

FLOW AND STRENGTH PROJECTIONS

MONTH: December 2018

	<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)	189,412,217	170,179,600	-19,232,617	\$ 150,772.12	\$ 135,462.96	\$ (15,309.16)
B.O.D. (#s)	297,140	384,140	87,000	\$ 77,850.68	\$ 100,644.68	\$ 22,794.00
S. SOLIDS (#s)	328,353	343,572	15,219	\$ 87,341.90	\$ 91,390.15	\$ 4,048.25
PHOSPHORUS (#s)	6,770	7,035	265	\$ 42,583.30	\$ 44,250.15	\$ 1,666.85
AMMONIA-N (#s)	40,364	45,721	5,357	\$ 60,505.64	\$ 68,535.78	\$ 8,030.14
CHLORIDES (#s)	687,917	725,935	38,018	\$ 3,439.59	\$ 3,629.68	\$ 190.09
			TOTAL:	\$ 422,493.22	\$ 443,913.40	\$ 21,420.17

(THRU DECEMBER 2018)

PROJECTED FOR 2018

	<u>END OF YEAR PROJECTED</u>	<u>YEAR TO DATE SURPLUS/ DEFICIT</u>	<u>YEAR TO DATE SURPLUS/ DEFICIT \$\$</u>
FLOW (GALLONS)	1,947,278,400	158,824,610	\$ 126,424.39
B.O.D. (#s)	3,292,724	896,452	\$ 234,870.43
S. SOLIDS (#s)	3,957,399	-26,988	\$ (7,178.94)
PHOSPHORUS (#s)	83,650	-5,749	\$ (36,158.51)
AMMONIA-N (#s)	464,411	42,169	\$ 63,210.93
CHLORIDES (#s)	7,768,031	741,221	\$ 3,706.10
		TOTAL:	\$ 384,874.41

HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

MONTH: DECEMBER 2018

HYDRAULIC AND ORGANIC LOADINGS DATA

INFLUENT*

TOTAL FLOW TO PLANT: 170,368,000 GALLONS
 AVERAGE B.O.D. : 226 mg/L
 AVERAGE SUSPENDED SOLIDS : 191 mg/L
 AVERAGE PHOSPHORUS : 4.74 mg/L
 AVERAGE AMMONIA-N : 22.26 mg/L
 AVERAGE CHLORIDES : 518.46 mg/L

MAXIMUM DAILY FLOW TO PLANT: 7,433,000

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	38.67	25.22	28.78	29.66	28.28	32.24
LITTLE CHUTE	24.19	35.96	31.07	27.50	36.35	31.48
KIMBERLY	13.76	10.88	12.44	12.24	9.71	16.36
COMBINED LOCKS	6.38	5.48	5.71	6.26	5.70	1.91
DARBOY	17.00	22.46	22.01	24.34	19.96	18.01

AVERAGE DAILY INFLUENT LOADINGS

FLOW : 5,495,742 GALLONS
 B.O.D. : 10,372 POUNDS
 SUSPENDED SOLIDS : 8,765 POUNDS
 PHOSPHORUS : 217 POUNDS
 AMMONIA-N : 1,020 POUNDS
 CHLORIDES : 23,763 POUNDS

PLANT DESIGN CRITERIA

<u>%</u>	<u>MAX</u>		<u>AVG</u>	<u>%</u>
46.2	11,900,000	GALLONS/DAY	8,500,000	64.66
70.8	14,651	POUNDS/DAY	12,209	84.95
53.8	16,278	POUNDS/DAY	13,565	64.61
53.4	407	POUNDS/DAY	339	64.08
53.1	1,920	POUNDS/DAY	1,600	63.76

FINAL EFFLUENT

<u>MONTHLY AVERAGE</u>	<u>MONTHLY AVG PERMIT LIMIT</u>
FLOW: 3,538,161	
SUSPENDED SOLIDS : 11.17 mg/L	37.2 30 mg/L
SUSPENDED SOLIDS : 321.08 lbs	40.1 801 lbs
cB.O.D. : 4.16 mg/L	16.6 25 mg/L
PHOSPHORUS : 0.23 mg/L	23.1 1 mg/L
AMMONIA-N : 0.38 mg/L	2.1 18 mg/L
CHLORIDES : 546.15 mg/L	

