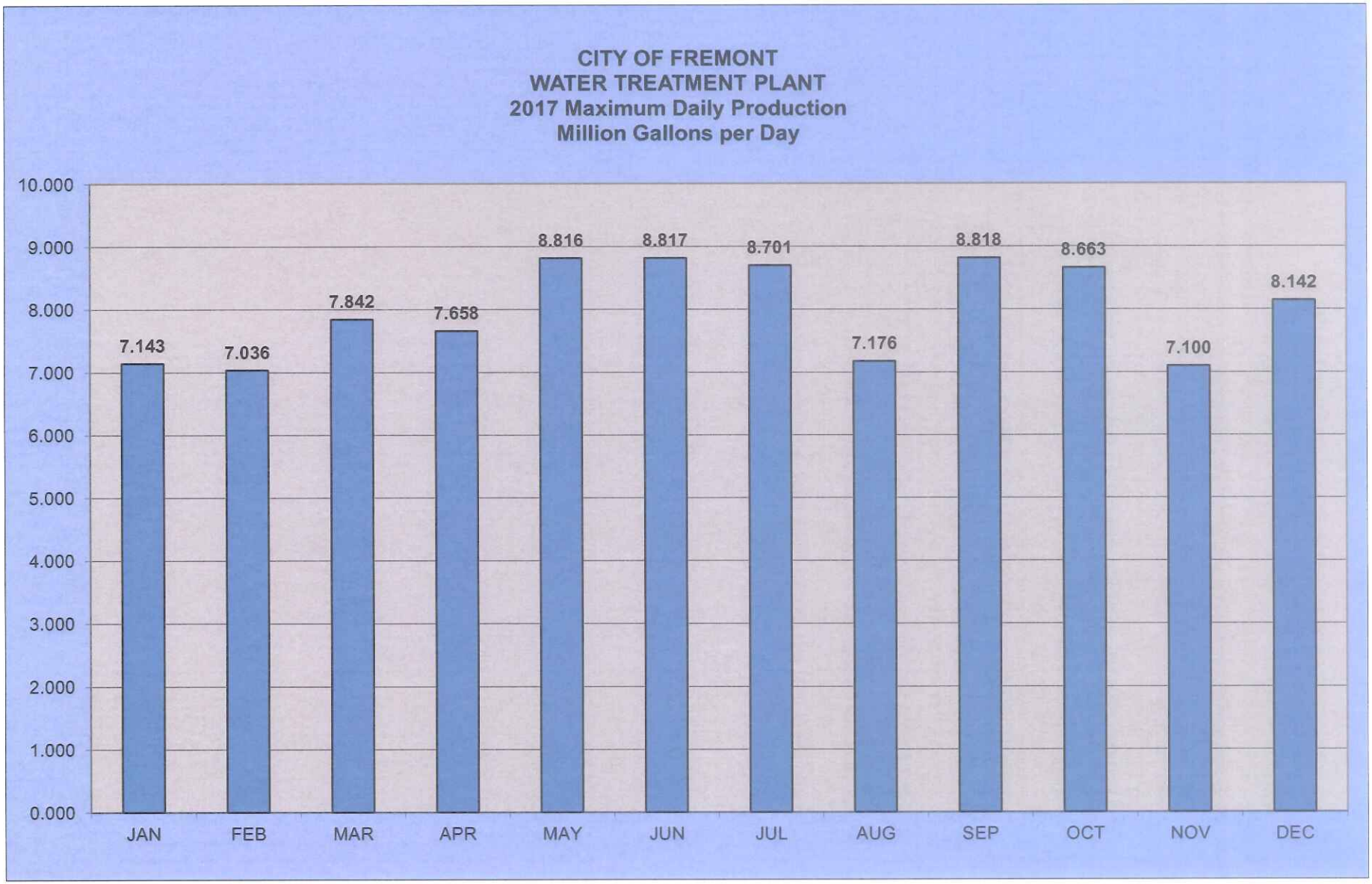

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT
Annual Production Totals
Billions of Gallons
2008 - 2017
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1.292
1.261
1.285
1.307
2.033
1.658
1.571
1.920
1.869
2.056
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT
2017 Monthly Production Totals
Million Gallons per Day




CITY OF FREMONT
WATER TREATMENT PLANT
2017 Average Daily Production
Million Gallons per Day
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
5.279
5.183
5.742
5.622
4.634
6.798
6.141
5.608
5.601
4.929
5.945
6.123
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

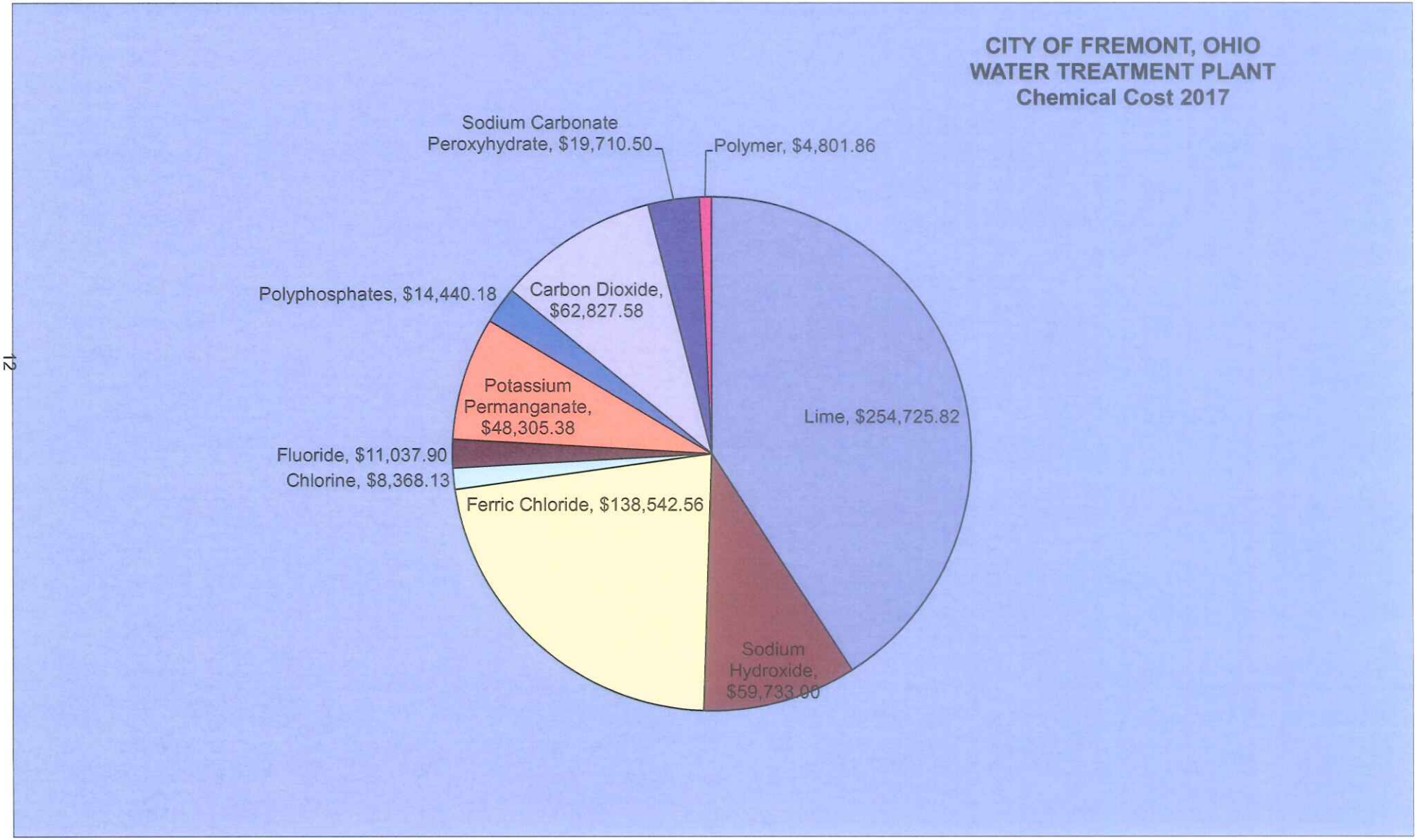

CITY OF FREMONT
WATER TREATMENT PLANT
2017 Minimum Daily Production
Million Gallons per Day
6.000
5.000
4.000
3.000
2.000
1.000
0.000
2.816
3.171
3.655
2.031
2.157
4.409
3.957
2.937
2.220
3.046
3.637
4.825
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC


