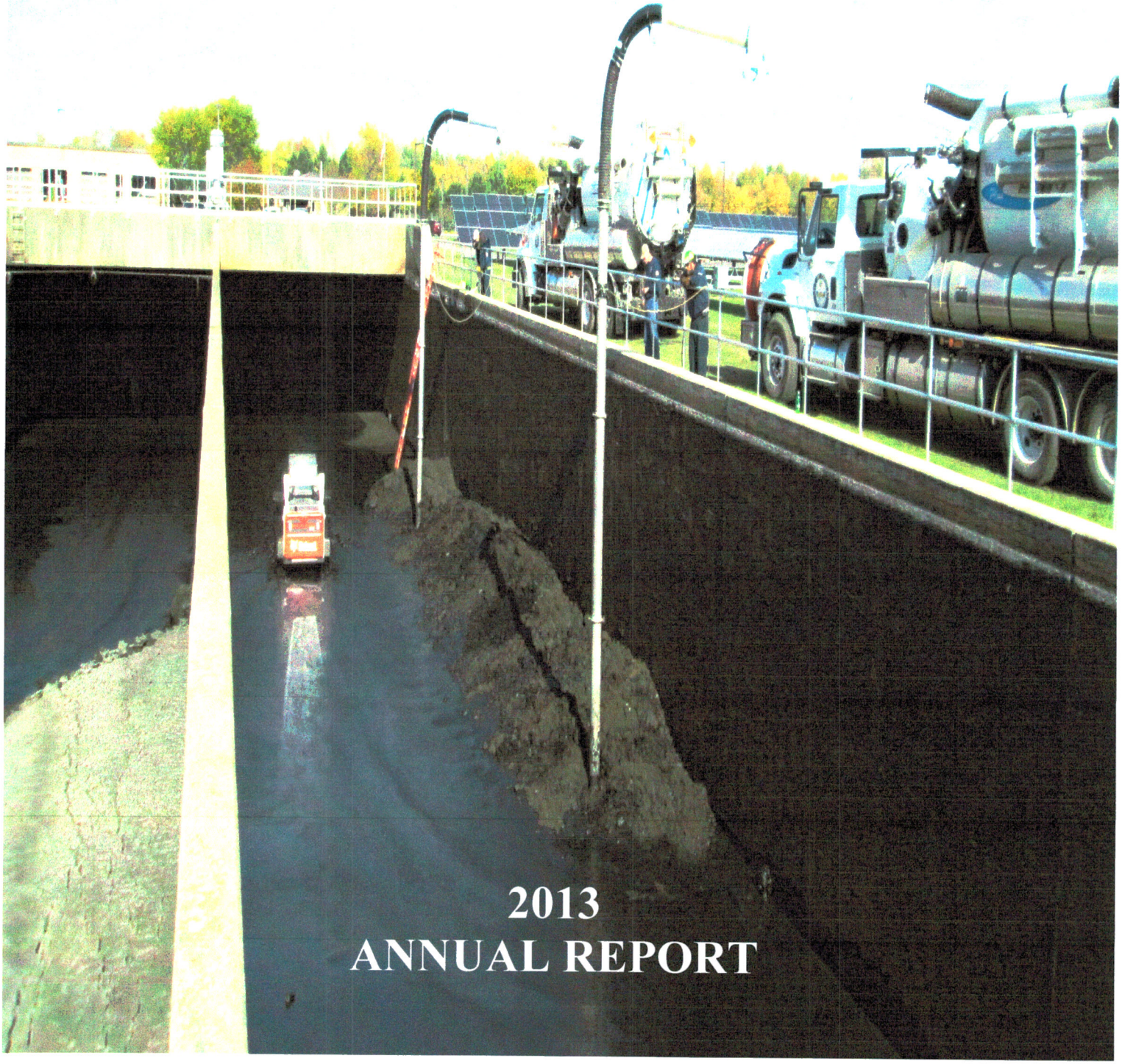
CITY OF FINDLAY

WATER POLLUTION CONTROL CENTER



2013 ANNUAL REPORT

City of Findlay

Lydia L. Mihalik, Mayor

WATER POLLUTION CONTROL CENTER
David Beach, Superintendent
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January 30, 2014

Mr. Paul E. Schmelzer, PE, PS
Service/Safety Director
City of Findlay, Ohio

Dear Mr. Schmelzer,

The annual report of operations of the Water Pollution Control Center for the year ending December 31, 2013 is respectfully submitted here in. The year 2013 brought many changes that started with the retirement of Randy Greeno after 34 years of service as the Superintendent. I personally want to thank Randy for not only being a good mentor but also a good friend. I am looking forward to continuing his efforts as I transition to the role of Superintendent. I would also like to congratulate Jason Wolfarth on his promotion to Plant Supervisor. His skills and experience make him a great fit for the position and I look forward to working alongside him to keep the plant running smoothly. I also wish to acknowledge the initiative and cooperation exhibited by the 14 Water Pollution Control and 12 Sewer Maintenance employees in their outstanding operation and maintenance of the wastewater system throughout the year 2013.