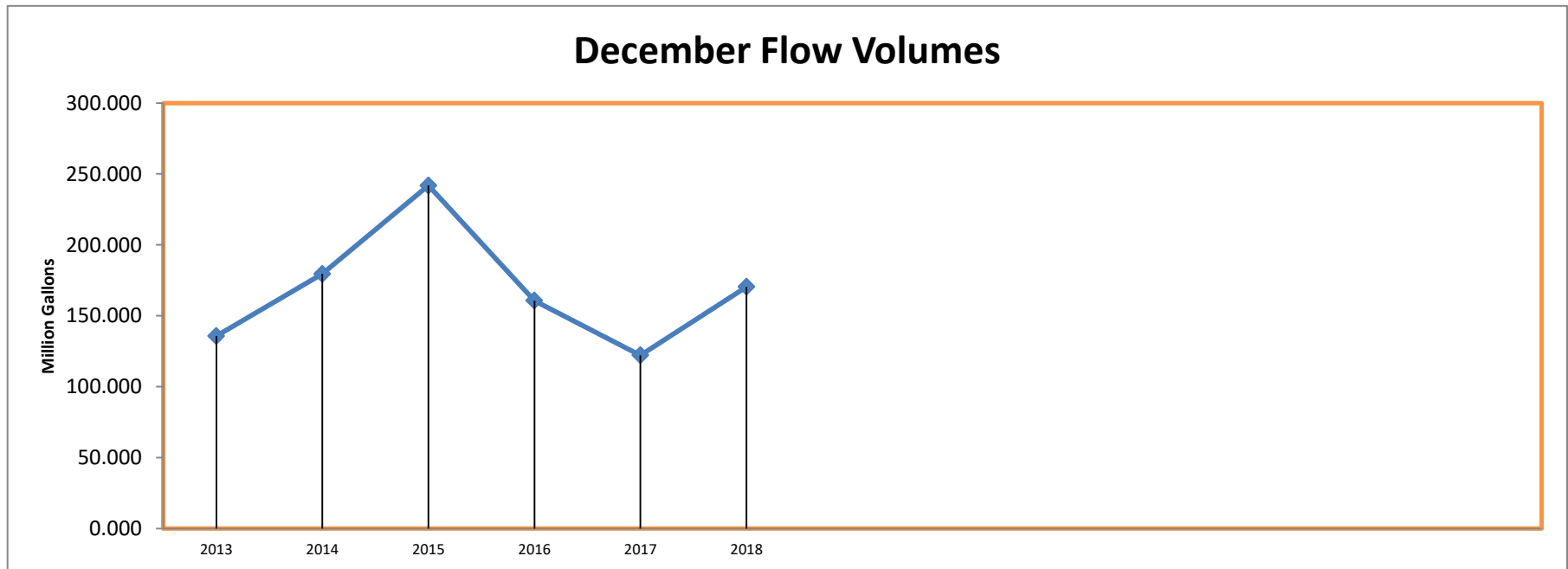
FOX ENERGY CENTER PUMPED: 60,685,000 GALLONS

Effluent to Fox Energy
36%

* INCLUDES HAULED WASTE

HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

<u>Year</u>	<u>December Flow</u> <u>Million Gallons</u>	<u>Precipitation</u> <u>Inches</u>
2013	135.674	1.16
2014	179.535	1.68
2015	241.853	4.24
2016	160.593	0.27
2017	122.136	0.32
2018	170.368	1.34