CITY OF FREMONT
WATER TREATMENT PLANT
2017 Maximum Daily Production
Million Gallons per Day
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
7.143
7.036
7.842
7.658
8.816
8.817
8.701
7.176
8.818
8.663
7.100
8.142
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Monthly Production Report

2017	Million Gallons			
	Total	Avg	Min	Max
JAN	163.647	5.279	2.816	7.143
FEB	145.119	5.183	3.171	7.036
MAR	178.002	5.742	3.655	7.842
APR	168.660	5.622	2.031	7.658
MAY	143.653	4.634	2.157	8.816
JUN	203.933	6.798	4.409	8.817
JUL	190.359	6.141	3.957	8.701
AUG	173.844	5.608	2.937	7.176
SEP	168.031	5.601	2.220	8.818
OCT	152.807	4.929	3.046	8.663
NOV	178.339	5.945	3.637	7.100
DEC	189.801	6.123	4.825	8.142
TOTAL	2,056.195	5.633	2.031	8.818


CITY OF FREMONT, OHIO
WATER TREATMENT PLANT
Chemical Cost 2017
Sodium Carbonate Peroxyhydrate, $19,710.50
Polymer, $4,801.86
Polyphosphates, $14,440.18
Carbon Dioxide, $62,827.58
Potassium Permanganate, $48,305.38
Fluoride, $11,037.90
Chlorine, $8,368.13
Ferric Chloride, $138,542.56
Lime, $254,725.82
Sodium Hydroxide, $59,733.00

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT
Chemical Report

Chemical 2017	Total Pounds	Average Daily Dose (mg/L)	Cost per Pound	Cost per Million Gallons	Total Annual Cost	Percent of Total Cost
Lime	2,927,883	170.7	0.087	$123.88	$254,725.82	41.2%
Sodium Hydroxide	199,110	11.6	0.3	$29.05	$59,733.00	9.7%
Ferric Chloride	667,675	38.9	0.2075	$67.38	$138,542.56	22.4%
Chlorine	53,131	3.1	0.1575	$4.07	$8,368.13	1.4%
Fluoride	63,619	3.7	0.1735	$5.37	$11,037.90	1.8%
Potassium Permanganate	15,025	0.9	3.215	$23.49	$48,305.38	7.8%
Polyphosphates	15,956	0.9	0.905	$7.02	$14,440.18	2.3%
Carbon Dioxide	837,701	48.8	0.075	$30.56	$62,827.58	10.2%
Sodium Carbonate Peroxyhydrate	19,750	1.2	0.998	$9.59	$19,710.50	3.2%
Polymer	4326	0.3	1.11	$2.34	$4,801.86	0.8%

Total Production (Million Gallons): 2,056.195

Chemical Cost per Million Gallons: $300.40

Total Chemical Cost: $617,691.04

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Chemical Feeds in Pounds

2017	Lime				Caustic Soda				Ferric Chloride			
	Total	Avg	Min	Max	Total	Avg	Min	Max	Total	Avg	Min	Max
JAN	185380	5980	2589	8694	45667	1473	684	2124	53475	1725	945	2421
FEB	176695	6311	4061	8803	44874	1603	998	2361	44761	1599	1035	2326
MAR	259876	8383	5820	10690	57741	1863	1376	2112	58054	1873	1408	2101
APR	276831	9228	4520	12995	26941	5329	198	2118	53532	1784	886	2371
MAY	222727	7185	4061	12738	281	281	281	281	49929	1611	832	2839
JUN	302570	10086	7777	12937	0		0	0	64822	2161	1777	2731
JUL	278129	8972	5783	11708	0		0	0	68428	2207	1534	2835
AUG	242944	7837	4339	10272	0		0	0	62096	2003	1156	2623
SEP	234336	7811	3303	11343	0		0	0	60553	2018	1026	2853
OCT	216255	6976	3784	10859	0		0	0	47342	1527	828	2403
NOV	255857	8529	5329	10691	0		0	0	52797	1760	1233	2110
DEC	276283	8912	7140	10338	23606	1674	275	1600	51886	1674	1305	2092
Total	2927883	8022	2589	12995	199110	1443	198	2361	667675	1829	828	2853

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Chemical Feeds in Pounds

2017	Pre Chlorine				Post Chlorine				Flouride			
	Total	Avg	Min	Max	Total	Avg	Min	Max	Total	Avg	Min	Max
JAN	1154	37	15	53	2921	94	49	139	4041	130	70	207
FEB	986	35	16	60	2439	87	49	133	3633	130	62	228
MAR	1213	39	28	51	3137	101	77	124	5189	167	115	199
APR	1179	39	10	58	3229	108	55	162	5183	173	87	243
MAY	1112	36	16	73	3365	109	57	210	4906	158	85	275
JUN	1498	50	40	61	3920	131	108	168	6355	212	178	246
JUL	1386	45	23	62	3575	115	85	153	6342	205	119	271
AUG	1294	42	15	62	3230	104	60	137	5841	188	105	240
SEP	1246	42	15	60	3222	107	49	150	5766	192	92	270
OCT	1264	41	18	66	2720	88	54	159	4981	161	88	265
NOV	1346	45	30	58	2990	100	73	122	5561	185	124	239
DEC	1492	48	36	63	3213	104	80	133	5821	188	148	253
Total	15170	42	10	73	37961	104	49	210	63619	174	62	275

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Chemical Feeds in Pounds

2017	Potassium Permanganate				Polyphosphates				Carbon Dioxide			
	Total	Avg	Min	Max	Total	Avg	Min	Max	Total	Avg	Min	Max
JAN	1305	42	20	75	1235	40	23	53	71625	2310	1334	3107
FEB	1148	41	18	77	1122	40	26	60	68539	2448	1561	3508
MAR	1546	50	32	73	1446	47	35	53	86130	2778	1988	3349
APR	1281	43	17	66	1347	45	21	60	73303	2443	1186	3197
MAY	996	32	18	64	1192	38	21	68	58757	1895	966	3495
JUN	1502	50	34	72	1527	51	42	61	73526	2451	1764	3330
JUL	1278	41	23	66	1425	46	30	61	65121	2101	1410	3206
AUG	1344	43	18	76	1357	44	24	58	62617	2020	1020	2940
SEP	1153	38	20	63	1286	43	23	59	61709	2057	969	2902
OCT	1058	34	18	58	1174	38	20	62	56230	1814	1048	2825
NOV	1195	40	24	56	1378	46	31	54	68671	2289	1644	2957
DEC	1219	39	28	51	1467	47	38	59	91473	2951	2153	4000
Total	15025	41	62	275	15956	44	20	68	837701	2295	966	4000

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Chemical Feeds in Pounds

2017	Polymer			
	Total	Avg	Min	Max
JAN	0		0	0
FEB	0		0	0
MAR	0		0	0
APR	0		0	0
MAY	347	25	13	32
JUN	899	30	24	37
JUL	814	26	18	35
AUG	771	25	12	32
SEP	750	25	10	34
OCT	694	22	12	34
NOV	51	26	25	26
DEC	0		0	0
Total	4326	26	10	37

