

The City of

Alliance, Ohio 44601

WASTEWATER TREATMENT PLANT

"The Carnation City"

12251 Rockhill Ave., N.E.

ANNUAL REPORT

2015



SUBMITTED BY:
JOSEPH A. AMABELI, SUPERINTENDENT

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The following reports are available upon request:

Annual Sludge Report

Annual & Quarterly Pretreatment Reports (5)

Monthly Operating Reports (12)

Annual Air Pollution Report

Detailed information about the treatment plant processes is also available.

INTRODUCTION

The City of Alliance Wastewater Treatment Plant (AWWTP) has been located at 12251 Rockhill Ave., N.E. since 1929. The AWWTP is classified as a Class IV Plant according to the Ohio EPA. Our current National Discharge Elimination System (NPDES) Permit went into effect on February 1, 2012 and will expire on January 31, 2016.

The AWWTP treats domestic, commercial and industrial wastewater from the City and areas surrounding the City. The final effluent from the treatment plant is discharged into Beech Creek, about 1000 feet upstream of the Mahoning River. This is also the head works to Berlin Reservoir, which is used for flood control and recreation purposes.

The original plant was modified and improved upon to replace worn or outdated equipment with a major upgrade completed in late 1984. In order to keep the plant in compliance with changing regulations, and to maintain the equipment we have, several improvements and additions have been made since 1984.

HISTORY OF ALLIANCE WASTEWATER TREATMENT

The history of wastewater treatment in Alliance goes back to 1895. The original plant was located on Keystone Street and was designed for chemical precipitation, the second such treatment facility in the State. The City's second plant was built in 1912 and was located on Gaskill Street. It was a contact bed, fine grain filter type of sewage plant. The 1912 plant was modified in 1916. Plain settling basins were converted to Imhoff tanks and additional fine grain filters were installed. The first glass covered sludge drying beds in the country were constructed at this plant.

Due to rapid population growth and the need for additional treatment facilities, a second plant was built in 1929 on the site of the present treatment plant. This was the fourth plant in the history of sewage treatment in Alliance and the first to incorporate secondary treatment of wastewater. It was constructed at a cost of \$800,000. Raw wastewater was screened and grit removed. Imhoff tanks provided primary settling and anaerobic digestion. The secondary treatment was provided by two trickling filter beds. Final settling followed in two clarifiers. Digested sludge was dried in nine glass covered drying beds and nine open beds.

Over the years, the original plant was modified and improved upon to replace worn or outdated equipment. New facilities were also added as treatment needs changed. In 1943, the screening and grit removal facilities were renovated, and the trickling filters modified. In 1953, a 50 foot diameter anaerobic digester was added. This digester was equipped with a floating cover for gas collection. The collected gas was burned to heat the sludge and stabilize it. A major renovation program was completed in 1958. This included two 50 foot primary settling tanks (one is now the gravity thickener), a second anaerobic digester (still in use), 9 new sludge beds and a vacuum filter. In 1970 chlorination facilities were added to disinfect the secondary effluent prior to discharge.

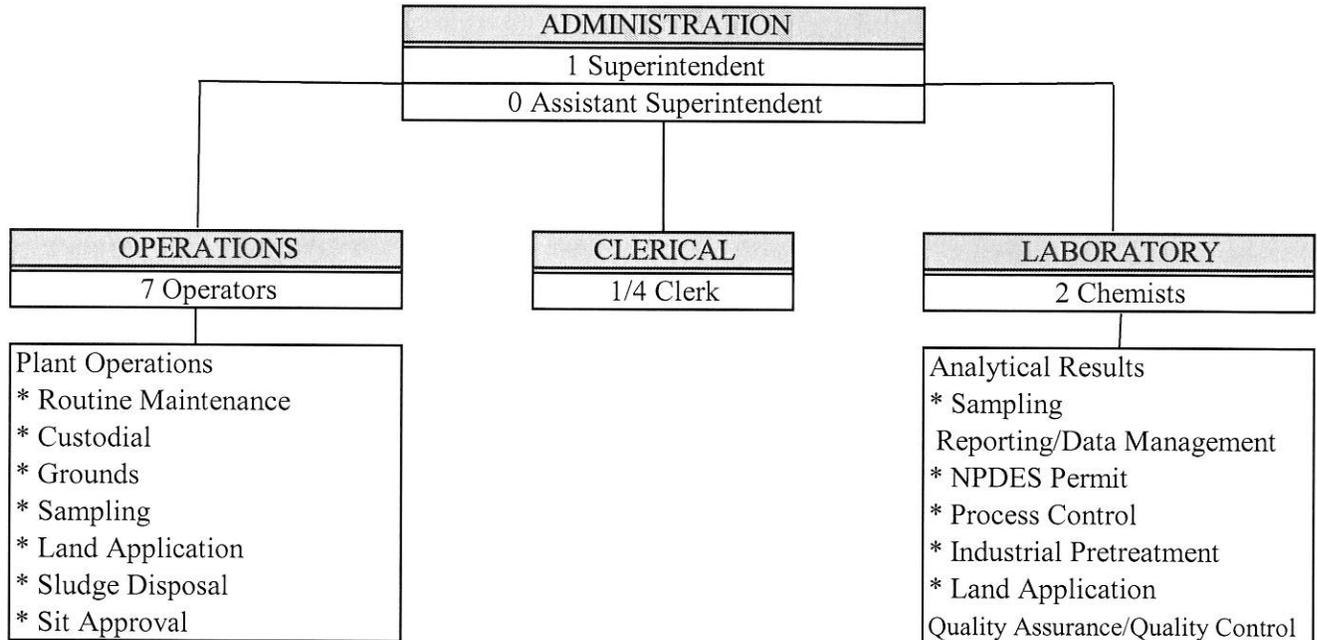
The most recent major upgrade was completed in late 1984. A few components of the old treatment plant were renovated and are still being used. All other existing process units were demolished.