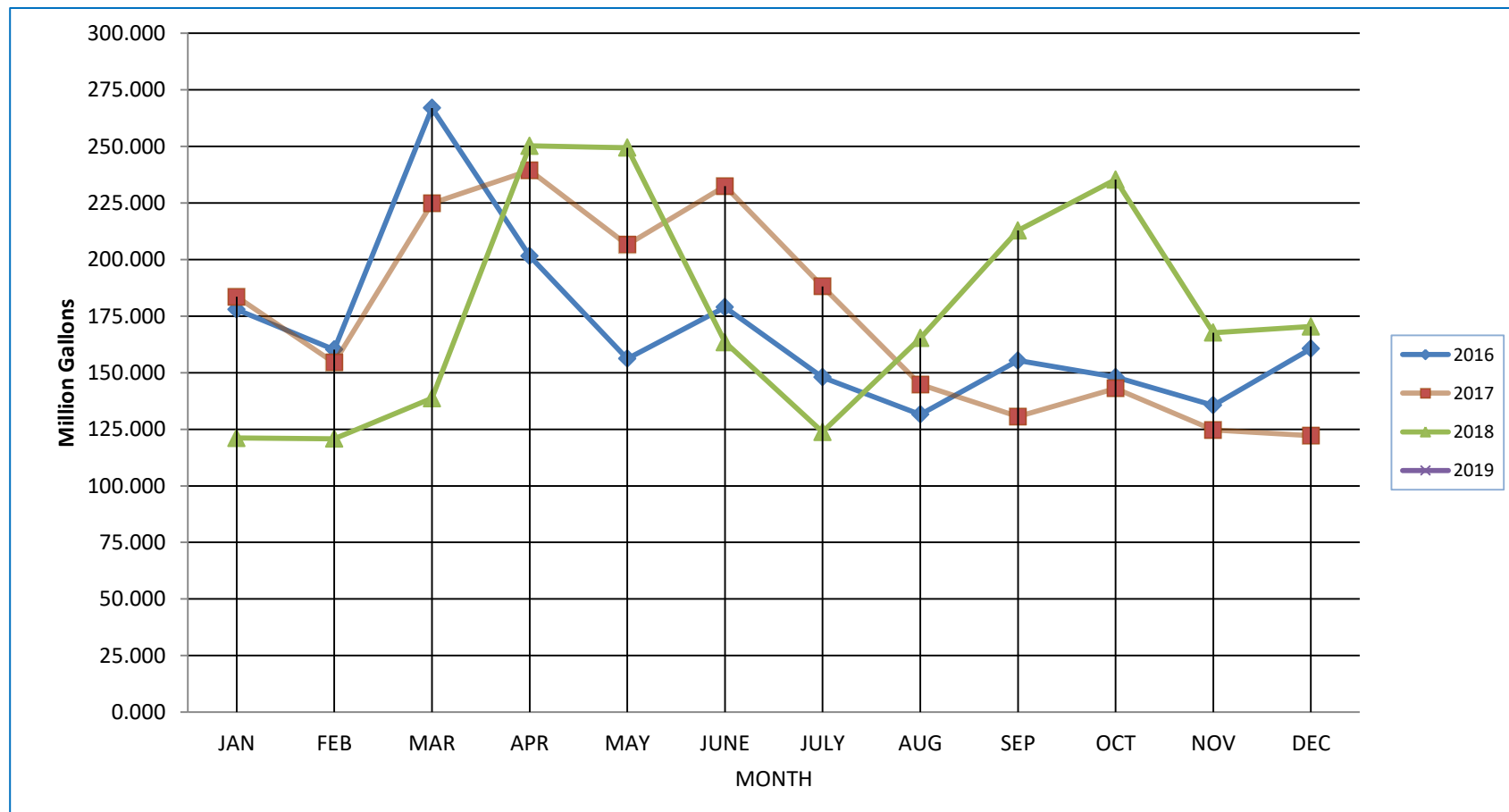


HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

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

MONTHLY FLOW VOLUMES



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

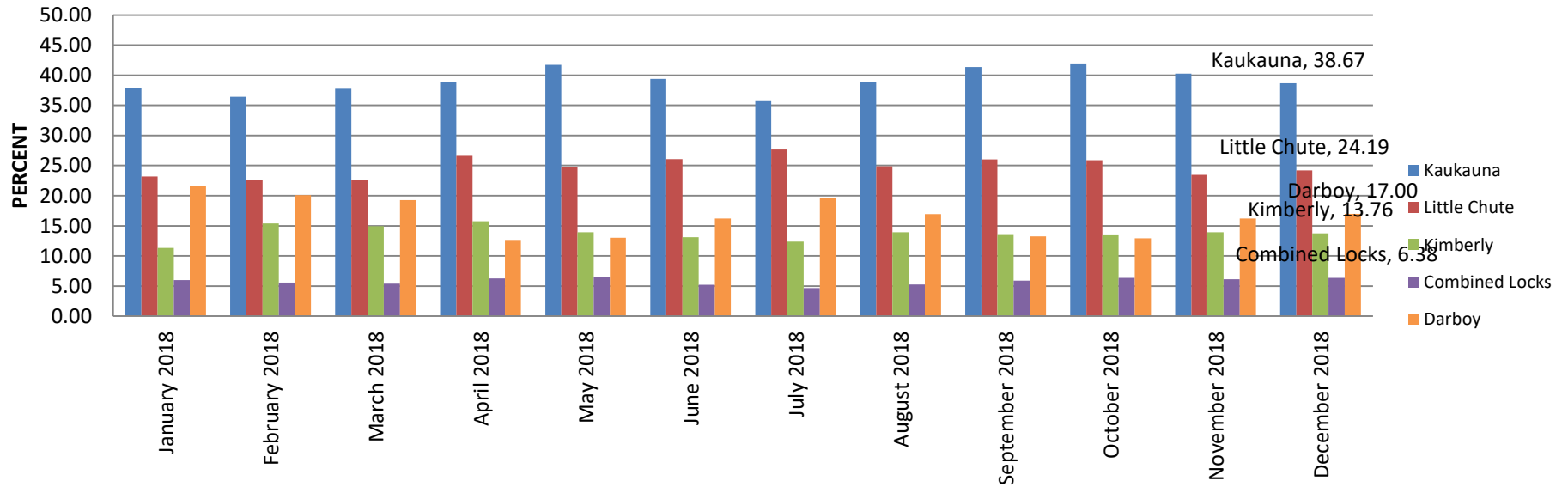
% CONTRIBUTION BY COMMUNITY - FLOW GALLONS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>	<u>Rainfall - Inches</u>
January 2018	37.87	23.18	11.32	5.97	21.65	0.60
February 2018	36.41	22.54	15.39	5.58	20.08	0.00
March 2018	37.77	22.61	14.95	5.41	19.26	0.63
April 2018	38.85	26.62	15.77	6.25	12.51	1.02
May 2018	41.70	24.77	13.94	6.55	13.04	3.71
June 2018	39.39	26.07	13.11	5.20	16.23	3.65
July 2018	35.70	27.67	12.37	4.68	19.59	2.44
August 2018	38.93	24.90	13.95	5.28	16.94	6.44
September 2018	41.37	26.02	13.49	5.88	13.23	4.70
October 2018	41.93	25.91	13.42	6.35	12.93	4.17
November 2018	40.28	23.47	13.93	6.13	16.20	1.04
December 2018	38.67	24.19	13.76	6.38	17.00	1.34

