

FLOW AND STRENGTH PROJECTIONS

MONTH: September 2019

	<u>PROJECTED</u>	<u>ACTUAL</u>	<u>DIFFERENCE</u>	<u>PROJECTED INCOME FOR MONTH</u>	<u>ACTUAL INCOME FOR MONTH</u>	<u>SURPLUS OR DEFICIT</u>
FLOW (GALLONS)	146,749,783	240,552,800	93,803,017	\$ 107,861.09	\$ 176,806.31	\$ 68,945.22
B.O.D. (#s)	264,210	362,641	98,431	\$ 62,881.98	\$ 86,308.47	\$ 23,426.49
S. SOLIDS (#s)	317,841	322,039	4,198	\$ 81,049.46	\$ 82,120.07	\$ 1,070.61
PHOSPHORUS (#s)	6,240	6,426	186	\$ 38,931.36	\$ 40,091.07	\$ 1,159.71
AMMONIA-N (#s)	38,356	41,947	3,591	\$ 50,783.34	\$ 55,537.89	\$ 4,754.55
CHLORIDES (#s)	649,842	883,644	233,802	\$ 2,599.37	\$ 3,534.57	\$ 935.21
			TOTAL:	\$ 344,106.60	\$ 444,398.39	\$ 100,291.79

(THRU SEPTEMBER 2019)

PROJECTED FOR 2019

	<u>END OF YEAR PROJECTED</u>	<u>YEAR TO DATE SURPLUS/ DEFICIT</u>	<u>YEAR TO DATE SURPLUS/ DEFICIT \$\$</u>
FLOW (GALLONS)	1,956,827,410	287,238,920	\$ 211,120.61
B.O.D. (#s)	3,407,824	768,852	\$ 182,986.89
S. SOLIDS (#s)	3,855,538	132,336	\$ 33,745.79
PHOSPHORUS (#s)	80,086	-484	\$ (3,019.61)
AMMONIA-N (#s)	481,498	37,891	\$ 50,167.63
CHLORIDES (#s)	8,235,342	1,542,910	\$ 6,171.64
		TOTAL:	\$ 481,172.94

HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

MONTH: SEPTEMBER 2019

HYDRAULIC AND ORGANIC LOADINGS DATA

INFLUENT*

TOTAL FLOW TO PLANT: 231,033,000 GALLONS
 AVERAGE B.O.D. : 169 mg/L
 AVERAGE SUSPENDED SOLIDS : 151 mg/L
 AVERAGE PHOSPHORUS : 3.80 mg/L
 AVERAGE AMMONIA-N : 21.80 mg/L
 AVERAGE CHLORIDES : 494.62 mg/L

MAXIMUM DAILY FLOW TO PLANT: 21,155,000
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PERCENT (%) BY COMMUNITY OF TOTAL MONTHLY VOLUME TREATED AT WWTP

<u>COMMUNITY</u>	<u>FLOW</u>	<u>BOD</u>	<u>TSS</u>	<u>PHOSPHORUS</u>	<u>AMMONIA</u>	<u>CHLORIDES</u>
KAUKAUNA	42.73	27.05	32.04	29.59	25.84	29.90
LITTLE CHUTE	26.09	36.46	28.77	28.75	43.46	34.23
KIMBERLY	13.09	9.52	10.70	10.86	9.04	19.14
COMBINED LOCKS	5.86	6.53	7.06	7.34	5.72	3.14
DARBOY	12.22	20.45	21.43	23.47	15.93	13.60

AVERAGE DAILY INFLUENT LOADINGS

FLOW : 7,701,100 GALLONS
 B.O.D. : 9,583 POUNDS
 SUSPENDED SOLIDS : 8,896.48 POUNDS
 PHOSPHORUS : 218.37 POUNDS
 AMMONIA-N : 1,312 POUNDS
 CHLORIDES : 28,812 POUNDS

PLANT DESIGN CRITERIA

<u>%</u>	<u>MAX</u>		<u>AVG</u>	<u>%</u>
64.7	11,900,000	GALLONS/DAY	8,500,000	90.60
65.4	14,651	POUNDS/DAY	12,209	78.49
54.7	16,278	POUNDS/DAY	13,565	65.58
53.7	407	POUNDS/DAY	339	64.41
68.3	1,920	POUNDS/DAY	1,600	81.98

FINAL EFFLUENT

<u>MONTHLY AVERAGE</u>	<u>MONTHLY AVG PERMIT LIMIT</u>
FLOW: 4,939,767	
SUSPENDED SOLIDS : 20.48 mg/L	68.3 30 mg/L
SUSPENDED SOLIDS : 790.51 lbs	98.7 801 lbs
cB.O.D. : 8.08 mg/L	32.3 25 mg/L
PHOSPHORUS : 0.39 mg/L	39.1 1 mg/L
AMMONIA-N : 0.27 mg/L	6.1 4.4 mg/L
CHLORIDES : 563.57 mg/L	