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Chemical Feed Doses
ppm

2017	Lime			NaOH			FeCl3			Pre Cl		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	128	90	153	31	21	35	37	33	41	0.8	0.5	0.9
FEB	136	109	166	34	30	35	34	30	37	0.7	0.5	0.9
MAR	154	121	179	34	33	36	35	33	37	0.7	0.5	0.9
APR	182	139	215	19	7	35	35	32	38	0.8	0.3	1.0
MAY	158	133	182	6	6	6	35	30	41	0.8	0.6	1.0
JUN	168	144	215		0	0	36	32	42	0.8	0.5	0.9
JUL	167	137	224		0	0	41	36	45	0.8	0.6	1.0
AUG	152	137	183		0	0	39	26	43	0.8	0.5	1.0
SEP	152	118	176		6	0	40	36	43	0.8	0.5	0.9
OCT	157	145	194		0	0	34	29	45	0.9	0.7	1.1
NOV	167	110	194		0	0	35	29	38	0.9	0.7	1.1
DEC	162	146	174	21	6	24	30	29	31	0.9	0.8	0.9
	157	90	224	28	6	36	36	26	45	0.8	0.3	1.1

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Chemical Feed Doses
ppm

2017	Post Cl			Fluoride			KMnO4			PO4		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	2.0	1.7	2.3	0.6	0.5	0.9	0.9	0.6	1.4	0.9	0.7	0.9
FEB	1.9	1.5	2.1	0.5	0.4	0.7	0.9	0.6	1.1	0.9	0.8	0.9
MAR	1.9	1.7	2.1	0.6	0.5	0.7	0.9	0.6	1.2	0.9	0.8	0.9
APR	2.1	1.7	2.5	0.7	0.6	0.8	0.8	0.6	1.1	0.9	0.7	1.0
MAY	2.4	2.0	2.8	0.7	0.5	0.8	0.7	0.6	1.1	0.8	0.7	1.0
JUN	2.2	1.4	2.5	0.7	0.6	0.8	0.8	0.5	1.1	0.8	0.7	0.9
JUL	2.1	1.9	2.4	0.7	0.6	0.9	0.8	0.5	1.1	0.9	0.7	1.0
AUG	2.0	1.4	2.3	0.7	0.6	0.8	0.8	0.6	1.2	0.8	0.8	1.0
SEP	2.1	1.8	2.7	0.7	0.7	0.9	0.8	0.6	1.1	0.8	0.8	1.0
OCT	1.9	1.5	2.5	0.7	0.6	0.8	0.8	0.6	1.0	0.8	0.7	1.0
NOV	2.0	1.7	2.2	0.7	0.6	0.9	0.8	0.6	1.0	0.9	0.8	1.1
DEC	1.9	1.7	2.1	0.7	0.6	0.7	0.7	0.6	0.9	0.9	0.8	0.9
	2.0	1.4	2.8	0.7	0.4	0.9	0.8	0.5	1.4	0.9	0.7	1.1

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Chemical Feed Doses
ppm

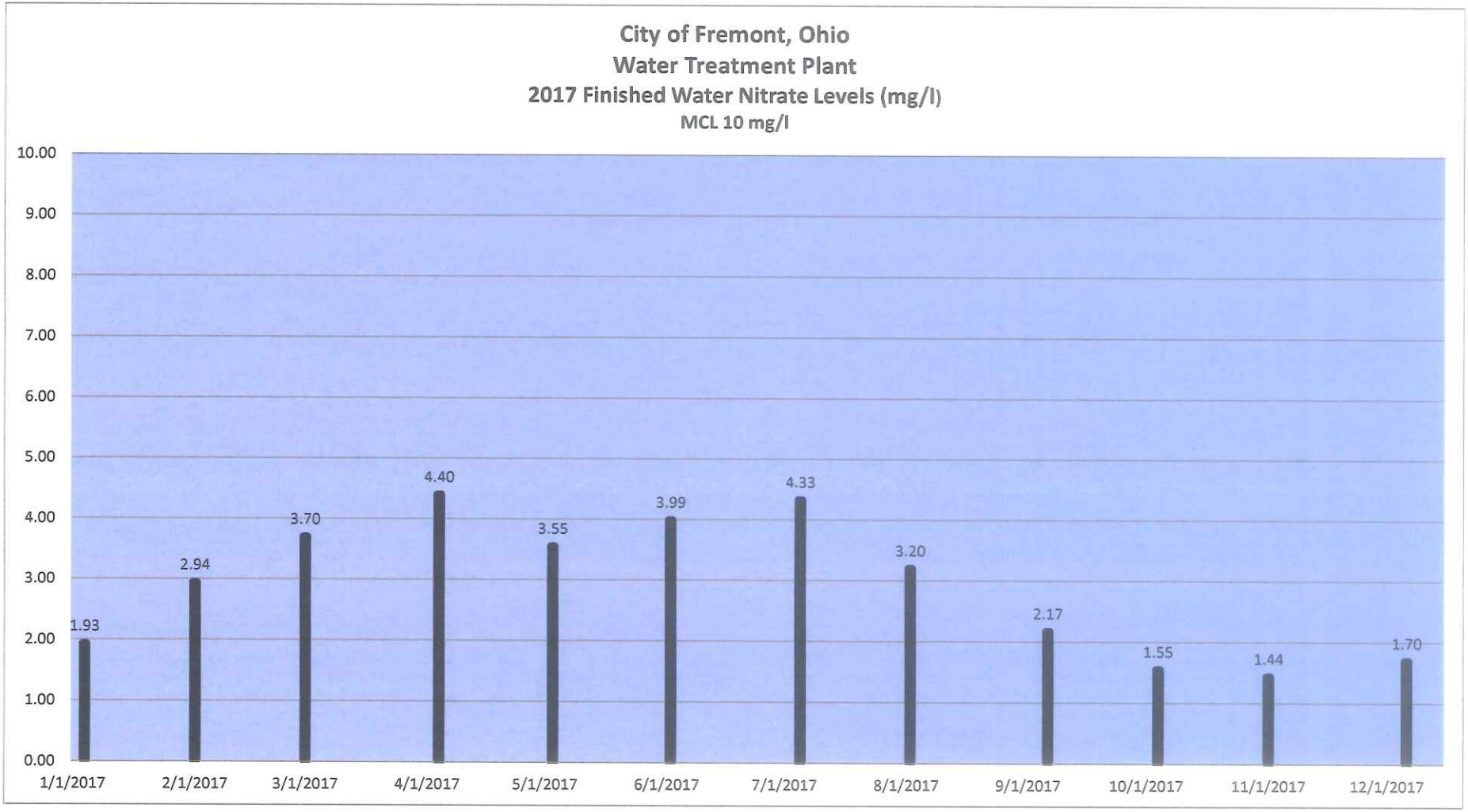
2017	CO2			Poymer		
	Avg	Min	Max	Avg	Min	Max
JAN	49	43	59		0.0	0.0
FEB	52	45	59		0.0	0.0
MAR	51	45	61		0.0	0.0
APR	48	43	57		0.0	0.0
MAY	42	33	53	0.5	0.4	0.5
JUN	41	32	46	0.5	0.4	0.5
JUL	39	32	46	0.5	0.4	0.5
AUG	39	32	48	0.5	0.4	0.5
SEP	40	34	47	0.5	0.4	0.5
OCT	41	32	49	0.5	0.4	0.6
NOV	45	38	52	0.5	0.5	0.5
DEC	53	43	63		0.0	0.0
	45	32	63	0.5	0.4	0.6