Sincerely,

David L. Beach
WPC Superintendent

The following is a list of all the employees that make the Water Pollution Control Center (WPCC) function at such a high level of professionalism:

Raul Amesquita	Joe Arras
Joel Borer	Seth Cole
Bob Courtney	Dana Cramer
George Elston	Dave Frantz
Joshua Gearing	Dan Gonzalez
Terry Grohoske	Gary Hayden
Dave Holman	Chris Kolhoff
Chase McGuire	Amanda Mooney
Tom Moses	Werner Roesch
Mark Routzon	Jared Sines
Mark Stears	Mike Stillberger
Brent Vaughan	Todd Ward
Jason Wolfarth	Steve Watkins

2013
WATER POLLUTION CONTROL CENTER
ANNUAL REPORT

The Water Pollution Control Center (WPCC) is comprised of three units, Water Pollution Control, Sewer Maintenance, and Stormwater Maintenance. Each unit operates under separate budgets with Stormwater Maintenance being a subunit of Sewer Maintenance. All are under the direction of the Superintendent of the Water Pollution Control Center (WPCC).

The key processes of operations at the WPCC include:

- Provide Wastewater Treatment that Meets or Exceeds NPDES Permit to Maintain 100% Compliance
- Operation and Maintenance of Wastewater Collection System
- Operation and Maintenance of Sanitary & Storm Pumping Stations
- Condition and Dispose of Biosolids
- Ensure Reliable and Valid Analytical Lab Data
- Maintain Stormwater Collection System
- Meet Regulatory Reporting Requirements Set Forth in NPDES
- Floodwater Management

In the year 2013, the City of Findlay WPCC completed its eightieth year of operation. There was one violation of the city's NPDES permit during the year due solely to a mechanical failure in the UV disinfection system.

The City of Findlay WPCC treated 4.444 billion gallons of sewage in 2013 which was up from 2012's total of 3.644 billion gallons. The daily total for sewage treated was 12.163

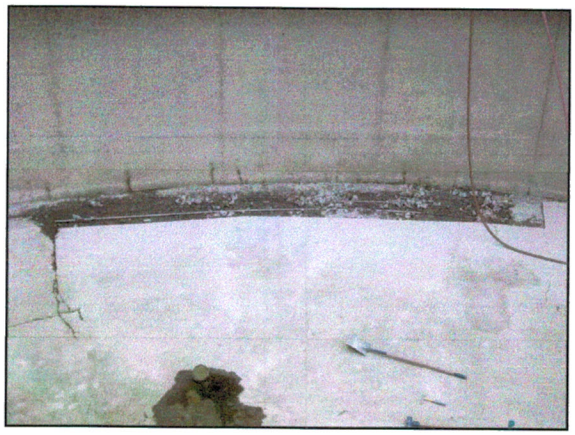
million gallons per day in 2013, up from 2012's daily average of 9.957 million gallons per day.

The City of Findlay WPCC continues to partner with Marathon Petroleum Corporation on a ground-mounted 975.88 kilowatt (kW) solar energy facility composed of four sub array systems. The project was constructed as a research and development project to better understand the potential advantages and disadvantages of solar energy and the electrical power it generates is donated to the Water Pollution Control Center. Over 6,000 solar panels were used to complete the project including tracking and fixed solar panels from both SHARP and KYOCERA brands. The facility went on line on November 5, 2012 and in its first year of power generation, it generated 813 mega-watt hours (MWh) of electrical power with an estimated retail value of $58,500. This is equivalent to $1/6^{th}$ or 16% of the 4,814.40 mega-watt hours used in 2013.

In September of 2013, the Maintenance Department completed the first phase of a major lighting upgrade here at the plant. The outdated lighting is being replaced with more efficient LED bulbs in anticipation of a cost savings on the monthly electric bill. The project was funded partly by incentives from AEP and will move forward with phase two in 2014.

The much anticipated Bar Screen project completed the design and planning process in 2013. A bar screen is a mechanical filter used to remove large objects such as rags, plastics, solids, and other debris from the waste stream. Bar screens are vital to the successful operation of a plant because screening prevents damage and clogging of downstream equipment, piping, and appurtenances. The WPCC previously used grinders to reduce debris to a passable size before entering the influent pump station but they were found to be inefficient at removing debris and in need of frequent mechanical repairs. The City recently opened the bidding process and will be moving into the construction phase of the bar screen in 2014.

A joint effort between WPC Maintenance and Sewer Maintenance to replace the crumbling floor in Clarifier #3 allowed for quick and cost effective repairs as they removed the damaged areas, installed a new relief valve, and repaired the subfloor and grout layer. Utilizing the talents of both units allowed for the project to be completed at a substantial savings to the City when compared to outside estimates.



