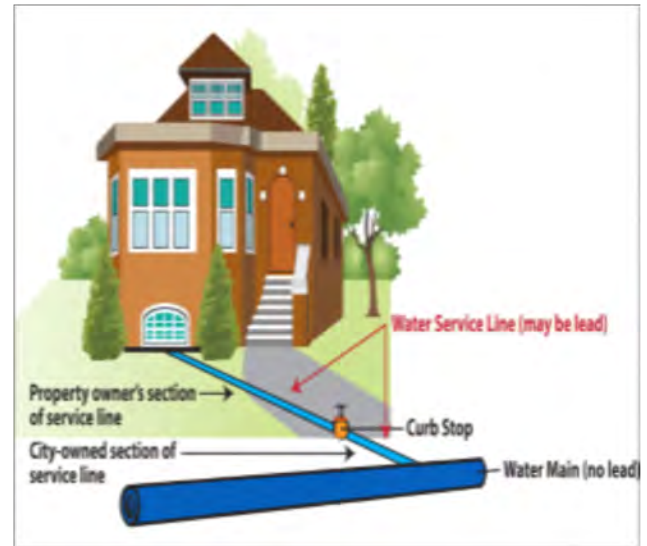




KENOSHA WATER UTILITY 2018 ANNUAL REPORT

On August 31, 2018, the Public Service Commission of Wisconsin approved a first-in-the-state tariff allowing the Kenosha Water Utility to offer grants of up to \$2,000 to property owners to replace customer-owned lead water services.

The tariff also allows loans of up to ten years to finance the remainder of the property owner's cost of replacement.



During 2018, the Kenosha Water Utility provided grants to three residential properties. There are approximately 4,000 customer-owned lead water services in Kenosha.

Also during 2018, the Utility replaced fifty-two utility-owned lead water services. The Utility estimates that there are 8,718 utility-owned lead water services in Kenosha.

2018
ANNUAL REPORT
of the
KENOSHA WATER UTILITY
Kenosha, Wisconsin



BOARD OF WATER COMMISSIONERS (Jan - March)

G. John Ruffolo, Chairman

Bruce Fox

David Bogdala

John Fox

Jesse Downing

Mitchell Pedersen

BOARD OF WATER COMMISSIONERS (April - Dec)

David Bogdala, Chairman

Mitchell Pedersen

Bruce Fox, Vice Chairman

Jack Rose

John Fox

Dominic Ruffalo

Edward St. Peter, General Manager

Dave Lewis, Assistant General Manager

DIVISIONS

John Andersen, Director of GIS / IT

Melissa Arnot, Director of Operations

Cathy Brnak, Director of Business Services

Curt Czarnecki, Director of Engineering

Roger Field, Director of Water Production

Steven Hayek, Director of Water Distribution & Sanitary Sewer Collection

Sue Hill, Director of Personnel & Administration

Katrina Karow, Director of Wastewater Treatment

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Board of Water Commissioners

David F. Bogdala – Chairperson
Bruce Fox – Vice Chairperson
Mitchell Pedersen
Jack Rose
Dominic Ruffalo
Bill Siel



Edward St. Peter
General Manager
4401 Green Bay Road
Kenosha, WI 53144

Phone (262) 653-4300
Fax (262) 653-4303

“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Board of Water Commissioners
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Gentlemen:

SUBJECT: 2018 Annual Report

I respectfully submit the year 2018 Annual Report of the Kenosha Water Utility. The annual report documents the statistics of the operations, capital improvements and financial activity of our three enterprise systems, “Water System, Sewerage System, and Household Hazardous Waste Program.”

The Kenosha Water Utility continues to maintain a strong financial standing. Revenues in the Water System, Sewerage System and Household Hazardous Waste exceeded expenses for the year 2018.

Each division has provided detailed descriptions of their activities over the past year. It is encouraging to review these accomplishments and realize that we have an outstanding group of directors, supervisors and staff that not only provide the highest quality water and sewerage service, meeting and exceeding all state and federal requirement, but also a team that works 24 hours/day, 7 days/week, 365 days/year tirelessly in their mission to **“Provide and Protect Kenosha’s Greatest Natural Resource ... Water.”**

Our customers are accustomed to turning on the faucet and the water is there, pure, cold and safe; having safe and flowing sewers; having customer service second to none; and having facilities that will meet their needs well into the future. I doubt our customers give it much thought each day, and we at the Utility are committed to keeping it that way!

This will be my final annual report as I am retiring at the end of the year. I want to thank the Board, directors, and employees for their support, teamwork and friendship as we worked together to serve our customers.

Sincerely,

A handwritten signature in black ink, appearing to read 'Edward St. Peter'.

Edward St. Peter, General Manager



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Board of Water Commissioners

David F. Bogdala – Chairperson
Bruce Fox – Vice Chairperson
Mitchell Pedersen
Jack Rose
Dominic Ruffalo
Bill Siel



David Lewis
Assistant General Manager

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“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Mr. Edward St. Peter, General Manager
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Subject: 2018 Annual Report

Dear Mr. St. Peter,

I respectfully submit my 2018 Annual Report. The major activities and initiatives that I supported at the Kenosha Water Utility (KWU) this year include:

- Implementation of the Lead Service Line replacement program. KWU was the first Utility in the state to receive approval from the Wisconsin Public Service Commission to begin this program.
- Painting of the 60th St. east storage tank.
- Aeration system improvements at the Wastewater Treatment Plant.
- Installation of more than 3,400 feet of new water main using KWU staff.
- Continued implementation of Utility-wide site-specific safety training.

In an effort to improve safety among all departments in the City, KWU combined forces with the City of Kenosha to expand their Safety committee and to streamline training for all employees by Cities and Villages Municipal Insurance Corporation (CVMIC).

Because of increased private development the workload for the Engineering Department has increased dramatically over the past couple of years. In 2018, we hired three new engineers, including two Water Engineers and one Facility Plan Engineer. These recruitments have really filled a need for the utility.

At the start of 2018, I once again shared responsibility for the management of the Distribution Division with Curt Czarnecki, our Director of Engineering. Due to increased workloads, we felt that it was time to place someone in the vacant Director of Water Distribution and Sewer Collection position. In June, Steve Hayek was promoted to that position. This promotion provided much needed stability and direction to the division. We also replaced one Distribution Supervisor due to a retirement. I am very proud of the talented team we now have in place.

I thank you, Mr. St. Peter, and all the KWU Directors and Supervisors for your support during 2018. I would also like to thank the Board of Water Commissioners for their support throughout 2018. None of the projects that were undertaken would have been possible without your input and approval.

Sincerely,

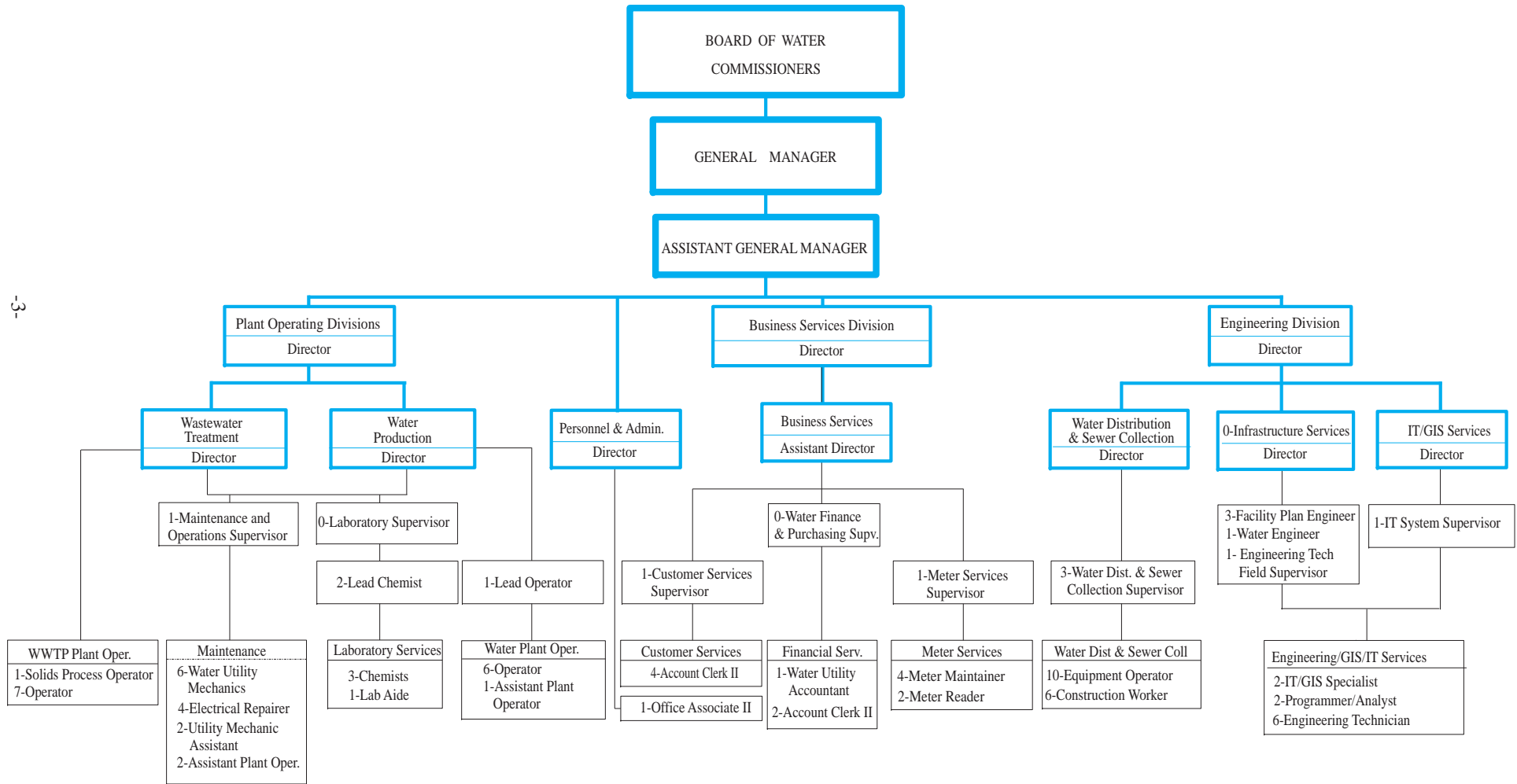
David Lewis
Assistant General Manager



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2018 Organizational Chart



General Statistics Water

	<u>2018</u>	<u>2017</u>
1. Population of Kenosha, Pleasant Prairie, Somers & Bristol	135,582	134,948
Population of current service area (estimated)	118,360	117,946
Population of City of Kenosha	99,263	99,116
2. Total gallons pumped	5,514,319,000	5,655,597,000
3. Total gallons low lift water used in plant	681,764,000	656,650,000
4. Total gallons water pumped – high lift use	4,832,555,000	4,998,947,000
5. Total gallons high lift water accounted for, not metered	57,137,166	45,189,034
6. Total gallons water pumped to distribution system	4,775,417,834	4,953,757,966
7. Increase (decrease) from previous year	(3.60%)	(1.21%)
8. Total gallons passed through customers' meters	4,304,837,000	4,402,646,000
9. Percent of water accounted for	89%	88%
10. Consumption:		
Minimum gallons pumped in any one day	9,160,000	9,578,000
	December 31, 2018	April 17, 2017
Maximum gallons pumped in any one day	20,043,000	23,873,000
	January 20, 2018	June 17, 2017
11. Total daily consumption – Average	11,794,074	12,062,044
Average daily consumption per capita – gallons per day	99.65	102.27
12. Total number of services	30,428	30,412
Active accounts (total meters less in stock and deduct meters)	31,163	31,134
Number of services added (net)	16	40
Per mile of pipe	82.27	82.26
Persons per service (City of Kenosha)	3.26	3.26
13. Pipe in distribution system (in miles)	369.85	369.72
Size range in diameter	1" - 48"	1" - 48"
Pressure range – pounds per square inch	40 – 80	40 – 80
Population per mile (City of Kenosha)	268.39	268.08
14. Valves for distribution system (except hydrant valves)	6,047	6,028
Total installed for year	19	11
15. Hydrants for distribution system	3,382	3,380
Total installed for year (34 new - 32 retired = 2 additional)	2	21
Per mile of pipe	9.14	9.14
16. Utility operating revenue	\$ 14,465,688	\$ 14,660,378
Net Operating Income	\$ 710,224	\$ 1,586,814
Net Income (all expense and revenue)	\$ 519,750	\$ 1,211,438

	<u>2018</u>	<u>2017</u>
17. Operating and maintenance expenses	\$ 8,526,114	\$ 7,865,661
Per mile of pipe to expense	\$ 23,052.90	\$ 21,274.64
Per million gallons to distribution system	\$ 1,785.42	\$ 1,587.82
18. Tax Equivalent – Water	\$ 2,309,733	\$ 2,352,858
Increase (decrease) from previous year	-1.8%	1.1%
Percent of operating revenue	15.8%	16.0%
19. Depreciation	\$ 2,919,617	\$ 2,855,046
Percent of operating revenue	19.9%	19.5%
20. Production Cost Analysis of Energy Used		
Total electrical costs (high and low lift)	\$ 483,969	\$ 507,171
Cost for pumping (per million gallons)	\$ 85.57	\$ 89.68
Total electrical costs (booster system)	\$ 147,457	\$ 151,635
Cost of re-pumping for booster system (per million gallons)	\$ 70.29	\$ 73.49
Total electrical energy consumed at plant	\$ 569,367	\$ 596,668
Total natural gas energy consumed at plant	\$ 43,754	\$ 37,940
21. Production Cost Analysis of Chemicals Used		
Sand Filters		
Potassium Permanganate – total pounds	–	–
Sulfate of Aluminum – total tons	351.6	359.0
Chlorine – total tons	24.2	23.7
Hydrofluosilicic acid – total tons (liquid weight)	32.8	35.4
Polyphosphate – total tons (liquid weight)	16.4	18.0
Total cost per million gallons of filtered water	\$49.14	\$48.60
Membrane Filters		
Chlorine – total tons	18.1	17.3
Hydrofluosilicic acid – total tons (liquid weight)	24.6	26.0
Polyphosphate – total tons (liquid weight)	12.3	13.1
Total cost per million gallons of filtered water	\$23.19	\$24.26
22. Plant Capacities:		
Treatment plant	45.0 MGD	45.0 MGD
Low lift pumps	50.0 MGD	50.0 MGD
High lift pumps	48.0 MGD	48.0 MGD
Lake intake	102.0 MGD	102.0 MGD
Emergency intake	15.0 MGD	15.0 MGD
23. Water usage in booster service area (million gallons)	2,097.85	2,063.25
24. Average number of General Customers by class		
Residential	27,597	27,572
Multifamily Residential	1,095	1,091
Commercial	2,157	2,158
Industrial	85	83
Private Fire Services	515	507
Public Authorities	198	191
Sales for Resale (points of sale)		
Village of Pleasant Prairie	7	7
Village of Somers	8	8
Village of Bristol	2	2

General Statistics Sewer

	<u>2018</u>	<u>2017</u>
25. Total gallons wastewater pumped & treated	9,412,036,000	9,294,576,000
26. Increase (decrease) from previous year	1.26%	12.23%
27. Treatment:		
Minimum gallons treated in any one day	15,119,000	14,581,000
Date:	January 1, 2018	Dec. 25, 2017
Maximum gallons treated in any one day	85,270,000	97,086,000
Date:	June 27, 2018	July 12, 2017
28. Total daily wastewater treated – Average	25,786,400	25,464,592
Average daily treatment per capita – gallons per day	217.86	215.17
29. Total dry solids to digester, tons	5,582	5,531
30. Sludge to dewatering centrifuge, gallons	27,752,756	31,800,135
Sludge to dewatering centrifuge, wet tons	115,729	132,607
Percent solids	2.15%	2.01%
31. Sludge off dewatering centrifuge (to landfill), wet tons	6,175	5,535
Sludge off dewatering centrifuge (to dryer), wet tons	2,037	2,346
Percent solids	29.7%	28.3%
32. Sludge from dryer (to landfill), wet tons	634	699
Percent solids	95.4%	95.0%
33. Sludge to landfill, dry tons	1,852	1,955
Grit to landfill, tons	654	1,165
34. Pipe in distribution system (in miles)	342.48	342.34
Size range in diameter	6" - 99"	6" - 99"
Population per mile (City of Kenosha)	289.84	289.53
35. Utility operating revenue	\$ 13,664,618	\$ 13,475,536
Net Operating Income	\$ 1,826,627	\$ 2,169,979
Net Income (all expense and revenue)	\$ 2,399,255	\$ 2,497,124
36. Operating and maintenance expenses		\$ 11,305,557
Per mile of pipe to expense	\$ 0.00	\$ 39,047.96
Per million gallons collected	\$ 0.00	\$ 1,216.36
37. Depreciation	\$ 2,328,055	\$ 2,186,774
Percent of operating revenue	17.0%	16.2%
38. Wastewater Treatment Cost Analysis of Energy Used		
Total electrical costs (wastewater treatment)	\$ 523,648	\$ 553,681
Cost for treatment (per million gallons)	\$ 55.64	\$ 59.57
Total electrical costs (lift stations)	\$ 79,685	\$ 78,379
Cost of pumping sewage to treatment plant		
Total natural gas energy consumed at plant	\$ 70,497	\$ 89,382
Methane gas produced by digesters (therms)	420,357	433,682
Value of methane gas (estimate)	\$ 212,316	\$ 215,909

	<u>2018</u>	<u>2017</u>
39. Wastewater Treatment Cost Analysis of Chemicals Used		
Ferric Chloride - total gallons	205,534	210,665
Chlorine - total tons	53.9	55.3
Sulfur Dioxide - total tons	48.5	48.1
Polymer - total tons	102.0	97.0
Sodium Hydroxide - total pounds	172,053	161,037
Sulfuric Acid - pounds	9,920	30,368
Total cost per million gallons of treated sewage	\$ 54.37	\$ 60.27
40. Plant Capacity	28.6 MGD	28.6 MGD
41. Average number of General Customers by class		
Residential	26,864	26,772
Multifamily Residential	941	938
Commercial	1,984	1,977
Industrial	70	69
Public Authorities	153	148
Sales for Resale (points of sale)		
Village of Pleasant Prairie	4	4
Village of Somers	4	4
Village of Bristol	1	1

Water Utility Vehicles – 2018

Distribution & Sewer Collection

Water Distribution

Fleet #	Description
2091	1992 Ford Truck with Utility Service Body
2115	1993 IHC Tandem Axle Dump Truck
2367	1997 Ford Hydro Vac Valve Turner Truck
2420	1998 IHC Tandem Axle Dump Truck
2474	1999 Ford Utility Van
2701	2003 GMC 1 Ton Dump Truck
2850	2006 GMC Pickup
2852	2006 GMC Pickup
2854	2006 GMC 1 Ton Dump Truck
2856	2006 GMC Crew Cab with Utility Service Body
2878	2006 Sterling Tandem Axle Dump Truck
2957	2008 Freightliner Tandem Axle Dump Truck
2959	2008 GMC Van
3070	2010 Ford Crew Cab with Utility Service Body
3279	2014 GMC Pickup
3281	2014 GMC Pickup
3299	2015 International Tandem Axle Dump Truck
3303	2015 International Tandem Axle Dump Truck
3331	2015 Chevrolet Pickup
3376	2017 Ram 1 Ton Dump Truck

Water Production

2771	2004 Jeep Liberty
2961	2008 GMC Pickup
3280	2014 GMC Pickup
3283	2014 GMC Pickup

Engineering Services

2535	2001 Ford Pickup
2653	2003 GMC Pickup
2682	2003 GMC Van
2737	2004 GMC Van
2842	2006 GMC Pickup
2883	2006 GMC Pickup
2960	2008 GMC Pickup
3024	2009 Jeep Grand Cherokee
3027	2009 Chevrolet Impala
3076	2010 Chevrolet Impala
3105	2011 GMC Pickup
3106	2011 GMC Pickup
3124	2011 GMC Pickup
3164	2012 Chevrolet Impala
3166	2012 Chevrolet Impala
3282	2014 GMC Pickup