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Filter Run Report

2017	No. of Fiters Used per Day			Filter Hours per Day				Length of Filter Runs			No. of Filter Washes			
	Avg	Min	Max	Total	Avg	Min	Max	Avg	Min	Max	Total per Month	Avg per Day	Min per Day	Max per Day
JAN	10.2	6.0	14.0	5782.3	186.5	119.9	235.4	98.4	80.1	101.2	63	2.5	1.0	7.0
FEB	10.1	7.0	14.0	5232.2	186.9	120.1	260.1	100.3	98.8	102.9	50	2.3	1.0	5.0
MAR	11.4	9.0	13.0	6801.2	219.4	170.7	240.0	100.0	92.2	104.4	69	2.4	1.0	5.0
APR	11.3	6.0	15.0	6218.8	207.3	118.3	262.3	98.9	67.7	104.0	64	2.4	1.0	5.0
MAY	9.8	6.0	16.0	5634.3	181.8	119.8	312.3	100.5	97.5	104.1	54	1.9	1.0	4.0
JUN	12.2	10.0	14.0	7032.2	234.4	204.0	263.9	100.5	97.4	104.3	70	2.3	1.0	5.0
JUL	11.3	9.0	14.0	6632.1	213.9	159.1	272.3	100.4	98.4	103.6	67	2.2	1.0	4.0
AUG	10.7	7.0	14.0	6183.9	199.5	119.6	257.7	99.7	94.5	101.2	60	2.2	1.0	5.0
SEP	10.1	5.0	14.0	5832.8	194.4	95.5	264.0	99.9	96.7	101.7	61	2.3	1.0	4.0
OCT	9.0	5.0	14.0	5240.3	169.0	95.2	272.6	100.2	97.6	102.1	52	2.3	1.0	5.0
NOV	11.0	8.0	15.0	6326.2	210.9	167.6	240.2	99.7	97.1	100.8	60	2.5	1.0	5.0
DEC	11.2	9.0	14.0	6645.1	214.4	176.4	264.0	99.0	67.9	101.4	70	2.9	1.0	5.0
	10.7	5.0	16.0	73561.4	201.5	95.2	312.3	99.8	67.7	104.4	740	2.3	1.0	7.0

Avg. Filter Loading Rate: 1.73 gpm/ft^2


City of Fremont, Ohio
Water Treatment Plant
2017 Finished Water Nitrate Levels (mg/l)
MCL 10 mg/l
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1.93
2.94
3.70
4.40
3.55
3.99
4.33
3.20
2.17
1.55
1.44
1.70
1/1/2017
2/1/2017
3/1/2017
4/1/2017
5/1/2017
6/1/2017
7/1/2017
8/1/2017
9/1/2017
10/1/2017
11/1/2017
12/1/2017

City of Fremont, Ohio
Water Treatment Plant
Finished Water Nitrate Levels 2017

Date	Nitrate mg/l
1/4/2017	1.93
2/1/2017	2.94
3/1/2017	3.70
4/4/2017	4.40
5/3/2017	3.55
6/2/2017	3.99
7/5/2017	4.33
8/2/2017	3.20
9/6/2017	2.17
10/4/2017	1.55
11/1/2017	1.44
12/6/2017	1.70
Maximum	4.40
Minimum	1.44

City of Fremont, Ohio
Water Treatment Plant

Hourly Employee and Leave Report

2017	Time Taken Off					Total Hours Worked		
Position	Vacation	CRS	Comp	Hol	Sick	Reg Hours	OT Hours	Total Hours
Operator	160	40	8	84	241	1547	137.5	1684.5
Secretary	182	28	0	76	32.5	1501.5	0	1501.5
Operator	120	9	56.5	68	12	1814.5	192	2006.5
Operator	112	40	48	4	0	1876	288	2164
Operator	104	0	0	56	0	280	32	312
Maint. Mechanic	192	8	11	60	16	1313	30.75	1343.75
Operator	152	48	0	8	0	1872	304	2176
Laboratory Tech	184	42	0	90	0	1762	98.75	1860.75
Operator	88	0	48	100	71	1793	108.25	1901.25
Maintenance Foreman	124	0	52	92	0	1812.5	38	1850.5
Maint. Mechanic	200	0	35.5	92	136.25	1616.25	24	1640.25
	1618	215	259	730	508.75	17187.75	1253.25	18441

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Laboratory Report 2017

Chemical Section	Raw	Mixed	Settled	Applied	Filtered	Tap	System
Calcium Hardness	365		1095	1095	1095	1095	208
Carbonate Stability						52	52
Combined Chlorine Residual				1095		2190	365
Fluoride (City of Fremont)	12					1095	365
Fluoride (Outside Samples)							8
Free Chlorine Residual				4380		4380	365
Magnesium Hardness	365				365	365	208
Nitrate (City of Fremont)						12	
Nitrate (Others)							22
Noncarbonate Hardness	365				365	365	
pH	365		2190	2190	1095	2190	208
Phenol Alkalinity		4380	2190	4380	2190	2190	208
Phosphorous							
Total Alkalinity	2190	4380	2190	4380	2190	2190	208
Total Hardness	365				365	365	208
Turbidity	2190				2190	2190	208

Bacteriological Section Total Coliform Testing	Total
City of Fremont	297
Others (Public and Private Entities)	198
Sandusky County Health Department	138
Total for 2017	633

Tests Sent To Outside Labs:	Total
5 Haloacetic Acids (HAA5)	16
M.C.L. Inorganics	1
Phosphorous	12
Atrazine	36
Synthetic Organic Chemicals (SOC)	3
Total Organic Carbon (TOC)	24
Total Trihalomethanes	16
Cyanobacteria Screening	26
Microcystin	22
LT2 Monitoring	12
LT2 Matrix Spike	1
SOC (Group) 4	1
Lead & Copper	30
Volatile Organic Chemicals (VOC)	1

2017 Achievements
Ohio EPA Water Study Performance Evaluations- April
Ohio EPA Microbiological Proficiency Test- September
Ohio EPA Water Study Performance Evaluation- October
Ohio EPA Recertification for Micro Analysis

2018 Goals
Ohio EPA Water Study Performance Evaluation - April
Ohio EPA Microbiological Proficiency Test - September
Ohio EPA Water Study Performance Evaluation - October
Ohio EPA Recertification for Chemical Analysis

City of Fremont
Water Treatment Plant
Budget 2017

For the Period: 1/1/2016 to 12/31/2016				
Fund: 510 - WATER OPERATING				
Expenditures	Original Bud.	Amended Bud.	YTD Actual	% Bud
Dept: 442 TREATMENT PLANT				
701.000 Wages	780,000.00	780,000.00	763,464.60	97.9%
709.000 Dental Insurance	5,500.00	5,500.00	5,320.00	96.7%
712.000 Hospital & Medical	154,500.00	154,500.00	142,776.88	92.4%
713.000 Life Insurance	675.00	675.00	652.80	96.7%
718.000 Medicare	11,350.00	11,350.00	9,446.31	83.2%
720.000 P E R S	109,200.00	109,200.00	106,143.05	97.2%
723.000 Recreation Center	600.00	600.00	875.00	145.8%
724.000 Uniform Expense	3,700.00	3,700.00	4,150.75	112.2%
726.000 Workers Compensation	12,825.00	12,825.00	13,797.40	107.6%
740.000 Chemicals	700,000.00	700,000.00	578,313.02	82.6%
744.000 Lab Expenses	40,000.00	40,000.00	30,815.69	77.0%
752.000 Repairs Internal	3,037.00	3,037.00	2,960.04	97.5%
754.000 Repairs & Maintenance	162,000.00	162,000.00	140,807.01	86.9%
762.000 Supplies	6,000.00	6,000.00	6,422.97	107.0%
809.000 Building Cleaning	3,250.00	3,250.00	1,540.88	47.4%
833.000 Insurance	63,000.00	63,000.00	62,949.66	99.9%
839.000 Ohio EPA Tax	10,500.00	10,500.00	10,702.00	101.9%
851.000 Service Agreement	368,000.00	368,000.00	379,114.50	103.0%
853.000 Sludge Hauling	40,000.00	40,000.00	19,043.40	47.6%
867.000 USGS Agreement	3,000.00	3,000.00	2,905.50	96.9%
890.000 Heat & Power	415,000.00	415,000.00	351,174.18	84.6%
909.000 Conference & Training	3,500.00	3,500.00	1,696.72	48.5%
917.000 Dues & Subscriptions	2,800.00	2,800.00	1,816.00	64.9%
944.000 Telephone & Postage	30,000.00	30,000.00	34,732.31	115.8%
960.000 Vehicle Expense	3,000.00	3,000.00	2,333.60	77.8%
972.000 Equipment	105,000.00	105,000.00	76,559.70	72.9%
975.000 Improvements	105,000.00	105,000.00	93,492.00	89.0%
985.000 Vehicles				
TREATMENT PLANT	3,141,437.00	3,141,437.00	2,844,005.97	90.5%