Before Repairs

After Repairs

Another joint project took place in October when the WPC Maintenance and Sewer Maintenance again cooperated to take oxidation ditch #1 out of service to thoroughly clean it in preparation for the bar screen installation. The four day project removed 110 loads of sludge and grit from the tank.

The City of Findlay has continued to work on the Long Term Control Plan for Combined Sewer Overflows and reducing the frequency of these overflows. The long term goal is to close down as many CSO discharge points as possible. Although the Sewer Maintenance Department has been observing several overflow sites that could possibly be closed in the future, none were closed in 2013. The first draft of the Long Term Post Construction Compliance Monitoring Plan was submitted to the Ohio EPA in November of 2013. It outlined the location of existing combined sewer outfalls (CSO's) in the system, identified the most active, set guidelines for inspection and sample collection, and developed forms to report the findings. We are awaiting notification of acceptance in order to proceed with installation of flow meters and implementation of the plan.

The WPC again partnered with City of Findlay Health Department, Hancock County Board of Alcohol, Drug Addiction, and Mental Health Services, The University of Findlay, the Findlay Police Department, and Rader Environment Services to sponsor a drive-up collection of prescription drugs. This allows the citizens of Findlay and Hancock County a better method to dispose of their unwanted prescription drugs rather than flushing them down their toilets. The October collection was successful in collecting 98 pounds of prescription medication from a total of 46 vehicles. The two permanent collection boxes that were installed in 2011, at the Hancock County Sheriff's office and the City of Findlay Police department, collected 389 pounds of prescription medication between April and October of 2013. The City also collected 12 mercury thermometers, 7 mercury switches, 8 large mercury switches, and 6 pounds of elemental mercury which were all disposed of safety and properly. Given the continued success of these collections, we plan to make them an annual event.

In 2013 the City of Findlay continued to work on its Storm Water Management Plan (MS4) with the bulk of the development now happening in the Engineering Department. This plan addresses the following six minimum controls which were set forth by the OEPA:

- Public Education and Outreach
- Public Participation and Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post Construction Storm Water Management
- Pollution Prevention and Good Housekeeping

Each of these controls must have BMPs (Best Management Practices) or activities which have measurable goals. Each of these goals must have an implementation schedule to track the progress of the activities that are being achieved. In 2013, we continued the distribution of storm water pollution fliers in the water and sewer bills thus alerting the residents of the community of the hazards of storm water pollution and how they can prevent this type of pollution. Outfall recon continues on the Blanchard River and its tributaries. This recon documents all conduits of storm water that may reach the Blanchard River including pipes, swales and ditches. This investigation documents size, type of conduit, flow activities and any other pertinent information about the site. This information will help in the investigation of illicit discharges and illegal hook ups that could cause pollution in the receiving streams.

In 2013, the Public Works department with funding from the Stormwater Maintenance unit put in 1,876 man hours on the street sweepers. This sweeping removed 624 tons of debris from the streets and prevented this pollution from entering into the storm sewer system and then into the receiving streams.

The WPCC staff continues to conduct tours for school age kids, citizen groups, and University of Findlay students who are interested in wastewater management. These tours provide a general overview of the treatment process and focus on pollution prevention as well as ways that we can keep our storm water system cleaner.

Laboratory testing, to assure compliance with the NPDES permit limits, is performed at the WPCC and several outside laboratories. Two full-time laboratory technicians are required to monitor the specified parameters. It should be noted that the WPCC laboratory received an acceptable rating on all parameters that were tested for pertaining to the annual DMR-QA (Discharge Monitoring Report & Quality Assurance) study. This study involves purchasing samples with unknown values and running the tests through our lab. The results are then sent back to the company for evaluation and the evaluation is then forwarded to the USEPA.

The WPCC is well staffed with the following 13 employees, licensed by the Ohio Environmental Protection Agency:

Waste Water Operator Licenses:

Dave Beach	Class 4	Jason Wolfarth	Class 3
David Frantz	Class 3	Mark Stears	Class 3
Raul Amesquita	Class 3	Seth Cole	Class 3
Werner Roesch	Class 2	Joel Borer	Class 1
Josh Gearing	Class 1		

Waste Water Collection Licenses:

Robert Courtney	Class 1	Chris Kolhoff	Class 1
Mark Routzon	Class 1	Mike Stillberger	Class 1

The WPCC has an approved Ohio Environmental Protection Agency Sludge Management Plan and continues to meet all state and federal regulatory requirements for disposal in a landfill. The wastewater biosolids (sludge) generated at the WPC is conditioned on four belt filter presses located in the Solids Processing Building. 2054.35 dry tons of biosolids were treated and disposed of at the Hancock County Landfill in 2013. This treatment resulted in an average of 13.05 dry tons per day of operation of the belt filter presses.