FOX ENERGY CENTER PUMPED: 82,840,000 GALLONS

Effluent to Fox Energy
36%

* INCLUDES HAULED WASTE

RAIN GAUGES

DAILY RAINFALL TOTALS

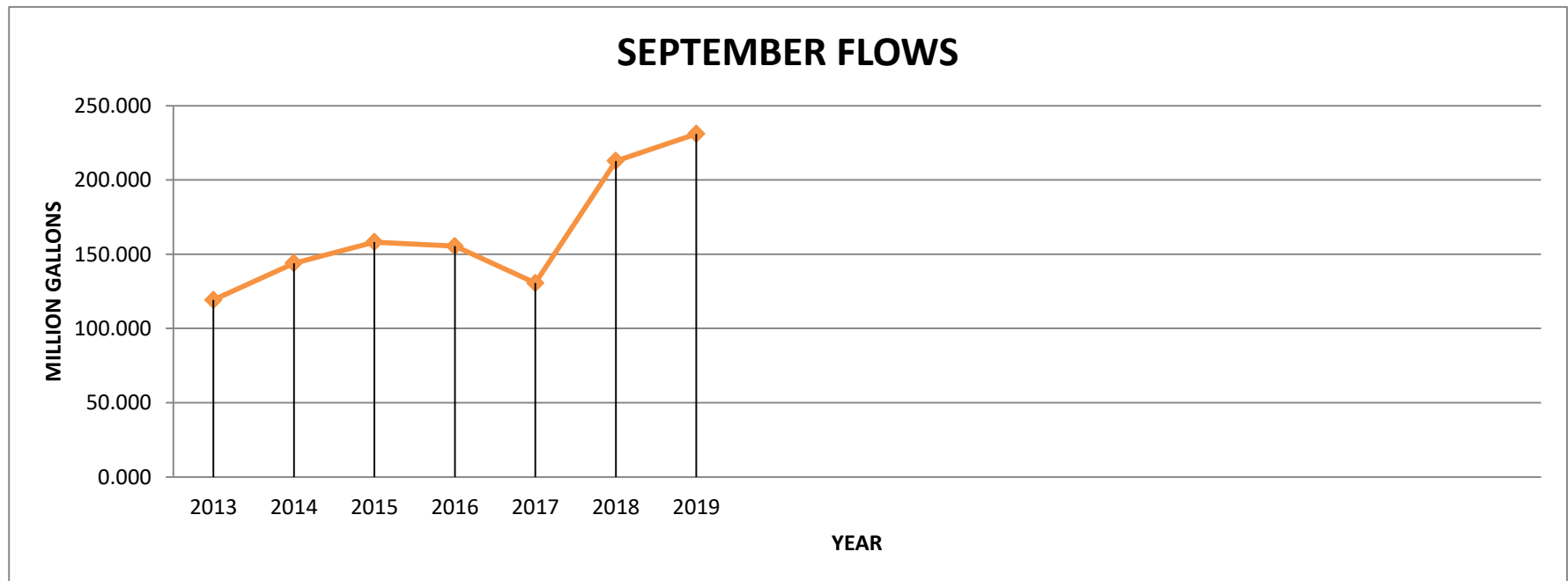
MONTH: SEPTEMBER

YEAR: 2019

<u>DATE</u>	<u>PLANT INCHES</u>	<u>KAUKAUNA INCHES</u>	<u>LITTLE CHUTE INCHES</u>	<u>KIMBERLY INCHES</u>	<u>DARBOY INCHES</u>
1	0.01	Plugged	0.05	0.03	0.00
2	0.01	Plugged	0.00	0.00	0.00
3	0.53	Plugged	0.55	0.53	0.47
4	0.00	Plugged	0.00	0.00	0.00
5	0.09	Plugged	0.08	0.04	0.06
6	0.01	Plugged	0.00	0.00	0.01
7	0.00	Plugged	0.00	0.00	0.00
8	0.00	Plugged	0.01	0.01	0.02
9	0.42	Plugged	0.35	0.31	0.48
10	1.44	Plugged	1.50	1.22	1.19
11	2.21	Plugged	1.48	1.55	2.11
12	0.73	Plugged	0.82	0.97	0.84
13	0.09	Plugged	0.05	0.04	0.03
14	0.00	Plugged	0.00	0.00	0.00
15	0.03	Plugged	0.01	0.00	0.00
16	0.00	Plugged	0.00	0.00	0.00
17	0.01	0.00	0.01	0.00	0.00
18	0.00	0.01	0.00	0.00	0.00
19	0.99	0.69	0.99	0.46	0.60
20	0.01	0.01	0.01	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00
22	0.69	0.68	0.69	0.65	0.68
23	0.02	0.02	0.02	0.01	0.01
24	0.00	0.00	0.00	0.00	0.00
25	0.25	0.21	0.25	0.19	0.21
26	0.00	0.00	0.00	0.00	0.00
27	0.31	0.32	0.31	0.24	0.52
28	0.01	0.00	0.01	0.01	0.00
29	0.15	0.15	0.15	0.13	0.16
30	0.00	0.00	0.00	0.01	0.00
TOTAL:	8.01	2.09	7.34	6.40	7.39

HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

<u>Year</u>	<u>September Flow</u> <u>Million Gallons</u>	<u>Precipitation</u> <u>Inches</u>
2013	119.210	2.31
2014	143.973	2.74
2015	158.179	5.17
2016	155.377	4.57
2017	130.601	1.95
2018	212.799	4.70
2019	231.033	7.29

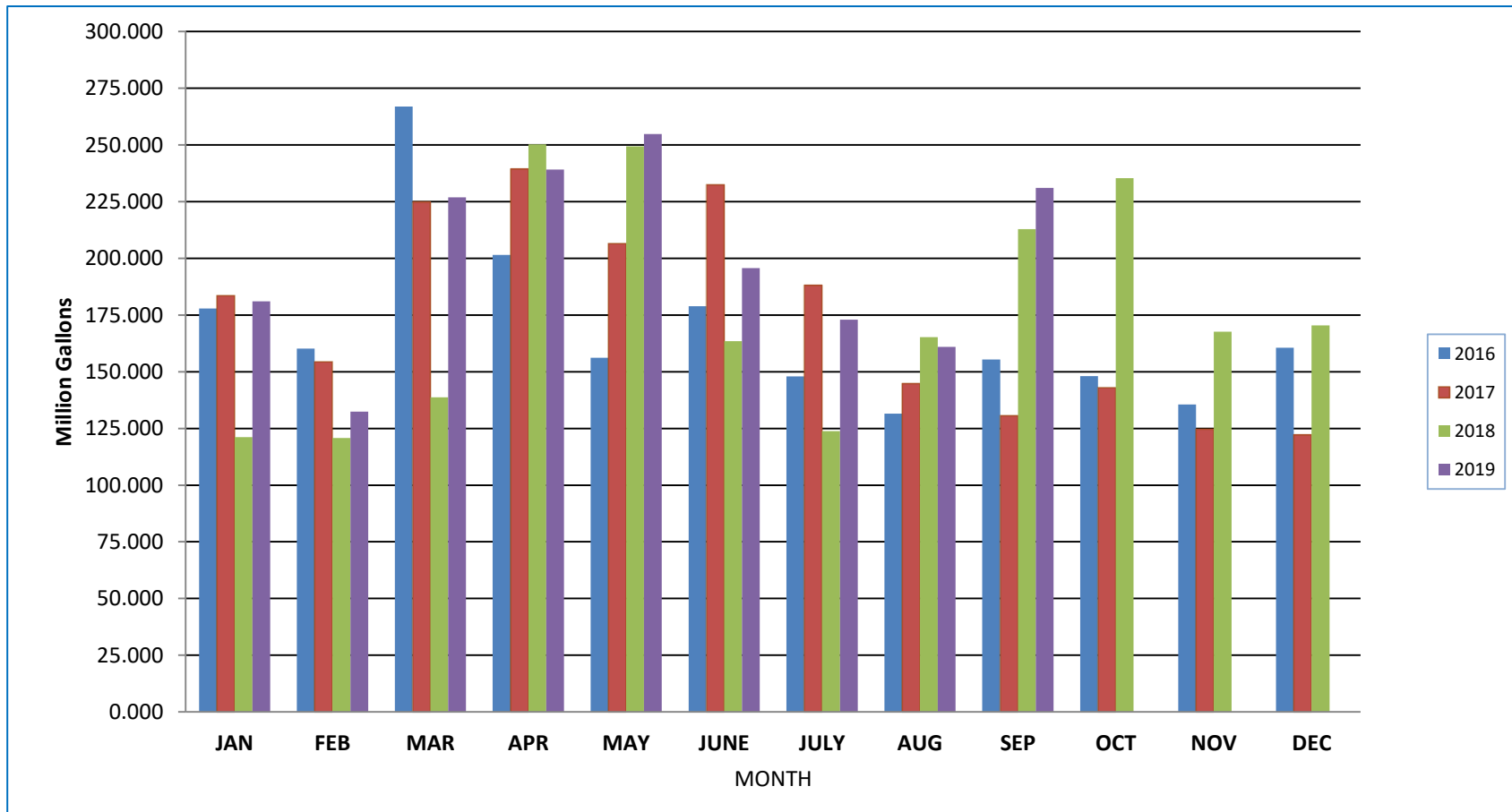


HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
2016	177.906	160.230	266.917	201.541	156.148	178.887	147.968	131.529	155.337	148.008	135.607	160.593
2017	183.493	154.391	224.799	239.329	206.521	232.395	188.142	144.717	130.601	143.016	124.659	122.136
2018	121.122	120.841	138.664	250.232	249.379	163.461	123.780	165.254	212.799	235.273	167.657	170.368
2019	181.037	132.459	226.921	239.147	254.810	195.654	172.916	160.932	231.033			