Administration/Customer Service

2962	2008 Jeep Liberty
3304	2014 Ford Edge

Sewer Repair/Inspection

Fleet #	Description
2089	1992 Ford Pickup Flatbed-Shoring Truck
2299	1996 IHC Tandem Axle Dump Truck
2364	1997 Chevrolet Van
2421	1998 IHC Tandem Axle Dump Truck
2430	1998 GMC 1 Ton Dump Truck
2472	1999 Sewer Flusher Vacuum
2554	2000 Vactor Sewer Cleaner
3352	2005 Sewer Flusher Vacuum
2851	2006 GMC Pickup
2884	2006 TV Truck – Ford Chassis
3043	2009 Ford F450 with Utility Service Body
3093	2008 Eager Beaver Lowboy Trailer
3202	2012 Sewer Flusher Vacuum
3284	2015 GMC Tandem Axle Dump Truck
3370	2017 GMC Pickup

Meter Shop

2849	2006 GMC Van with Utility Service Body
3004	2008 Dodge Grand Caravan
3127	2011 GMC Van
3248	2014 GMC Van
3257	2014 GMC Van
3285	2014 GMC Van

Wastewater Treatment

1965	1990 Ford Platform Truck with Crane
2063	1991 Ford with Galbraith Container System
2427	1998 Ford Pickup
2559	2001 Sterling Dump Truck
2649	2003 GMC Pickup
2652	2003 Ford Utility Truck with Crane
2700	2003 GMC Van
2714	2004 Ford Pickup
2746	2004 GMC Pickup
2843	2006 GMC Pickup with Plow
2862	2006 GMC Van
2866	2006 GMC Pickup
3407	2006 Ford F750 with Crane
2930	2007 GMC Pickup
2945	2008 Freightliner Quad Axle Dump Truck
2966	2008 GMC Van
3391	2008 IHC 4400 with Versalift
3073	2010 Ford Escape Hybrid
3253	2013 Chevrolet Suburban
3297	2014 Ram 4500 with Service Body and Crane
3371	2017 GMC Pickup
3377	2018 Western Star Quad Axle Dump Truck
3463	2018 Ram 3500 with Plow

Water Utility Major Equipment – 2018

Distribution & Sewer Collection

Water Construction

Fleet #	Description
453-00	1958 Engresser Pipe Thawer
1011	1980 Case Crawler
455-19	1986 Tapmate Tap Machine
1943	1989 Caterpillar Forklift
	1989 Wach Power Valve Turner
	1992 Wach Power Valve Turner
2206	1994 Smith Air Compressor
2366	1997 Case Wheel Loader
2958	2007 Airman Air Compressor
2968	2007 Case Tractor Loader Backhoe
2970	2008 Case Tractor Loader Backhoe
3326	2015 Case Tractor Loader Backhoe
	2016 Husqvarna Road Saw
3373	2017 Case Tractor Loader Backhoe
3410	2018 Case Tractor Loader Backhoe

Water Production

	1998 Mitsubishi Fork Truck
	2005 Kubota Mower
2890	2006 Kubota Mower

Sewer Repair

Fleet #	Description
2840	2005 JCB Tractor Loader Backhoe
3092	2009 Caterpillar Excavator
3334	2016 Case Tractor Loader Backhoe

Wastewater Treatment

	1980 6" Marlow Pump
	1995 6" Marlow Pump
	1998 4" Barnes Submersible Pump
1787	1998 John Deere Mower
	1999 8" Thompson Pump
	2000 6" Gormann-Rupp Pump
	2000 8" Godwin Pump
2987	2003 New Holland Skid Loader
2819	2006 Nissan Forklift
2893	2007 JCB Wheel Loader
3332	2015 Kubota Mower

Water Service Centre

	1996 Kubota Mower
--	-------------------

Engineering Services

4401 Green Bay Road
Kenosha WI 53144

Phone (262) 653-4315
Fax (262) 653-4303



“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Mr. Edward St. Peter, General Manager
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Subject: 2018 Annual Report – Engineering Services Division

Dear Mr. St. Peter,

I respectfully submit the annual report for the Engineering Services Division for the year 2018. The Engineering Services Division continues to provide a variety of engineering services for our various operating divisions within the utility as well as City departments, public agencies and developers.

The Kenosha market continues to be one of the most attractive markets for development within the Midwest. The volume and scale of private development continues to increase within the City of Kenosha and Kenosha County as a whole. Planning, review and oversight of private development continued to be a major focus of the Engineering Services Division efforts in 2018.

In addition to private development, the utility put out contracts to help rehabilitate and enhance our aging infrastructure. A summary of these contracts can be found later in this report.

While 2017 focused on planning and budgeting activities necessary to rehabilitate and replace aging infrastructure, 2018 saw Engineering staff shift their focus towards the design and implementation phase of these initiatives. Understanding the large volume of work that lies ahead, the Engineering Services Division was fortunate enough to hire three new engineers to help ensure these projects are successful.

Finally, the Kenosha Water Utility once again proved to be a leader in the industry with the implementation of a customer-side lead service replacement program. Working closely with State regulatory agencies and legislators, Kenosha was the first municipality in the State of Wisconsin to implement a customer-side lead service replacement program. Knowing how important it is to cultivate and maintain trust with our customers, the Engineering Services Division was eager to be the main point of contact for the lead service replacement program. Significant efforts began in the fall of 2018 and will continue into the foreseeable future to help our community “Get The Lead Out”.

On behalf of the staff of the Engineering Services Division, I would like to thank the Board of Water Commissioners and all utility employees for working together to ensure 2018 was another safe, productive and successful year.

Sincerely,

A handwritten signature in black ink, appearing to read 'Curtis Czarnecki'.

Curtis Czarnecki, P.E.
Director of Engineering Services



www.kenosha.org

**Information Technology/
Geographic Information Systems**

4401 Green Bay Road
Kenosha WI 53144

Phone (262) 653-4315
Fax (262) 653-4303



“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Mr. Edward St. Peter, General Manager
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Subject: 2018 Annual Report - Information Technology / Geographic Information Systems

Dear Mr. St. Peter,

The Information Technology (IT) / Geographic Information Systems (GIS) team has had a very successful year completing many projects and continuing to develop better ways for our users to use technology. The IT/GIS team not only worked on various new projects but continued to make enhancements to the master digital map supplying this information out to all of our users. Some of these legacy and various new projects are listed below:

- Completed the installation of a new client-server architecture using thin clients instead of pc’s at the Wastewater plant. This client-server architecture aligns us with the city’s system allowing us to share resources and be able to share each-other’s help-desk expertise.
- Completed the new SCADA (system control and data acquisition) system called Ignition at the Wastewater plant. This human-machine interface is now fully functional and runs on a Linux operating system thus giving us a far better performance and has backup and redundancy unlike the former legacy SCADA systems used.
- Continued to virtualize our legacy computers at the Water Production plant, Wastewater plant and the main office. This technology is the single most effective way to reduce IT expenses while boosting efficiency and agility.
- Enhanced our open-source Geographic Information System called Quantum GIS which allows more users to access the GIS system for substantially lower cost without the yearly maintenance fees from legacy software companies.
- Continued the GPS (Global Positioning System) and GIS summer internship program for college students.
- Enhanced and updated KWU’s website, www.kenoshawater.org, with valuable customer information.
- Provided many web based input forms, surveys and informational web pages for our employees to receive and disseminate time critical data.
- Enhanced our mobile mapping solutions to include the lead service replacement program mobile access.
- Continued to develop mobile applications for not only the meter maintainers, but also engineers, engineering technicians, inspectors, distribution supervisors and locators.

I would like to thank you and the Board of Water Commissioners for their continued support. Additionally, I would also like to thank the IT/GIS staff and all of the divisions within the Water Utility for their support and patience throughout the year.

Respectfully submitted,

A handwritten signature in black ink that reads 'John N. Andersen'.

John N. Andersen
Information Technology /
Geographic Information Systems Director



www.kenosha.org

2018 Engineering Service Contracts Awarded

<u>Project</u>	<u>Contractor</u>	<u>Description</u>	<u>Awarded Cost</u>
2018-01-PROD	Horizon Brothers Painting Corporation	60th Street East Ground Storage Tank Painting	\$ 317,100.00
2018-02-W	Reesman's Excavating and Grading, Inc.	67th Street from Harding Road to 51st Avenue Harding Road from 48th Avenue to 67th Street 47th Avenue from 65th Street to Harding Road 34th Avenue from 48th Street to 52nd Street 78th Street from 34th Avenue to 36th Avenue 34th Avenue from 78th Street to 79th Street Utility-side Lead Service Replacements on 22nd Avenue from 50th Street to 60th Street	\$ 1,320,568.85

2018 Engineering Staff and G.I.S. Personnel Recap of Significant Projects

	<u>Hours</u>
<u>Water Production Engineering - Total Hours 737</u>	
Water Treatment Plant & Reservoir Maintenance	592
Painting of Water Storage Tanks	145
<u>Sewerage System Engineering - Total Hours 3,261</u>	
Sanitary Sewer Locates (Digger's Hotline)	1,464
Sump Pump Inspection	665
Wastewater Treatment Plant Maintenance	538
Sanitary Sewer System Flow Study/Inspection	238
Sewer Repair, Cleaning and Inspection	204
Equalization Basin Maintenance	152
<u>Water Distribution System - Total Hours 7,181</u>	
Water System Locates (Digger's Hotline)	2,325
Maintenance of Mains, Services and Hydrants	3,066
Cross Connection Inspection	1,098
Lead Service Replacement Program	692
<u>Water Main Installed by Kenosha Water Utility Crews - Total Hours 336</u>	
Water Main Replacement - Various Locations	336
<u>Water Main Installed by Kenosha Water Utility Contract - Total Hours 1,442</u>	
Water Main Replacement - Harding Rd - 46th Ave to 67th St	466
Water Main Replacement - 34th Ave - 48th St to 52nd St	456
Water Main Replacement - 34th Ave - 78th St to 79th St	390
Water Main Replacement - Various Locations	130
<u>Water/Sewer Infrastructure Installed by Developers 147</u>	
Majestic Midwest Innovation Center	107
Zilber	40
<u>New Development - Total Hours 587</u>	
Plan/Project Review	587
<u>GIS Infrastructure Mapping - Total Hours 2,731</u>	
Water Infrastructure	1,576
Sewer Infrastructure	1,155

Business Services

4401 Green Bay Road
Kenosha WI 53144

Phone (262) 653-4300
Fax (262) 653-4320



“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Mr. Edward St. Peter, General Manager
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Dear Mr. St. Peter,

SUBJECT: 2018 Annual Report – Business Services Division

I respectfully submit the Annual Report of the Kenosha Water Utility Business Services Division.

This division combines the talents and resources of personnel in the areas of customer service, meter reading, meter maintenance and accounting. This combined group strives to provide prompt and accurate service to both our internal and external customers. In addition to general questions about bills, Business Services attempts to be proactive in resolving matters before they become complaints. Our customer service staff strives to make each customer contact a positive one. Calls are answered by a live body, not an automated system.

Meter shop personnel are required to be certified as cross connection control testers with the State of Wisconsin. They test all RPZ devices for the Utility as well as other City departments. They have continued the meter testing program for meters larger than 1-inch according to Public Service Commission guidelines. The program has been completed for conversion of meters to touch pad remote reading devices. These have proven to be more reliable for reading purposes as well as the assurance that meters are operational. The meter shop provides residential cross connection inspections, sump pump inspections, meter inspections prior to sale of vacant properties as well as doing meter replacements under the twenty year change-out program for small meters. Meter maintainers have been identifying and removing meters containing lead as a part of the utility’s ongoing meter change-out program. Meter readers are efficiently reading between 370 and 410 meters per day.

The finance division supports the entire Utility by providing payroll, accounting, accounts payable, budgeting, purchasing and other services. The rate of return for the water unit was 2.61% based on an average net rate base valued at \$49,901,252. The rate of return for the sewer unit was 6.85% based on an average net rate base valued at \$26,650,229.

I would like to thank you and the other members of the utility management for their continued guidance and support. Once again, I wish to thank my staff for their dedication and fine work attitude which are key to getting the job done. Business Services Division employees, together with other divisions, will work to insure that the Kenosha Water Utility continues to “Provide and Protect Kenosha’s Greatest Natural Resource.”

Sincerely,

Cathy Brnak
Director of Business Services



www.kenosha.org

Water and Sewerage Service Charges – 2018

Water Rates

Water rates for municipally owned water utilities in Wisconsin must be approved and authorized by the Public Service Commission of Wisconsin. The Kenosha Water Utility policy is to maintain water rates that will provide 1.3 times coverage of maximum annual debt service by net income of the system.

Sewerage Service Rates

Sewer service rates for Kenosha are authorized by the Board of Water Commissioners. The Kenosha Water Utility policy is to maintain sewer rates that will provide 1.2 times coverage of maximum annual debt service by net income of the system.

Water Utility General Service Billing

The Kenosha Water Utility issues water and sewer service bills on a bi-monthly basis to residential, commercial and public customers. High consumption customers are billed monthly. The "Sale for Resale" category was added in 1990 and is billed monthly.

Water Rates Effective June 1, 2015 Public Fire Protection Rates Effective June 1, 2015

Meter Size	Public Fire Protection Bi-Monthly Charge	Meter Service Bi-Monthly Charge
5/8 Inch	\$6.18	\$10.10
3/4 Inch	6.18	10.10
1 Inch	8.24	18.96
1-1/2 Inch	12.36	32.96
2 Inch	18.54	45.32
3 Inch	24.72	78.28
4 Inch	30.09	117.42
6 Inch	37.08	206.00
8 Inch	43.26	306.94
10 Inch	49.44	432.60
12 Inch	55.62	560.32

Plus volume charges:

First 1,700 cubic feet used each month or
 3,400 cubic feet used each two months - \$ 2.00 / 100 cu. ft.
 Next 23,300 cubic feet used each month or
 46,600 cubic feet used each two months - \$ 1.85 / 100 cu. ft.
 Over 25,000 cubic feet used each month or
 50,000 cubic feet used each two months - \$ 1.50 / 100 cu. ft.

Sewerage Service Rates Effective June 1, 2015

\$2.48 monthly or \$4.96 bi-monthly - Plus \$1.99 / 100 cubic feet

100 cubic feet = 748 gallons

**CONSUMPTION CHARGES BY CUSTOMER CLASS
BASED ON BILLING DATE, NOT ACCRUAL BASIS**

RESIDENTIAL

Bill Mo.	Water		Public Fire Protection	HHW Charge	Sewerage		Spr. Cr.
	Cons.Ccf	Charge			Cons.Ccf	Charge	
April 2018	159,883	\$ 455,670.47	\$ 84,045.94	\$ 13,440.00	158,619	\$ 382,319.17	
May 2018	143,137	428,686.09	86,738.36	13,333.00	136,487	337,760.71	
June 2018	141,610	420,787.47	84,055.21	13,442.50	140,717	346,701.63	
July 2018	165,326	472,960.14	86,747.63	13,336.00	156,942	352,513.98	\$ 25,955.57
Aug 2018	168,349	473,534.39	84,079.93	13,446.50	166,914	352,711.37	46,142.13
Sept 2018	218,999	578,080.86	86,772.35	13,338.50	204,788	365,347.58	108,345.55
Oct 2018	185,599	506,687.75	84,095.38	13,449.00	183,404	353,402.36	78,278.64
Nov 2018	190,136	520,269.55	86,778.53	13,341.00	179,051	347,819.71	74,678.73
Dec 2018	155,030	445,371.91	84,123.19	13,453.50	153,734	330,665.05	41,994.97
Jan 2019	155,352	453,061.51	86,803.25	13,344.00	147,617	359,960.57	
Feb 2019	159,758	456,726.47	84,126.28	13,454.00	158,811	382,765.73	
March 2019	174,488	491,157.14	86,818.70	13,346.50	166,162	396,873.35	
Totals	2,017,667	\$ 5,702,993.75	\$ 1,025,184.75	\$ 160,724.50	1,953,246	\$ 4,308,841.21	\$ 375,395.59

COMMERCIAL

Bill Mo.	Water		Public Fire Protection	Sewerage	
	Cons.Ccf	Charge		Cons.Ccf	Charge
April 2018	37,388	\$ 89,774.31	\$ 9,242.19	34,783	\$ 74,417.46
May 2018	52,281	122,118.99	10,943.75	51,429	106,034.03
June 2018	37,257	88,906.19	9,191.72	35,111	75,029.76
July 2018	65,290	144,379.12	10,943.75	58,302	119,794.16
Aug 2018	41,934	103,862.99	9,194.81	38,401	81,635.84
Sept 2018	90,955	186,942.13	10,946.84	66,870	399,065.50
Oct 2018	53,934	117,623.82	9,196.87	44,428	93,665.46
Nov 2018	86,118	180,399.46	10,972.59	67,776	138,801.54
Dec 2018	45,237	102,784.59	9,178.33	40,183	85,238.87
Jan 2019	59,756	135,085.67	10,977.74	55,465	114,270.13
Feb 2019	36,208	87,659.38	9,181.42	34,754	74,384.98
March 2019	60,236	135,871.13	10,997.31	58,594	120,414.15
Totals	666,594	\$ 1,495,407.78	\$ 120,967.32	586,096	\$ 1,482,751.88

MULTIFAMILY RESIDENTIAL

Bill Mo.	Water		Public Fire Protection	HHW Charge	Sewerage	
	Cons.Ccf	Charge			Cons.Ccf	Charge
April 2018	35,918	\$ 78,840.88	\$ 4,975.93	\$ 490.00	35,918	\$ 73,094.09
May 2018	46,766	106,243.35	7,260.47	450.00	47,333	92,350.16
June 2018	32,193	71,875.83	4,975.93	490.00	32,193	65,729.22
July 2018	51,327	114,650.60	7,257.38	449.50	49,727	100,472.81
Aug 2018	36,957	80,755.58	4,979.02	490.50	35,918	73,261.42
Sept 2018	56,955	125,163.00	7,257.38	449.50	52,086	105,105.21
Oct 2018	38,920	84,293.13	4,972.84	489.50	36,794	74,937.68
Nov 2018	62,413	135,345.30	7,257.38	449.50	54,021	108,985.69
Dec 2018	36,240	79,362.53	4,966.66	488.50	35,109	71,590.56
Jan 2019	50,328	112,869.45	7,257.38	449.50	48,620	98,386.06
Feb 2019	46,668	81,953.47	4,985.20	490.00	37,646	76,785.33
March 2019	54,516	120,430.25	7,257.38	449.50	53,365	107,686.53
Totals	549,201	\$ 1,191,783.37	\$ 73,402.95	\$ 5,636.00	518,730	\$ 1,048,384.76

**CONSUMPTION CHARGES BY CUSTOMER CLASS
BASED ON BILLING DATE, NOT ACCRUAL BASIS**

PUBLIC

Bill Mo.	Water		Public Fire Protection	Sewerage	
	Cons.Ccf	Charge		Cons.Ccf	Charge
April 2018	16,156	\$ 32,476.75	\$ 1,970.39	8,211	\$ 16,791.25
May 2018	16,358	31,505.35	1,420.37	8,399	16,899.04
June 2018	16,953	33,697.28	2,001.29	8,543	17,461.85
July 2018	18,324	34,464.15	1,420.37	8,964	18,026.52
Aug 2018	26,420	49,729.38	2,001.29	11,071	22,492.57
Sept 2018	23,859	43,169.50	1,420.37	9,300	18,742.44
Oct 2018	39,940	69,909.15	1,988.93	11,671	23,686.57
Nov 2018	21,115	39,040.85	1,420.37	7,948	16,052.72
Dec 2018	24,111	46,118.82	1,988.93	10,308	20,974.20
Jan 2019	16,464	31,245.55	1,420.37	7,645	15,408.72
Feb 2019	15,775	32,139.27	1,988.93	7,867	16,116.61
March 2019	16,800	31,880.05	1,420.37	8,023	16,169.94
Totals	252,275	\$ 475,376.10	\$ 20,461.98	107,950	\$ 218,822.43