The Water Pollution Control Center has an approved Ohio Environmental Protection Agency Industrial Pretreatment Program to regulate the disposal of industrial wastewater into the sanitary wastewater collection system. The Water Pollution Control Center is the legal authority responsible for the management, testing, and record keeping of the program. Audits of the program and inspections are performed annually by the Northwest District Office of the Ohio EPA and tri-annually by the State Office of the Ohio EPA. Inspection reports from all EPA agencies have been above average and the City of Findlay is meeting all federal requirements at this time. The WPCC works closely with local industries in the pretreatment of their individual discharges and has developed an excellent cooperative spirit to ensure compliance with the pretreatment program. At present, all industrial dischargers are in compliance with current regulations and their continued cooperation is anticipated.

In looking ahead to next year, we continue to focus on meeting our key processes while working towards the 2014 objectives of:

- Bar Screen Construction
- Completion of Phase 2 of the WPC Lighting Project
- Installation of Upgraded Septage Receiving Station

On September 19, 1934 the Sewage Treatment Works became a National Weather Service station for the City of Findlay and that tradition continues today at the Water Pollution Control Center. Weather records are on file dating back to 1894 for temperature, precipitation amounts, wind direction and sky conditions. Flood information is supplied to the news media when river levels pose a threat to the community. The Blanchard River exceeded flood stage three times during the year 2013. The river experienced moderate flooding in July and reached a level of 12.4 feet. It reached major flood stage in April at 14.07 feet and again in December at 15.37 feet, which was 4.37 feet above flood stage, and ranked as the 11th worst flood in Findlay's recorded history.

On December 12th, the City of Findlay recorded 2 degrees above zero as the lowest temperature of the year. The highest temperature of the year was recorded on September 10th when the mercury reached 96 degrees. The year 2013 recorded a total of eleven days at 90° or above compared to twenty seven days in 2012 and twenty six days in 2011. The year 2013 recorded no days at 0° or below just as the year 2012 had. During the year of 2013, three high temperature records were broken and no low temperature records were broken or tied. These records can be found on the Temperature and Precipitation Data sheet included in this annual report. The historical record low temperature of minus 21° was recorded on January 13, 1912 and February 20, 1929. The highest temperature on record was 109° recorded on July 24, 1934.

Total precipitation for 2013 was 42.87 inches, which was 6.82 inches above the one-hundred nineteen year average of 36.05 inches. July had the greatest amount of monthly precipitation at 9.42 inches and the month of March had the least at 1.25 inches. The month of July's recorded amount of 9.42 inches of precipitation was the fourth wettest July in history with the all-time wettest July being in 1896 at 11.10 inches. December 21st recorded the largest single day rainfall at 2.37 inches.

The following are all days in 2013 that one inch or more of rainfall was recorded in a 24 hours period:

February 26th	1.0	July 20th	2.34
April 10th	1.65	September 20th	1.64
June 27th	1.29	October 4th	2.14
July 8th	1.68	November 17th	1.16
July10th	1.61	December 21st	2.37

The WPC recorded 190 days with precipitation which accounts for 52% of the days in 2013. Out of those 190 days, 121 days or 63% had measurable amounts of precipitation of more than 0.01".

The year 2013 recorded a total snowfall of 17.8 inches, which is 8.6 inches below the one hundred and nineteen year average of 26.4 inches. The month of December was the snowiest month with 6.6 inches recorded.

2013
TEMPERATURE AND PRECIPITATION

MONTH	TEMPERATURE				PRECIPITATION			
	AVERAGE MAXIMUM°		AVERAGE MINIMUM °		TOTAL "		SNOWFALL "	
	2012	2013	2012	2013	2012	2013	2012	2013
JANUARY	37.8	37.0	23.4	21.4	3.12	2.98	5.2	2.1
FEBRUARY	41.0	34.5	26.1	20.9	1.78	1.95	5.3	2.9
MARCH	62.5	41.1	41.5	27.3	1.99	1.25	0.8	6.2
APRIL	61.6	59.5	39.1	37.8	1.86	5.34	T	T
MAY	78.8	75.1	55.2	53.3	1.61	1.55		
JUNE	83.4	79.9	59.6	60.8	3.01	4.62		
JULY	89.6	81.3	67.8	64.3	1.97	9.42*		
AUGUST	82.3	79.9	60.8	60.7	4.55	3.24		
SEPTEMBER	73.3	76.0	52.9	54.4	3.89	2.66		
OCTOBER	60.4	63.4	43.6	44.8	4.23	4.29	T	
NOVEMBER	49.3	45.6	30.1	31.0	0.80	2.19	0.2	T
DECEMBER	42.8	35.6	30.3	22.7	2.83	3.38	7.9	6.6
TOTAL					**31.64**	**42.87**	**19.4**	**17.8**
AVERAGE	**63.6**	**59.1**	**44.2**	**41.61**				
HISTORIC AVERAGE					36.00	36.05	26.4	26.4