*** FLOW VOLUMES REPORTED IN MILLION GALLONS ***

MONTHLY FLOW VOLUMES



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

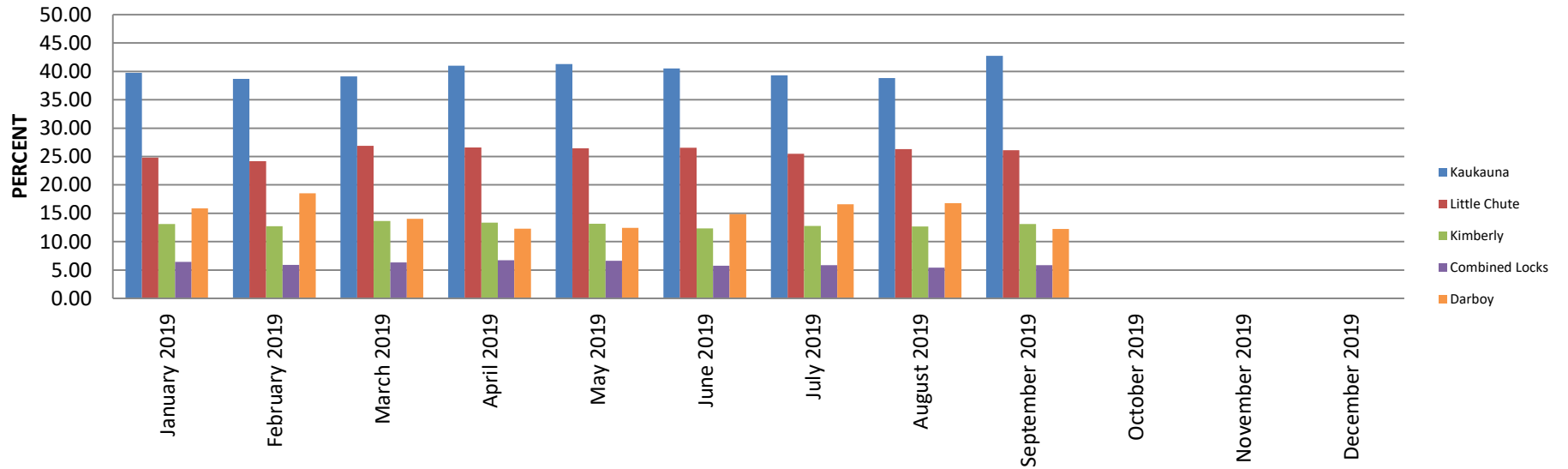
% CONTRIBUTION BY COMMUNITY - FLOW GALLONS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>	<u>Rainfall - Inches</u>
January 2019	39.75	24.79	13.13	6.46	15.87	2.36
February 2019	38.68	24.19	12.71	5.92	18.50	2.81
March 2019	39.12	26.86	13.66	6.34	14.02	1.73
April 2019	41.00	26.61	13.35	6.74	12.31	2.33
May 2019	41.30	26.47	13.17	6.62	12.45	4.55
June 2019	40.49	26.54	12.36	5.77	14.85	3.99
July 2019	39.29	25.49	12.76	5.85	16.61	2.62
August 2019	38.80	26.30	12.67	5.45	16.77	3.76
September 2019	42.73	26.09	13.09	5.86	12.22	7.29
October 2019						
November 2019						
December 2019						

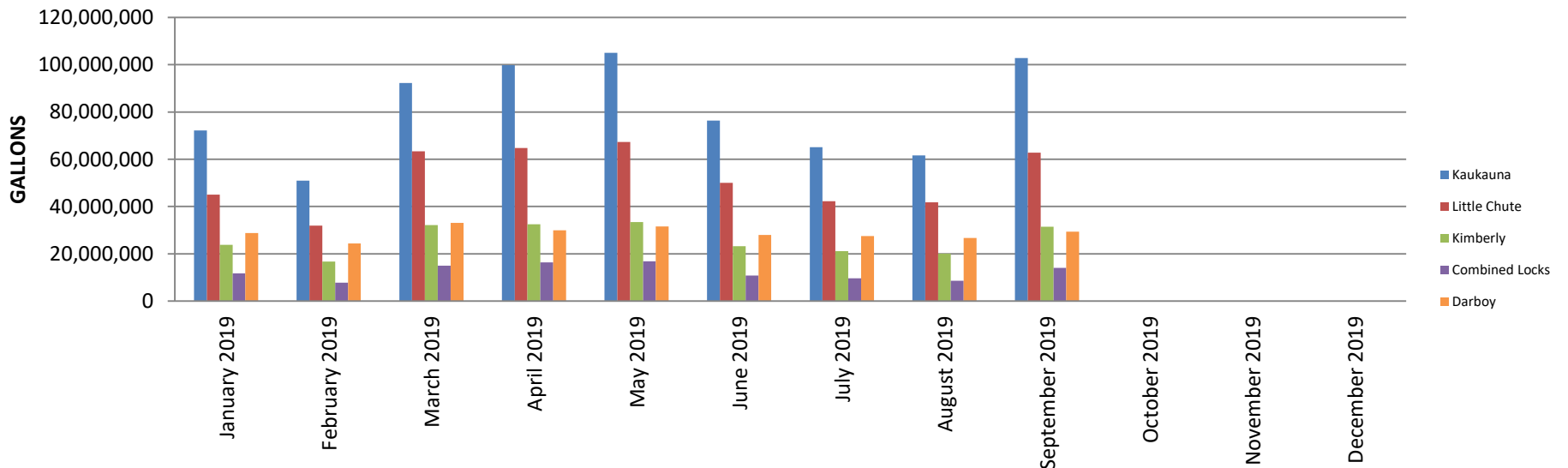
GALLONS CONTRIBUTION BY COMMUNITY - FLOW GALLONS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	72,170,800	45,016,000	23,842,000	11,739,000	28,816,000
February 2019	50,983,600	31,885,000	16,748,000	7,799,000	24,387,000
March 2019	92,260,700	63,337,000	32,212,000	14,955,000	33,073,000
April 2019	99,815,000	64,789,000	32,494,000	16,399,000	29,983,000
May 2019	104,970,300	67,262,000	33,463,000	16,825,000	31,633,000
June 2019	76,308,100	50,010,000	23,288,000	10,869,000	27,976,000
July 2019	65,092,000	42,240,000	21,134,000	9,695,000	27,527,000
August 2019	61,678,300	41,810,000	20,131,000	8,670,000	26,656,000
September 2019	102,794,800	62,770,000	31,490,000	14,100,000	29,398,000
October 2019					
November 2019					
December 2019					