INDUSTRIAL

Bill Mo.	Water		Public Fire Protection	Sewerage	
	Cons.Ccf	Charge		Cons.Ccf	Charge
April 2018	40,265	\$ 62,787.15	\$ 385.22	23,351	\$ 73,485.09
May 2018	42,425	68,347.70	920.82	23,672	75,544.38
June 2018	38,395	60,001.15	385.22	22,833	77,801.57
July 2018	44,629	71,788.90	920.82	27,579	86,989.62
Aug 2018	38,679	60,500.45	385.22	23,774	94,152.33
Sept 2018	42,470	68,893.35	920.82	25,600	89,313.41
Oct 2018	45,572	70,983.20	385.22	24,274	78,401.08
Nov 2018	53,934	86,301.86	927.00	27,558	92,953.88
Dec 2018	44,807	69,779.05	385.22	23,855	80,025.82
Jan 2019	44,637	71,916.56	927.00	25,002	92,407.42
Feb 2019	31,879	50,208.35	385.22	19,734	67,499.45
March 2019	40,384	65,573.01	927.00	25,000	74,719.90
Totals	508,076	\$ 807,080.73	\$ 7,854.78	292,232	\$ 983,293.95

SALE FOR RESALE

Bill Mo.	Cons.Ccf	Water Charge	Public Fire Protection
April 2018	136,289	\$ 197,928.81	\$ 8,359.48
May 2018	143,227	207,976.79	8,359.48
June 2018	127,251	185,551.34	8,359.48
July 2018	138,179	201,236.39	8,359.48
Aug 2018	146,293	212,757.89	8,359.48
Sept 2018	214,124	311,278.91	8,359.48
Oct 2018	190,392	276,179.66	8,359.48
Nov 2018	157,680	229,376.51	8,359.48
Dec 2018	116,557	170,309.95	8,359.48
Jan 2019	113,599	166,010.46	8,359.48
Feb 2019	106,655	155,642.42	8,359.48
March 2019	135,216	196,699.69	8,359.48
Totals	1,725,462	\$ 2,510,948.82	\$ 100,313.76

Meter Services Report - 2018

<u>Meter Size</u>	<u>New Accounts</u>	<u>Tested/ Upgraded</u>	<u>Total Meters</u>
5/8" Meters	3	1,783	25,059
3/4" Meters	43	297	4,642
1" Meters	5	41	969
1-1/2" Meters	3	151	618
2" Meters	1	160	716
3" Meters	2	60	128
4" Meters	-	26	66
6" Meters	-	24	29
8" Meters	-	9	9
10" Meters	-	2	2
Total	57	2,553	32,238

New Private Fire Lines **2**

Meter Shop Activity

Set New Accounts	57
20 Year Meter Change Outs	867
Install Radio Read Units	127
Remove Meter (test and replace)	556
Check Readings (high/low consumption, etc.)	2,843
Shut Offs, Take Out Seasonals	163
Repair Outside Register/Touch Pad	1,299
Pressure Tests	25
Locate/Clean Curb Box	326
Service Break Checks/Trace Services	63
Shut off at Curb (non-payment & customer requests)	395
Meters Bench Tested/Rebuild & Retest	268
Frozen Services	12
Frozen Meters	62
Pool Fills	0
Large Meter-Field Testing	108
Total Service Calls	7,171

TEN YEAR COMPARISON OF CUSTOMER WATER CONSUMPTION

Average Number of Water Customers	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% INCR (DECR) 2018 vs. 2017
Residential	27,183	27,278	27,334	27,365	27,410	27,452	27,500	27,541	27,572	27,597	0.09%
Multifamily Residential	N/A	N/A	N/A	N/A	1,130	1,115	1,164	1,077	1,091	1,095	0.37%
Commercial	3,306	3,313	3,317	3,315	2,176	2,177	2,114	2,166	2,158	2,157	(0.05%)
Industrial	69	67	66	63	60	61	66	84	83	85	2.41%
Public	192	192	192	185	183	185	185	191	191	198	3.66%
Irrigation	3	3	3	3	3	2	2	-	-	-	0.00%
Private Fire Lines	432	441	455	464	467	477	492	499	507	515	1.58%
Sale for Resale											
Pleasant Prairie	7	7	7	7	7	7	7	7	7	7	0.00%
Town of Somers	8	8	8	8	8	8	8	8	8	8	0.00%
Village of Bristol	2	2	2	2	2	2	2	2	2	2	0.00%
TOTAL	31,202	31,311	31,384	31,412	31,446	31,486	31,540	31,575	31,619	31,664	0.14%

Annual Consumption (1,000 Gallons)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% INCR (DECR) 2018 vs. 2017
Residential	1,717,591	1,710,396	1,704,587	1,838,553	1,638,280	1,535,419	1,549,036	1,586,610	1,512,799	1,509,215	(0.24%)
Multifamily Residential	N/A	N/A	N/A	N/A	430,591	417,147	417,529	399,652	402,078	410,802	2.17%
Commercial	931,833	1,054,683	953,963	977,711	495,955	471,956	488,315	520,624	497,334	498,612	0.26%
Industrial	324,720	306,136	396,382	287,364	336,628	419,995	411,406	481,031	404,877	380,041	(6.13%)
Public	90,212	107,094	117,950	183,924	170,517	170,966	168,484	196,639	193,523	188,702	(2.49%)
Irrigation	1,177	1,243	1,204	2,148	1,323	1,744	2,014	-	-	-	0.00%
Sale for Resale											
Pleasant Prairie	701,630	754,021	794,343	842,036	746,097	761,521	1,012,853	1,188,200	1,220,396	1,096,551	(10.15%)
Village of Somers	151,554	156,848	162,957	179,703	146,385	142,909	145,463	160,352	162,849	187,724	15.27%
Village of Bristol	4,952	5,424	5,464	5,025	4,563	5,673	5,962	6,633	6,842	6,371	(6.88%)
TOTAL	3,923,669	4,095,845	4,136,850	4,316,464	3,970,339	3,927,330	4,201,062	4,539,741	4,400,698	4,278,018	(3.06%)

Customer Class as a Percent of Total Consumption	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Residential	43.78%	41.76%	41.20%	42.59%	41.26%	39.10%	36.87%	34.95%	34.38%	35.28%
Multifamily Residential	N/A	N/A	N/A	N/A	N/A	N/A	9.94%	8.80%	9.14%	9.60%
Commercial	23.75%	25.75%	23.06%	22.65%	12.49%	12.02%	11.62%	11.47%	11.30%	11.66%
Industrial	8.28%	7.47%	9.58%	6.66%	8.48%	10.69%	9.79%	10.60%	9.20%	8.88%
Public	2.30%	2.61%	2.85%	4.26%	4.29%	4.35%	4.01%	4.33%	4.40%	4.41%
Irrigation	0.03%	0.03%	0.03%	0.05%	0.03%	0.04%	0.05%	0.00%	0.00%	0.00%
Sale for Resale										
Pleasant Prairie	17.88%	18.41%	19.20%	19.51%	18.79%	19.39%	24.11%	26.17%	27.73%	25.63%
Town of Somers	3.86%	3.83%	3.94%	4.16%	3.69%	3.64%	3.46%	3.53%	3.70%	4.39%
Village of Bristol	0.13%	0.13%	0.13%	0.12%	0.11%	0.14%	0.14%	0.15%	0.16%	0.15%
TOTAL	100.00%	100.00%	100.00%	100.00%	89.15%	89.38%	100.00%	100.00%	100.00%	100.00%

Water Production Plant

100 51st Place
Kenosha WI 53140

Phone (262) 653-4330
Fax (262) 653-4362



“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Mr. Edward St. Peter, General Manager
Kenosha Water Utility
4401 Green Bay Rd.
Kenosha WI 53144

Subject: 2018 Annual Report for the O. Fred Nelson Water Production Plant

Dear Mr. St. Peter,

I hereby respectfully submit the Annual Report for the O. Fred Nelson Water Production Plant. Kenosha Water Utility’s Water Production Division continues to provide the highest quality drinking water to our customers. A total of 4.98 billion gallons was pumped into the distribution system in 2018. The average daily flow was 13.65 million gallons per day, with a maximum day of 20.04 million gallons which occurred on January 20th. The average tap water turbidity was 0.030 NTU and the average chlorine residual was 1.1 mg/l. To further assist with the prevention of lead leaching into drinking water we changed our corrosion control mix from a 60/40 polyphosphate and orthophosphate blend to a 90/10 orthophosphate and polyphosphate blend as well as changing our dosing parameters. We will continue to monitor this change throughout 2019. Finally, we completed our required triennial WDNR Sanitary Survey and no significant deficiencies were identified. Some significant projects completed in 2018 include:

- **60th St East Ground Storage Tank Painting**
- **Painting of Surge Tanks and 48” Plant Effluent Line**
- **Retaining Wall Installation Around Backwash Elevated Tank**

We would like to thank the Wastewater Division for electrical and mechanical upgrades and repairs as well as the Engineering and Business Services Divisions for their support throughout the year. We would also like to extend special thanks to Dave Lewis, and the Board of Water Commissioners for providing us the tools and equipment to ensure we continue providing the best drinking water to Kenosha, Pleasant Prairie, Bristol, and Somers. I assumed the position of Director of Water Production in April of this year, taking over for Roger Field who performed exceptionally during his tenure as Director. I have very large shoes to fill but have had nothing but support from the phenomenal staff at the Production Plant along with others throughout the Utility.

Sincerely,

Ian C. Bagley, P.E.
Director of Water Production



www.kenosha.org

Kenosha Water Utility

Production Division

Main Plant Pumping

2018

Month	Pumpage X 1000 Gallons				Electricity	
	High Lift	Daily Average	Low Lift	Daily Average	Pumping	Cost/MG
January	429,042	13,840	481,888	15,545	\$ 42,674	\$ 88.56
February	399,803	14,279	425,866	15,210	41,093	96.49
March	421,667	13,602	450,435	14,530	37,127	82.42
April	396,595	13,220	400,648	13,355	39,846	99.45
May	403,284	13,009	466,843	15,059	37,013	79.28
June	424,929	14,164	479,833	15,994	41,741	86.99
July	509,950	16,450	584,835	18,866	42,233	72.21
August	479,423	15,465	519,815	16,768	42,955	82.64
September	421,720	14,057	476,221	15,874	44,889	94.26
October	380,200	12,265	426,309	13,752	35,935	84.29
November	349,950	11,665	396,319	13,211	38,710	97.67
December	365,220	11,781	403,307	13,010	39,753	98.57
Total	4,981,783		5,512,319		\$ 483,969	
Average	415,149	13,650	459,360	15,098	\$ 40,331	\$ 88.57

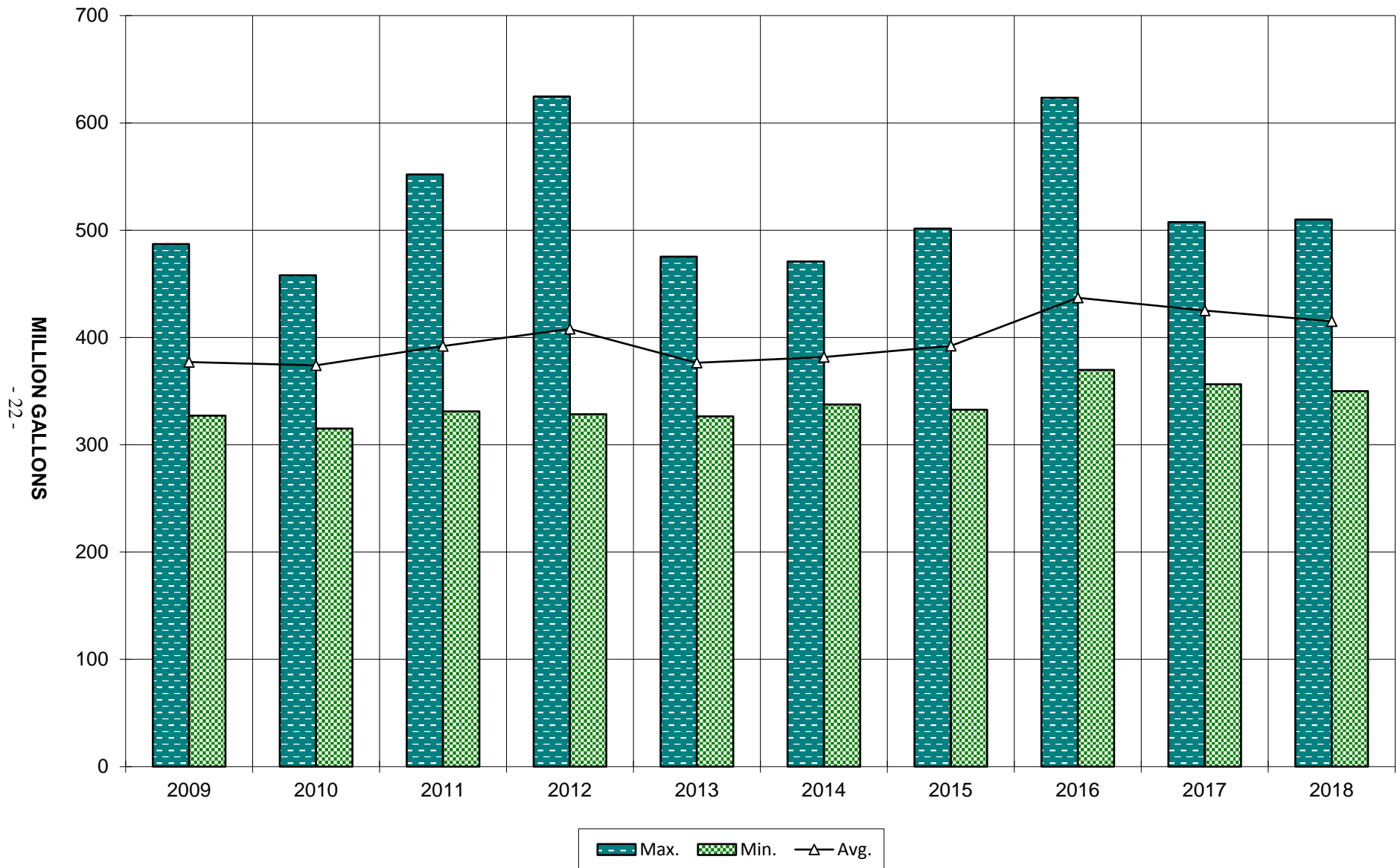
Booster System Pumping

2018

Month	Pumpage X 1000 gal	Total Power Cost	Pumping Power Cost	Total Cost/MG	Pumping Cost/MG
January	159,240	\$ 14,823	\$ 12,719	\$ 93.09	\$ 79.87
February	174,820	13,842	11,932	79.18	68.25
March	174,820	12,815	11,266	73.30	64.44
April	174,820	11,875	10,885	67.93	62.26
May	171,430	12,964	12,394	75.62	72.30
June	180,580	12,788	12,199	70.82	67.55
July	229,100	15,270	14,742	66.65	64.35
August	207,830	14,599	14,037	70.24	67.54
September	177,650	12,948	12,383	72.88	69.70
October	161,480	12,372	11,732	76.62	72.65
November	143,530	13,126	11,543	91.45	80.42
December	142,550	13,632	11,625	95.63	81.55
Total	2,097,850	\$ 161,054	\$ 147,457		
Average	174,821	\$ 13,421	\$ 12,288	\$ 77.78	\$ 70.91

Main Plant Pumping Last Ten Years

Monthly Flow - Million Gallons



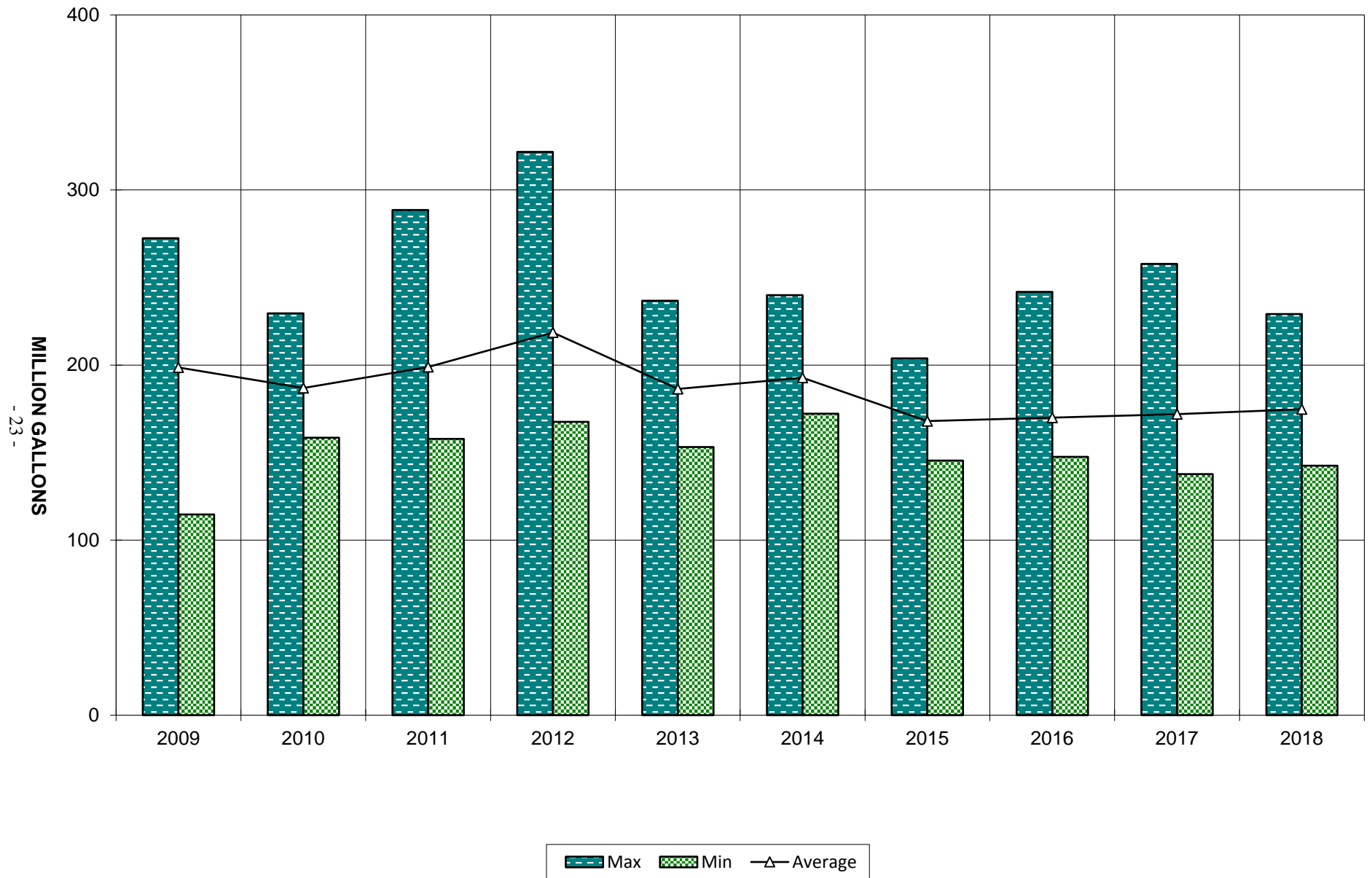
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Max.	487	458	552	624.6	475.158	470.859	501.467	623.539	507.426	509.95
Min.	327	315	331	328.4	326.528	337.571	332.584	369.85	356.394	349.95
Avg.	377	374	392	407.9	376.333	381.833	392.176	436.972	425.073	415.149

2001	2002	2003	2004	2005	2006	2007	2008
608	624	559	488	623	501	506	527
348	330	341	355	336	312	336	343
413	412	407	396	428	378	405	392

Month	High Lift		Low Lift	
	Membrane	Rapid Sand	Membrane	Rapid Sand
January	429.042	236.264	245.624	481.888
February	399.803	194.663	231.203	425.866
March	421.667	215.197	235.238	450.435
April	396.595	201.131	199.517	400.648
May	403.284	230.096	236.747	466.843
June	424.929	206.578	273.255	479.833
July	509.950	230.742	354.093	584.835
August	479.423	191.241	328.574	519.815
September	421.720	202.382	273.839	476.221
October	380.200	204.675	221.634	426.309
November	349.950	197.598	198.721	396.319
December	365.220	194.009	209.298	403.307
	4981.783	2504.576	3007.743	5512.319
Max.	509.950			
Min.	349.950			
Avg.	415.149			