Since 1984 several improvements have been made. Influent flow metering was installed in 1995. In 1996, dechlorination equipment was installed to reduce the chlorine in the final effluent, a new chemical feed building was built, and the flow equalization basin was updated by removing the rock liner and replacing it with a high density polyethylene liner. The chemical feed building stores and feeds ferric chloride for phosphorus removal and caustic soda to increase the pH of the final effluent. In 1998, one of the small return activated sludge pumps was replaced with a larger pump. The comminutors were replaced with automatically cleaned fine screens in 2002. In 2008, the screw pumps were replaced with submersible pumps, and in 2010, the City began to install a SCADA system. The City of Alliance will continue to upgrade the wastewater treatment plant to meet the ever changing needs of our community and to comply with current and future environmental regulations.

STAFFING

The Wastewater Treatment Plant currently has a staff of 10.25 employees. The functions discussed in this report are carried out by a Superintendent, seven Operators, two Chemists and a part time Plant Clerk. Last year we reduced the number of operators to seven through retirement.

Below is our Table of Organization at the end of 2015:



The Operators are scheduled to work three shifts/day with staggered days off in order to cover 24 hours/day, 7 days/week. All other personnel work day-shift Monday through Friday. Five Operators, and both Chemists are State Certified in Wastewater Treatment. Both Chemists has a Voluntary Lab Analyst Certificate. In addition, six of the Operators have a Commercial Drivers License (CDL).

Our Operators are: Matt Brown, Jim Cowgill, Shane Howard, Sarah Johnson, Tim O'Neill, Ron Timmerman and TJ Yost.

Our Chemists are: Kimberly Laquatra and Josh Zwick

Our Clerk is: Erin Miller

ALLIANCE WWTP NPDES PERMIT

Effective Date: August 1, 2011

Expiration Date: January 31, 2016

FINAL EFFLUENT LIMITS

PARAMETER	CONCENTRATION LIMITS		
	30 DAY	7 DAY	1 DAY
CBOD ₅	10 mg/l	15 mg/l	
TSS	20 mg/l	30 mg/l	
Oil and Grease	Not to exceed 10 mg/l at any time.		
Nitrogen, Ammonia (summer only)	2.0 mg/l	3.0 mg/l	
Phosphorus, T. (P)	1.0 mg/l	1.5 mg/l	
E. Coli (summer only)	126/100 ml	284/100 ml	
Chlorine Residual (summer only)	Not to exceed 0.019 mg/l at any time.		
pH	Minimum of 6.5 S.U., maximum of 9.0 S.U.		
Dissolved Oxygen	Not less than 6.0 mg/l at any time.		

Monitoring only is required (no limit) for: water temperature; chemical oxygen demand; total kjeldahl nitrogen; total nitrate plus nitrite; free cyanide; total copper; total cadmium; dissolved hex. chromium; total beryllium; total nickel; total zinc; total lead; total chromium; total mercury; total dissolved solids; acute toxicity; chronic toxicity and flow rate.