% CONTRIBUTION BY COMMUNITY - FLOW GALLONS



GALLONS CONTRIBUTION BY COMMUNITY - FLOW GALLONS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

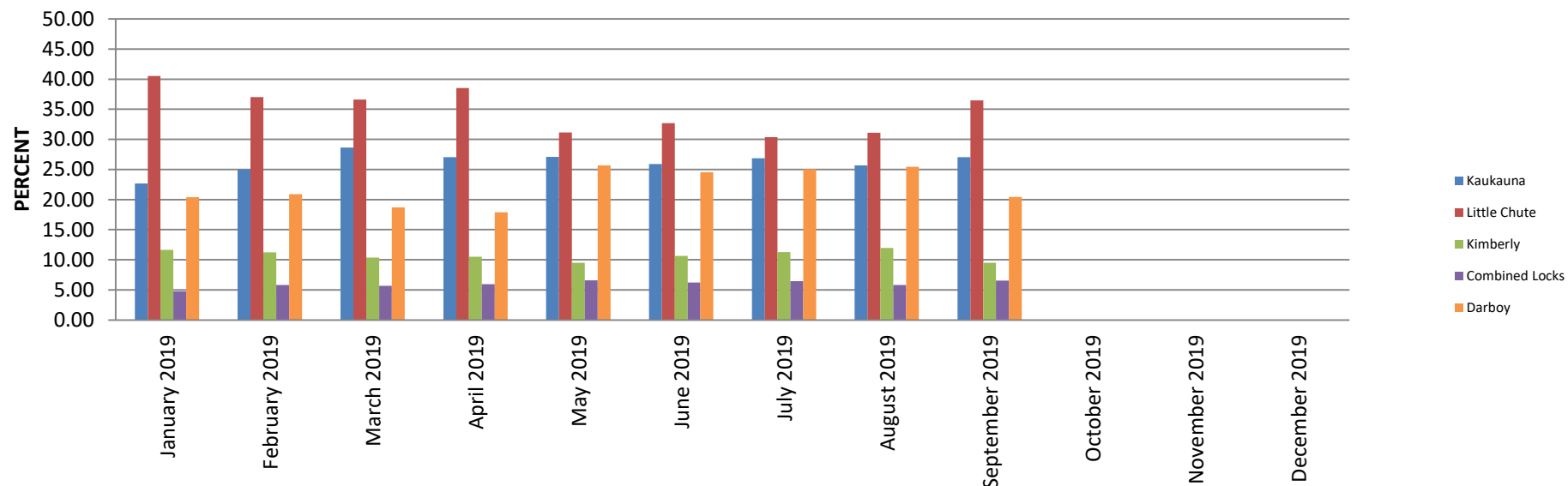
% CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	22.67	40.53	11.65	4.76	20.40
February 2019	25.01	37.02	11.23	5.83	20.91
March 2019	28.63	36.59	10.37	5.69	18.72
April 2019	27.05	38.53	10.53	5.97	17.91
May 2019	27.11	31.13	9.52	6.58	25.66
June 2019	25.92	32.67	10.64	6.24	24.53
July 2019	26.86	30.36	11.27	6.44	25.06
August 2019	25.66	31.11	11.97	5.84	25.43
September 2019	27.05	36.46	9.52	6.53	20.45
October 2019					
November 2019					
December 2019					

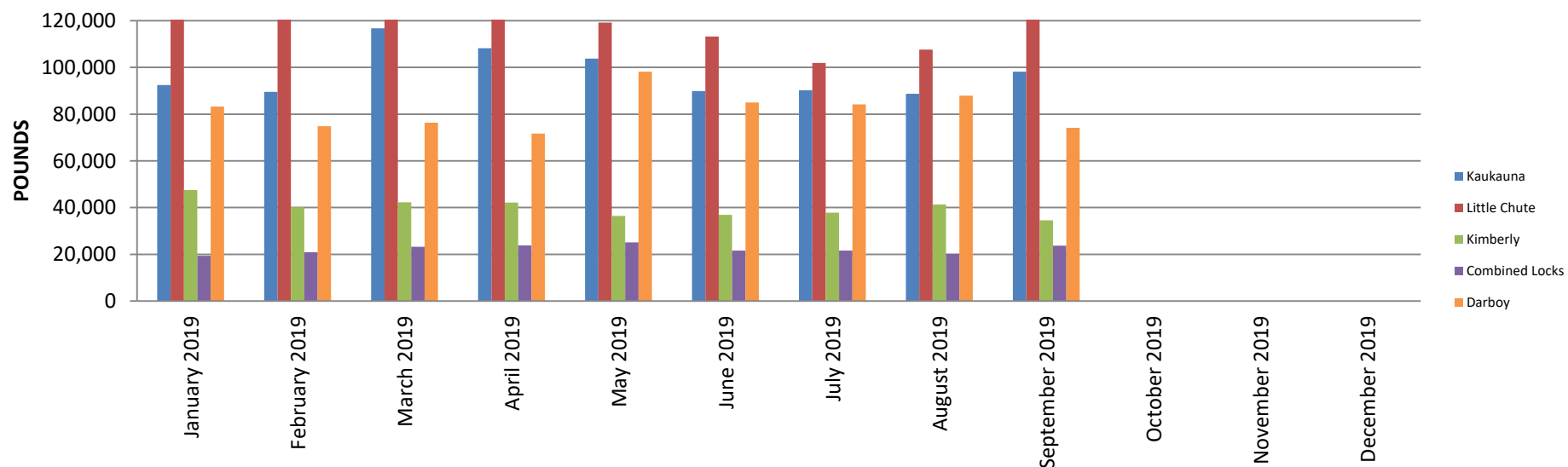
POUNDS CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	92,486	165,332	47,538	19,408	83,208
February 2019	89,525	132,504	40,213	20,875	74,829
March 2019	116,749	149,167	42,286	23,194	76,327
April 2019	108,151	154,017	42,110	23,862	71,616
May 2019	103,723	119,117	36,421	25,165	98,196
June 2019	89,831	113,226	36,885	21,620	84,998
July 2019	90,166	101,913	37,827	21,621	84,127
August 2019	88,692	107,538	41,370	20,204	87,898
September 2019	98,097	132,202	34,523	23,671	74,148
October 2019					
November 2019					
December 2019					

% CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS



POUNDS CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

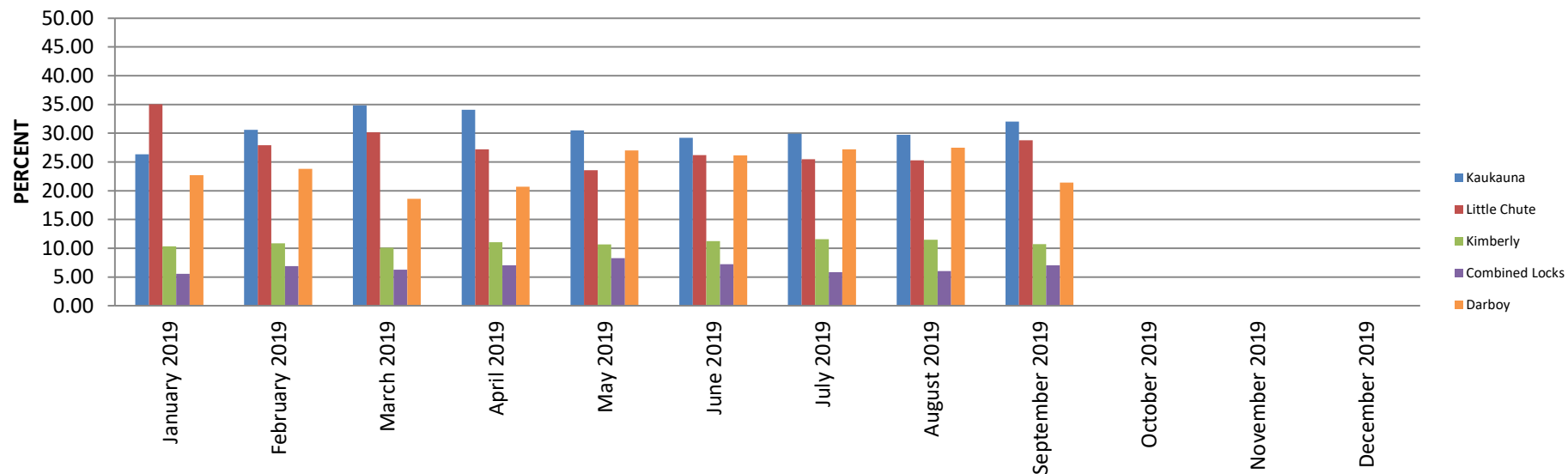
% CONTRIBUTION BY COMMUNITY -TOTAL SUSPENDED SOLIDS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	26.35	35.02	10.33	5.57	22.73
February 2019	30.57	27.90	10.85	6.88	23.80
March 2019	34.85	30.16	10.10	6.29	18.59
April 2019	34.07	27.18	11.04	7.03	20.68
May 2019	30.50	23.56	10.66	8.28	27.00
June 2019	29.21	26.21	11.22	7.22	26.14
July 2019	29.92	25.46	11.59	5.84	27.19
August 2019	29.71	25.30	11.48	6.03	27.48
September 2019	32.04	28.77	10.70	7.06	21.43
October 2019					
November 2019					
December 2019					

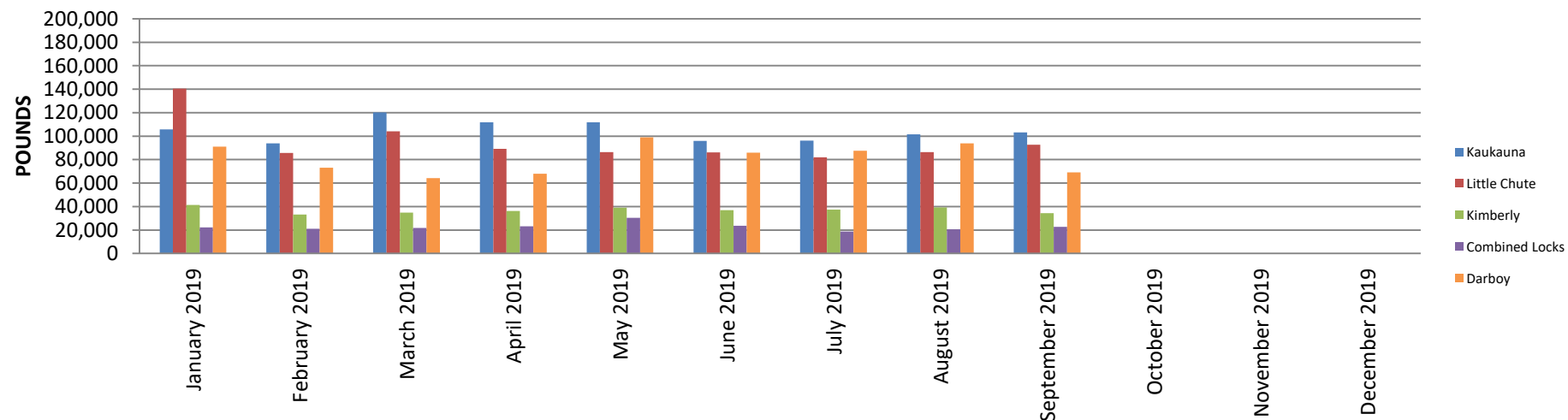
POUNDS CONTRIBUTION BY COMMUNITY - TOTAL SUSPENDED SOLIDS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	105,658	140,432	41,434	22,346	91,142
February 2019	93,784	85,604	33,280	21,109	73,019
March 2019	120,230	104,037	34,856	21,688	64,136
April 2019	111,891	89,253	36,247	23,095	67,901
May 2019	111,721	86,297	39,042	30,345	98,925
June 2019	95,972	86,127	36,870	23,733	85,879
July 2019	96,269	81,939	37,285	18,805	87,478
August 2019	101,520	86,453	39,242	20,605	93,898
September 2019	103,171	92,653	34,474	22,725	69,016
October 2019					
November 2019					
December 2019					