Booster Pumping Last Ten Years

Monthly Flow - Million Gallons



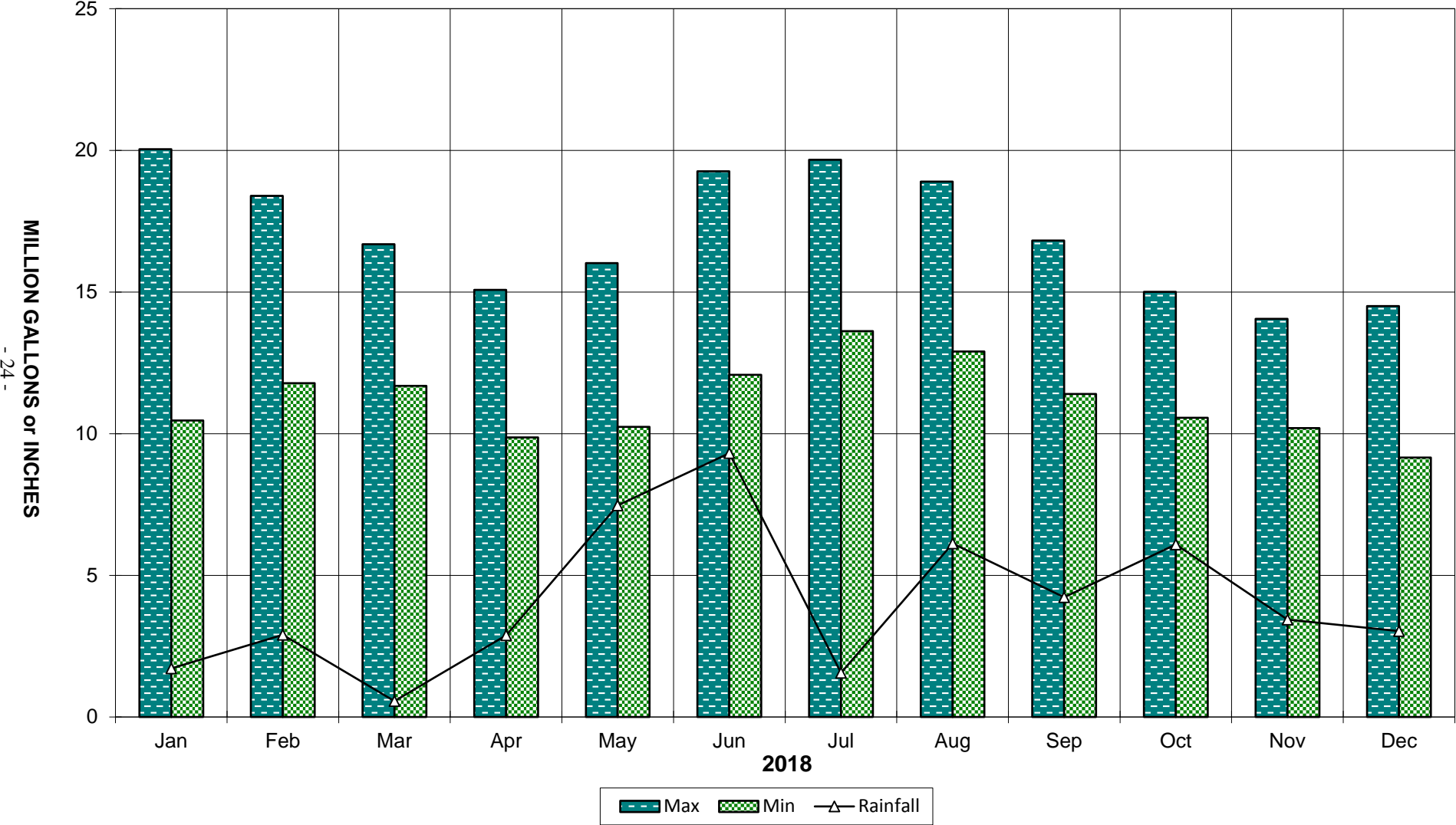
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Max	272.4	229.5	288.6	321.8	236.7	240.0	203.8	241.8	257.9	229.1
Min	114.6	158.5	157.9	167.5	153.2	172.3	145.4	147.6	137.7	142.6
Average	198.6	186.9	198.9	218.6	186.4	192.8	168.0	170.0	171.9	174.8

	2007	2008
	269.9	285.5
	175.1	181.7
	215.1	220.1

Finished Water Per Month

Compared to Rainfall

Daily Flow Min/Max (MG) + Total Precipitation (Inches)



Month	Min	Max	Rainfall
Jan	10.467	20.043	1.71
Feb	11.783	18.39	2.9
Mar	11.683	16.69	0.56
Apr	9.87	15.079	2.88
May	10.238	16.021	7.47
Jun	12.079	19.262	9.31
Jul	13.62	19.667	1.56
Aug	12.9	18.893	6.12
Sep	11.4	16.82	4.23
Oct	10.56	15.01	6.09
Nov	10.2	14.05	3.44
Dec	9.16	14.5	3.03

Min/Max is taken from EMOR
Rainfall data from WWTP.

Kenosha Water Utility

Production Division

Rapid Sand Plant Filtration Report

2018

Month	Pumpage (1000 gal.)			
	Total Water Treated	Max Day	Min Day	Avg Day
January	234,786	9,876	6,233	7,574
February	228,650	12,300	5,780	8,166
March	233,370	10,550	5,820	7,528
April	186,789	7,538	4,520	6,226
May	215,275	10,400	4,712	6,944
June	257,840	13,700	6,510	8,595
July	328,145	14,071	8,050	10,585
August	304,366	13,079	7,318	9,818
September	254,679	11,109	5,957	8,489
October	203,760	9,530	4,977	6,573
November	182,155	8,513	4,725	6,072
December	191,945	8,980	3,553	6,192
Total	2,821,760			
Average	235,147			7,730

Month	Washwater (1000 gal.)	% Rated Capacity	Filter Run Hours		
			Max	Min	Avg
January	3,750	38	80	41	64
February	2,553	41	80	7	69
March	1,868	38	80	70	78
April	1,380	31	80	76	79
May	1,960	35	78	54	66
June	2,060	43	75	52	64
July	3,840	53	63	27	43
August	3,614	49	67	20	42
September	2,730	42	75	29	52
October	1,900	33	80	49	62
November	1,480	30	80	55	71
December	1,630	31	80	70	79
Total	28,765				
Average	2,397	39			64

Kenosha Water Utility

Production Division

Membrane Plant Filtration Report

2017

Month	Pumpage (1000 gal.)			
	Total Water Treated	Max Day	Min Day	Avg Day
January	194,256	10,167	4,202	6,266
February	171,153	6,310	5,900	6,113
March	188,297	6,240	5,863	6,074
April	166,796	6,503	3,968	5,560
May	188,009	7,455	5,526	6,065
June	167,090	5,621	5,508	5,570
July	180,805	7,493	5,437	5,832
August	175,057	6,883	4,086	5,647
September	167,617	6,324	5,262	5,587
October	176,448	6,614	5,531	5,692
November	167,713	6,325	5,454	5,590
December	170,867	5,714	4,370	5,512
Total	2,114,108			
Average	176,176			5,792

Month	Washwater Raw (1000 gal.)	% Rated Capacity *	CIP Run Hours		
			Max	Min	Avg
January	42,030	40	503	168	410
February	23,510	39	509	168	383
March	26,900	39	500	168	478
April	34,337	36	501	492	499
May	42,080	39	500	175	482
June	39,480	36	500	500	500
July	49,937	37	500	477	497
August	16,184	36	500	489	499
September	41,710	36	500	500	500
October	28,260	37	501	500	500
November	29,850	36	501	166	435
December	23,150	35	501	146	367
Total	397,428				
Average	33,119	37			463

* Capacity based on winter operations (water temperature below 65° F)
CIP - Clean-in-Place

**Kenosha Water Utility
Production Division
Rapid Sand Plant Chemical Feed Report
2018**

Month	Alum		Chlorine		Fluoride	
	Pounds	lb/MG	Pounds	lb/MG	Pounds	lb/MG
January	62,964	268.18	3,741	15.93	5,284	22.51
February	54,210	237.09	3,712	16.23	5,100	22.30
March	68,398	293.09	4,010	17.18	5,320	22.80
April	55,284	295.97	2,849	15.25	4,126	22.09
May	58,878	273.50	3,775	17.54	5,413	25.14
June	56,158	217.80	4,638	17.99	6,389	24.78
July	69,669	212.31	5,723	17.44	7,612	23.20
August	64,402	211.59	5,420	17.81	6,921	22.74
September	56,160	220.51	4,465	17.53	5,930	23.28
October	51,002	250.30	3,548	17.41	4,650	22.82
November	51,152	280.82	3,164	17.37	4,309	23.66
December	54,940	286.23	3,335	17.37	4,553	23.72
Total	703,217		48,380		65,607	
Average	58,601	253.95	4,032	17.09	5,467	23.25

Month	Potassium Permanganate		Polyphosphate		Total Chemical Cost	
	Pounds	lb/MG	Pounds	lb/MG	Total \$	Cost/MG
January	0	0.00	2,736	11.65	\$ 11,738	\$ 49.99
February	0	0.00	2,591	11.33	10,420	45.57
March	0	0.00	2,641	11.32	12,468	53.43
April	0	0.00	1,981	10.61	9,891	52.95
May	0	0.00	2,561	11.90	11,099	51.56
June	0	0.00	3,027	11.74	11,314	43.88
July	0	0.00	3,813	11.62	14,016	42.71
August	0	0.00	3,490	11.47	14,101	46.33
September	0	0.00	2,925	11.49	12,130	47.63
October	0	0.00	2,343	11.50	10,555	51.80
November	0	0.00	2,086	11.45	10,251	56.28
December*	0	0.00	2,580	13.44	10,667	55.57
Total	0		32,774		\$ 138,650	
Average	0	0.00	2,731	11.63	\$ 11,554	\$ 49.81

*Phosphate mix was revised during December 2018; price changed from \$6.94/gallon to \$0.417/pound.

**Kenosha Water Utility
Production Division
Membrane Plant Chemical Feed Report
2018**

Cleaning Chemicals								
Month	Sodium Hydroxide		Hydrogen Peroxide		EDTA		Sulfuric Acid	
	Pounds	lb/MG	Pounds	lb/MG	Pounds	lb/MG	Pounds	lb/MG
January	6,122	31.52	1,724	8.87	920	4.74	236	1.21
February	4,956	28.96	1,396	8.16	745	4.35	191	1.12
March	4,373	23.22	1,232	6.54	657	3.49	168	0.89
April	3,790	22.72	1,068	6.40	570	3.42	146	0.88
May	5,248	27.91	1,478	7.86	789	4.20	202	1.07
June	4,373	26.17	1,232	7.37	657	3.93	168	1.01
July	4,664	25.80	1,314	7.27	701	3.88	180	1.00
August	3,837	21.92	1,232	7.04	667	3.81	162	0.93
September	3,837	22.89	1,232	7.35	667	3.98	162	0.97
October	3,070	17.40	985	5.58	534	3.03	129	0.73
November	5,628	33.56	1,807	10.77	978	5.83	237	1.41
December	4,349	25.45	1,396	8.17	756	4.42	183	1.07
Total	54,247		16,096		8,641		2,164	
Average	4,521	25.63	1,341	7.62	720	4.09	180	1.02

Process Chemicals								
Month	Chlorine		Fluoride		Polyphosphate		Total Cost *	
	Pounds	lb/MG	Pounds	lb/MG	Pounds	lb/MG	Total \$	\$/MG
January	3,095	15.93	4,372	22.51	2,264	11.65	\$ 4,597	\$ 23.66
February	2,778	16.23	3,818	22.31	1,939	11.33	3,876	22.65
March	3,235	17.18	4,292	22.79	2,131	11.32	3,957	21.01
April	2,544	15.25	3,685	22.09	1,769	10.61	3,334	19.99
May	3,296	17.53	4,727	25.14	2,237	11.90	4,387	23.33
June	3,005	17.98	4,140	24.78	1,961	11.74	3,790	22.68
July	3,153	17.44	4,194	23.20	2,101	11.62	4,004	22.15
August	3,117	17.81	3,981	22.74	2,008	11.47	4,211	24.06
September	2,938	17.53	3,903	23.29	1,925	11.48	4,096	24.44
October	3,072	17.41	4,026	22.82	2,029	11.50	3,936	22.31
November	2,913	17.37	3,968	23.66	1,921	11.45	4,758	28.37
December**	2,969	17.38	4,053	23.72	2,297	13.44	4,083	23.90
Total	36,115		49,159		24,582		\$ 49,029	
Average	3,010	17.09	4,097	23.25	2,049	11.63	\$ 4,086	\$ 23.21

* Includes cleaning and process chemicals

** Phosphate mix was revised during December 2018; price changed from \$6.94/gallon to \$0.417/pound.

MG - million gallons

Kenosha Water Utility
Production Division
Laboratory Report
2018

Month	Alkalinity Average		pH Average		Conductivity	
	mg/l		pH units		µS/cm	
	Raw	Tap	Raw	Tap	Raw	Tap
January	118	110	8.24	7.62	308	312
February	113	107	8.23	7.61	349	335
March	112	104	8.20	7.56	312	322
April	112	104	8.23	7.61	283	297
May	110	103	8.33	7.66	312	314
June	109	103	8.36	7.65	302	302
July	107	101	8.39	7.65	282	288
August	107	101	8.38	7.65	297	300
September	108	102	8.32	7.61	302	307
October	109	102	8.28	7.64	324	298
November	111	104	8.28	7.64	288	292
December	114	106	8.29	7.68	291	301
Average	111	104	8.29	7.63	304	306

Month	Hardness		Temp Raw		
	mg/l		° F		
	Raw	Tap	Max	Min	Avg
January	148	146	35	33	34
February	144	144	36	33	34
March	140	138	39	36	37
April	138	138	45	37	39
May	140	138	55	45	48
June	138	138	62	52	57
July	134	132	70	50	61
August	134	134	75	46	64
September	134	134	72	48	63
October	140	138	63	52	55
November	140	138	52	39	45
December	144	144	41	36	37
Average	140	139	54	42	48

mg/l - milligrams per Liter
µS/cm - microsiemens per centimeter

**Kenosha Water Utility
Production Division
Laboratory Report
2018**

Month	Turbidity NTU								
	Rapid Sand Raw			Membrane Raw			Tap		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
January	33.0	2.3	11.0	37.9	2.5	11.0	0.048	0.027	0.032
February	26.7	9.1	12.9	27.0	9.4	12.8	0.041	0.028	0.031
March	15.3	9.0	12.1	15.0	9.3	12.2	0.036	0.026	0.031
April	151.0	3.0	21.4	162.6	3.2	23.1	0.039	0.026	0.028
May	15.4	2.1	5.0	17.9	2.9	5.9	0.039	0.026	0.031
June	17.6	1.9	4.3	24.0	2.7	5.6	0.046	0.026	0.040
July	17.0	1.3	3.8	20.3	1.8	5.1	0.037	0.024	0.029
August	6.6	0.9	2.2	8.4	1.6	3.2	0.033	0.024	0.027
September	22.6	1.1	4.1	27.9	1.7	5.1	0.029	0.024	0.026
October	11.4	1.7	4.3	12.4	2.4	5.6	0.035	0.024	0.027
November	56.5	1.5	8.8	69.8	2.9	11.3	0.044	0.027	0.032
December	162.7	6.1	29.9	175.3	7.8	32.1	0.038	0.026	0.030
Average	44.7	3.3	10.0	49.9	4.0	11.1	0.039	0.026	0.030

Month	PO4 Average mg/l	Fluoride Composite Average mg/l	Chlorine Residual mg/l		
			Tap		
	Tap	Tap	Max	Min	Avg
January	0.17	0.74	1.1	0.9	1.1
February	0.17	0.74	1.1	1.0	1.0
March	0.17	0.73	1.1	1.0	1.1
April	0.17	0.73	1.1	1.0	1.1
May	0.17	0.75	1.1	1.0	1.0
June	0.17	0.74	1.1	1.0	1.0
July	0.17	0.73	1.1	1.0	1.0
August	0.17	0.72	1.1	0.9	1.1
September	0.18	0.73	1.1	1.0	1.1
October	0.18	0.73	1.1	0.9	1.1
November	0.18	0.75	1.1	1.0	1.1
December **	0.38	0.75	1.1	1.0	1.1
Average	0.19	0.74	1.1	1.0	1.1

NTU - Nephelometric Turbidity Units

PO4 - Polyphosphate; type and mix changed during December.

mg/l - milligrams per liter

Synthetic Organic Chemicals

Parameters	Minimum Detection Level µg/L	Kenosha Results µg/L	Maximum Contaminant Level µg/L
Alachlor (Lasso)	0.015	ND	2
Aldicarb Total	0.50	ND	3
Aldicarb Sulfoxide	0.57	ND	4
Aldicarb Sulfone	0.51	ND	2
Aldrin	0.015	ND	na
Atrazine	0.024	ND	3
Benzo(a)pyrene	0.02	ND	0.2
Butachlor	0.025	ND	na
Carbaryl	0.58	ND	na
Carbofuran	0.55	ND	40
Chlordane	0.033	ND	2
2, 4-D	0.093	ND	70
Dalapon	0.56	ND	200
Dicamba	0.21	ND	na
Dieldrin	0.020	ND	na
Di (2-ethylhexyl) adipate	0.60	ND	400
Di (2-ethylhexyl) phthalate	0.60	ND	6
Dinoseb	0.079	ND	7
Diquat	0.22	ND	20
Endothall	0.51	ND	100
Endrin	0.0090	ND	2.0
Glyphosate (Round-up)	3.0	ND	700
Heptachlor	0.019	ND	0.4
Heptachlorepoxyde	0.015	ND	0.2
Hexachlorobenzene	0.019	ND	1
Hexachlorocyclopentadiene	0.036	ND	50
3-Hydroxycarbofuran	0.51	ND	na
BHC Gamma (Lindane)	0.0075	ND	0.2
Methoxychlor	0.016	ND	40
Methomyl	0.49	ND	na
Dual (Metolachlor)	0.011	ND	na
Metribuzin (Sencor)	0.019	ND	na
Oxamyl (Vydate)	0.45	ND	200
PCB Total ****	0.1	ND	0.5
Pentachlorophenol	0.030	ND	1
Picloram (Tordan)	0.086	ND	500
Propachlor	0.014	ND	na
2,4,5-TP (Silvex)	0.15	ND	50
Simazine	0.049	ND	4
2,3,7,8-TCDD (Dioxin)	0.000005	ND	0.00003
Toxaphene	0.33	ND	3

na – not applicable

ND – not detected

µg/L – micrograms per Liter or parts per billion

**** PCB 1016 (0.030); PCB 1221 (0.042); PCB 1232 (0.091); PCB 1242 (0.11);
PCB 1248 (0.047); PCB 1254 (0.032); PCB 1260 (0.026)

Volatile Organic Chemicals

Parameters	Minimum Detection Level µg/L	Level Found Kenosha Results µg/L	Maximum Contaminant Level µg/L
Benzene	0.23	ND	5
Bromobenzene	0.26	ND	na
Bromodichloromethane	0.23	9.1	80
Bromoform	0.21	0.22	80
Bromomethane	0.37	ND	na
Carbon Tetrachloride	0.22	ND	5
Chloroethane	1.5	ND	na
Chloroform	0.25	12	80
Chloromethane	0.23	ND	na
1,2-Chlorotoluene (o-)	0.23	ND	na
1,4-Chlorotoluene (p-)	0.20	ND	na
Dibromochloromethane	0.17	4.1	80
Dibromomethane	0.26	ND	na
1,3-Dichlorobenzene (m-)	0.25	ND	na
1,2-Dichlorobenzene (o-)	0.25	ND	600
1,4-Dichlorobenzene (p-)	0.28	ND	75
1,1-Dichloroethane	0.31	ND	na
1,2-Dichloroethane	0.25	ND	5
1,1-Dichloroethylene	0.25	ND	7
1,2-Dichloroethylene, cis	0.30	ND	70
1,2-Dichloroethylene, trans	0.47	ND	100
Dichloromethane	0.22	ND	5
1,2-Dichloropropane	0.23	ND	5
1,3-Dichloropropane	0.25	ND	na
2,2-Dichloropropane	0.15	ND	na
1,1-Dichloropropene	0.32	ND	na
1,3-Dichloropropene	0.39	ND	na
Ethylbenzene	0.22	ND	700
Chlorobenzene	0.24	ND	100
Styrene	0.21	ND	100
1,1,1,2-Tetrachloroethane	0.21	ND	na
1,1,1,2,2-Tetrachloroethane	0.20	ND	na
Tetrachloroethylene	0.28	ND	5
Toluene	0.22	ND	1,000
1,2,4-Trichlorobenzene	0.25	ND	70
1,1,1-Trichloroethane	0.32	ND	200
1,1,2-Trichloroethane	0.27	ND	5
Trichloroethylene	0.30	ND	5
1,2,3-Trichloropropane	0.30	ND	na
Vinyl Chloride	0.20	ND	0.2
Xylene Total	0.68	ND	10,000

na – not applicable

ND – not detected

µg/L – micrograms per Liter or parts per billion

All parameters are sampled at the distribution system entry point every three years per WDNR regulations.