mg/l = milligrams/liter or ppm = parts per million

µg/l = micrograms/liter or ppb = parts per billion or 1/1000 mg/l

ng/l = nanograms/liter or ppt = parts per trillion or 1/1000 µg/l

CITY OF ALLIANCE WASTEWATER TREATMENT PLANT
SUMMARY OF OPERATING DATA - 2015

RAW INFLUENT

Month	pH MAX	pH MIN	TSS mg/l	CBOD mg/l	Phos mg/l	NH4 mg/l	TKN mg/l	CN, T. mg/l	Phenol µg/L	TDS mg/l	HEX- Cr µg/L	As µg/L
Jan	7.59	7.32	162	177.9	3.47	30.3	83.4	<0.010	244.1	700	<25	10.20
Feb	7.69	7.47	156	139.0	3.83	26.5	14.8	<10	186.7	1024	<25	<10
Mar	7.72	7.54	111	111.4	2.48	28.1	15.7	<0.005	118.100	1204	<25	<10
April	7.70	7.44	112	141.1	3.01	34.6	40.8	<0.005	194.9	812	<10	<10
May	7.89	7.47	240	212.0	4.45	49.0	74.6	<0.005	208.1	1092	28.02	13.47
June	8.25	7.36	233	212.4	2.00	44.0	70.4	<0.005	132.0	1156	14.65	22.54
July	7.69	7.13	231	240.1	3.66	37.4	114.8	<0.005	158.6	1028	21.14	<10
Aug	7.57	6.99	254	474.8	4.77	40.6	67.6	<0.005	874.5	1188	<25	<10
Sept	7.74	7.11	242	285.8	5.88	43.9	58.8	<0.005	348.1	736	<25	<10
Oct	7.73	7.03	231	354.2	4.64	43.7	59.0	<0.005	329.8	840	32.06	<10
Nov	7.73	7.29	318	345.7	3.97	53.6	139.2	<0.005	559.6	832	<25	<10
Dec	8.13	7.52	260	322.2	3.10	49.1	47.0	<0.005	696.5	1360	<25	20.81
Avg.	7.79	7.31	213	251.4	3.77	40.1	65.5	0.838	337.6	998	23.41	12.25

Month	Be µg/L	Cd µg/L	Cr µg/L	Cu µg/L	Pb µg/L	Hg ng/L	Mo µg/L	Ni µg/L	Se µg/L	Ag µg/L	Tl µg/L	Zn µg/L
Jan	<1	1.00	21.40	25.06	<20	13.4	<10	14.60	<20	<1	<10	63.95
Feb	<1	<1	20.12	27.10	12.12	77.3	<10	13.90	<20	<1	<10	64.18
Mar	<1	<1	20.55	33.78	10.16	34.0	<10	13.64	<20	<1	<10	82.12
April	<1	<1	12.40	<10	<10	67.7	<10	<10	<20	<1	<10	<50
May	<1	<1	20.52	36.56	268.40	16.4	<10	14.19	70.25	<1	<10	93.23
June	<1	1.94	20.46	41.32	<20	17.7	<10	19.78	<20	9.458	<10	91.29
July	<1	<1	20.89	29.95	<20	26.2	<10	18.48	<20	<1	<10	77.47
Aug	<1	<1	26.30	43.07	<20	618.0	<10	19.96	<20	<1	<10	108.00
Sept	<1	1.12	15.45	44.91	<20	177.0	<10	13.22	<20	<1	<10	130.80
Oct	<1	<1	10.27	16.95	<20	10.4	<10	<10	<20	<1	<10	60.29
Nov	<1	<1	<10	37.21	<20	25.6	<10	14.66	<20	<1	<10	76.43
Dec	<1	<1	13.32	14.32	<20	21.1	<10	11.58	<20	<1	<10	94.13
Avg.	<1	1.09	17.64	30.02	38.39	92.1	<10	14.50	24.19	1.705	<10	82.66

CITY OF ALLIANCE WASTEWATER TREATMENT PLANT
SUMMARY OF OPERATING DATA - 2015

PRIMARY EFFLUENT

Month	TSS mg/l	CBOD mg/L	Phos mg/L	NH4 mg/L	Phenol µg/L	TDS mg/L	Hex-Cr µg/L	As µg/L	Be µg/L	Cd µg/L	Cr µg/L	Cu µg/L
Jan	120	106.7	3.70	31.8	<50	464	15.37	10.89	<1	1.156	15.37	25.73
Feb	53	83.5	2.65	24.7	<50	956	<10	<10	<1	<1	<10	23.88
Mar	89	86.0	2.59	25.8	<50	1180	16.52	<10	<1	1.200	16.52	35.89
April	61	109.3	3.22	33.7	<50	836	12.39	<10	<1	<1	12.39	24.55
May	65	121.1	2.31	53.8	<50	1060	20.13	15.42	<1	<1	20.13	23.49
June	94	107.8	2.40	47.0	<50	1076	14.94	<10	<1	<1	14.94	30.55
July	128	121.7	2.87	38.1	88.1	952	25.20	<10	<1	<1	25.20	64.04
Aug	130	160.1	5.16	48.4	130.4	1084	21.94	<10	<1	1.971	21.94	49.12
Sept	172	135.9	5.49	41.0	84.8	808	<10	<10	<1	1.304	<10	35.33
Oct	180	166.3	7.30	44.8	<50	968	15.30	<10	<1	2.182	15.30	52.28
Nov	128	164.2	3.18	50.7	75.9	1004	17.61	<10	<1	1.062	17.61	68.94
Dec	192	222.1	3.84	46.1	141.8	1200	<25	20.94	<1	<1	20.88	39.82
Avg.	118	132.1	3.73	40.5	72.6	966	17.03	11.44	<1	1.240	16.69	39.47