% CONTRIBUTION BY COMMUNITY -TOTAL SUSPENDED SOLIDS POUNDS



POUNDS CONTRIBUTION BY COMMUNITY - TOTAL SUSPENDED SOLIDS POUNDS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

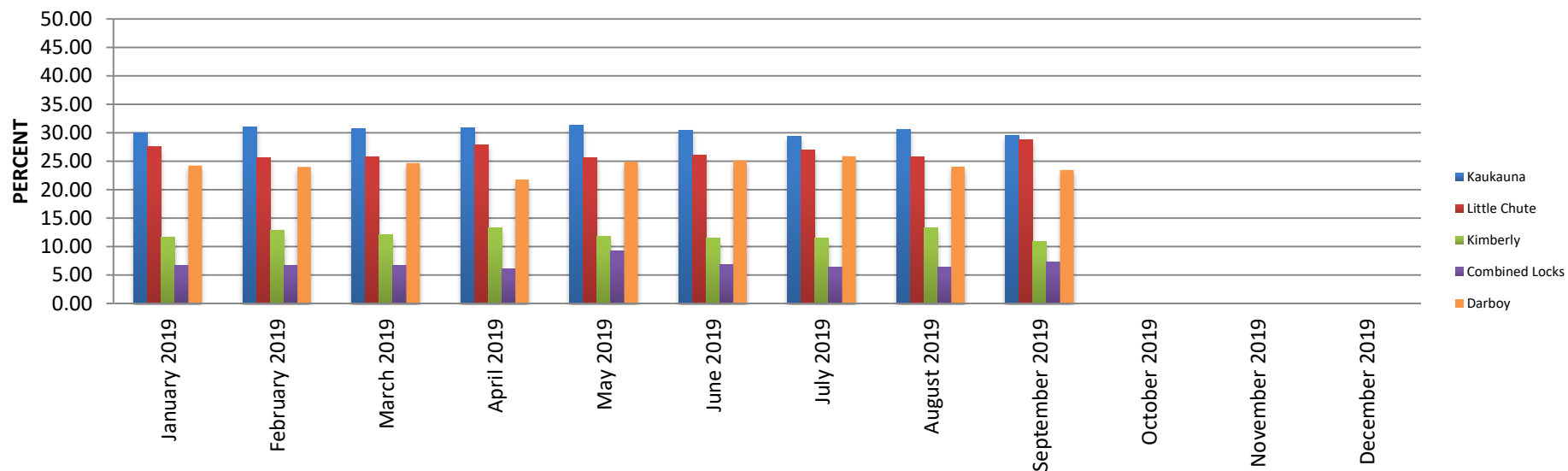
% CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	30.04	27.50	11.59	6.66	24.21
February 2019	30.97	25.56	12.85	6.64	23.98
March 2019	30.71	25.84	12.03	6.73	24.68
April 2019	30.93	27.91	13.26	6.13	21.77
May 2019	31.30	25.61	11.86	9.31	24.91
June 2019	30.46	26.08	11.49	6.83	25.15
July 2019	29.30	26.91	11.53	6.41	25.86
August 2019	30.53	25.72	13.34	6.36	24.05
September 2019	29.59	28.75	10.86	7.34	23.47
October 2019					
November 2019					
December 2019					

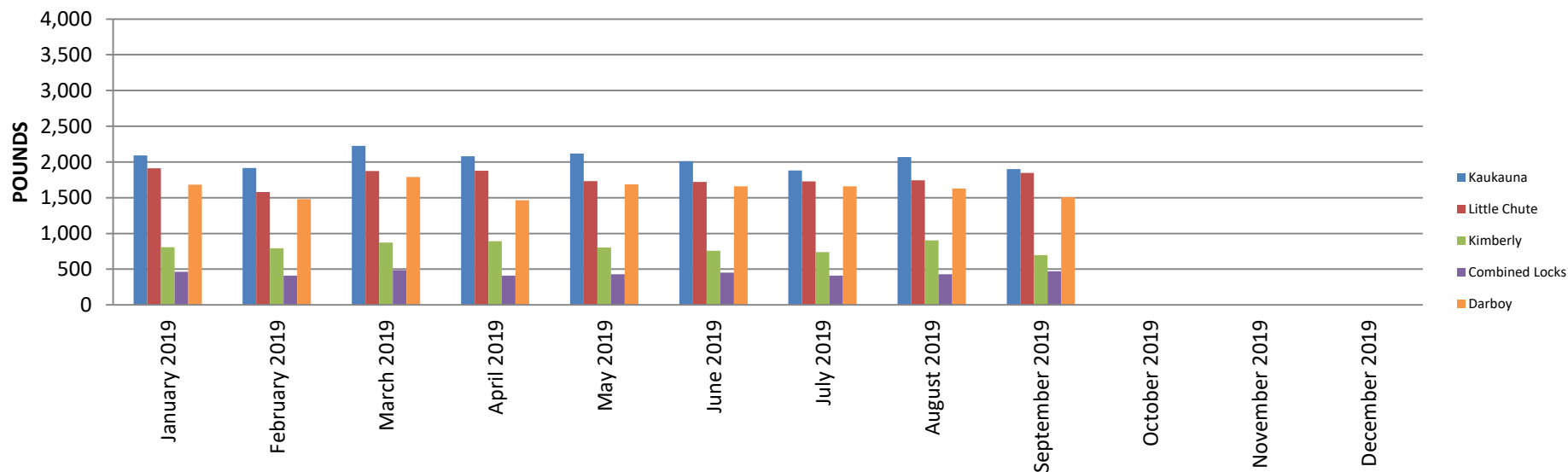
POUNDS CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	2,090	1,913	806	464	1,684
February 2019	1,914	1,579	794	410	1,482
March 2019	2,226	1,873	872	488	1,789
April 2019	2,079	1,876	891	412	1,464
May 2019	2,119	1,734	803	428	1,687
June 2019	2,012	1,722	759	451	1,661
July 2019	1,880	1,727	740	411	1,659
August 2019	2,069	1,743	904	431	1,630
September 2019	1,901	1,847	698	471	1,508
October 2019					
November 2019					
December 2019					

% CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS



POUNDS CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

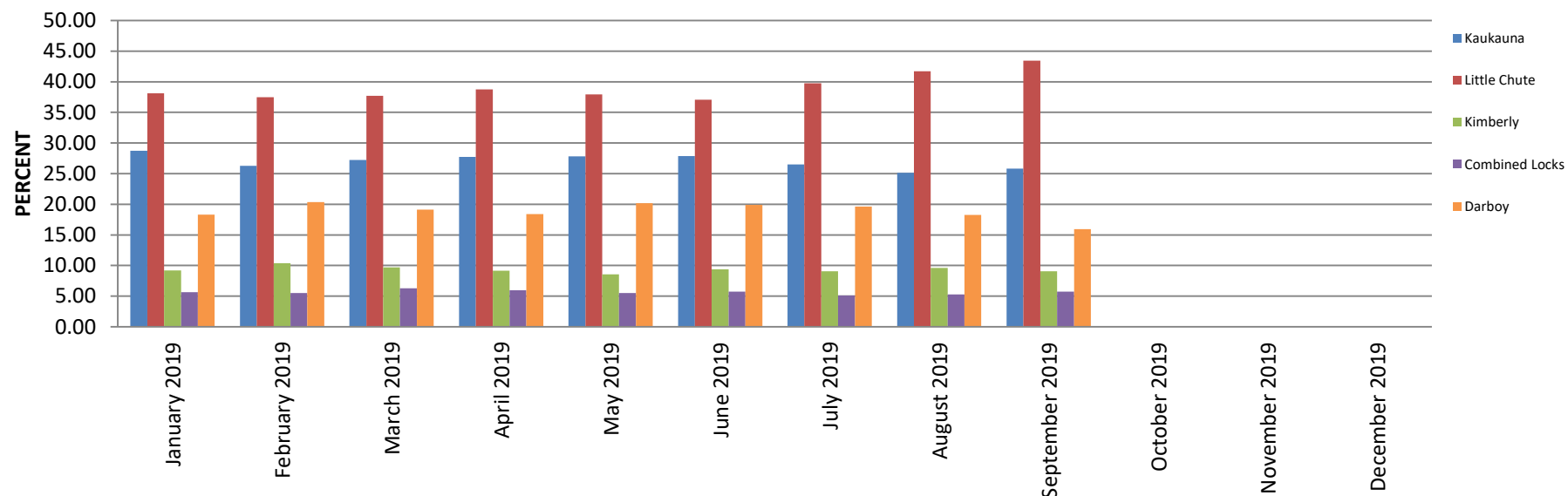
% CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	28.75	38.11	9.20	5.63	18.32
February 2019	26.27	37.48	10.36	5.51	20.37
March 2019	27.21	37.70	9.69	6.28	19.12
April 2019	27.74	38.76	9.15	5.94	18.41
May 2019	27.80	37.95	8.57	5.52	20.15
June 2019	27.87	37.09	9.38	5.75	19.91
July 2019	26.49	39.75	9.04	5.10	19.62
August 2019	25.14	41.70	9.61	5.29	18.26
September 2019	25.84	43.46	9.04	5.72	15.93
October 2019					
November 2019					
December 2019					

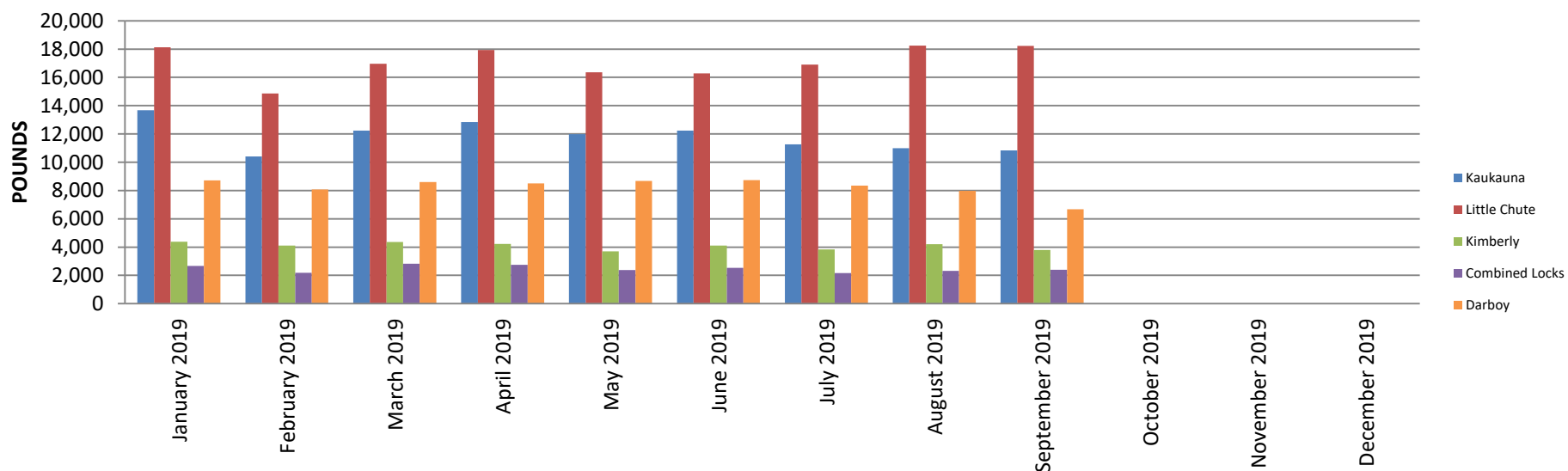
POUNDS CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	13,672	18,124	4,373	2,676	8,712
February 2019	10,415	14,862	4,109	2,185	8,078
March 2019	12,240	16,957	4,356	2,826	8,599
April 2019	12,829	17,923	4,230	2,745	8,512
May 2019	11,981	16,356	3,695	2,380	8,682
June 2019	12,236	16,286	4,117	2,525	8,741
July 2019	11,263	16,903	3,843	2,170	8,342
August 2019	10,994	18,238	4,201	2,312	7,986
September 2019	10,839	18,232	3,792	2,401	6,684
October 2019					
November 2019					
December 2019					

% CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS



POUNDS CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

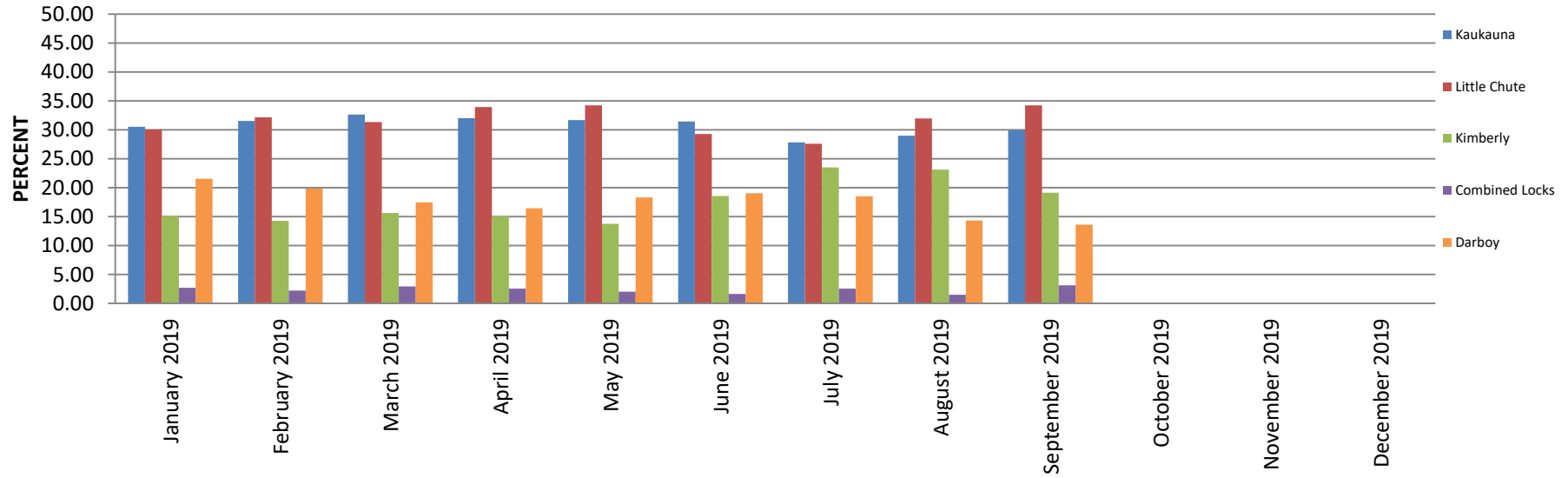
% CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	30.52	30.05	15.22	2.69	21.52
February 2019	31.51	32.14	14.29	2.22	19.85
March 2019	32.63	31.33	15.62	2.97	17.45
April 2019	32.00	33.92	15.07	2.57	16.44
May 2019	31.69	34.20	13.75	2.02	18.34
June 2019	31.43	29.27	18.58	1.66	19.06
July 2019	27.85	27.58	23.53	2.55	18.49
August 2019	29.01	31.98	23.13	1.52	14.35
September 2019	29.90	34.23	19.14	3.14	13.60
October 2019					
November 2019					
December 2019					