City of Fremont
Water Treatment Plant
Budget 2017

For the Period: 1/1/2016 to 12/31/2016				
Fund: 510 - WATER OPERATING				
Expenditures	Original Bud.	Amended Bud.	YTD Actual	% Bud
Dept: 446 IMPROVEMENTS & OTHER				
813.000 C D L Testing	800.00	800.00	92.14	11.5%
815.000 Computer Services	9,200.00	9,200.00	16,358.80	177.8%
817.000 Contract Expenses	37,000.00	37,000.00	32,027.71	86.6%
827.000 Engineering	12,000.00	12,000.00	4,100.00	34.2%
835.000 Legal & Professional Fees	20,000.00	20,000.00	17,932.80	89.7%
847.000 OSHA Program	9,000.00	9,000.00	6,202.01	68.9%
939.000 Refunds	5,500.00	5,500.00	2,411.33	43.8%
975.000 Improvements	340,200.00	669,172.50	214,747.32	32.1%
990.000 Transfer for Debt	409,700.00	409,700.00	409,700.00	100.0%
990.100 Trans Out - Reservoir Phase 2a	48,202.00	48,202.00	48,202.00	100.0%
990.200 Trans Out-Reservoir Phase 2b	113,211.00	113,211.00	113,211.00	100.0%
990.300 Trans-Out-Res-Phase 1 Supplem	1,378,739.00	1,378,739.00	1,378,739.00	100.0%
990.400 Trans-Out-Reservoir Phase 1	387,707.00	387,707.00	387,707.00	100.0%
998.000 Transfer-Out	0.00	1,200,000.00	1,200,000.00	100.0%
IMPROVEMENTS & OTHER	2,771,259.00	4,300,231.50	3,831,431.11	89.1%

Fremont Water Treatment Plant
Drinking Water Consumer Confidence Report
For 2016

The Fremont Water Treatment Plant has prepared the following report to provide information to you, the consumer, on the quality of our drinking water. Included within this report is general health information, water quality test results, how to participate in decisions concerning your drinking water and water system contacts.

Where does our water come from? The Fremont Water Treatment Plant receives its source water from the Sandusky River. The water is pumped to the Fremont Reservoir. Water flows to the Fremont Water Treatment Plant from the Fremont Reservoir. Surface waters are by their nature susceptible to contamination, and there are numerous potential contaminant sources, including agricultural runoff, oil/gas wells, inadequate septic systems, leaking underground storage tanks, and road and rail crossings. As a result, the surface water supplied to these plants is considered to have a high susceptibility to contamination.

What are sources of contamination to drinking water? The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include: (A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; (B) Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; (D) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; (E) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Federal Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

Who needs to take special precautions? Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infection. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

About your drinking water The EPA requires regular sampling to ensure drinking water safety. The Fremont Water Treatment Plant conducted sampling for bacteria; inorganic; synthetic organic; volatile organic and cyanotoxin contaminants during 2016. Samples were collected for a total of 48 different contaminants most of which were not detected in the city of Fremont water supply. The Ohio EPA requires us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, are more than one year old.

How do I participate in decisions concerning my drinking water? Public participation and comment are encouraged at regular meetings of the Fremont city council which meets at 7:30pm on the first and third Thursdays of each month at

the Fremont Municipal Building. For more information on your drinking water or additional copies you may contact Stephen Lamale at 419-332-3581. This report is also available on the City of Fremont website at www.fremontohio.org.

In 2016 we had an unconditioned license to operate our water system. Listed below is information on those contaminants that were found in the city of Fremont drinking water. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. The Ohio EPA requires us to monitor for certain contaminants less than once a year because the concentrations of these contaminants do not change frequently.

TABLE OF DETECTED CONTAMINANTS

Contaminants (Units)	MCLG	MCL	Level Found	Range of Detections	Violation	Sample Year	Typical Source of Contaminants
Microbiological							
Turbidity (% samples meeting standard)	NA	TT	100	100-100	No	2016	Naturally present in the environment
Turbidity (NTU)[1]	NA	TT	0.06	0.04-0.10	No	2016	Soil Runoff
Inorganic Contaminants							
Barium (ppm)	2	2	0.02	0.02 - 0.02	No	2016	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4	4	1.09	0.81 - 1.42	No	2016	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	3.19	1.11 - 3.19	No	2016	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Synthetic Organic Contaminants including pesticides and herbicides							
Atrazine (ppb)	3	3	0.41	0.24 - 0.41	No	2016	Runoff from herbicide used on row crops
Simazine (ppb)	4	4	0.09	0.06 - 0.09	No	2016	Runoff from herbicide used on row crops
Disinfection By-Products							
Total Trihalomethanes (ppb)	0	80	75.9	30.4 - 103.0	No	2016	By-product of water chlorination
Haloacetic Acids (ppb)	0	60	22.0	11.4 - 29.2	No	2016	By-product of water chlorination
Residual Disinfectants							
Chlorine (ppm)	MRDL=4 mg/l	MRDL= 4 mg/l	1.51	0.32 - 2.13	No	2016	Water additive used to control microbes
Cyanotoxins							
Saxitoxin (ppb)	0	0.2	0.028	<0.022 - 0.028	No	2016	A toxin produced by cyanobacteria

Total Organic Carbon (TOC)[2]						
MCL	Min. Ratio of % removal to required % removal	Level Found	Range of Monthly Ratios	Violation	Sample Year	Typical Source of Contaminants
TT	1	2.1	1.8 – 3.3	No	2016	Normally present in the environment

Lead and Copper						
Contaminants (units)	Action Level (AL)	Individual Results over the AL	90% of test levels were less than	Violation	Year Sampled	Typical source of Contaminants
Lead (ppb)[3]	15 ppb	60 ppb	3.2	No	2014	Corrosion of household plumbing systems; Erosion of natural deposits
	1 out of 30 samples were found to have lead levels in excess of the lead action level of 15 ppb.					
Copper (ppm)	1.3 ppm	NA	0.047	No	2014	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing
	0 out of 30 samples were found to have copper levels in excess of the copper action level of 1.3 ppm.					

Unregulated Contaminants					
		Chromium-6	Molybdenum	Strontium	Vanadium
Plant Tap (ppb)	Average	0.89	3.95	2422	0.22
	Range	0.7 – 1.6	1.76 – 6.0	600 - 3500	0.20 -0.23
Distribution (ppb)	Average	1.04	4.67	2410	0.22
	Range	0.57 – 1.8	3.28 – 6.6	1030 – 3300	0.22 – 0.23

Unregulated contaminants monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. The results in this table are from sampling done for the Unregulated Contaminant Monitoring Rule in 2013.

[1]**Turbidity** is a measure of the cloudiness of water and is an indication of the effectiveness of our filtration system. The turbidity limit set by the EPA is 0.3 NTU in 95% of the daily samples and shall not exceed 5 NTU at any time. As reported above, the Fremont WTP highest recorded turbidity result for 2016 was 0.10 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%.