Month	Pb µg/L	Hg ng/L	Mo µg/L	Ni µg/L	Se µg/L	Ag µg/L	Tl µg/L	Zn µg/L
Jan	<20	<0.2	<10	13.5	<20	<1	<10	<50
Feb	<20	<0.2	<10	13.6	<20	<1	<10	<50
Mar	<20	<0.2	<10	14.3	10.5	<1	<10	69.59
April	<20	<0.2	<10	13.1	<20	<1	<10	69.29
May	<20	<0.2	<10	20.1	<20	<1	<10	74.89
June	<20	<0.2	<10	16.3	<20	<1	<10	103.70
July	20.26	0.2021	<10	19.2	<20	1.401	<10	186.50
Aug	<20	0.2029	<10	20.4	<20	<1	<10	117.70
Sept	<20	0.9546	<10	<10	<20	<1	<10	145.00
Oct	<20	0.6882	<10	13.6	<20	<1	<10	189.10
Nov	28.50	0.1682	<10	14.5	<20	<1	<10	88.34
Dec	<20	<0.2	<10	18.5	<20	<1	<10	100.30
Avg.	20.73	0.3013	<10	15.6	19.2	1.033	<10	103.70

CITY OF ALLIANCE WASTEWATER TREATMENT PLANT
SUMMARY OF OPERATING DATA - 2015

FINAL EFFLUENT

Month	Flow MGD	Temp °C	DO mg/L	pH max.	pH min.	TSS mg/L	CBOD mg/L	Phos mg/L	NH4 mg/L	TKN mg/L	Nitrate mg/L	O&G mg/L
Jan	5.8	10	9.39	7.42	7.16	7	3.84	0.64	0.13	1.10	53.9	<4
Feb	5.8	8	8.09	7.21	7.01	9	5.49	0.86	1.37	2.80	46.8	<4
Mar	7.1	9	8.33	7.23	7.00	8	6.65	0.69	4.76	2.00	27.6	<4
April	6.6	13	8.70	7.37	7.02	8	5.30	0.75	0.50	<1	20.1	<4
May	5.3	18	7.71	7.72	7.04	12	5.81	0.59	1.34	<1	39.9	<4
June	6.9	21	7.55	7.55	7.29	7	2.81	0.73	0.13	<1	66.5	<4
July	5.8	23	6.77	7.70	7.34	11	3.98	0.77	0.18	3.27	52.1	<4
Aug	5.1	24	6.66	8.05	7.49	10	2.93	0.56	<0.10	3.20	31.0	<4
Sept	3.8	24	6.80	8.26	7.44	10	2.58	0.80	0.12	<1	27.0	<4
Oct	3.5	20	6.97	7.58	7.35	17	7.14	0.62	0.11	7.35	21.8	<4
Nov	3.2	17	7.43	7.51	7.12	15	7.88	0.60	0.10	1.46	14.7	<4
Dec	3.7	15	7.87	7.55	7.12	13	7.40	0.64	0.28	<1	67.4	<4
Avg.	5.2	17	7.69	7.60	7.20	11	5.15	0.69	0.76	2.18	41.3	<4