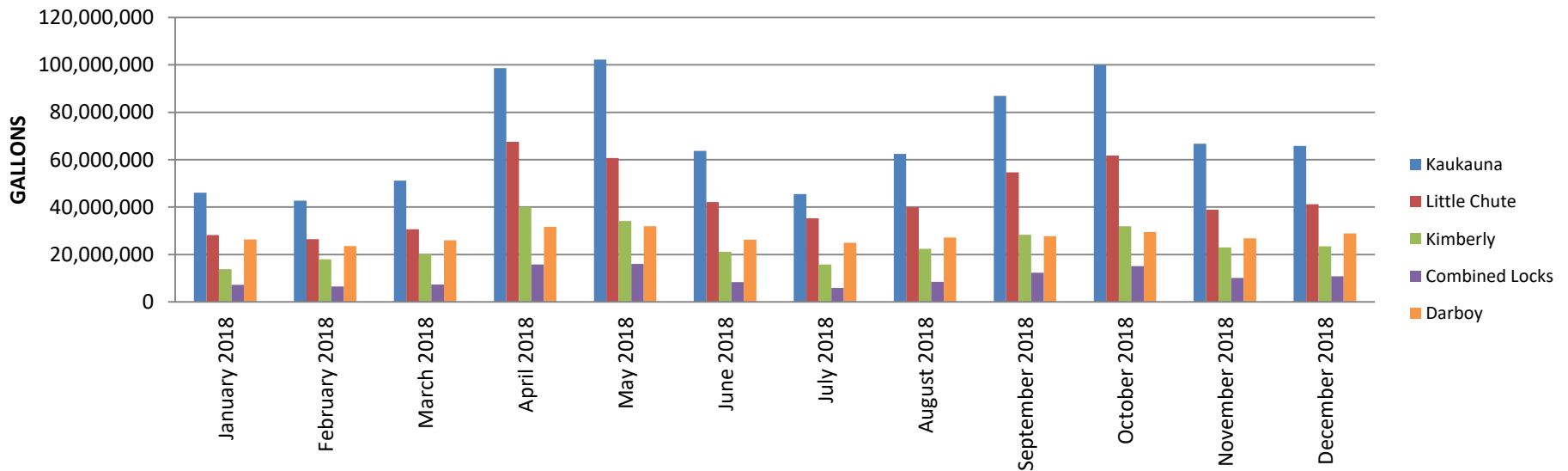
GALLONS CONTRIBUTION BY COMMUNITY - FLOW GALLONS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	46,099,140	28,215,000	13,781,000	7,268,000	26,355,000
February 2018	42,761,360	26,468,000	18,068,000	6,547,000	23,585,000
March 2018	51,131,810	30,606,000	20,240,000	7,321,000	26,073,000
April 2018	98,618,990	67,582,000	40,021,000	15,865,000	31,749,000
May 2018	102,220,860	60,725,000	34,166,000	16,054,000	31,969,000
June 2018	63,660,910	42,128,000	21,184,000	8,401,000	26,232,000
July 2018	45,523,710	35,284,000	15,781,000	5,967,000	24,978,000
August 2018	62,456,710	39,947,000	22,371,000	8,476,000	27,168,000
September 2018	86,904,020	54,664,000	28,341,000	12,348,000	27,793,000
October 2018	99,909,400	61,744,000	31,980,000	15,128,000	29,522,000
November 2018	66,679,500	38,845,000	23,056,000	10,143,000	26,820,000
December 2018	65,815,600	41,160,000	23,418,000	10,861,000	28,925,000

% CONTRIBUTION BY COMMUNITY - FLOW GALLONS



GALLONS CONTRIBUTION BY COMMUNITY - FLOW GALLONS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

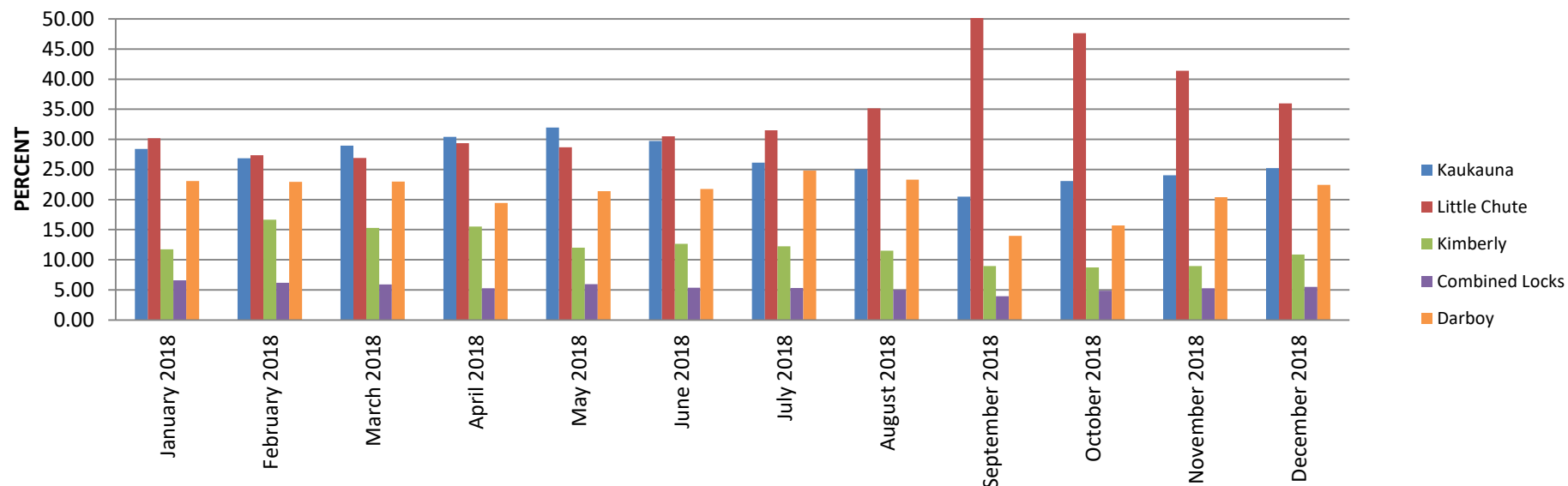
% CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	28.42	30.18	11.73	6.60	23.07
February 2018	26.85	27.36	16.67	6.19	22.93
March 2018	28.94	26.89	15.29	5.90	22.98
April 2018	30.40	29.35	15.53	5.29	19.42
May 2018	31.97	28.68	12.00	5.94	21.41
June 2018	29.73	30.49	12.63	5.38	21.77
July 2018	26.11	31.51	12.26	5.33	24.79
August 2018	25.03	35.15	11.52	4.98	23.31
September 2018	20.47	52.63	8.97	3.95	13.98
October 2018	23.07	47.65	8.74	4.84	15.70
November 2018	24.02	41.38	8.97	5.25	20.38
December 2018	25.22	35.96	10.88	5.48	22.46