Inorganic Chemicals

Parameters	Minimum Detection Level mg/L	Level Found Kenosha Results mg/L	Maximum Contaminant Level mg/L	Sample Location
Alkalinity Total CaCO ₃	1.0	117 max	na	Entry point
Antimony Total**	0.00013	0.00021	0.006	Entry point
Arsenic Total**	0.0005	0.00066	0.01	Entry point
Barium Total**	0.0001	0.021	2	Entry point
Beryllium Total**	0.00013	ND	0.004	Entry point
Cadmium Total**	0.0001	ND	0.005	Entry point
Chromium Total**	0.00032	ND	0.1	Entry point
Copper**	0.001	0.11	1.3 (AL)	Residential taps
Cyanide**	0.005	ND	0.2	Entry point
Fluoride Total	0.05	0.82 max	4	Entry point
Haloacetic Acids	0.000036	0.018	0.06	Maximum residence
Hardness Total CaCO ₃	1	146 max	500	Highest result obtained
Lead**	0.0001	0.0089	0.015 (AL)	Residential taps
Mercury Total**	0.000025	ND	0.002	Entry point
Nickel Total**	0.0005	0.0009	0.1	Entry point
Nitrate as N	0.025	0.48	10	Entry point
Nitrite**	0.050	ND	1	Entry point
pH Lab	0.01pH	7.63 pH avg	na	Entry point
Selenium Total**	0.002	ND	0.05	Entry point
Sodium Total	0.15	9.4	na	Entry point
Sulfate Total**	2.5	28	na	Entry point
Thallium Total**	0.0001	ND	0.002	Entry point
Total Trihalomethanes	0.00017	0.0498	0.08	Maximum residence

** - sample taken in 2017

ND – not detected

mg /L – milligrams per Liter or parts per million

AL – Action Level

na – not applicable

Entry Point – Where water enters the distribution system.

Maximum residence – A point of maximum residence time in the distribution system.

**Water System
Income Statement – 2018**

Sales of Water

Residential Water Sales	\$ 5,702,764.65
Commercial Water Sales	2,703,906.88
Industrial Water Sales	817,718.27
Unmetered Sales to General Customers	15,684.54
Private Fire Protection	173,070.00
Public Fire Protection	1,356,694.51
Sales to Public Authorities	478,420.08
Sales for Resale	<u>2,551,956.60</u>

Total Sales of Water

13,800,215.53

Other Operating Revenues

Penalties	153,410.28
Other Water Revenue	61,917.69
Allocated Services	144,125.02
Miscellaneous Service Revenues	<u>306,019.57</u>

Total Other Operating Revenues

665,472.56

Total Operating Revenues

14,465,688.09

Operating Expenses

Production Plant	2,679,642.27
Distribution System	3,159,408.96
Customer Accounting & Collection	470,460.66
Administration	2,216,601.80
Depreciation	2,919,617.11
Taxes	<u>2,309,733.04</u>

Total Operating Expenses

13,755,463.84

Utility Operating Income

710,224.25

Other Income

Interest Income	166,596.61
Other Non-operating Income	<u>10,745.11</u>

Total Other Income

177,341.72

Non-operating Expenses

Interest on Long-term Debt	394,954.42
Amortization of Debt Expense	<u>(27,138.74)</u>

Total Non-operating Expenses

273,657.81

367,815.68

Net Income before Capital Contributions

519,750.29

Capital Contributions

31,712.38

Net Income

\$ 551,462.67

**Water System
Statement of Net Position
December 31, 2018**

Assets

Utility Plant

Utility Plant in Service	\$ 122,963,161.97	
Work in Progress - Water Plant	6,277.51	
Work in Progress - Water System	1,730,772.08	
Accumulated Depreciation	<u>(47,794,456.69)</u>	
Net Plant in Service		76,905,754.87

Nonutility Property

Nonutility Property	20,370.78	
Accumulated Depreciation - Nonutility Property	<u>(2,370.78)</u>	
Net Nonutility Property		18,000.00

Current Assets

Cash and Cash Equivalents	5,760,513.51	
Investments	997,423.01	
Restricted Cash and Cash Equivalents	-	
Customer Accounts Receivable	1,389,810.91	
Receivable from Municipality	675,773.31	
Unbilled Revenues	1,555,508.31	
Other Accounts Receivable	182,001.25	
Materials and Supplies	445,554.98	
Accrued Interest Receivable	3,150.68	
Other Current Assets	<u>94,332.33</u>	
Total Current Assets		11,104,068.29

Other Assets

Deferred Charges	2,858,267.52	
Assessments Receivable	21,026.50	
Pension Asset - Wisconsin Retirement System	<u>831,328.47</u>	
Total Other Assets		3,710,622.49

Total Assets

\$ 91,738,445.65

Deferred Outflow of Resources

Deferred Pension Resources	\$ 1,386,329.09
Deferred OPEB Resources	<u>41,587.47</u>
Total Outflows of Resources	\$ 1,427,916.56

Liabilities

Current Liabilities

Accrued Taxes	\$ 2,360,152.00	
Accounts Payable	258,377.11	
Accrued Interest Payable	-	
Current Portion of Advance from Municipality	46,115.60	
Current Portion of Accrued Compensated Absences	39,697.71	
Payable to Municipality	581,745.30	
Deferred Credits	<u>105,233.57</u>	
Total Current Liabilities		3,391,321.29

Non-current Liabilities

Long-term Debt		
Advance from Sewerage Unit	<u>5,000,000.00</u>	
Total Long-term Debt		5,000,000.00
Accrued Compensated Absences		378,185.82
Worker's Compensation Accrued Liability		85,690.00
Net Other Postemployment Benefit Obligations		<u>1,328,554.46</u>
Total Non-current Liabilities		6,792,430.28

Total Liabilities

\$ 10,183,751.57

Deferred Inflow of Resources

Deferred Pension Resources	\$ 1,596,880.15
Deferred OPEB resources	<u>4,521.09</u>
Total Inflows of Resources	\$ 1,601,401.24

Net Position

Invested in Capital Assets, net of related debt	76,923,754.87	
Restricted for pension	831,328.47	
Unrestricted	<u>3,626,126.06</u>	
Total Net Position		<u>\$ 81,381,209.40</u>

Water System
Comparative Operating and Maintenance Expenses

	2018	2017	2016
Source of Supply Expenses			
Maintenance of Lake Intakes	\$ 0.00	\$ 0.00	\$ 54,129.82
Miscellaneous	9,625.00	9,625.00	9,625.00
	<u>9,625.00</u>	<u>9,625.00</u>	<u>63,754.82</u>
Pumping Expenses			
<u>Operation</u>			
Supervision and Engineering	96,059.55	156,516.21	144,168.40
Fuel - Electricity and Gas	777,472.70	799,895.01	827,827.16
Labor	124,000.27	121,128.99	117,653.70
Miscellaneous Expense	8,148.46	8,969.07	5,993.01
	<u>1,005,680.98</u>	<u>1,086,509.28</u>	<u>1,095,642.27</u>
<u>Maintenance</u>			
Structures and Improvements	48,821.13	33,858.50	21,544.99
Power Production Equipment	10,472.13	31,841.46	257.10
Pumping Equipment	83,595.46	69,090.68	96,291.42
	<u>142,888.72</u>	<u>134,790.64</u>	<u>118,093.51</u>
Water Treatment Expenses			
<u>Operation</u>			
Supervision and Engineering	61,945.13	52,777.13	54,427.45
Lead Testing Program	-	-	-
Chemicals	121,405.42	106,117.89	147,765.73
Labor	303,797.50	296,900.31	307,646.35
Miscellaneous Expense	436,593.57	508,639.16	23,084.32
	<u>923,741.62</u>	<u>964,434.49</u>	<u>532,923.85</u>
<u>Maintenance</u>			
Structures and Improvements	80,112.50	63,245.92	440,979.34
Water Treatment Expense	517,593.45	519,177.09	503,570.31
	<u>597,705.95</u>	<u>582,423.01</u>	<u>944,549.65</u>
	<u>2,679,642.27</u>	<u>2,777,782.42</u>	<u>2,754,964.10</u>
Transmission and Distribution Expenses			
<u>Operation</u>			
Supervision and Engineering	324,180.98	140,037.85	217,662.13
Transmission and Distribution Lines	82,263.05	23,352.35	67,008.18
Meter Expense	66,038.41	72,159.63	43,379.34
Customer Installation Expense	106,619.75	115,388.96	137,366.14
Customer Installation Expense - Lead			
Service Line Replacement	106,991.03	-	-
Miscellaneous Expense	538,066.66	507,214.86	469,556.51
	<u>1,224,159.88</u>	<u>858,153.65</u>	<u>934,972.30</u>
<u>Maintenance</u>			
Supervision and Engineering	14,317.01	-	11,131.36
Maintenance of Standpipes/Reservoirs	395,380.80	556,319.28	461,455.31
Transmission Mains	1,092,084.68	740,154.59	1,082,052.51
Services	325,197.92	295,634.64	119,367.40
Meters	47,809.41	64,682.95	41,310.17
Hydrants	60,459.26	54,401.00	42,042.75
	<u>1,935,249.08</u>	<u>1,711,192.46</u>	<u>1,757,359.50</u>
	<u>3,159,408.96</u>	<u>2,569,346.11</u>	<u>2,692,331.80</u>
Customer Account Expenses			
Customer Accounting and Collection	407,069.25	304,513.35	304,003.55
Meter Reading	63,391.41	60,546.16	60,952.39
	<u>470,460.66</u>	<u>365,059.51</u>	<u>364,955.94</u>
Administrative and General Expenses			
Administrative and General Salaries	231,210.34	217,462.06	211,712.67
Office Supplies and Expense	26,958.57	38,735.72	48,094.30
Outside Services Employed	494,999.33	406,995.19	223,080.98
Property Insurance	120,125.78	106,061.21	109,036.06
Employee Benefits and Pensions	1,293,561.91	1,345,523.03	1,486,634.53
Regulatory Commission Expense	25,600.32	14,305.37	15,337.13
Miscellaneous Expense	24,145.55	24,390.20	27,418.64
	<u>2,216,601.80</u>	<u>2,153,472.78</u>	<u>2,121,314.31</u>
Total Operation and Maintenance Expenses			
Utility Taxes	2,309,733.04	2,352,857.73	2,326,402.98
Depreciation	2,919,617.11	2,855,045.51	2,816,132.86
Total Operating Expenses	<u>\$ 13,755,463.84</u>	<u>\$ 13,073,564.06</u>	<u>\$ 13,076,101.99</u>

Water System Comparative Income Statement

	2018	2017	2016
Sales of Water			
Residential Water Sales	\$ 5,702,764.65	\$ 5,708,386.59	\$ 5,910,377.04
Commercial Water Sales	2,703,906.88	2,714,429.24	2,752,975.79
Industrial Water Sales	817,718.27	865,936.50	1,000,503.95
Total Unmetered Sales to General Public	15,684.54	11,149.61	12,717.86
Private Fire Protection	173,070.00	164,921.00	167,223.71
Public Fire Protection	1,356,694.51	1,355,848.07	1,351,071.27
Sales to Public Authorities	478,420.08	528,456.56	319,338.23
Sales for Resale	2,551,956.60	2,661,782.42	2,616,217.80
Total Sales of Water	13,800,215.53	14,010,909.99	14,130,425.65
Other Operating Revenues			
Penalties	153,410.28	159,342.97	160,111.53
Other Water Revenue	61,917.69	64,478.68	66,443.29
Allocated Services	144,125.02	144,671.55	146,531.23
Miscellaneous Service Revenues	306,019.57	280,975.28	290,304.55
Total Other Operating Revenues	665,472.56	649,468.48	663,390.60
Total Operating Revenues	14,465,688.09	14,660,378.47	14,793,816.25
Operating Expenses			
Source of Supply	9,625.00	9,625.00	63,754.82
Power and Pumping Expense	1,148,569.70	1,221,299.92	1,213,735.78
Water Treatment Expense	1,521,447.57	1,546,857.50	1,477,473.50
Transmission and Distribution Expense	3,159,408.96	2,569,346.11	2,692,331.80
Customer Accounting and Collection Expense	470,460.66	365,059.51	364,955.94
Administrative and General Expense	2,216,601.80	2,153,472.78	2,121,314.31
Depreciation	2,919,617.11	2,855,045.51	2,816,132.86
Taxes	2,309,733.04	2,352,857.73	2,326,402.98
Total Operating Expenses	13,755,463.84	13,073,564.06	13,076,101.99
Utility Operating Income	710,224.25	1,586,814.41	1,717,714.26
Other Income			
Interest Earned	166,596.61	98,941.71	37,346.29
Miscellaneous Non-operating Income	10,745.11	7,365.09	3,603.41
Total Other Income	177,341.72	106,306.80	40,949.70
Operating and Other Income	887,565.97	1,693,121.21	1,758,663.96
Non-operating Expenses			
Interest on Long-term Debt	394,954.42	524,786.99	622,311.98
Amortization of Debt Expense	(27,138.74)	(43,103.48)	(55,053.93)
Total Non-operating Expenses	367,815.68	481,683.51	567,258.05
Net Income	\$ 519,750.29	\$ 1,211,437.70	\$ 1,191,405.91
Rate of Return on Average Investment (based on operating income & expense)	2.61%	4.57%	4.72%

**Water System
Utility Plant in Service
For the year ended December 31, 2018**

	Depr. Rate %	Cost of Plant 1/1/2018	2018 Additions	2018 Retirements	Adjustments Incr/(Decr)	Cost of Plant 12/31/2018
Source of Supply						
Structures and Improvements	2.00	\$ 1,136,362.88				\$ 1,136,362.88
Collect and Impound Reservoirs	1.67	268,710.96				268,710.96
Lake Intakes	1.67	1,567,121.31				1,567,121.31
Supply Mains	1.33	453,081.81				453,081.81
Pumping Plant						
Land	N/A	18,657.25				18,657.25
Structures and Improvements	2.00	3,771,343.38		645.17		3,770,698.21
Other Power Prod Equipment	4.00	813,800.43				813,800.43
Electric Pumping Equipment	3.33	3,723,860.41	29,666.28			3,753,526.69
Other Pumping Equipment	4.00	8,646.81				8,646.81
Water Treatment						
Land	N/A	527,047.60				527,047.60
Structures and Improvements	2.00	8,450,031.99	77,370.58			8,527,402.57
Water Treatment Equipment	3.24	1,307,149.83	35,201.06			1,342,350.89
Membrane Filtration Equipment	5.56	13,838,627.77	4,016.38			13,842,644.15
Transmission and Distribution						
Land	N/A	314,867.39				314,867.39
Reservoirs and Standpipes	1.86	6,204,053.97				6,204,053.97
Mains	0.93	54,690,190.02	2,002,776.04	34,325.33		56,658,640.73
Services	2.09	8,583,479.09	403,899.66	9,442.63		8,977,936.12
Meters	5.00	5,016,332.17	175,476.11	76,674.29		5,115,133.99
Hydrants	1.59	5,623,106.38	175,051.01	4,935.31		5,793,222.08
General Plant						
Furniture and Equipment	5.88	51,735.41				51,735.41
Computer Equipment	6.67-14.29	310,556.43	28,883.88	9,563.03		329,877.28
Transportation Equipment	12.86	1,407,190.72		42,794.00		1,364,396.72
Stores Equipment	5.88	1,497.75				1,497.75
Tools and Shop Equipment	5.88	335,598.63	5,536.00			341,134.63
Lab Equipment	5.88	114,243.94	3,310.28			117,554.22
Work (Power) Equipment	9.00	549,868.65	199,848.00			749,716.65
Communication Equipment	9.09	-				-
Telephone Equipment	20.00	41,180.70		41,180.70		-
SCADA System Equipment	10.00	708,402.19				708,402.19
Miscellaneous Equipment	5.88	204,941.28				204,941.28
Total		<u>\$ 120,041,687.15</u>	<u>\$ 3,141,035.28</u>	<u>\$ 219,560.46</u>	<u>\$ 0.00</u>	<u>\$ 122,963,161.97</u>

**Water System
Accumulated Depreciation
For the year ended December 31, 2018**

	Balance 1/1/2018	2018 Depreciation	Less Cost of Retirements	Add Cash Received	Adjustments Incr./Decr.	Balance 12/31/2018
Source of Supply						
Structures and Improvements	\$ 431,817.94	\$ 22,727.26				\$ 454,545.20
Collect and Impound Reservoirs	180,671.81	4,568.09				185,239.90
Lake Intakes	941,131.03	26,641.06				967,772.09
Supply Mains	125,141.21	8,155.47				133,296.68
Pumping Plant						
Land	-					-
Structures and Improvements	1,252,475.77	75,420.42	645.17			1,327,251.02
Other Power Prod Equipment	426,748.95	35,807.22				462,556.17
Electric Pumping Equipment	2,029,972.50	164,502.52				2,194,475.02
Other Pumping Equipment	8,380.09	266.72				8,646.81
Water Treatment						
Land	-					-
Structures and Improvements	3,766,102.14	169,774.35				3,935,876.49
Water Treatment Equipment	1,307,149.83	35,201.06				1,342,350.89
Membrane Filtration Equipment	11,766,718.55	830,438.16				12,597,156.71
Transmission and Distribution						
Land	-					-
Reservoirs and Standpipes	2,949,490.44	120,117.19				3,069,607.63
Mains	9,531,500.90	662,953.87	34,325.33		10,747.32	10,170,876.76
Services	3,891,775.98	183,516.80	9,442.63			4,065,850.15
Meters	2,042,344.03	278,615.32	76,674.29	17,290.20		2,261,575.26
Hydrants	1,775,443.48	125,821.24	4,935.29	9,943.79		1,906,273.22
General Plant						
Furniture and Equipment	36,204.52	3,000.65				39,205.17
Computer Equipment	179,691.23	20,427.11	9,563.03			190,555.31
Transportation Equipment	965,723.80	69,655.68	42,794.00	2,396.50	1,882.90	996,864.88
Stores Equipment	1,497.75					1,497.75
Tools and Shop Equipment	261,895.55	19,625.26				281,520.81
Lab Equipment	83,430.48	6,722.15				90,152.63
Work (Power) Equipment	321,859.50	32,571.55				354,431.05
Communications Equipment	(8,513.49)					(8,513.49)
Telephone Equipment	41,180.70		41,180.70			-
SCADA System Equipment	634,366.47	11,201.37				645,567.84
Miscellaneous Equipment	107,938.15	11,886.59				119,824.74
Total	<u>\$ 45,052,139.31</u>	<u>\$ 2,919,617.11</u>	<u>\$ 219,560.44</u>	<u>\$ 29,630.49</u>	<u>\$ 12,630.22</u>	<u>\$ 47,794,456.69</u>

**Water System
Advance from Municipality
Debt Repayment Schedule
December 31, 2018**

Year	Interest Rate %	<u>Principal</u>	<u>Interest</u>		<u>Total</u>
		<u>April 1</u>	<u>April 1</u>	<u>October 1</u>	
2019	6.000%	46,115.60	1,383.47	-	47,499.07
Totals		<u>\$ 46,115.60</u>	<u>\$ 1,383.47</u>	<u>\$ -</u>	<u>\$ 47,499.07</u>

**Water Distribution &
Sewer Collection Division**

4401 Green Bay Road
Kenosha WI 53144

Phone (262) 925-6276

Fax (262) 653-4303



“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Mr. Edward St. Peter, General Manager
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Subject: 2018 Annual Report for the Water Distribution and Sewer Collection Division

Dear Mr. St. Peter,

The 2018 Annual Report for the Water Distribution and Sewer Collection Division is hereby submitted. We completed 522 excavation projects last year. In addition to excavation activities, our division cleaned 55.6 miles of sanitary sewer as part of our annual sewer flushing program and flushed and maintained nearly all fire hydrants north of 60th Street as part of our annual hydrant maintenance program.