Month	COD mg/L	CN, F. mg/L	Phenol µg/L	TDS mg/L	Cl, T. mg/L	E. Coli #/100	Hex-Cr ug/L	As µg/L	Be µg/L	Cd µg/L	Cr µg/L	Cu µg/L
Jan	50.9	<0.003	<50	994			<25	<10	<1	<1	<10	<10
Feb	69.8	<0.003	<50	1172			<25	<10	<1	<1	<10	<10
Mar	46.2	<0.003	<50	1110			<10	<10	<1	<1	12.64	12.75
April	104.4	<0.003	<50	1008			<25	<10	<1	<1	<10	<10
May	96.7	<0.003	<50	1298	0.04	10	16.05	13.83	<1	<1	13.82	38.73
June	43.8	<0.003	<50	1048	0.04	34	<25	<10	<1	<1	<10	<10
July	71.6	<0.003	<50	948	0.04	114	<10	<10	<1	<1	10.01	21.92
Aug	91.3	<0.003	<50	1116	0.03	95	<25	<10	<1	<1	<10	21.37
Sept	56.7	<0.003	<50	1154	0.03	100	<25	<10	<1	<1	<10	<10
Oct	57.7	<0.003	<50	964	0.03	141	<25	<10	<1	<1	<10	19.63
Nov	112.1	<0.003	<50	1004			<25	<10	<1	<1	<10	29.34
Dec	109	<0.003	<50	1374			<25	<10	<1	<1	<10	11.06
Avg.	75.90	<0.003	<50	1099	0.04	61	21.8	10.32	<1	<1	10.54	17.07

Month	Pb µg/L	Hg ng/L	Mo µg/L	Ni µg/L	Se µg/L	Ag µg/L	Tl µg/L	Zn µg/L	Acute Tox. <i>P. promelas</i>	Chronic Tox. <i>P. promelas</i>	Acute Tox. <i>C. dubia</i>	Chronic Tox. <i>C. Dubia</i>
Jan	<20	4.34	<10	10.74	<20	<1	<10	79.16				
Feb	<10	3.66	<10	<10	<20	<1	<10	<50				
Mar	14.86	7.56	<10	14.80	<10	<1	<10	56.74				
April	<10	5.41	<10	<10	<10	<1	<10	<50				
May	<20	6.05	<10	15.21	<20	<1	<10	100.70				
June	<20	3.39	<10	<10	<20	<1	<10	<50				
July	<20	7.07	<10	14.55	<20	<1	<10	82.36				
Aug	<20	5.22	<10	20.09	<20	<1	<10	50.75				
Sept	<20	2.91	<10	13.19	<20	<1	<10	55.78	0.60	<1.0	<0.2	<1.0
Oct	<20	20.18	<10	<10	<20	<1	<10	<50				
Nov	20.53	14.74	<10	13.28	<20	<1	<10	50.83				
Dec	<20	6.31	<10	10.95	<20	<1	<10	50.74				
Avg.	17.12	7.24	<10	12.78	18.33	<1	<10	60.59	0.60	<1.0	<0.2	<1.0

CITY OF ALLIANCE WASTEWATER TREATMENT PLANT
SUMMARY OF OPERATING DATA - 2015

UPSTREAM

Month	Temp °C	DO mg/L	pH	Phos mg/L	NH4 mg/L	NITRATE mg/L	TDS mg/L	E. Coli #/100	As µg/L	Be µg/L	Cd µg/L	Cr µg/L
Jan	0	12.2	7.66	0.56	<0.10	2.19	108		<10	<1	1.097	<10
Feb												
Mar												
April	8	10.48	7.54	<0.20	0.10	<0.40	316		<10	<1	<1	<10
May	14	10.83	8.00	<0.20	<0.10	<0.40	532	10	<10	<1	<1	<10
June	14	8.15	7.35	<0.20	0.59	1.52	184	2520	<10	<1	<1	<10
July	19	8.60	7.55	<0.20	0.15	<0.40	280	140	<10	<1	<1	<10
Aug	20	8.67	7.67	<0.20	<0.10	<0.40	212	35	<10	<1	1.06	<10
Sept	19	7.99	7.89	<0.20	<0.10	<0.40	832	35	<10	<1	<1	<10
Oct	10	8.37	7.65	<0.20	<0.10	<0.40	400	380	<10	<1	<1	<10
Nov	7	8.87	7.49	<0.20	<0.10	<0.40	492		<10	<1	<1	<10
Dec	7	9.97	7.80	0.26	<0.10	<0.40	448		<10	<1	<1	<10
Avg.	10	7.84	6.38	0.20	0.13	0.58	317	109	<10	<1	0.846	<10

Month	Cu µg/L	Pb µg/L	Hg ng/L	Mo µg/L	Ni µg/L	Se µg/L	Ag µg/L	Zn µg/L	Acute Tox. <i>P.promela</i>	Chronic Tox. <i>P.promelas</i>	Acute Tox. <i>C.dubia</i>	Chronic Tox. <i>C.dubia</i>
Jan	<10	<20	<0.2	<10	<10	<20	<1	<50				
Feb												
Mar												
April	<10	<20	<0.2	<10	<10	<20	<1	<50				
May	<10	<20	<0.2	<10	<10	<20	<1	<50				
June	<10	<20	<0.2	<10	<10	<20	<1	<50				
July	<10	<20	<0.2	<10	<10	<20	<1	<50				
Aug	<10	<20	0.1578	<10	<10	<20	<1	<50				
Sept	<10	<20	0.7	<10	<10	<20	<1	<50	<0.2	<1.0	<0.2	<1.0
Oct	<10	<20	0.2	<10	<10	<20	<1	<50				
Nov	<10	<20	0.2	<10	<10	<20	<1	<50				
Dec	<10	<20	<0.2	<10	<10	<20	<1	<50				
Avg.	<10	<20	0.2	<10	<10	<20	<1	<50	<0.2	<1.0	<0.2	<1.0