*Ranks as the 4th wettest July in history

NEW TEMPERATURE RECORDS:

January 11th 58° Old Record 1975 57° January 30th 63° Old Record 1914 56°
April 9th 82° Old Record 1918 80°

2013
ANNUAL SUMMARY OF OPERATIONS

REMOVAL OF SUSPENDED SOLIDS	
2013 RAW TO FINAL	2012 RAW TO FINAL
98.4%	98.5%

REMOVAL OF 5-DAY C.B.O.D. (Carbonaceous Biochemical Oxygen Demand)	
2013 RAW TO FINAL	2012 RAW TO FINAL
98.7%	98.8%

REMOVAL OF AMMONIA	
2013 RAW TO FINAL	2012 RAW TO FINAL
99.9%	99.4%

REMOVAL OF TOTAL PHOSPHORUS	
2013 RAW TO FINAL	2012 RAW TO FINAL
79.4%	81.4%

COST OF OPERATION		
	2013	2012
PAYROLL & BENEFITS	$1,182,113	$1,261,254
UTILITIES (electric, water & sewage)	$477,594	$ 478,200
CHEMICALS	$46,650	$49,141
EQUIPMENT MAINTENANCE	$65,493	$89,805
MISCELLANEOUS	$195,889	$254,477
CAPITAL EQUIPMENT	$29,206	$57,753
OPERATING COST TRANSFER	$640,118	$636,107
TOTAL	$2,637,063	$2,826,737
COST PER MILLION GALLONS	$594	$776

2013
ANNUAL SUMMARY OF OPERATIONS

MONTH	FLOW (Million Gallons)		
	TOTAL	AVG/DAY	PEAK
JANUARY	446.332	14.398	34.993
FEBRUARY	325.221	11.615	32.246
MARCH	376.487	12.145	21.193
APRIL	526.087	17.536	37.141
MAY	280.333	9.043	14.301
JUNE	274.269	9.142	18.327
JULY	551.176	17.780	35.069
AUGUST	335.663	10.828	27.495
SEPTEMBER	256.944	8.565	24.002
OCTOBER	353.393	11.400	30.149
NOVEMBER	307.308	10.244	18.040
DECEMBER	411.014	13.259	37.873
2013 TOTAL	4,444.227		
2013 AVERAGE	370.352	12.163	27.569
2012 TOTAL	3,643.589		
2012 AVERAGE	303.632	9.957	18.050

2013
ANNUAL SUMMARY OF OPERATIONS

MONTH	SUSPENDED SOLIDS MG/L		5-DAY CBOD MG/L		AMMONIA MG/L	
	RAW	FINAL	RAW	FINAL	RAW	FINAL
JANUARY	129	2.57	109	1.91	12.6	<0.10
FEBRUARY	133	2.40	116	2.10	13.6	<0.10
MARCH	128	3.24	106	1.81	11.6	<0.10
APRIL	128	2.59	101	1.59	11.0	<0.10
MAY	147	1.96	145	1.61	16.1	<0.10
JUNE	157	2.20	138	1.30	16.4	<0.10
JULY	102	2.09	94	1.83	10.2	<0.10
AUGUST	134	2.18	116	1.45	14.0	<0.10
SEPTEMBER	176	1.38	139	1.19	17.5	<0.10
OCTOBER	157	1.78	118	1.17	15.2	<0.10
NOVEMBER	127	1.95	115	1.76	15.3	<0.10
DECEMBER	117	2.64	137	1.59	15.8	<0.10
NPDES LIMIT (SUMMER)	5/01-10/31	14	N/A	10	N/A	0.91
NPDES LIMIT (WINTER)	11/01-4/30	18	N/A	13	N/A	4.2
2013 AVERAGE	136	2.25	120	1.61	14.1	<0.10
2012 AVERAGE	162	2.50	136	1.69	16.0	<0.10

2013

ANNUAL SUMMARY OF OPERATIONS

MONTH	TOTAL PHOSPHORUS MG/L		COD MG/L	E. COLI #/100ML
	RAW	FINAL	FINAL	FINAL
JANUARY	3.0	0.55	12	
FEBRUARY	3.0	0.61	13	
MARCH	2.7	0.55	14	
APRIL	2.6	0.55	15	
MAY	3.7	0.77	14	68
JUNE	3.7	0.91	14	83
JULY	2.3	0.45	10	15
AUGUST	3.0	0.67	12	15
SEPTEMBER	3.6	0.66	9	11
OCTOBER	3.4	0.67	9	94
NOVEMBER	3.1	0.67	17	
DECEMBER	3.0	0.61	16	
NPDES LIMIT	N/A	1.00	N/A	126/100ML
2013 AVERAGE	3.1	0.64	13	48
2012 AVERAGE	3.7	0.69	14	47
2011 AVERAGE	2.9	0.39	15	130