Water Distribution System:

The Distribution Division repaired 159 water main breaks in 2018, a 20% increase from 2017. Fifty valves were also repaired or replaced in 2018, an increase in twenty-four valves from 2017. Additionally, thirty-seven fire hydrants were repaired or replaced as well as ninety-six water services (sixty-nine of these were lead service replacements).

Sanitary Sewer Collection System:

Sewer projects in 2018 included the cleaning of over 55.6 miles, an increase of over 100% from 2017. Once again the focus of the televising efforts were the limits of any major projects in the City limits such as roadway resurfacing/reconstruction or sewer/water main relays. Direct work on the sanitary system remained fairly steady with forty-three lateral repairs, six sewer main repairs and thirteen manhole repairs.

In addition to the typical maintenance activities associated with the water distribution and sewer collection the Distribution Division installed a total of 3,410 feet of new PVC water main to replace deteriorated, problematic pipe. Our valve exercising program also exercised 210 valves, ninety-seven hydrants resulting in 2,418,920 gallons of water being used.

Completing our work would not have been possible without help from other KWU divisions. We would also like to thank the City of Kenosha Streets Division for supporting our operation by salting roads and clearing storm sewer inlets where main breaks occur. Finally, I’d like to acknowledge the outstanding Distribution Division employees. Their willingness to sacrifice their nights, weekends and holidays during inclement weather illustrates their dedication and willingness to provide an unparalleled level of customer service.

Thank you, Ed, and the Board of Water Commissioners for providing us with all the tools and technology necessary to complete our projects in a safe and efficient manner.

Sincerely,

A handwritten signature in black ink that reads "Steve Hayek".

Steve Hayek
Director of Water Distribution and Sewer Collection



www.kenosha.org

Water Distribution Pipe System - 2018

<u>Size</u>	<u>Material</u>	<u>Footage</u>
48"	Cast/Ductile Iron Pipe	370
36"	Cast/Ductile Iron Pipe	12,586
30"	Cast/Ductile Iron Pipe	13,280
24"	Cast/Ductile Iron Pipe	60,775
24"	Concrete Pipe	7,892
24"	Plastic Pipe	4,643
20"	Cast/Ductile Iron Pipe	8,327
18"	Cast/Ductile Iron Pipe	2,582
16"	Cast/Ductile Iron Pipe	173,309
16"	Plastic Pipe	42,908
14"	Cast/Ductile Iron Pipe	8,311
12"	Cast/Ductile Iron Pipe	222,897
12"	Plastic Pipe	58,472
10"	Cast/Ductile Iron Pipe	16,265
8"	Cast/Ductile Iron Pipe	364,922
8"	Plastic Pipe	219,640
6"	Cast/Ductile Iron Pipe	694,530
6"	Plastic Pipe	7,145
4"	Cast/Ductile Iron Pipe	30,188
3"	Copper Pipe	150
2"	Copper Pipe	2,517
2"	Plastic Pipe	759
1.5"	Copper Pipe	272
1"	Copper Pipe	70
Total Feet of Pipe		1,952,810
Total Miles of Pipe		369.85

Water Services Added to System - 2018

<u>Number</u>	<u>Size</u>	<u>Material</u>	<u>Average Unit Cost</u>	<u>Total Cost</u>
98	1"	Copper Connections	3,751.71	367,667.09
1	1.5"	Copper Connections	1,902.06	1,902.06
1	4"	PVC	2,083.50	2,083.50
4	6"	PVC	3,928.38	15,713.50
2	8"	PVC	5,143.52	10,287.03
1	12"	PVC	6,246.48	6,246.48
<u>107</u>		Total		<u>\$ 403,899.66</u>

Fire Hydrants Added to System - 2017

<u>Number</u>	<u>Type</u>	<u>Average Unit Cost</u>	<u>Total Cost</u>
34	Steamer	\$ 5,148.56	\$ 175,051.01

2018 Water Main Installation Costs

Project	Size/ Type	Installer	Description	Footage	Total Costs	Cost per Foot
<u>By Job Number</u>						
Installed by Kenosha Water Utility						
552	8" & 12" PVC	Oakes & Son	47th Ave - 19th Pl to 21st St	654.0	\$ 117,033.20	
554	12" PVC	Oakes & Son	Water Main Relay, 39th Ave - 75th St to 76th St	414.0	110,070.07	
556	8" PVC	Oakes & Son	Water Main Relay, 30th Ave - 70th St to 72nd St	529.0	129,665.07	
560, 572, 574 & 576	8" PVC	Kenosha Water Utility	Water Main Relay, 23rd Ave - 41st St to 43rd St; 24th Ave - 41st St to 43rd St; 41st St - 22nd Ave to 24th Ave; 43rd St - 22nd Ave to 24th Ave	2,678.0	377,001.67	
562	8" PVC	Oakes & Son	Water Main Relay, 77th St - 6th Ave to 7th Ave	431.0	122,814.24	
570	12" PVC	Bradford Contractors LLC	Water Main Relay, 40th Ave - 45th St to 52nd St	2,604.0	547,120.64	
577	8" PVC	Kenosha Water Utility	Water Main Relay, 76th St - 47th Ave to Cooper Rd	1,192.0	179,214.77	
579	8" PVC	Kenosha Water Utility	Water Main Relay, 76th St - 48th Ave to 50th Ave	1,011.0	75,249.99	
581	8" PVC	Reesman's Excavating & Grading, Inc.	Water Main Relay, 29th Ave - 43rd St to 500 ft North	416.0	93,800.21	
584	8" PVC	Reesman's Excavating & Grading, Inc.	Water Main Relay, 28th Ave - 41st St to 500 ft South	422.0	96,987.88	
594	8" PVC	Reesman's Excavating & Grading, Inc.	Water Main Relay, 22nd Ave - 79th St to 80th St	501.0	106,950.46	
598	8" PVC	Kenosha Water Utility	Water Main Relay, 30th St - 18th Ave to Petzke Park	229.0	55,238.12	
Total				11,081.0	\$ 2,011,146.32	
<u>By Pipe Size</u>						
552	8" PVC	Oakes & Son	47th Ave - 19th Pl to 21st St	271.0	\$ 25,432.00	
556	8" PVC	Oakes & Son	Water Main Relay, 30th Ave - 70th St to 72nd St	529.0	129,665.07	
560, 572, 574 & 576	8" PVC	Kenosha Water Utility	Water Main Relay, 23rd Ave - 41st St to 43rd St; 24th Ave - 41st St to 43rd St; 41st St - 22nd Ave to 24th Ave; 43rd St - 22nd Ave to 24th Ave	2,678.0	377,001.67	
562	8" PVC	Oakes & Son	Water Main Relay, 77th St - 6th Ave to 7th Ave	431.0	122,814.24	
577	8" PVC	Kenosha Water Utility	Water Main Relay, 76th St - 47th Ave to Cooper Rd	1,192.0	179,214.77	
579	8" PVC	Kenosha Water Utility	Water Main Relay, 76th St - 48th Ave to 50th Ave	1,011.0	75,249.99	
581	8" PVC	Reesman's Excavating & Grading, Inc.	Water Main Relay, 29th Ave - 43rd St to 500 ft North	416.0	93,800.21	
584	8" PVC	Reesman's Excavating & Grading, Inc.	Water Main Relay, 28th Ave - 41st St to 500 ft South	422.0	96,987.88	
594	8" PVC	Reesman's Excavating & Grading, Inc.	Water Main Relay, 22nd Ave - 79th St to 80th St	501.0	106,950.46	
598	8" PVC	Kenosha Water Utility	Water Main Relay, 30th St - 18th Ave to Petzke Park	229.0	55,238.12	
Subtotal				7,680.00	1,262,354.41	164.37
552	12" PVC	Oakes & Son	47th Ave - 19th Pl to 21st St	383.0	91,601.20	
554	12" PVC	Oakes & Son	Water Main Relay, 39th Ave - 75th St to 76th St	414.0	110,070.07	
570	12" PVC	Bradford Contractors LLC	Water Main Relay, 40th Ave - 45th St to 52nd St	2,604.0	547,120.64	
Subtotal				3,401.00	748,791.91	220.17
Grand total				11,081.0	\$ 2,011,146.32	

Distribution Division - Water Operating & Maintenance Report - 2018

Maintenance Completed

System	Maintenance Type	Quantity
Water Main Breaks	Circumferential	71
	Blow Out	65
	Joint Leaks	3
	Longitudinal	19
	Old Sleeve	–
	Other	5
	Total Main Break Repairs	
Valves	Reset/Replace Box (only)	4
	Replaced	39
	Repaired	11
	New Installation	–
	Removed/VBO	1
Total Valve Repairs		55
Water Services	Reset/Replace Box (only)	3
	Replaced (Lead Svcs: 69)	79
	Repaired	17
	Flow Test	–
	Shut at Main	2
Total Water Service Repairs		101
Hydrants	Replaced	16
	Repaired	21
	Relocated	2
	Abandoned	1
	New Installation	1
Total Hydrant Repairs		41
New Connections & Taps	1"	101
	1 1/2"	2
	2"	–
	4"	2
	6"	12
	8"	3
	12"	2
Total New Connections Installed		122

Meter Shop Request for Assistance: 107
Valves Operated: 491

Customer Complaints

(During Normal Work Hours)

Complaint	Quantity
Main Breaks	49
Hydrant Hit/Damaged	8
Hydrant Leaking	10
Service Repairs	23
Signs/Barricades Needed	3
Curb/Valve Box Repair	31
Water Taste/odor/color	5
Low Pressure	2
No Water	2
Service Turn-On	1
Service Turn Off	1
Temporary Road Patch	24
Utility Locates	–
Miscellaneous	4
Total	163

Customer Complaints

(After Normal Work Hours)

Complaint	Quantity
Main Breaks	91
Hydrant Hit/Damaged	11
Hydrant Leaking	12
Service Repairs	29
Signs/Barricades Needed	4
Curb box/Valve Box	16
Water Taste/odor/color	1
Low Pressure	5
No Water	15
Service Turn-On	10
Service Turn Off	21
Temporary Road Patch	5
Utility Locate	40
Miscellaneous	6
Total	266

Total Customer Complaints	429
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Wastewater Treatment Plant

7834 3rd Avenue
Kenosha WI 53143

Phone (262) 653-4335
Fax (262) 653-4340



“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Mr. Edward St. Peter, General Manager
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Subject: 2018 Annual Report – Wastewater Treatment Division

Dear Mr. St. Peter,

We respectfully submit the 2018 Annual Report for the Kenosha Water Utility Wastewater Treatment Plant. This past year, the wastewater treatment plant treated 9.412 billion gallons of effluent with an average daily flow of 25.787 million gallons per day (MGD). The annual volume entering the treatment plant continues to increase well above the past years. The annual precipitation has continued to increase (2018 precipitation = 49.27 inches; 2017 = 43.96 inches; 2013-2016 average precipitation = 35.56 inches). The final effluent biological oxygen demand (BOD) and total suspended solids (TSS) were well within the permitted discharge limits.

The staff at the wastewater treatment plant works very hard throughout the year to operate, maintain, and improve the wastewater treatment plant and the collection system. In 2018, we continued to work on efficient operation of the energy optimization project equipment and processes. Other substantial projects included: concrete repair at the 30 MG equalization basin; an off-gas analysis and diffuser evaluation that culminated in replacing the aeration basin ceramic disk diffusers with new membrane diffusers; installation of a receiving/feed tank to start accepting high-strength waste into the anaerobic digesters.

We are very proud of the entire staff at the wastewater treatment plant. It is their attitude, dedication, and teamwork that make this place run smoothly. We would like to thank Ed St. Peter and the Board of Water Commissioners for their continued support and guidance. The Wastewater Treatment Plant and collection system have a lot of potential for improvement projects, which is why it is such an exciting place to work.

Sincerely,

Melissa Arnot
Director of Operations

Katrina Karow
Director of Wastewater Treatment



www.kenosha.org

Treatment Data - 5 Year Comparison

<u>YEAR</u>	<u>MGD</u>	<u>Influent mg/L</u>	<u>Primary Effluent mg/L</u>	<u>Primary Efficiency %</u>	<u>Final Effluent mg/L</u>	<u>Overall Efficiency %</u>
Suspended Solids						
2018	25.787	170	50	71	8.8	95
2017	25.417	168	46	72	10.1	94
2016	22.627	178	48	73	6.9	96
2015	21.930	180	51	72	7.9	96
2014	21.303	176	51	71	7.5	96
Five-Day BOD						
2018	25.787	157	95	39	11.7	93
2017	25.417	159	105	34	13.2	92
2016	22.627	177	114	36	10.9	94
2015	21.93	180	116	36	14.1	92
2014	21.303	175	110	37	12.9	93
Phosphorus						
2018	25.787	2.70	–	–	0.47	83
2017	25.417	2.71	–	–	0.52	81
2016	22.627	2.80	–	–	0.45	84
2015	21.930	2.91	–	–	0.49	83
2014	21.303	2.95	–	–	0.48	84

mg/L - milligrams per Liter

Summary

	2018	2017
Total wastewater pumped and treated	9,412,036,000	9,294,576,000
Total sludge to digesters - gallons	29,835,289	30,949,193
Total dry solids to digesters - pounds	11,163,755	11,061,185
Total dry volatile solids to digesters - pounds	8,439,114	8,396,051

Digester Data

Total gallons digested sludge removed	27,752,756	31,800,135
Percent dry solids	2.15	2.01
Total pounds dry solids removed	4,914,764	5,334,634
Percent volatile matter	55.5	55.0
Total dry volatile solids removed	2,727,694	2,936,183
Volatile solids destroyed, percent	67.7	65.0

Treatment Plant Data and Chemical Usage

	<u>2018</u>	<u>2017</u>
<u>Chemical Data</u>		
<u>Chlorine</u>		
Total pounds	107,730	110,581
Average pounds per day	295	303
Average residual, µg/L	< 100 µg/L	< 100 µg/L
<u>Sulfur Dioxide</u>		
Total pounds	96,904	96,254
Average pounds per day	265	264
<u>Ferric Chloride, Phosphorus</u>		
Total gallons	205,534	210,665
Average gallons per day	563	577
Average pounds of Fe per day	742	761
<u>Polymer</u>		
Tons	102	97
Pounds per pound of dry solids	0.042	0.036
<u>Sodium Hydroxide *</u>		
Total Pounds	172,053	161,037
Pounds per pound of lysed WAS	0.045	0.039
<u>Sulfuric Acid *</u>		
Total pounds	9,920	30,368
Pounds per CF through air scrubber	0.008	0.023

* Sodium Hydroxide and Sulfuric Acid added in 2016 for new biosolids processing

Aeration

Settleable Solids - mg/L	198	255
Mixed Liquor Suspended Solids - mg/L	2,894	3,050
Dissolved Oxygen - mg/L	2.4	2.0
BOD lbs. applied per day	18,341	19,768

Thickener

Waste Activated Sludge to Thickener, gallons/day	134,011	132,269
Waste Activated Sludge - % solids	1.06	1.04
Waste Activated Sludge - lbs/day	11,847	11,533
Thickened Sludge - % solids	5.9	5.0
Thickened Sludge - % volatile	72.5	74.02
Thickener Effluent - Suspended Solids - mg/L	591	233
Thickened Sludge - lbs dry solids/day	11,347	11,550
Thickened Sludge - gallons/day	23,060	25,248

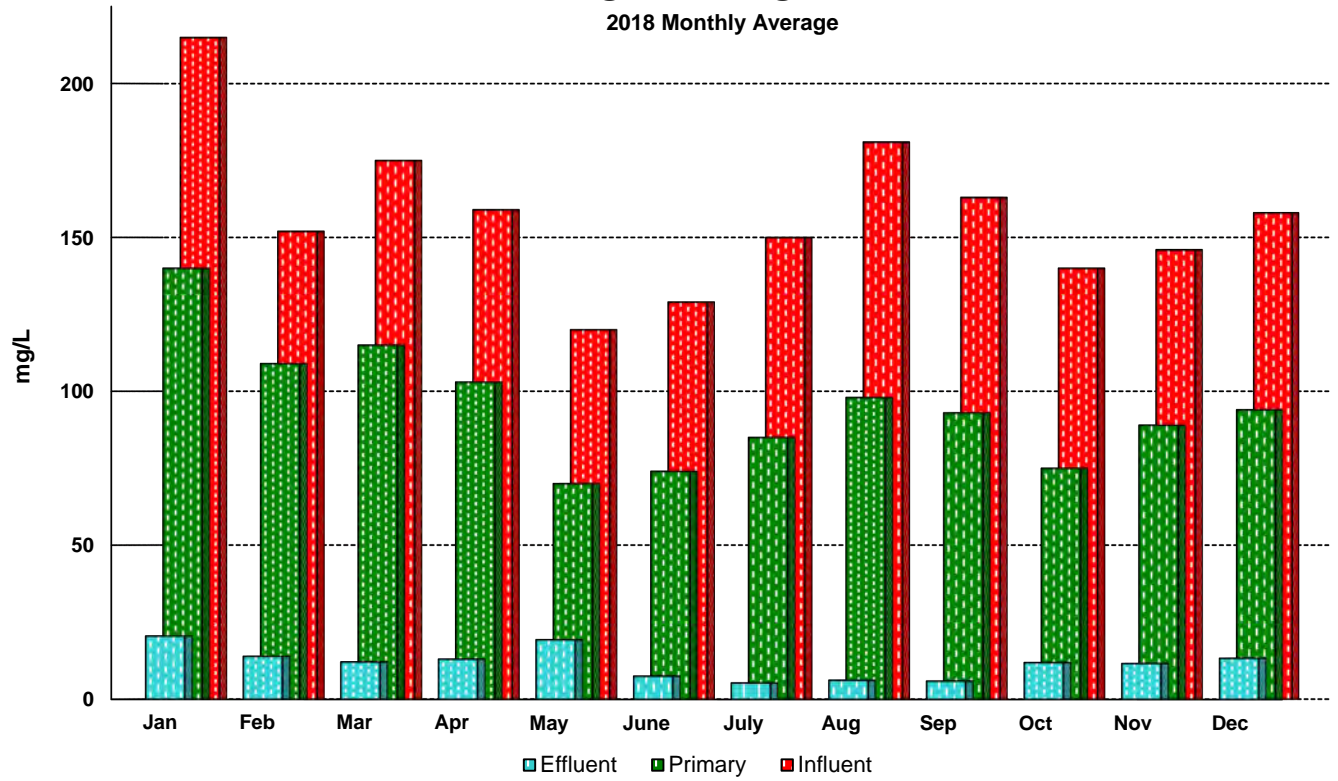
mg/L - milligrams per Liter

µg/L - micrograms per Liter

WAS - Waste Activated Sludge

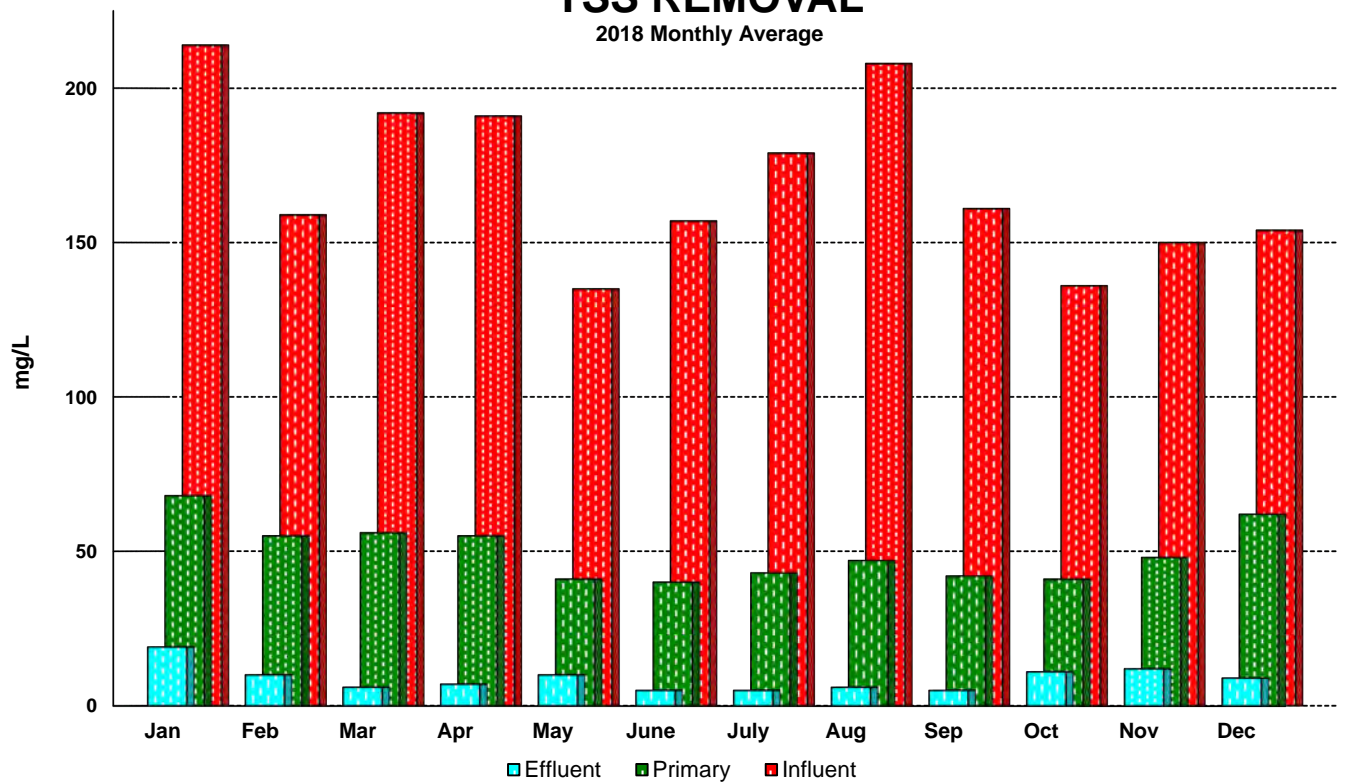
BOD REMOVAL

2018 Monthly Average



TSS REMOVAL

2018 Monthly Average



Wastewater Flow

Annual precipitation and average daily flow for the past five years

	<u>Precipitation, Inches</u>	<u>Average MGD</u>
2018	49.30	25.786
2017	43.96	25.465
2016	33.70	22.630
2015	35.83	21.930
2014	33.20	21.303