[2]**Total Organic Carbon (TOC)** The value reported under "Level Found" for Total Organic Carbon is the lowest ratio between the percentage of TOC actually removed to the percentage of TOC required to be removed. Our water system is in compliance with TOC removal requirements if the value is greater than one (1). A value less than one indicates a violation of the TOC requirements.

[3]**Lead Educational Information** If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Fremont WTP is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 800-426-4791or at http://www.epa.gov/safewater/lead.

Important Drinking Water Definitions

- **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Contaminant level (MCL):** The highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Maximum Residual Disinfectant Level Goal (MRDLG):** The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.
- **Microcystins:** Liver toxins produced by a number of cyanobacteria. Total microcystins are the sum of all the variants/congeners (forms) of the cyanotoxin microcystin.
- **Cyanobacteria:** Photosynthesizing bacteria, also called blue-green algae, which naturally occur in marine and freshwater ecosystems, and may produce cyanotoxins, which at sufficiently high concentrations can pose a risk to public health.
- **Cyanotoxin:** Toxin produced by cyanobacteria. These toxins include liver toxins, nerve toxins, and skin toxins. Also sometimes referred to as "algal toxin".
- **Parts per Million (ppm)** or Milligrams per Liter (mg/L) are units of measure for concentration of a contaminant. A part per million corresponds to one second in a little over 11.5 days.
- **Parts per Billion (ppb)** or Micrograms per Liter (µg/L) are units of measure for concentration of a contaminant. A part per billion corresponds to one second in 31.7 years.
- **NTU:** Nephelometric Turbidity Unit. A Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- The **"<"** symbol: A symbol which means less than. A result of <5 means that the lowest level that could be detected was 5 and the contaminant in that sample was not detected.
- **NA:** Not applicable

1113 Tiffin Street
Fremont, Ohio 43420

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Monthly Analyses

2017	Raw Total Hardness			Raw Total Alkalinity			Raw pH			Raw Turbidity		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	301	288	314	152	143	157	8.35	8.24	8.49	5.5	2.0	13.0
FEB	290	284	294	149	144	152	8.39	8.30	8.50	7.3	4.0	14.0
MAR	294	288	300	155	151	161	8.46	8.42	8.53	4.1	2.0	7.0
APR	292	284	302	158	155	161	8.40	8.22	8.51	2.1	1.0	4.0
MAY	284	276	290	155	150	159	8.24	8.03	8.38	1.6	1.0	6.0
JUN	268	256	278	147	135	154	8.25	8.09	8.46	1.8	1.0	4.0
JUL	248	230	274	136	126	146	8.02	7.59	8.23	1.1	1.0	2.0
AUG	230	226	240	133	130	136	8.02	7.77	8.27	1.0	1.0	1.0
SEP	238	224	246	133	120	135	8.03	7.58	8.22	1.1	1.0	2.0
OCT	257	226	272	136	123	143	8.10	7.83	8.30	1.0	1.0	1.0
NOV	272	268	278	144	142	146	8.28	8.18	8.43	1.0	1.0	1.0
DEC	288	274	304	156	144	167	8.40	8.26	8.54	1.1	1.0	3.0
	272	224	314	146	120	167	8.24	7.58	8.54	2.4	1.0	14.0

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Monthly Analyses

2017	Raw Flouride			Raw Calcium			Raw Magnesium			Raw TDS		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	0.49	0.49	0.49	201	180	218	100	76	116	355	339	364
FEB	0.44	0.44	0.44	201	188	220	88	72	102	337	333	342
MAR	0.40	0.40	0.40	202	186	210	92	78	106	336	332	340
APR	0.39	0.39	0.39	198	188	214	94	84	104	324	33	340
MAY	0.35	0.35	0.35	192	180	202	92	78	104	326	316	333
JUN	0.37	0.37	0.37	179	164	196	89	76	98	307	296	313
JUL	0.35	0.35	0.35	165	148	186	83	62	112	284	264	299
AUG	0.33	0.33	0.33	154	140	176	76	54	94	265	258	268
SEP	0.35	0.35	0.35	154	144	168	84	74	96	267	255	274
OCT	0.42	0.42	0.42	166	150	186	91	70	106	289	259	306
NOV	0.41	0.41	0.41	188	166	202	84	68	104	305	301	309
DEC	0.36	0.36	0.36	198	162	224	90	72	136	312	302	327
	0.39	0.33	0.49	183	140	224	89	54	136	309	33	364

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Monthly Analyses

2017	Tap Hardness			Tap Total Alkalinity			Tap Phenol Alkalinity			Tap pH		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	210	190	224	65	52	74	15	11	21	9.23	8.91	9.50
FEB	194	182	202	65	55	76	14	6	22	9.27	9.03	9.62
MAR	190	184	198	63	58	70	12	6	15	9.20	8.99	9.41
APR	198	180	228	52	42	63	10	5	16	9.17	8.82	9.44
MAY	205	192	220	44	33	53	11	7	14	9.24	8.83	9.39
JUN	197	190	202	42	35	49	12	8	17	9.28	9.05	9.43
JUL	185	168	198	35	29	40	9	7	15	9.22	9.05	9.35
AUG	173	160	184	37	26	47	10	5	15	9.22	8.81	9.45
SEP	183	168	192	41	33	48	11	8	15	9.33	9.20	9.44
OCT	195	172	208	42	30	47	11	7	15	9.30	8.95	9.47
NOV	211	200	220	53	43	65	15	8	20	9.36	9.02	9.50
DEC	214	198	228	71	58	87	18	13	24	9.42	9.27	9.57
	196	160	228	51	26	87	12	5	24	9.27	8.81	9.62

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Monthly Analyses

2017	Tap Turbidity			Tap Flouride			Tap Free Chlorine			Tap Combined Chlorine		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	0.05	0.04	0.06	0.97	0.80	1.20	1.5	1.3	1.8	0.1	0.1	0.2
FEB	0.05	0.04	0.07	0.97	0.72	1.16	1.6	1.3	1.8	0.1	0.1	0.2
MAR	0.05	0.05	0.06	0.95	0.83	1.05	1.5	1.3	1.9	0.2	0.1	0.3
APR	0.05	0.05	0.06	0.97	0.90	1.04	1.6	0.9	2.1	0.2	0.2	0.2
MAY	0.05	0.04	0.06	0.96	0.88	1.08	1.9	1.4	2.2	0.2	0.1	0.6
JUN	0.05	0.05	0.06	0.94	0.88	1.10	1.8	1.6	2.1	0.1	0.1	0.2
JUL	0.05	0.05	0.06	0.99	0.90	1.05	1.8	1.5	2.0	0.2	0.1	0.3
AUG	0.05	0.05	0.07	0.98	0.86	1.05	1.8	1.5	2.1	0.2	0.1	0.3
SEP	0.05	0.04	0.06	1.00	0.90	1.12	1.8	1.5	2.1	0.2	0.1	0.3
OCT	0.05	0.04	0.06	1.00	0.90	1.15	1.7	1.3	2.1	0.2	0.1	0.2
NOV	0.05	0.04	0.06	1.01	0.96	1.13	1.7	1.5	1.9	0.2	0.1	0.2
DEC	0.05	0.04	0.05	1.01	0.84	1.11	1.7	1.5	1.8	0.2	0.1	0.2
	0.05	0.04	0.07	0.98	0.72	1.20	1.7	0.9	2.2	0.2	0.1	0.6