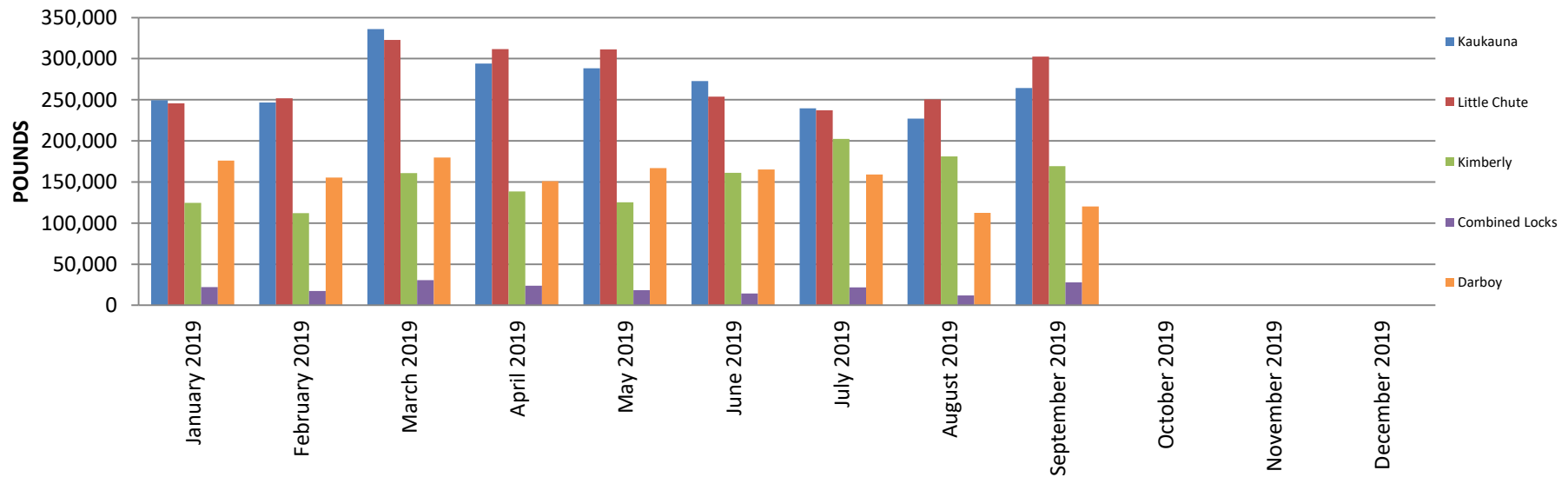
POUNDS CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2019	249,568	245,742	124,501	21,975	176,010
February 2019	246,779	251,752	111,914	17,355	155,435
March 2019	336,109	322,683	160,936	30,569	179,734
April 2019	294,154	311,812	138,570	23,628	151,130
May 2019	288,373	311,234	125,118	18,348	166,852
June 2019	272,623	253,894	161,208	14,421	165,330
July 2019	239,652	237,270	202,468	21,901	159,120
August 2019	227,166	250,413	181,120	11,917	112,324
September 2019	264,186	302,453	169,106	27,711	120,188
October 2019					
November 2019					
December 2019					

% CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

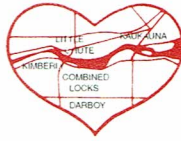


POUNDS CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS



DISTRICT DIRECTOR:

Brian M. Helminger

**COMMISSIONERS:**

David J. Casper, President
 Bruce M. Siebers, Vice-Pres.
 Patrick E. Hennessey, Secretary
 Kevin P. Coffey
 John W. Sundelius

SERVING:

Combined Locks
 Kaukauna
 Kimberly
 Little Chute
 Darboy S.D.

Heart of the Valley**METROPOLITAN SEWERAGE DISTRICT**

801 THILMANY ROAD
 KAUKAUNA, WISCONSIN 54130
 (920) 766-5731 FAX (920) 766-5733
www.hvmsd.org

Facility: Wisconsin Public Service Corporation - Fox Energy Center
 P.O. Box 5651
 Bismarck, ND 58506

Attn: Account # N2310E

Month: September

Year: 2019

Gallons of Final Effluent Purchased (Billing)

<u>Date</u>	<u>Gallons</u>	<u>Date</u>	<u>Gallons</u>
9/1/2019	3,283,000	9/21/2019	3,387,000
9/2/2019	2,094,000	9/22/2019	3,691,000
9/3/2019	3,134,000	9/23/2019	3,572,000
9/4/2019	3,133,000	9/24/2019	3,537,000
9/5/2019	3,264,000	9/25/2019	3,565,000
9/6/2019	3,408,000	9/26/2019	3,443,000
9/7/2019	3,406,000	9/27/2019	2,602,000
9/8/2019	3,128,000	9/28/2019	273,000
9/9/2019	3,064,000	9/29/2019	0
9/10/2019	2,673,000	9/30/2019	0
9/11/2019	2,611,000		
9/12/2019	2,808,000		
9/13/2019	2,810,000		
9/14/2019	2,642,000	Total:	82,840,000
9/15/2019	2,562,000		
9/16/2019	2,579,000		
9/17/2019	2,922,000		
9/18/2019	2,970,000		
9/19/2019	3,033,000		
9/20/2019	3,246,000		

Facility: Wisconsin Public Service Corporation - Fox Energy Center
P.O. Box 5651
Bismarck, ND 58506

Attn: Account # N2310E

MONTHLY BILLING

Month: September

Year: 2019

GALLONS PURCHASED: 82,840,000

BILLING RATE: \$0.1559218 PER 1000 GALLONS

TOTAL AMOUNT DUE: \$12,916.56

**Heart of the Valley
Metropolitan Sewerage District**

**Fox Energy Revenue
From the Sale of Final Effluent**

2019

Final Effluent Sent to Fox Energy Facility

Gallons: 720,560,000

Charge Per 1000 Gallons: \$0.1559218 Per 1000 Gallons

Sale of Final Effluent (Revenue Collected): \$112,351.01