CITY OF ALLIANCE WASTEWATER TREATMENT PLANT
SUMMARY OF OPERATING DATA - 2015

DOWNSTREAM

Month	Temp °C	DO mg/L	pH	Phos mg/L	NH4 mg/L	NITRATE mg/L	CN, F. mg/L	TDS mg/L	E. coli #/100	HEX-Cr µg/L	As µg/L	Be µg/L
Jan	0	12.37	7.49	0.24	<0.10	2.08	<0.005	144		<25	<10	<1
Feb	0	12.59	7.56	0.34	0.11	1.89	<0.005	300		<25	<10	<1
Mar	1	11.85	7.67	<0.20	0.46	0.84	<0.005	796		<25	<10	<1
April	7	10.59	7.50	<0.20	<0.10	1.58	<0.005	364		<25	<10	<1
May	14	10.74	7.99	<0.20	<0.10	<0.40	<0.005	408	30	<25	<10	<1
June	14	7.85	7.25	<0.20	0.59	0.69	<0.005	388	2200	<25	<10	<1
July	19	8.63	7.62	<0.20	<0.10	<0.40	<0.005	212	200	<25	<10	<1
Aug	20	7.42	7.59	<0.20	<0.10	<0.40	<0.005	88	45	<25	<10	<1
Sept	19	8.07	7.81	<0.20	<0.10	<0.40	<0.005	604	120	<25	<10	<1
Oct	10	7.93	7.60	<0.20	<0.10	3.60	<0.005	540	740	<10	<10	<1
Nov	7	8.68	7.63	<0.20	<0.10	2.14	<0.005	680		<25	<10	<1
Dec	7	9.75	7.80	<0.20	<0.10	1.11	<0.005	512		<25	<10	<1
Avg.	10	9.71	7.63	0.22	0.17	1.29	<0.005	420	194.00		<10	<1

Month	Cd µg/L	Cr µg/L	Cu µg/L	Pb µg/L	Hg ng/L	Mo µg/L	Ni µg/L	Se µg/L	Ag µg/L	Zn µg/L	Tl µg/L	hardness
Jan	1.0	<10	<10	<20	<0.2	<10	<10	<20	<1	<50	<10	178
Feb	<1	<10	<10	<20	<0.2	<10	10.3	<20	<1	<50	<10	228
Mar	<1	<10	<10	20.9	<0.2	<10	<10	<20	<1	<50	<10	310
April	<1	<10	<10	<20	<0.2	<10	<10	<20	<1	<50	<10	194
May	<1	<10	<10	<20	<0.2	<10	<10	<20	<1	<50	<10	260
June	<1	<10	<10	<20	<0.2	<10	<10	<20	<1	<50	<10	160
July	<1	<10	<10	<20	<0.2	<10	<10	<20	<1	<50	<10	136
Aug	<1	<10	<10	<20	0.5557	<10	<10	<20	<1	<50	<10	170
Sept	<1	<10	<10	<20	0.3805	<10	<10	<20	<1	<50	<10	278
Oct	<1	<10	<10	<20	<0.2	<10	<10	<20	<1	<50	<10	258
Nov	<1	<10	<10	21.3	0.0740	<10	13.8	<20	<1	<50	<10	244
Dec	<1	<10	<10	<20	<0.2	<10	<10	<20	<1	<50	<10	278
Avg.	1.0	<10	<10	20.2	0.2342	<10	10.3	<20	<1	<50	<10	225

VIOLATIONS

The City reported the following violations in 2015:

<u>Date</u>	<u>Violation</u>	<u>Explanation</u>
March	EQ Basin Overflow	Excessive Rain
May	Exceeded the Ammonia Limit	Too much Ammonia and not enough alkalinity
June	Raw Bypass and EQ Basin Overflow	Excessive Rain
September	Exceeded the Maximum pH limit	Had a bad seal on gate valve
October	Exceeded the Mercury Limit	A Septic Hauler was bringing in waste high in Mercury
November	Exceeded the Mercury Limit	A Septic Hauler was bringing in waste high in Mercury

LABORATORY

The laboratory at the Wastewater Treatment Plant routinely analyzes the wastewater and the sludges for 35 different parameters. In addition to testing samples collected at the plant, we also conduct tests on samples from the receiving stream, our Industrial Users, septic haulers and leachate from the landfills. Approximately 15,000 analyses are performed yearly on the wet chemistry side, 3900 analyses for metals with an additional 5000 quality control checks and 150 more analyses to determine our Method Detection Limit for each parameter.