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Monthly Analyses

2017	Tap Calcium			Tap Magnesium			Tap TDS			Tap Temperatiure C		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	170	148	196	40	24	52	332	312	344	9.9	9.0	10.5
FEB	159	140	178	34	16	52	311	302	319	10.7	10.0	12.0
MAR	155	142	170	35	20	44	305	300	300	12.6	12.0	14.0
APR	165	146	196	33	22	44	293	283	304	15.4	13.0	18.0
MAY	175	160	194	30	20	40	277	266	289	18.5	17.0	21.0
JUN	169	160	180	28	20	36	263	255	269	22.7	21.0	25.0
JUL	162	148	174	23	14	34	250	231	262	24.9	23.0	26.0
AUG	149	132	168	24	16	36	233	220	244	24.8	24.0	25.5
SEP	157	144	168	26	16	40	238	231	243	22.5	22.0	24.0
OCT	165	142	180	29	20	44	253	232	269	20.6	17.0	22.0
NOV	177	164	190	34	20	42	269	264	273	15.3	13.5	18.5
DEC	181	164	198	33	24	44	278	267	296	10.9	9.0	14.0
	165	132	198	31	14	52	275	220	344	17.4	9.0	26.0

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Monthly Analyses

2017	Nitrates			Phosphate			Finished pHs			Finished Saturation Index		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	1.93	1.93	1.93	0.20	0.20	0.20	8.23	8.13	8.36	1.00	0.67	1.27
FEB	2.94	2.94	2.94	0.22	0.22	0.22	8.23	8.14	8.31	1.05	0.75	1.45
MAR	3.70	3.70	3.70	0.22	0.22	0.22	8.20	8.13	8.13	1.01	0.77	1.20
APR	4.40	4.40	4.40	0.23	0.23	0.23	8.19	8.08	8.26	0.98	0.62	1.28
MAY	3.55	3.55	3.55	0.25	0.25	0.25	8.16	8.07	8.31	1.08	0.69	1.28
JUN	3.99	3.99	3.99	0.27	0.27	0.27	8.09	7.98	8.22	1.19	0.97	1.38
JUL	4.33	4.33	4.33	0.22	0.22	0.22	8.13	8.05	8.24	1.09	0.92	1.22
AUG	3.20	3.20	3.20	0.22	0.22	0.22	8.15	8.01	8.34	1.07	0.68	1.36
SEP	2.17	2.17	2.17	0.25	0.25	0.25	8.13	8.04	8.24	1.20	1.00	1.36
OCT	1.55	1.55	1.55	0.18	0.18	0.18	8.15	8.06	8.32	1.15	0.71	1.34
NOV	1.44	1.44	1.44	0.24	0.24	0.24	8.15	8.04	8.25	1.22	0.83	1.41
DEC	1.70	1.70	1.70	0.26	0.26	0.26	8.12	8.04	8.21	1.30	1.13	1.51
	2.91	1.44	4.40	0.23	0.18	0.27	8.16	7.98	8.36	1.11	0.62	1.51

CITY OF FREMONT, OHIO
WATER TREATMENT PLANT

Monthly Analyses

2017	Raw TOC			Finished TOC			CT		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
JAN	4.5	4.5	4.5	0.7	0.7	0.7	200	140	357
FEB	4.7	4.7	4.7	1.2	1.2	1.2	214	159	345
MAR	4.6	4.6	4.6	1.4	1.4	1.4	178	150	234
APR	4.4	4.4	4.4	1.7	1.7	1.7	194	123	403
MAY	4.5	4.5	4.5	1.8	1.8	1.8	258	138	480
JUN	4.3	4.3	4.3	1.6	1.6	1.6	198	146	258
JUL	4.7	4.7	4.7	1.7	1.7	1.7	200	156	278
AUG	4.8	4.8	4.8	1.5	1.5	1.5	203	127	380
SEP	4.3	4.3	4.3	1.5	1.5	1.5	228	143	438
OCT	4.5	4.5	4.5	1.7	1.7	1.7	243	118	409
NOV	4.4	4.4	4.4	1.9	1.9	1.9	194	146	279
DEC	4.2	4.2	4.2	1.9	1.9	1.9	183	99	254
	4.5	4.2	4.8	1.6	0.7	1.9	208	99	480

City of Fremont, Ohio
Water Treatment Plant
2017
Disinfection By Products Sampling Results

			Trihalomethnes (ug/l)					Haloacetic Acids (ug/l)							
Date	Location		Chloro form	Bromo form	Bromo dichloro methane	Dibromo chloro methane	Total Trihalo methanes	Dibromo acetic Acid	Dichloro acetic Acid	Mono bromo acetic Acid	Mono chloro acetic Acid	Trichloro acetic Acid	Total Halo acetic Acids	TTHM LRA[1]	HAA5 LRA[2]
1/3/2017	DS201	Cedar Tank	0.8	3.5	1.6	3.9	9.8	1.8	<1.0	<1.0	<2.0	<1.0	<6.0		
	DS202	Sanitary Eng.	0.9	3.8	1.9	4.1	10.7	1.4	<1.0	<1.0	<2.0	<1.0	<6.0		
	DS203	Memorial Hospit	0.9	2.0	1.1	2.5	6.5	1.2	<1.0	<1.0	<2.0	<1.0	<6.0		
	DS204	Comfort Inn	0.9	4.2	1.8	4.1	11.0	1.4	<1.0	<1.0	<2.0	<1.0	<6.0		
4/3/2017	DS201	Cedar Tank	13.9	3.1	12.0	10.7	39.7	3.9	7.3	<1.0	<2.0	1.6	12.8		
	DS202	Sanitary Eng.	13.5	2.9	12.6	11.1	40.1	4.0	7.3	<1.0	<2.0	1.5	12.8		
	DS203	Memorial Hospit	8.8	2.3	8.6	8.0	27.7	3.1	5.5	<1.0	<2.0	1.2	9.8		
	DS204	Comfort Inn	16.6	3.3	13.9	12.6	46.4	4.1	8.2	<1.0	<2.0	1.7	14.0		
7/6/2017	DS201	Cedar Tank	36.0	2.0	14.9	10.0	62.9	4.0	10.5	<1	<2	3.1	17.6		
	DS202	Sanitary Eng.	19.8	1.7	12.0	8.5	42.0	3.0	7.0	<1	2.2	2.0	14.2		
	DS203	Memorial Hosp	15.3	1.4	9.6	7.1	33.4	2.5	6.2	<1	<2	2.0	10.7		
	DS204	Comfort Inn	43.6	2.3	17.6	11.5	75.0	3.4	12.5	<1	3.1	3.5	22.5		
10/2/2017	DS201	Cedar Tank	36.7	2.3	17.2	11.7	67.9	3.3	8.0	<1	<2	1.3	12.6	45.1	14.3
	DS202	Sanitary Eng.	47.9	2.4	19.4	12.1	81.8	3.3	9.1	<1	<2	1.8	14.2	43.7	13.7
	DS203	Memorial Hospit	17.2	1.5	10.3	7.2	36.2	2.5	5.8	<1	<2	<1	8.3	26.0	9.6
	DS204	Comfort Inn	50.6	2.5	19.5	12.3	84.9	3.5	9.2	<1	<2	1.7	14.4	54.3	17.0

1 Total Trihalomethanes Locational Running Average MCL = 80 ug/l
2 Haloacetic Acids Locational Running Average MCL = 60 ug/l

City of Fremont, Ohio
Water Treatment Plant
Total Organic Carbon Removal

% Required TOC Removal

Source Water TOC	Source Water Total Alkalinity		
	0 - 60	>60 - 120	>120 *
>2.0 - 4.0	35%	25%	15%
>4.0 - 8.0	45%	35%	25%
>8.0	50%	40%	30%

* Systems practicing softening must meet the TOC removal requirements in this column.