Sludge to Centrifuge

Gallons per day	82,844
Percent solids	2.15
Pounds per day	14,671
Percent volatile	55.5

Sludge off Centrifuge

Total tons	6,175
Percent solids	29.7
Centrate TSS, mg/l	634.0
Centrate pH	95.4

Solids Disposal

Tons of sludge to landfill, dry tons	1,852
Tons of sludge distributed, dry tons	561
Tons of grit to landfill	654

Annual Energy Usage

		<u>2018</u>	<u>2017</u>
Electricity	Total On and Off Peak kWh	6,305,163	6,374,541
	Total Demand kW	13,932	15,183
	Total cost	\$ 522,812	\$ 550,802
Natural Gas	therms	139,574	179,537
	Total cost	\$ 70,497	\$ 89,382
Methane gas produced by digesters	therms	420,357	433,682
Value of methane gas	Total	\$ 212,316	\$ 215,909

**Sewerage System
Plant Operating Data - 2018**

Month	Precip. Inches	Total Flow Raw Sewage MG	Average Daily Flow MGD	Maximum Daily Flow MGD	Day of Month	Power Cost
January	1.71	573.051	18.486	32.645	22	\$ 41,764
February	2.90	670.549	23.948	56.241	20	36,121
March	0.56	627.348	20.237	24.500	1	37,046
April	2.88	784.168	26.139	44.219	15	50,200
May	7.47	1,129.115	36.423	76.548	15	48,147
June	9.31	1,046.623	34.887	85.270	27	48,648
July	1.56	690.106	22.261	37.544	2	48,295
August	6.12	633.502	20.436	41.765	29	48,020
September	4.23	687.012	22.900	50.637	3	46,422
October	6.09	919.157	29.650	67.910	6	41,086
November	3.44	752.079	25.069	38.659	6	37,664
December	3.03	899.326	29.011	65.395	2	39,399
Total	49.30	9,412.036				\$ 522,812
Average	4.11	784.336	25.787	51.778		\$ 43,568

Monthly Averages

Month	BOD		TSS (mg/L)		Phosphorus (mg/L)		Total lbs. Dry Solids from Digester
	Influent	Effluent	Influent	Effluent	Influent	Effluent	
January	215	20.5	214	18.7	3.39	0.71	446,530
February	152	13.9	159	9.7	3.26	0.45	389,518
March	175	12.1	192	6.1	3.27	0.40	335,941
April	159	13.0	191	7.2	2.61	0.33	508,679
May	120	19.3	135	10.1	1.58	0.36	576,176
June	129	7.5	157	4.5	2.90	0.39	477,704
July	150	5.3	179	4.5	3.15	0.56	400,982
August	181	6.2	208	5.5	3.35	0.58	277,762
September	163	5.9	161	5.5	2.42	0.48	355,654
October	140	11.9	136	11.1	2.33	0.56	405,107
November	146	11.6	150	11.7	2.15	0.48	289,269
December	158	13.3	154	8.7	1.98	0.33	362,060
Average	157	11.7	170	8.6	2.70	0.47	402,115

Sewage Collection Pipe System - 2018

<u>Size</u>	<u>Material</u>	<u>Footage</u>
99"	Concrete	3,318
96"	Concrete	75
84"	Concrete	9,774
78"	Concrete	4,899
72"	Concrete	4,242
66"	Concrete, Steel	3,151
60"	Concrete, Steel	24,556
54"	Concrete, Steel	3,465
48"	Concrete, Steel, Brick	13,309
42"	Concrete, Steel, Brick	20,527
36"	Concrete, Clay, Steel	39,054
33"	Concrete, Clay	699
30"	Concrete, Clay, Steel	48,329
27"	Concrete, Clay, Steel	9,567
24"	Clay, Concrete, Plastic, Steel	97,762
22"	Clay, Plastic, Steel	5,708
21"	Clay, Plastic	42,065
20"	Clay, Plastic, Steel	19,068
18"	Clay, Plastic, Steel	125,241
16"	Clay, Plastic	1,352
15"	Clay, Plastic, Steel	167,910
14"	Clay, Plastic	1,156
12"	Clay, Plastic, Steel	266,498
10"	Clay, Plastic, Steel	153,763
8"	Clay, Plastic, Steel	734,565
6"	Clay, Plastic	8,241
Total Feet of Pipe		1,808,294
Total Miles of Pipe		342.48

2018 Sewer Main Installation Costs

Project	Size/ Type	Installer	Description	Footage	Total Costs	Cost per Foot
Installed by Kenosha Water Utility						
<u>By Job Number</u>						
652	8" PVC	Oakes & Son	47th Ave - 19th Pl to 21st St	<u>752.0</u>	<u>\$ 177,976.31</u>	
			Total	<u>752.0</u>	<u>177,976.31</u>	
<u>By Pipe Size</u>						
652	8" PVC	Oakes & Son	47th Ave - 19th Pl to 21st St	<u>752.0</u>	<u>177,976.31</u>	
			Total	<u>752.0</u>	<u>177,976.31</u>	236.67

**Distribution Division - Sanitary Sewer
Operating & Maintenance Report - 2018**

Maintenance Completed

System	Maintenance Type	Quantity
Sewer Main	Collapse	5
	Broken Pipe	1
	Joint Leaks	–
	Remove Flusher Nozzle	–
	Other	–
Total Sewer Main Repairs		6
Sewer Lateral	Collapse	27
	Broken Pipe	1
	Joint Leaks	6
	Broken at Wye	4
	Remove Parkway Trap	2
	Contractor Damage	–
	Other	3
Total Sewer Lateral Repairs		43
Manholes	Repaired	13
	Replace	–
	Remove/Abandon	–
Total Manhole Repairs		13

Total Sanitary Sewer Repairs	62
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Customer Complaints

(During Normal Work Hours)

Complaint	Quantity
Sewer back-up	70
Sink Hole	4
Sewer Odor	2
Storm Sewer Back-up	13
Televise Lateral	3
Manhole Problem	1
Miscellaneous	1
Total	94

Customer Complaints

(After Normal Work Hours)

Complaint	Quantity
Utility Locate	40
Sewer back-up	103
Sink Hole	6
Sewer Odor	5
Storm Sewer Back-up	13
Televise Lateral	1
Manhole Problem	1
Total	169

Total Complaints	263
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Summary of Sewer Cleaning and Televising (feet)

Year	Sewer Cleaning	PM List	Televise	Grand Total
2018	293,833	46,242	22,319	362,394
2017	90,878	30,828	12,440	134,146
2016	567,460	72,996	16,057	656,513
2015	224,107	38,995	51,360	314,462
2014	184,187	56,549	32,991	273,727
2013	164,028	38,459	18,071	220,558

Sewerage System Income Statement – 2018

Sewerage Service Revenues		
Residential Customers	\$ 4,296,027.03	
Commercial Customers	2,261,741.27	
Industrial Customers	1,027,586.13	
Public Customers	623,610.20	
Wastehaulers	249,956.21	
Wholesale Customers	3,143,851.41	
Industrial Monitoring	98,675.41	
Total Sewerage Service Revenues		11,701,447.66
Other Operating Revenues		
Engineering Services	1,765,597.92	
Other Income	80,328.97	
Penalties	117,243.45	
Total Other Operating Revenues		1,963,170.34
Total Operating Revenues		13,664,618.00
Operating Expenses		
Wastewater Treatment Operation and Maintenance	3,149,488.83	
Collection System Operation and Maintenance	1,242,717.98	
Laboratory Operations	311,218.94	
Industrial Waste Monitoring	64,731.68	
Engineering Services	1,741,930.44	
Customer Accounting and Collection Expense	439,710.28	
Administrative and General Expense	2,509,719.36	
Depreciation	2,328,054.79	
Taxes	50,418.96	
Total Operating Expenses		11,837,991.26
Utility Operating Income		1,826,626.74
Other Income		
Interest Income	553,865.45	
Miscellaneous Income	29,811.64	
Total Other Income		583,677.09
Non-operating Expenses		
Interest on Long-term Debt		11,049.75
Net Income before Capital Contributions		2,399,254.08
Capital Contributions	265,303.00	
Net Income		\$ 2,664,557.08

**Sewerage System
Statement of Net Position
December 31, 2018**

Assets		
Utility Plant		
Utility Plant in Service	\$ 140,803,993.60	
Work in Progress - Sewer Plant	12,307,606.27	
Work in Progress - Sewerage System	117,887.74	
Accumulated Depreciation	<u>(68,456,414.46)</u>	
Net Plant in Service		84,773,073.15
Other Property		
Other Utility Plant & Equipment for Future Use	1,071,992.38	
Accumulated Depreciation	<u>(385.68)</u>	
Net Other Property		<u>1,071,606.70</u>
Total Net Utility Plant		85,844,679.85
Current Assets		
Cash and Cash Equivalents	12,795,269.26	
Investments	5,562,784.97	
Restricted cash equivalents	2,759,345.96	
Restricted cash - Storm Water Utility Collections	333,852.09	
Restricted Investments	104,776.28	
Customer Accounts Receivable	1,157,528.29	2,119,779.45
Receivable from Municipality	535,264.27	
Unbilled Revenues	1,026,659.81	
Other Accounts Receivable	426,986.89	
Materials and Supplies	47,779.86	
Accrued Interest Receivable	82,602.03	92,039.36
Other Current Assets	<u>9,437.33</u>	
Total Current and Accrued Assets		24,842,287.04
Noncurrent Assets		
Investments	4,542,088.01	
Advance to Water Unit	<u>5,000,000.00</u>	
Total Noncurrent Assets		9,542,088.01
Other Assets		
Assessments Receivable	21,340.00	
Deferred Charges	2,351,352.33	
Pension Asset - Wisconsin Retirement System	<u>794,931.32</u>	
Total Other Assets		3,167,623.65
Total Assets		<u>\$ 123,396,678.55</u>
Deferred Outflow of Resources		
Deferred Pension Resources		\$ 1,421,288.29
Deferred OPEB Resources		<u>35,416.83</u>
Total Outflows of Resources		<u>\$ 1,456,705.12</u>
Liabilities		
Current Liabilities		
Accounts Payable	\$ 545,529.46	
Accrued Interest Payable	1,092.91	
Current Portion of Long Term Obligations	101,849.10	
Current Portion of Advance from Municipality	46,896.90	
Current Portion of Accrued Compensated Absences	44,453.07	
Payable to Municipality	455,940.21	
Due to City of Kenosha - Storm Water Collections	333,852.09	
Deferred Credits	<u>310,715.00</u>	
Total Current and Accrued Liabilities		1,840,328.74
Non-current Liabilities		
Long-term Debt		
Clean Water Fund Loans	<u>105,076.69</u>	
Total Long-term Debt		105,076.69
Accrued Compensated Absences		227,786.87
Worker's Compensation Accrued Liability		77,840.00
Net Other Postemployment Benefit Obligations		1,129,941.92
Pension Liability - Wisconsin Retirement System		<u>1,540,645.48</u>
Total Non-current Liabilities		1,540,645.48
Total Liabilities		<u>\$ 3,380,974.22</u>
Deferred Inflows of Resources		
Deferred Pension Resources		\$ 1,611,915.92
Deferred OPEB Resources		<u>3,669.29</u>
Total Inflows of Resources		<u>\$ 1,615,585.21</u>
Net Position		
Invested in Capital Assets, net of related debt	85,637,754.06	
Restricted for Debt Service	2,863,029.33	
Restricted for Pension	794,931.32	
Unrestricted	<u>30,561,109.53</u>	
Total Net Position		<u>\$ 119,856,824.24</u>

**Sewerage System
Comparative Operating and Maintenance Expenses**

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Operating Expenses			
Supervision and Labor	\$ 488,862.18	\$ 489,417.45	\$ 435,363.37
Power for Pumping and Aeration	600,019.34	647,223.56	654,878.37
Disinfection Chemicals	57,127.00	47,895.00	56,230.00
Sludge Conditioning Chemicals	422,044.71	488,409.07	457,762.78
Other Chemicals for Sewage Treatment	66,213.49	64,851.07	37,044.74
Laboratory Operations	311,218.94	301,761.59	303,614.92
Industrial Waste Monitoring	64,731.68	60,020.46	58,994.06
Landfill Expense	264,533.20	268,443.05	309,612.28
Transportation Expense	100,578.42	78,453.99	82,050.25
	<u>2,375,328.96</u>	<u>2,446,475.24</u>	<u>2,395,550.77</u>
Maintenance Expenses			
Collection System Operation and Maintenance	1,242,717.98	960,972.00	1,017,964.94
Wastewater Treatment Maintenance	1,150,110.49	1,067,375.04	704,343.65
	<u>2,392,828.47</u>	<u>2,028,347.04</u>	<u>1,722,308.59</u>
Customer Account Expenses			
Customer Accounting and Collection	376,318.88	276,664.46	278,745.32
Meter Reading Expense	63,391.40	60,546.14	60,952.35
	<u>439,710.28</u>	<u>337,210.60</u>	<u>339,697.67</u>
Administrative and General Expenses			
Administrative and General Salaries	313,407.05	309,648.80	299,204.91
Engineering Services	1,741,930.44	1,543,553.06	1,350,840.57
Office Supplies and Expense	54,677.22	48,254.85	51,538.59
Outside Services Employed	443,993.56	413,841.43	313,101.49
Insurance Expense	201,704.48	144,846.00	167,085.43
Employee Benefits and Pensions	1,161,633.24	1,205,847.90	1,195,049.50
Meter Operations Expense	327,903.81	351,495.98	348,412.40
Loss on sale of equipment	-	230,387.93	-
Depreciation	2,328,054.79	2,186,774.20	2,128,002.52
Utility Taxes	50,418.96	52,574.27	52,374.02
Miscellaneous Expense	6,400.00	6,300.00	6,250.00
	<u>6,630,123.55</u>	<u>6,493,524.42</u>	<u>5,911,859.43</u>
Total Operating Expenses	<u>\$ 11,837,991.26</u>	<u>\$ 11,305,557.30</u>	<u>\$ 10,369,416.46</u>

Sewerage System Comparative Income Statement

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Sewerage Service Revenue			
Residential Customers	\$ 4,296,027.03	\$ 4,330,367.27	\$ 4,393,738.09
Commercial Customers	2,261,741.27	2,233,433.38	2,245,706.03
Industrial Customers	1,027,586.13	1,148,742.84	1,261,564.00
Public Customers	623,610.20	691,827.12	217,807.39
Wastehaulers	249,956.21	325,610.45	326,725.49
Wholesale Customers	3,143,851.41	2,835,447.03	2,454,371.99
Industrial Monitoring	98,675.41	108,921.47	106,414.35
Total Sewerage Service Revenues	11,701,447.66	11,674,349.56	11,006,327.34
Other Operating Revenues			
Engineering Services	1,765,597.92	1,586,132.89	1,385,535.89
Other Income	80,328.97	90,669.54	89,651.87
Penalties	117,243.45	124,384.26	125,816.70
	1,963,170.34	1,801,186.69	1,601,004.46
Total Operating Revenues	13,664,618.00	13,475,536.25	12,607,331.80
Operating Expenses			
Wastewater Treatment Operation and Maintenance	3,149,488.83	3,152,068.23	2,737,285.44
Collection System Operation and Maintenance	1,242,717.98	960,972.00	1,017,964.94
Laboratory Operations	311,218.94	301,761.59	303,614.92
Industrial Waste Monitoring	64,731.68	60,020.46	58,994.06
Engineering Services	1,741,930.44	1,543,553.06	1,350,840.57
Customer Accounting/Meter Reading Expense	439,710.28	337,210.60	339,697.67
Administrative and General Expense	2,509,719.36	2,480,234.96	2,380,642.32
Loss on Sale of Equipment	-	230,387.93	-
Depreciation	2,328,054.79	2,186,774.20	2,128,002.52
Taxes	50,418.96	52,574.27	52,374.02
Total Operating Expenses	11,837,991.26	11,305,557.30	10,369,416.46
Net Operating Income	1,826,626.74	2,169,978.95	2,237,915.34
Non-operating Revenue			
Interest Income	553,865.45	304,727.80	214,171.88
Miscellaneous Income	29,811.64	39,041.48	30,214.42
Total Non-operating Revenue	583,677.09	343,769.28	244,386.30
Operating Income and Other Revenue	2,410,303.83	2,513,748.23	2,482,301.64
Non-operating Expenses			
Interest on Long-term Debt	11,049.75	16,624.15	21,824.59
Total Non-operating Expenses	11,049.75	16,624.15	21,824.59
Net Income	\$ 2,399,254.08	\$ 2,497,124.08	\$ 2,460,477.05
Rate of Return on Average Investment (based on WWTP net operating income)	6.85%	7.82%	7.56%
Rate of Return on Average Investment (after debt service payment)	6.84%	7.76%	7.49%