2013
ANNUAL SUMMARY OF OPERATIONS

MONTH	DISSOLVED OXYGEN (PPM)		
	FINAL EFFLUENT	BLANCHARD RIVER ABOVE	BLANCHARD RIVER BELOW
JANUARY	9.3	13.8	13.4
FEBRUARY	9.8	14.6	14.0
MARCH	9.8	14.3	13.9
APRIL	9.3	12.1	11.6
MAY	8.6	10.6	9.9
JUNE	8.5	6.5	6.1
JULY	8.0	8.6	8.3
AUGUST	8.0	7.9	7.8
SEPTEMBER	8.1	6.0	6.1
OCTOBER	8.4	8.1	8.2
NOVEMBER	8.6	10.2	10.1
DECEMBER	9.1	13.2	12.0
NPDES PERMIT (SUMMER) 5/01-10/31	6.7		
NPDES PERMIT (WINTER) 11/01-4/30	5.3		
2013 AVERAGE	8.8	10.5	10.1
2012 AVERAGE	8.6	9.7	9.2
2011 AVERAGE	8.6	10.5	10.0

2013
SOLIDS PROCESSING ANNUAL REPORT

MONTH	OPERATING HOURS 1	2	3	4	TOTAL OPERATING HOURS	AVERAGE COST $/TON	POLYMER COST TOTAL,$	POLYMER USAGE GALLONS	AVERAGE SOLIDS CAPTURE, %
JANUARY	146.75	139.25	132.75	0	418.75	17.41	3272.14	280.63	99
FEBRUARY	98.75	101.25	96.50	0	296.50	17.00	2320.81	199.04	99
MARCH	95.50	94.00	69.75	20.25	279.50	18.68	2181.70	187.11	99
APRIL	121.75	117.00	0	91.75	330.50	16.44	2572.08	220.59	99
MAY	145.50	139.25	61.25	68.75	414.75	16.74	3166.20	277.25	98
JUNE	131.25	127.00	121.75	0	380.00	17.90	2864.82	254.65	99
JULY	125.50	0	118.50	113.25	357.25	15.33	2677.17	237.97	99
AUGUST	134.75	20.00	105.25	124.50	384.50	15.26	2884.95	256.44	99
SEPTEMBER	155.00	149.75	0	142.25	447.00	14.39	3357.80	298.47	99
OCTOBER	147.25	139.00	0	133.50	419.75	16.81	3149.33	279.94	98
NOVEMBER	132.50	125.00	119.50	0	377.00	18.34	2836.47	252.13	99
DECEMBER	133.75	126.75	120.75	0	381.25	18.38	2859.86	254.21	99
TOTAL	1568.25	1278.25	946.00	694.25	4486.75		34143.33	2998.43	
AVERAGE					374.00	16.89	2845.28	249.87	99

Polymer cost/gal $11.66/gal. 2013(Jan. – May)
$11.25/gal. 2013(June – Dec.)

2013
SOLIDS PROCESSING ANNUAL REPORT

MONTH	TOTAL SLUDGE DEWATER & SUPNT. GALLONS	DEWATERED SLUDGE GALLONS	SUPERNANT GALLONS	DEWATERED SLUDGE DRY TONS	AVG. SOLIDS FEED %	AVG. SOLIDS CAKE %
JANUARY	6,792,933	4,893,700	1,899,233	190.92	1.04	15.6
FEBRUARY	5,278,874	3,516,600	1,762,274	136.99	1.03	15.2
MARCH	4,570,225	2,848,575	1,721,650	119.89	1.06	15.1
APRIL	5,107,927	3,780,325	1,327,602	156.13	1.07	16.2
MAY	6,369,108	4,660,235	1,708,873	188.24	1.04	16.5
JUNE	6,545,008	4,292,925	2,252,083	161.75	1.00	16.1
JULY	6,089,961	4,066,750	2,023,211	176.09	1.14	18.3
AUGUST	7,324,008	4,621,375	2,702,633	187.42	1.06	19.0
SEPTEMBER	8,379,259	5,417,125	2,962,134	234.01	1.15	20.3
OCTOBER	8,368,094	5,111,125	3,256,969	190.05	.98	18.6
NOVEMBER	7,356,475	4,482,425	2,874,050	155.48	0.95	16.4
DECEMBER	6,870,703	4,684,950	2,185,753	157.38	0.87	15.8
TOTAL	79,052,575	52,376,110	26,676,465	2,054.35		
AVERAGE	6,587,715	4,364,676	2,223,039	171.20	0.981.03	16.9

2013
SEWER MAINTENANCE UNIT
ANNUAL REPORT

The Sewer Maintenance Unit is a division of the Water Pollution Control Center and consists of twelve employees (12) that maintain a sanitary sewer system that reaches far beyond the City of Findlay Corporation limits. The sanitary sewer system has 16,999 customers and is estimated to consist of over two hundred and ninety-five (295) miles of sewers and several thousand manholes. A preventive maintenance program conducted by the Sewer Maintenance Unit allows for the cleaning of all City sanitary sewers every eight (8) years and additional cleaning of known areas with historic sewer problems.