SUVA = (UV254/DOC)*100

Date	Water Alkalinity	Water TOC	TOC % Removal	Water UV254	Water DOC	Water SUVA	Water Alkalinity	Water TOC	Water UV254	Water DOC	Water SUVA	TOC % Removal	Comp Ratio
1/4/2016	167	4.8	25%	0.087	4.8	1.810	60	2.6	0.031	2.7	1.150	45.83%	1.8
2/1/2016	166	5.1	25%	0.097	4.9	1.980	70	2.3	0.034	2.4	1.420	54.90%	2.2
3/1/2016	167	5.2	25%	0.077	4.5	1.710	61	2.1	0.025	2.0	1.250	59.62%	2.4
4/4/2016	168	4.0	15%				50	2.0				50.00%	3.3
5/2/2016	170	4.2	25%	0.101	4.2	2.400	49	1.9	0.034	2.1	1.620	54.76%	2.2
6/6/2016	167	4.2	25%	0.087	4.0	2.180	42	1.8	0.029	2.0	1.450	57.14%	2.3
7/5/2016	147	4.3	25%	0.083	4.1	2.024	33	1.9	0.028	2.2	1.273	55.81%	2.2
8/1/2016	138	4.4	25%	0.110	4.4	2.500	33	2.0	0.031	2.0	1.550	54.55%	2.2
9/6/2016	130	4.5	25%	0.092	4.5	2.040	37	2.0	0.069	2.3	1.700	55.56%	2.2
10/3/2016	137	4.5	25%	0.096	4.6	2.087	36	2.2	0.039	2.3	1.696	51.11%	2.0
11/1/2016	140	4.4	25%	0.094	4.6	2.040	36	2.1	0.035	2.4	1.460	52.27%	2.1
12/5/2016	151	4.4	25%	0.103	4.5	2.290	63	2.1	0.046	2.5	1.840	52.27%	2.1
1/3/2017	155	4.5	25%	0.105	4.7	2.234	66	0.7	0.012	0.7	1.762	84.44%	3.4
2/6/2017	149	4.7	25%	0.105	4.9	2.143	66	1.2	0.020	1.3	1.538	74.47%	3.0
3/6/2017	151	4.6	25%	0.108	4.9	2.200	62	1.4	0.022	1.7	1.290	69.57%	2.8
4/3/2017	159	4.4	25%	0.107	4.7	2.280	60	1.7	0.029	1.9	1.530	61.36%	2.5
5/1/2017	157	4.5	25%	0.096	4.6	2.090	40	1.8	0.026	1.9	1.370	60.00%	2.4
6/5/2017	150	4.3	25%	0.102	4.5	2.267	37	1.6	0.027	1.7	1.588	62.79%	2.5
7/7/2017	141	4.7	25%	0.095	4.7	2.020	32	1.7	0.026	1.8	1.440	63.83%	2.6
8/7/2017	132	4.8	25%	0.125	4.7	2.660	31	1.5	0.037	1.7	2.180	68.75%	2.8
9/5/2017	133	4.3	25%	0.076	4.3	1.770	35	1.5	0.031	1.8	1.720	65.12%	2.6
10/2/2017	125	4.5	25%	0.120	4.5	2.670	40	1.7	0.024	1.9	1.260	62.22%	2.5
11/6/2017	145	4.4	25%	0.115	4.4	2.610	47	1.9	0.026	2.1	1.240	56.82%	2.3
12/4/2017	145	4.2	25%	0.126	4.3	2.930	57	1.9	0.038	2.0	1.900	54.76%	2.2

Monthly Compliance Ratio needs to be greater than 1.

City of Fremont, Ohio
Water Treatment Plant

EPA Compliance Monitoring

MCL Inorganics

Analyte	Date	Sign	Value	Units
Antimony, Sb	6/5/2017	<	3.0	ug/l
Arsenic, As	6/5/2017	<	3.0	ug/l
Barium, Ba	6/5/2017		26.0	ug/l
Beryllium, Be	6/5/2017	<	0.5	ug/l
Cadmium, Cd	6/5/2017	<	0.5	ug/l
Chromium, Cr	6/5/2017	<	10.0	ug/l
Nickel, Ni	6/5/2017	<	10.0	ug/l
Selenium, Se	6/5/2017	<	3.0	ug/l
Thallium, Tl	6/5/2017	<	1.0	ug/l
Mercury, Hg	6/5/2017	<	0.2	ug/l
Cyanide, Total, CN	6/5/2017	<	0.005	mg/l
Fluoride	6/5/2017		0.97	mg/l

City of Fremont, Ohio
Water Treatment Plant

EPA Compliance Monitoring

Pesticides-Group 1

Analyte	Date	Sign	Value	Units
Alachlor	4/3/17	<	0.10	ug/l
Atrazine	4/3/17	<	0.07	ug/l
Simazine	4/3/17	<	0.05	ug/l
Alachlor	5/1/17	<	0.10	ug/l
Atrazine	5/1/17	<	0.07	ug/l
Simazine	5/1/17	<	0.05	ug/l
Alachlor	6/5/17	<	0.10	ug/l
Atrazine	6/5/17	<	0.07	ug/l
Simazine	6/5/17	<	0.05	ug/l

City of Fremont, Ohio
Water Treatment Plant

EPA Compliance Monitoring

Volatile Organic Compounds

Analyte	Date	Sign	Value	Unit
1,1,1-Trichloroethane	6/5/2017	<	0.5	ug/l
1,1,2-Trichloroethane	6/5/2017	<	0.5	ug/l
1,1-Dichloroethene	6/5/2017	<	0.5	ug/l
1,2,4-Trichlorobenzene	6/5/2017	<	0.5	ug/l
1,2-Dichlorobenzene	6/5/2017	<	0.5	ug/l
1,2-Dichloroethane	6/5/2017	<	0.5	ug/l
1,2-Dichloropropane	6/5/2017	<	0.5	ug/l
1,4-Dichlorobenzene	6/5/2017	<	0.5	ug/l
Benzene	6/5/2017	<	0.5	ug/l
Carbon tetrachloride	6/5/2017	<	0.5	ug/l
Chlorobenzene	6/5/2017	<	0.5	ug/l
cis-1,2-Dichloroethene	6/5/2017	<	0.5	ug/l
1,2-Dichloropropane	6/5/2017	<	0.5	ug/l
Ethylbenzene	6/5/2017	<	0.5	ug/l
Methylene chloride	6/5/2017	<	0.5	ug/l
Styrene	6/5/2017	<	0.5	ug/l
Tetrachloroethylene	6/5/2017	<	0.5	ug/l
Toluene	6/5/2017	<	0.5	ug/l
tran-1,2-Dichloroethene	6/5/2017	<	0.5	ug/l
Trichloroethylene	6/5/2017	<	0.5	ug/l
Vinyl Chloride	6/5/2017	<	0.5	ug/l
Xylenes, total	6/5/2017	<	0.5	ug/l

City of Fremont, Ohio
Water Treatment Plant
2017

ESTIMATED RESIDUAL SOLIDS PRODUCTION

DAILY AVERAGES		SOLIDS PRODUCTION COEFFFICIENT	LBS./DAY
Raw Water Flow (MGD)	5.63		
Raw Water Turbidity (NTU)	2.4	1.50	169
Lime (Ca, Mg) (mg/L)	157	2.00	14,751
Caustic Soda (mg/L)	28	1.60	2,105
Ferric Chloride (mg/L)	36	0.66	1,116
$KmnO_4$ (mg/L)	0.8	2.50	94
		Average Lbs./Day	18,235
		Average Tons/Day	9.12
		Estimated Tons/Year	3,328

WET SLUDGE TO PRESS

Total Gallons/Year	3,351,865
Average % Solids to Press	4.98%
Dry Tons	696

HAULED SOLIDS ANALYSES from LAGOON

Cubic Yards Hauled	12,985
Dry Tons Hauled	3609
Moisture (average)	66.1%
Solids (average)	33.9%
Calcium	25.0%
Magnesium	3.2%

Total Neutralizing Power (TNP)	116.5%
Fineness Index	
Effective Neutralizing Power (ENP)	630 Lbs/Ton
Grade: Superfine Liming Material	