**Sewerage System
Utility Plant in Service
For the year ended December 31, 2018**

	Depr. Rate %	Cost of Plant 1/1/2018	2018 Additions	2018 Retirements	Adjustments Incr/(Decr)	Cost of Plant 12/31/2018
Collection System						
Land	N/A	\$ 125,244.31				\$ 125,244.31
Structures and Improvements	2.94	-				-
Service Connections	2.00	1,904,640.65				1,904,640.65
Collecting Mains	1.00	48,656,719.04	177,976.31			48,834,695.35
Interceptor Mains	1.00	29,415,933.32				29,415,933.32
Force Mains	1.00	1,336,740.49				1,336,740.49
Collection Equipment	4.00	1,349,889.39	15,533.50			1,365,422.89
Collection Pumping System						
Land	N/A	129,783.09				129,783.09
Structures and Improvements	2.50	5,883,426.62				5,883,426.62
Receiving Wells	2.50	5,523,470.40				5,523,470.40
Electric Pumping Equipment	5.33	8,689,690.13	171,102.61			8,860,792.74
Other Power Pumping Equip.	4.00	376,363.38				376,363.38
Miscellaneous Pumping Equip.	4.00	31,000.00				31,000.00
Treatment and Disposal						
Land	N/A	331,080.05				331,080.05
Structures and Improvements	2.50	7,826,714.55	6,441.17	848.58		7,832,307.14
Preliminary Equipment	3.80	1,462,769.31				1,462,769.31
Primary Treatment Equipment	2.97	4,164,657.81	33,785.67	12,846.98		4,185,596.50
Secondary Treatment Equip.	3.53	6,600,921.13	247,094.12	17,458.50		6,830,556.75
Advanced Treatment Equip.	2.86	223,231.28				223,231.28
Chlorination Equipment	4.41	1,243,141.30				1,243,141.30
Sludge Treatment & Disposal	4.17	5,942,466.29		52,139.24		5,890,327.05
Flow Metering and Monitoring	4.44	247,382.30	5,164.56	1,775.62		250,771.24
Outfall Sewer	2.31	1,179,759.13				1,179,759.13
Engineering Equipment						
Furniture and Equipment	5.88	31,136.15				31,136.15
Computer Equipment	6.67-14.29	115,906.00		4,436.84		111,469.16
Transportation Equipment	14.28	324,849.31	13,298.00	34,823.00		303,324.31
Engineering Equipment	5.88	25,261.15	9,261.09	3,236.46		31,285.78
Communication Equipment	9.09	(1,610.32)				(1,610.32)
Telephone Equipment	20.00	6,355.76		6,355.76		-
General Plant & Equipment						
Land	N/A	686,629.54				686,629.54
Structures and Improvements	2.50	2,132,437.93	63,896.13			2,196,334.06
Furniture and Equipment	5.88	98,799.49				98,799.49
Computer Equipment	6.67-14.29	103,704.59	20,422.34	1,099.39		123,027.54
Transportation Equipment	12.86	2,148,092.17	269,254.00			2,417,346.17
Work (Power) Equipment	9.00	630,670.20		6,379.23		624,290.97
Tools and Shop Equipment	5.88	302,998.56	8,694.30	6,075.00		305,617.86
Lab Equipment	5.88	184,432.18	1,665.51	5,190.66		180,907.03
Communication Equipment	9.09	2,228.00				2,228.00
SCADA System Equipment	9.20	229,799.95				229,799.95
Telephone Equipment	20.00	9,755.97		9,755.97		-
Miscellaneous Equipment	5.88	235,757.68	7,800.00			243,557.68
Total		<u>\$ 139,912,228.28</u>	<u>\$ 1,051,389.31</u>	<u>\$ 162,421.23</u>	<u>\$ 0.00</u>	<u>\$ 140,801,196.36</u>

**Sewerage System
Accumulated Depreciation
For the year ended December 31, 2018**

	Balance 1/1/2018	2018 Depreciation	Less Cost of Retirements	Add Cash Received	Adjustments Incr./Decr.	Balance 12/31/2018
Collection System						
Land	-					-
Structures and Improvements	-					-
Service Connections	\$ 906,709.60	38,092.81				\$ 944,802.41
Collecting Mains	13,168,017.16	493,663.71				13,661,680.87
Interceptor Mains	6,322,967.34	295,605.47				6,618,572.81
Force Mains	235,043.65	13,367.40				248,411.05
Collection Equipment	904,067.85	67,882.81				971,950.66
Collection System Pumping						
Land	-					-
Structures and Improvements	4,013,820.96	117,668.53				4,131,489.49
Receiving Wells	3,254,793.91	183,931.56				3,438,725.47
Electric Pumping Equipment	8,689,690.13	171,102.61				8,860,792.74
Other Power Pumping Equip.	197,697.65	18,818.17				216,515.82
Miscellaneous Pumping Equip.	14,974.97	1,550.00				16,524.97
Treatment and Disposal						
Land	-					-
Structures and Improvements	6,394,630.59	156,590.22	848.58			6,550,372.23
Preliminary Equipment	58,764.62	58,510.77				117,275.39
Primary Treatment Equipment	3,774,401.46	139,031.74	12,846.98			3,900,586.22
Secondary Treatment Equip.	6,600,921.13	223,634.10	17,458.50			6,807,096.73
Advanced Treatment Equip.	100,087.37	8,929.25				109,016.62
Chlorination Equipment	1,243,141.30					1,243,141.30
Sludge Treatment & Disposal	5,942,466.29		52,139.24			5,890,327.05
Flow Metering and Monitoring	184,216.89	16,613.42	1,775.62			199,054.69
Outfall Sewer	911,616.62	29,493.98				941,110.60
Engineering Equipment						
Furniture and Equipment	21,173.17	1,924.81				23,097.98
Computer Equipment	37,602.49	13,344.14	4,436.84			46,509.79
Transportation Equipment	269,846.31	10,643.46	34,823.00	4,105.13	(622.80)	249,149.10
Engineering Equipment	7,798.79	1,736.63	3,236.43	2,011.59		8,310.58
Communication Equipment	(1,610.32)					(1,610.32)
Telephone Equipment	3,813.45	635.57	6,355.76			(1,906.74)
Miscellaneous Equipment	(253.22)					(253.22)
General Plant & Equipment						
Land	-					-
Structures and Improvements	607,519.44	43,736.54				651,255.98
Furniture and Equipment	66,992.07	5,730.37				72,722.44
Computer Equipment	59,788.85	15,613.04	1,099.39			74,302.50
Transportation Equipment	1,550,538.25	108,345.92				1,658,884.17
Work (Power) Equipment	302,605.60	28,641.31	6,379.23	1,210.00	(572.08)	325,505.60
Tools and Shop Equipment	198,087.23	17,649.88	6,075.00			209,662.11
Lab Equipment	76,760.91	10,524.82	5,190.66			82,095.07
Communication Equipment	2,228.00					2,228.00
SCADA System Equipment	69,854.68	21,141.60				90,996.28
Telephone Equipment	9,755.97		9,755.97			0.00
Other Equipment	41,271.44	13,900.15				55,171.59
Total	\$ 66,241,802.60	\$ 2,328,054.79	\$ 162,421.20	\$ 7,326.72	(\$ 1,194.88)	\$ 68,413,568.03

**Clean Water Fund Project #4003-07
 Loan Payment Schedule
 Equalization Basin Modification
 December 31, 2018**

<u>Year</u>	<u>Principal</u>	<u>Interest</u>		<u>Total</u>
	<u>May 1</u>	<u>May 1</u>	<u>November 1</u>	
2019	101,849.10	3,278.74	1,664.94	106,792.78
2020	105,076.69	1,664.94	-	106,741.63
	<u>\$ 206,925.79</u>	<u>\$ 4,943.68</u>	<u>\$ 1,664.94</u>	<u>\$ 213,534.41</u>

Interest rate is 3.169%

**Sewerage System
Advance from Municipality
Debt Repayment Schedule
December 31, 2018**

<u>Year</u>	<u>Interest Rate %</u>	<u>Principal April 1</u>	<u>Interest</u>		<u>Total</u>
			<u>April 1</u>	<u>October 1</u>	
2019	6.000%	46,896.90	1,406.91	-	48,303.81
Totals		<u>\$ 46,896.90</u>	<u>\$ 1,406.91</u>	<u>\$ -</u>	<u>\$ 48,303.81</u>

**Sewerage System
Total Debt Repayment Schedule
December 31, 2018**

<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2019	148,746.00	6,350.59	155,096.59
2020	105,076.69	1,664.94	106,741.63
Totals	<u>\$ 253,822.69</u>	<u>\$ 8,015.53</u>	<u>\$ 261,838.22</u>

Wastewater Treatment Plant

7834 3rd Avenue
Kenosha WI 53143

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Fax (262) 653-4340



“Providing and Protecting Kenosha’s Greatest Natural Resource”

June 2019

Mr. Edward St. Peter
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Subject: 2018 Industrial Pretreatment Program Annual Report

Dear Mr. St. Peter,

The Industrial Pretreatment Program is a requirement of the Clean Water Act and is regulated by the Wisconsin Department of Natural Resources (WDNR) through our wastewater treatment plant discharge permit. The WDNR designates the Kenosha Water Utility as the Control Authority to carry out the required elements of the program. The program regulates and monitors local industries, waste haulers, and adjoining communities discharging to Kenosha’s wastewater collection system. The program is designed 1) to prevent the discharge of pollutants to the wastewater treatment plant (WWTP) which could interfere with operations or disposal of biosolids; 2) to prevent the introduction of pollutants to the WWTP that may pass through to the lake; and 3) to protect employee health and safety.

Significant dischargers are monitored at the regulated process and/or where their wastewaters enter the Kenosha sanitary sewer collection system. Haulers are monitored at the wastewater treatment plant. The adjoining communities are monitored weekly for conventional parameters being discharged to the collection system. We receive wastewater from the Villages of Bristol, Pleasant Prairie and Somers.

Due to changes in federal reporting rules, the Kenosha Wastewater Treatment Plant discontinued the acceptance of manifested hauled waste. As of June 30, 2018, we no longer accepted landfill leachate from Illinois facilities. This was a reduction of about 30 million gallons annually of hauled waste. This also resulted in significantly reduced ammonia loadings to the plant.

The wastewater treatment plant effluent and sludge continue to meet or exceed discharge limits. The wastewater biosolids meet the state of Wisconsin’s requirements for an exceptional-quality sludge.

While we must monitor and enforce local and federal sanitary sewer discharge limits, our goal is to work cooperatively with significant industrial users to achieve continued compliance.

Respectfully Submitted,

A handwritten signature in black ink that reads 'Katrina Karow'.

Katrina Karow
Director of Wastewater Treatment



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**SUMMARY OF INFLUENT METALS TO THE
KENOSHA WASTEWATER TREATMENT PLANT**

POTW Influent: average pounds/day

Year	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Mercury
2000	0.35	7.4	7.7	9.1	2.1	18.3	
2001	< 0.20	1.8	11.0	1.4	1.4	25.9	
2002	< 0.18	1.9	9.7	1.6	1.6	27.4	0.015
2003	< 0.16	1.4	9.4	1.7	1.2	19.1	0.032
2004	< 0.38	1.1	23.0	1.1	1.1	34.3	0.012
2005	< 0.31	1.1	10.4	0.78	1.1	23.7	0.030
2006	< 0.34	0.85	7.8	1.0	0.85	16.5	0.016
2007	< 0.5	1.1	12.0	1.3	2.4	23.0	0.022
2008	< 0.7	0.9	8.4	0.9	< 0.7	18.3	0.031
2009	< 0.4	0.6	7.6	1.0	< 0.6	18.0	0.018
2010	0.075	1.4	9.7	0.63	0.88	23.4	0.006
2011	< 0.14	0.8	8.5	0.58	0.56	20.9	0.008
2012	< 0.13	0.85	8.5	0.73	0.68	28.8	0.010
2013	< 0.12	1.3	7.9	0.78	1.8*	32.3	0.011
2014	< 0.12	1.2	11.7	0.99	1.0	32.3	0.006
2015	<0.061	1.0	9.1	1.12	0.70	22.7	0.010
2016	<0.066	1.3	9.0	0.94	0.53	19.7	0.005
2017	<0.066	1.0	10.2	1.14	0.70	20.4	0.005
2018	<0.041	1.0	7.9	0.97	<0.46	23.0	0.005

* Average may be biased high due to a few uncharacteristically elevated results.

**SUMMARY OF EFFLUENT METALS FROM THE
KENOSHA WASTEWATER TREATMENT PLANT**

POTW Effluent: average pounds/day

Year	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Mercury
2000	< 0.16	< 0.33	0.82	0.86	< 0.66	4.1	
2001	< 0.20	< 0.41	< 1.2	0.97	< 0.71	7.6	
2002	< 0.18	0.30	< 1.2	0.97	0.71	7.6	0.0028
2003	< 0.16	0.18	< 1.1	1.43	0.64	4.8	0.0016
2004	< 0.38	< 0.38	1.5	0.75	< 0.94	5.3	0.0005
2005	< 0.31	< 0.31	0.94	0.62	< 0.47	5.1	0.0005
2006	< 0.34	< 0.34	1.0	0.51	0.51	6.3	0.0008
2007	< 0.5	< 0.5	1.6	0.8	0.8	8.2	0.0008
2008	< 0.7	< 0.7	1.0	< 0.7	< 0.7	5.2	0.0006
2009	< 0.4	< 0.6	< 1.0	0.8	< 0.6	4.6	0.0004
2010	< 0.03	0.37	1.3	< 0.22	0.47	5.8	0.0004
2011	< 0.14	< 0.27	0.8	< 0.36	< 0.17	5.4	0.0002
2012	< 0.05	< 0.16	1.0	< 0.44	< 0.14	6.2	0.0002
2013	< 0.11	< 0.22	1.8	< 0.47	< 0.25	4.9	0.0003
2014	< 0.06	< 0.21	1.6	< 0.55	< 0.15	8.2	0.0002
2015	<0.06	<0.28	2.0	0.84	<0.15	5.3	0.0002
2016	<0.06	0.28	1.3	0.59	<0.17	5.0	0.0002
2017	<0.06	0.31	2.7	0.94	<0.17	5.1	0.0002
2018	<0.034	<0.29	2.1	0.85	<0.33	5.1	0.0002

**SUMMARY OF DEWATERED SLUDGE METALS FROM THE
KENOSHA WASTEWATER TREATMENT PLANT**

POTW Anaerobic Digested Sludge (Dewatered): average mg/kg

Year	Arsenic	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Selenium	Molybdenum	Mercury
2011	7.8	2.3	72.3	415	23.8	55.4	996	4.2	13.7	0.332
2012	8.1	3.5		372	21.2	36.4	1,114	6.1	17.7	0.598
2013	7.5	2.1	64.1	402	25.2	55.8	1,117	3.6	17.9	0.603
2014	10.9	1.8	55.4	364	24.0	44.8	909	2.1	17.1	0.475
2015	9.4	3.0	70.5	406	28.4	45.7	905	2.7	20.4	0.377
2016	10.2	2.6	86.9	433	31.2	29.1	895	5.0	18.2	0.497
2017	12.3	2.6	76.6	441	30.7	38.1	866	5.5	19.4	0.470
2018	13.1	3.1	91.2	444	32.1	30.3	867	5.7	20.1	0.532
High Quality Limit	41	39	No established limits	1,500	420	300	2,800	100	No established limits	17

mg/kg – milligrams per kilogram

Wastewater Treatment Plant

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"Providing and Protecting Kenosha's Greatest Natural Resource"

June 2019

Mr. Edward St. Peter
Kenosha Water Utility
4401 Green Bay Road
Kenosha WI 53144

Subject: 2018 Household Hazardous Waste Collection Program Annual Report

Dear Mr. St. Peter,

The Water Utility organizes and staffs a Residential Household Hazardous Waste (HHW) Program on the first Saturday of the month (February-April & December) and on the first and third Saturdays of the month (May-November). The goal of the program is to offer City of Kenosha residents a convenient disposal option for household hazardous wastes in an effort to minimize waste disposed to sanitary and storm sewers. Additionally, the Kenosha Water Utility carries out a Mercury Minimization Program as a requirement of our wastewater discharge permit. The HHW events are one way to keep mercury out of the environment. Along with household chemicals, we also accept mercury containing products such as thermometers and fluorescent light bulbs.

All events are staffed solely by Water Utility employees. There are at least five to six employees plus a chemist in charge for each event. The employees collect acceptable chemicals for disposal and offer educational materials to customers about where they can dispose of unacceptable chemicals (i.e. oil, antifreeze, medicine, needles). The collected chemicals are disposed through a contracted disposal company.

The Water Utility conducted eighteen collection events throughout the year. As in past years, it was well received. The number of residents disposing waste per event ranged from 48 (December 1) to 132 (May 5) with an average of 77 per event. The total number of participants in 2018 was 1,387. This program continues to be a fantastic service to our customers and the environment.

Respectfully Submitted,

A handwritten signature in black ink that reads "Katrina Karow".

Katrina Karow
Director of Wastewater Treatment



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Kenosha Household Hazardous Waste Program Participation

2018 Collection Dates and Number of Participants

February 3	63 participants
March 3	66 participants
April 7	79 participants
May 5	132 participants
May 19	59 participants
June 2	112 participants
June 16	67 participants
July 7	102 participants
July 21	66 participants
August 4	93 participants
August 18	69 participants
September 1	54 participants
September 15	61 participants
October 6	86 participants
October 20	74 participants
November 3	107 participants
November 17	49 participants
December 1	48 participants
Total Participants	1,387

The program averaged 77 participants per collection day.

Household Hazardous Waste Unit Comparative Income Statement

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Operating Revenue			
Residential	\$ 166,517.39	\$ 166,428.62	\$ 166,174.74
Stormwater Administration	14,040.00	14,040.00	14,040.00
Penalties	3,780.95	3,962.21	3,901.42
Total Operating Revenue	<u>184,338.34</u>	<u>184,430.83</u>	<u>184,116.16</u>
Operating Expenses			
Labor and Supplies	40,186.06	38,209.81	31,937.84
Outside Disposal Service	46,158.56	43,114.06	27,263.94
Costs Allocated from Other Funds:			
Wages	74,253.10	72,462.06	72,121.74
Postage	7,623.50	7,717.39	7,440.90
Other	3,543.61	3,433.39	3,592.48
Depreciation	3,342.07	3,481.70	3,268.82
Total Operating Expenses	<u>175,106.90</u>	<u>168,418.41</u>	<u>145,625.72</u>
Operating Income	9,231.44	16,012.42	38,490.44
Other Income			
Interest Income	1,161.46	260.01	222.73
Miscellaneous Income	304.64	45.00	173.08
Net Income	<u>\$ 10,697.54</u>	<u>\$ 16,317.43</u>	<u>\$ 38,886.25</u>

**Household Hazardous Waste Unit
Statement of Net Position
December 31, 2018**

Assets		
Utility Plant		
Plant in Service	\$ 80,893.24	
Accumulated Depreciation	<u>(24,438.82)</u>	
Net Plant in Service		56,454.42
Current Assets		
Cash	394,676.24	
Accounts Receivable	26,774.50	
Receivable from Municipality	17,603.39	
Unbilled Revenues	<u>20,841.25</u>	
Total Current Assets		459,895.38
Other Assets		
Pension Asset - Wisconsin Retirement System		6,569.17
Total Assets		<u>522,918.97</u>
Deferred Outflow of Resources		
Deferred Pension Resources		<u>13,018.39</u>
Liabilities		
Current and Accrued Liabilities		
Accounts Payable	5,219.46	
Payable to Municipality	<u>131.27</u>	
Total Current Liabilities		5,350.73
Total Liabilities		<u>5,350.73</u>
Deferred Inflow of Resources		
Deferred Pension Resources		<u>12,924.64</u>
Net Position		
Invested in Capital Assets	56,454.42	
Restricted for Pension	6,569.17	
Unrestricted	<u>454,638.40</u>	
Total Net Position		<u><u>\$ 517,661.99</u></u>

**Household Hazardous Waste Unit
Plant in Service and Accumulated Depreciation
For the year ended December 31, 2018**

	Depr. Rate %	Plant in Service				Cost of Plant 12/31/2018
		Cost of Plant 1/1/2018	2018 Additions	2018 Retirements	Adjustments Incr/(Decr)	
General Plant						
Structures and Improvements	4.00	\$ 87,042.56	-	6,981.32	-	\$ 80,061.24
Equipment	8.33	832.00	-	-	-	832.00
Total		<u>\$ 87,874.56</u>	<u>-</u>	<u>6,981.32</u>	<u>-</u>	<u>\$ 80,893.24</u>

	Accumulated Depreciation					Balance 12/31/2018
	Balance 1/1/2018	2018 Depreciation	Less Cost of Retirements	Add Cash Received	Adjustments Incr./Decr.	
General Plant						
Structures and Improvements	\$ 27,246.07	3,342.07	6,981.32	-	-	\$ 23,606.82
Equipment	832.00	-	-	-	-	832.00
Total	<u>\$ 28,078.07</u>	<u>3,342.07</u>	<u>6,981.32</u>	<u>-</u>	<u>-</u>	<u>\$ 24,438.82</u>