The Chemists participated in the required Discharge Monitoring Report – Quality Assurance Study (DMRQA). The DMRQA Study contains blind samples of all the parameters we are required to test for according to our permit. The Chemists analyze the samples and report the results to determine if they are in the acceptable range.

Very few of the samples we collected are sent to an outside laboratory. For those samples it is more cost effective for us to contract with an outside lab than to buy the needed equipment.

In addition to the laboratory work, the two Chemists also assume most of the data management and report generation work. They prepare and submit the monthly operating reports and prepare the annual sludge report.

One Chemist has a Class III license in Wastewater Treatment and a voluntary Class II Laboratory Analyst's Certification. The other Chemist has a Class II license in Wastewater Treatment and a voluntary Class I Laboratory Analyst's Certification.

MAINTENANCE

The routine preventative maintenance, such as: changing oil; lubrication; painting; lawn care; minor repairs; etc. is performed by our operators. A computer program is used to track and schedule the preventative maintenance. The maintenance department handles the heavier maintenance tasks that we don't have the manpower or equipment to do.

INDUSTRIAL PRETREATMENT

The City's Industrial Pretreatment Program (IPP) is mandated by Federal and State Law based on the size of our treatment plant. It is considered an Approved Pretreatment Program by the Ohio EPA. The IPP regulates and monitors the industries that are on our sewer system. The amount of pollutants each industry is permitted to discharge to us is determined based on either the limits set by the federal category of the industry, or by the local limits we develop.

As required in our NPDES Permit, we developed new local limits for our industries and modified our Sewer Use Ordinance in 2011. The local limits and modifications were approved by the Ohio EPA in 2012 and new permits were issued to our industries.

In 2015 we had 15 industries under permit. Each industry must be inspected once a year. Eight industries have a process discharge that we monitor by sampling their discharge 4x/year each.

The chemists are involved in the data management of the program which requires submittal of an annual report and quarterly reports. We must also publish yearly a list of the Industrial Users who were in Significant Non Compliance. The annual report and the quarterly reports are available to anyone who wants to review them.

AIR POLLUTION PERMIT

In 2015, we were issued an Air Pollution Permit-to-Install and Operate for the boiler used to heat the sludge in our primary digester and the flare that burns off the excess methane gas produced by our digesters.

The Permit requires us to monitor the methane gas for the hydrogen sulfide concentration weekly and the BTU value monthly. In addition, we have to monitor the pilot light on the flare to assure it is always lit when gas is being sent to the flare and keep records of the gas usage.

An annual report is required.

HAULED WASTE

The City currently accepts leachate from landfills and residential and commercial septage waste.

Leachate - We took leachate from eleven landfills in 2015. Contracts expire on 12/31/2017. The fee schedule is \$22.50/1000 gallons for the first 2 million gallons a year, then \$20.00/1000 gallons for the remaining gallons.

Septage - Twenty-three companies were permitted last year. Each paid a \$100 permit fee and \$60.00/1000 gallons of septage before April 1st and \$63.00/1000 gallons of septage after April 1st.

LANDFILLS	GAL TREATED	COST
Waste Management		
American	34,781	
Akron Central	117,347	
Mahoning	0	
Statewide	18,959	
Suburban	6,133,913	
Waste Management Totals	6,305,000	\$131,100.00
Apex	26,225,393.00	\$565,373.28
Central Waste	2,876,417	\$62,528.34
Carbon Limestone	1,012,900	\$22,790.25
Countywide	8,725,049	\$179,500.98
D&M	248,745	\$5,596.76
Enviroclean - Willow Creek, CLD & RS	1,241,785	\$27,940.16
LEACHATE TOTALS	46,635,289	\$994,829.77
SEPTIC HAULERS	GAL TREATED	COST
Cowboy Miller	428,525	\$26,605.67
All Clean	488,800	\$30,639.10
Fred's	178,750	\$11,142.73
Hoffman's	492,290	\$30,782.18
Septiclean	448,150	\$28,098.04
Steven Cutlip Excavating	142,500	\$8,964.40
Miller & Company	350,940	\$21,995.07
Sosnick	761,300	\$47,743.40
Speedie	13,500	\$834.05
Steve's	19,180	\$1,198.70
Whipkey Septic	42,450	\$2,658.63
Allen	502,600	\$31,487.18
Portage	20,138	\$1,264.26
Humbert Sanitary	283,800	\$17,787.68
Atomic Sewer	589,250	\$36,915.61
Dalton's Service	0	\$0.00
Salem Septic Tank	2,000	\$125.81
Erwin Septic	0	\$0.00
Dig This Septic Pumping	158,800	\$10,002.63
BPI Recycling	1,072,200	\$66,885.29
Bosely Drain and Septic	506,625	\$31,914.38
T.E. Griffith Septic	588,400	\$37,066.01
CJ's Port-a-Potty	8,250	\$518.10
PERMIT FEES for Septic Haulers		\$2,300.00
SEPTAGE TOALS	7,098,448	\$446,928.92
TOTALS	53,733,737	\$1,441,758.69