In the year 2013, Sewer Maintenance investigated 130 complaints of sewer problems. Seven percent (7%) of these complaints were due to a problem within the City's sewer system. The remaining ninety-three percent (93%) of the complaints were determined to be an issue within the homeowner's sewer. Sixteen percent (16%) of the 130 calls were received during nonscheduled work hours and required employees to be called in to work. In 2013, we began tracking customer satisfaction with a follow up survey to ensure that the residents were pleased with our quality of service and to identify any areas that may be in need of improvement. I am pleased to share that we scored an overall rating of 4.53 on a scale of 1 to 5, with 5 being very satisfied.

In 2013, a private contractor was hired to clean large diameter sewers which ranged from 36 to 66 inches in size. They removed 500 to 600 cubic yards of debris from 5,270 feet of the city's main sanitary sewer trunk line. The cleaning has helped with flow rates and increased capacity to the Water Pollution Control Center.

During 2013, a total of 43 miles of sanitary sewer were cleaned by the sanitary vactor (a high-pressure water sewer cleaner and vacuum truck). In addition to performing routine duties, the sanitary and storm vactors, along with two skid steers, helped with the cleaning of oxidation ditch number 1 at the Water Pollution Control Center. The four day

project removed 110 loads of sludge and grit from the tank. The sanitary and storm vactors also cleaned various building drains for other City departments, including tanks and basins at the Water Pollution Control Center, the Water Treatment Plant, the City swimming pool, and the lift stations wet wells.

In 2013, a private contractor treated 3,860 feet of sanitary sewer for root intrusion. This process involves the spraying of foam on the roots within the sewer system that kills the roots without harming the tree. This process reduces sewer blockages within the lines and cuts down on the frequency that cleaning is required.

The Sewer Maintenance Unit also maintains the storm sewer system within the City of Findlay Corporation limits. It consists of approximately six thousand four hundred (6,400) catch basins connected by an unknown number of miles of sewer and manholes. The City's storm water maintenance crew cleaned 2,569 catch basins and 6,999 feet of storm sewer in 2013. A total of 4 catch basins were rebuilt and 357 were repaired. The Sewer Maintenance Unit also installed 140 feet of new storm sewer and two catch basins on Shady Lane to allow for better drainage and help with water problems along the roadway.

The Sewer Maintenance Unit utilizes a self-propelled main line camera, a manhole camera, a lateral inspection camera, and a jetter assisted camera to inspect or "televise" sewers and their structures. The self-propelled main line camera was updated in 2009 to provide it with pan & tilt capabilities which allow it to look up sewer laterals from the main line sewer. The lateral camera can be used for the inspection of lines as small as two (2) inches and has been used in the past to aid the Traffic Unit in locating breaks in their electrical conduits. The manhole inspection camera and video recorder allows City employees to safety inspect and record manhole conditions without entering the manhole. In 2013, 35,429 feet of sewer were inspected by the main line camera and assigned a rating based on their condition.

The televising program has allowed us to determine the sewers most in need of attention as we move forward with our sewer lining project. Sewer lining literally creates a "pipe" within the existing pipe and it restores the structural integrity of the original sewer line without digging it up. It is a cost effective alternative to sewer replacement that prevents root intrusion, stops infiltration and leaks into the sewer, increases flow rates, and is corrosion resistant to the hydrogen sulfide gas which is created within the sewer system. In 2013, a private contractor was able to line 7,075 feet of concrete sanitary pipe that was in very poor condition.

Before Lining

After Lining

In compliance with OSHA and the City of Findlay's confined space entry policies, all confined space entries must be documented. During 2013, 10 entries were required by maintenance personnel into the sewer system. The Sewer Maintenance Unit uses an enclosed trailer to allow all confined space equipment to be readily available at the job site. This reduces entry time and provides a safer entry procedure with all the equipment close at hand.

The Sewer Maintenance Unit, along with the Water Distribution Department, is required to locate and mark sewers and related structures as part of the Ohio Utilities Protection Service. During 2013 the Sewer Maintenance Unit alone had requests for 6,740 sewer locates. This is down from the high of seven thousand eight hundred and thirty nine (7,839) in 2005.

During 2013, the Sewer Maintenance Unit repaired 4 sanitary sewer pipes and 1 storm sewer pipe, which had either collapsed or were damaged by utilities. The Sewer Maintenance Unit also helped Water Pollution Control repair a section of floor in clarifier number 3 which had been damaged due to external ground and water pressure.

The Sewer Maintenance Unit maintains 15.1 miles of sanitary force mains from various pump stations located both within the City of Findlay corporation limits and the outlying area. Located on these force mains are 35 air relief valves that need to be maintained or replaced (as needed) on a weekly bases to ensure efficient pumping and proper flows from the Lift Stations.