BIOSOLIDS MANAGEMENT

The solids removed from the wastewater during treatment are further stabilized in our digestion process. The end product is referred to as sludge or “biosolids”, and can be land applied on farm land for beneficial reuse. The farmers take it for its nutrient value, which reduces the amount of fertilizer they need to purchase.

Land application of sludge is controlled by the availability of land, the weather and the farmer’s planting schedule. Because of these things, the “window of opportunity” can sometimes be very small. Therefore, one of the greater advantages to contracting to have our sludge land applied is the contractor’s ability to land apply a lot more gallons of sludge in a day than we can. This is accomplished by having better and more equipment, having more people working and working more hours in a day.

Regulations that went into effect in 2013 made some application sites unusable and required us to find sites further away from the plant. These are just some of the reasons we feel the need for a dewatering facility.

In 2015, Burch Hydro (an outside contractor) land applied our biosolids as a liquid.

We paid Burch Hydro \$0.0335/gallon to land apply 840.43 dry tons (4,145,100 gallons) of biosolids for a total cost of \$147,953.99

The annual report is available to anyone interested in reading it.

VEHICLES

Below is a list of the current vehicles we have in our department:

#	Year & Model	Condition	Use
R-2	2002 Ford Taurus	Good	administrative needs; sampling; etc.
R-3	2015 Ford F-150 Pickup	Very Good	plant maintenance
R-4	1982 Field Gymmy	Poor	used to apply biosolids on farm land
R-5	1999 Freightliner Semi Tractor	Good	used to haul tankers to farm land
R-6	2000 Freightliner Semi Tractor	Good	used to haul tankers to farm land
R-7	2008 Ford 4X4 F-250 Pickup	Good	plow snow; haul fuel for R-4; etc.
T-1	1982 5000 gal. SS tanker	Fair	used to haul biosolids to farm land
T-2	1982 5000 gal. SS tanker	Fair	used to haul biosolids to farm land
---	2006 Hustler Mower	Good	mow grass
---	Club Car electric cart	Fair	in-plant transportation
---	E-Z Go electric cart	Good	in-plant transportation

Listed below are the ending hours and/or miles on each vehicle, and the hours and/or miles each was used in 2015:

Vehicle #	Used		Ending	
	Hours	Miles	Hours	Miles
R-2		3,503		59,463
R-3		1,750		1,750
R-4	1	*000	1,981	
R-5		79		549,572
R-6		63		410,207
R-7		2,802		23,072
Hustler	130		1,044	
Emergency Generators:				
EG #1	15		287	
EG #2	5		276	
EG #3	4		278	
* ODOMETER IS BROKEN				

PROJECTS

To ensure our treatment plant produces a high quality effluent, at the lowest possible cost to our customers, we must continually reinvest in our facility. The projects we worked on in 2015 are:

Lift Station Communications

Replaced the phone lines and auto-dialer at the two newest lift stations with cellular service. This will cost about the same, but provide us with more information.

SCADA System

We added the Raw Equalization Pumps controls and the Gravity Thickener building to the Supervisory Control and Data Acquisition (SCADA) system. We also ran fiber from the WTP Raw water pump building to the Gravity Thickener in anticipation of the Dewatering Project.

Degritting Classifiers

Replaced the original steel degritting classifiers with stainless steel ones manufactured locally.

Clarifier Repair

Repaired and replaced the gear box on #1 Primary Clarifier.

Dewatering Project

Completed design work and submitted drawings for review. Installed the underground piping needed to convey the sludge from the WTP and WWTP to the Dewatering Building and Gravity Thickener building.

Methane Gas Use

Started a feasibility study of the excess methane gas to determine the best use for it.

Chlorine Tank Gates

Replaced the influent gate to the chlorine contact tank and the gate for bypassing the contact tank.

Alliance Wastewater Treatment Plant
Process Flow Diagram