The Sewer Maintenance Unit continued installing flap gates on all Combined Sewer Overflows to prevent river water intrusion during flood conditions from backing into the sewer system thus surcharging the sewer system. Additional flap gates are installed on storm sewers to help minimize street flooding during high water levels of the Blanchard River and its tributaries.

The Sewer Maintenance Unit repairs manholes, constructs new manholes, constructs drainage for localized storm water problems, conducts dye tests, conducts flow monitoring with two (2) portable flow monitors, and maintains a rat control maintenance program in the City sewer system. In addition, the Sewer Maintenance Unit conducts smoke testing on the sewer system to inspect for sources of inflow and infiltration to the sanitary sewer system.

In 2013, with the help of MPO-STP funds, a private contractor was hired to replace, repair, and adjust 48 manholes (with manhole castings purchased by the city). These repairs were made mainly on state routes throughout the City of Findlay.

In 2008, the Sewer Maintenance Unit began plugging the abandoned sanitary sewer laterals of properties damaged in the 2007 flood which were demolished by the Findlay Public Works Department. There were several demolitions by private contractors in 2013 but the laterals were required to be capped by the contractor and then inspected by the city engineer.

The Sewer Maintenance Department and the Water Pollution Control Department also play an integral role in keeping the residents of Findlay safe when the Blanchard River nears and exceeds flood stage. They worked tirelessly along with the authorities to barricade and close flooded streets as well as responding to increased numbers of sewer concerns during the three high water events of year.

During 2013, approximately thirty percent (30%) of the Sewer Maintenance Unit man-hours were spent maintaining sanitary sewers, forty-five (45%) on storm sewers, and the remaining twenty five 25% on building and equipment maintenance, vacation, sick leave, confined space entry training and equipment use, and various other safety training.

As we reflect on our achievements over the past year we continually look ahead to the future with the following objectives for 2014:

- Continue Large Diameter Sewer Cleaning
- Continue the Sewer Lining Program
- Brandman Area Sewer Diversion and CSO Removal
- West Park Sanitary Sewer Construction
- Sewer Separation at G & H Streets

2013
SEWER MAINTENANCE
ANNUAL REPORT OF OPERATIONS

MONTH	CLEANING						CATCH BASIN REPAIR / PATCHED	MANHOLES ADJUSTED	SEWER CALLS	TELEVISED	
	BUCKET		VACTOR			JET					
	SANITARY FEET	STORM FEET	SANITARY FEET	STORM FEET	BASINS #	FLUSHING FEET	#	#	#	SANITARY FEET	STORM FEET
JANUARY	0	0	500	0	0	0	0	2	11	0	0
FEBRUARY	0	0	7568	0	165	0	0/3	1	9	0	0
MARCH	0	0	6305	0	98	0	0/2	6	6	949	0
APRIL	0	0	27,396	1745	229	0	0/52	3	14	0	0
MAY	0	0	25,579	1311	386	0	2/56	5	6	6,490	0
JUNE	0	0	29,419	275	266	0	0/50	8	10	8,301	0
JULY	0	0	19,557	2,768	212	0	0/14	3	33	9,345	0
AUGUST	0	0	33,667	900	290	0	1/54	2	8	10,344	190
SEPTEMBER	0	0	31,196	0	301	0	1/51	0	10	0	0
OCTOBER	0	0	21,554	0	341	0	0/31	4	6	0	0
NOVEMBER	0	0	17,113	0	180	0	0/42	0	5	0	0
DECEMBER	0	0	5,425	0	101	0	0/2	2	12	0	0
TOTAL	0	0	225,279	6,999	2,569	0	4/357	36	130	35,429	190
2012 TOTAL	0	0	301,222	4,780	2,865	0	14/693	30	76	1,876	1,292

SEWER MAINTENANCE COST OF OPERATION		
	2013	2012
PAYROLL & BENEFITS	$813,648	$809,379
UTILITIES (electric, water & sewage)	$15,316	$8,566
WATER & SEWER LINE MAINTENANCE	$16,767	$21,559
VEHICLE & EQUIPMENT MAINTENANCE	$16,235	$11,751
FUEL	$39,049	$42,117
MISCELLANEOUS	$23,015	$26,661
CAPITAL EQUIPMENT	$37,730	$49,955
TOTAL	**$961,760**	**$969,988**

STORMWATER COST OF OPERATION		
	2013	2012
PAYROLL & BENEFITS	$144,018	$156,908
WATER & SEWER LINE MAINTENANCE	$1,813	$1,432
CATCH BASIN MAINTENANCE	$12,877	$14,407
VEHICLE & EQUIPMENT MAINTENANCE	$286	$8,258
MISCELLANEOUS	$2,787	$2,407
STREET SWEEPING	$77,288	$0
TOTAL	**$239,070**	**$183,412**