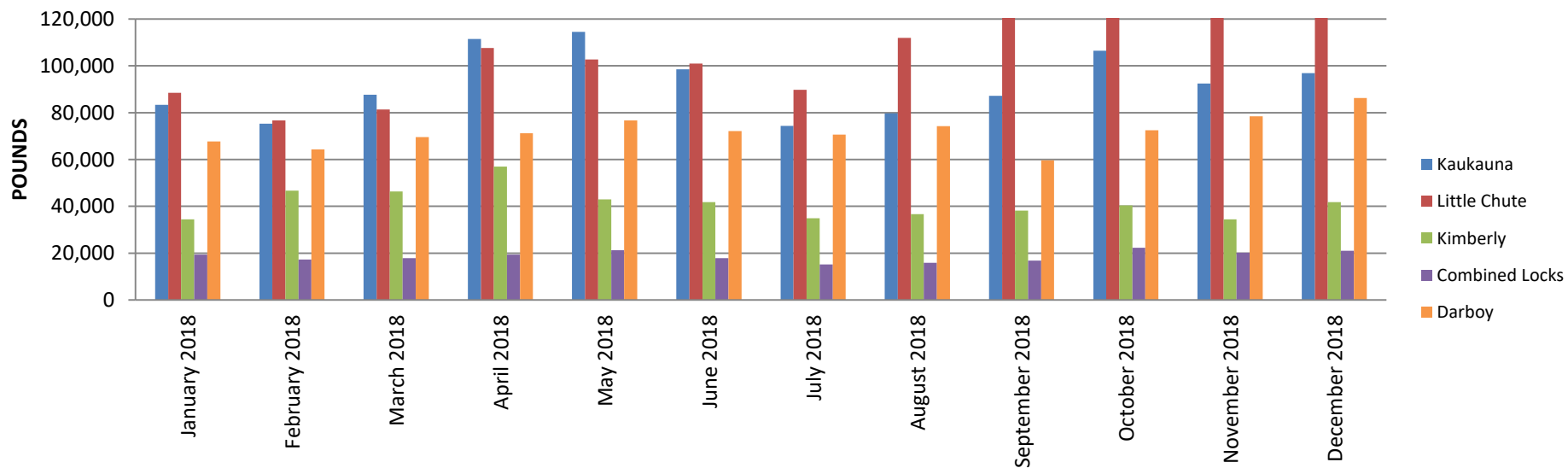
POUNDS CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	83,358	88,512	34,420	19,362	67,661
February 2018	75,247	76,661	46,699	17,352	64,259
March 2018	87,606	81,400	46,292	17,857	69,552
April 2018	111,405	107,553	56,921	19,377	71,170
May 2018	114,432	102,670	42,942	21,259	76,640
June 2018	98,473	100,978	41,828	17,830	72,107
July 2018	74,358	89,754	34,920	15,193	70,598
August 2018	79,674	111,866	36,668	15,864	74,186
September 2018	87,216	224,275	38,238	16,848	59,593
October 2018	106,475	219,866	40,349	22,327	72,426
November 2018	92,374	159,165	34,508	20,193	78,389
December 2018	96,877	138,119	41,812	21,040	86,293
		1500818.02			

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



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



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

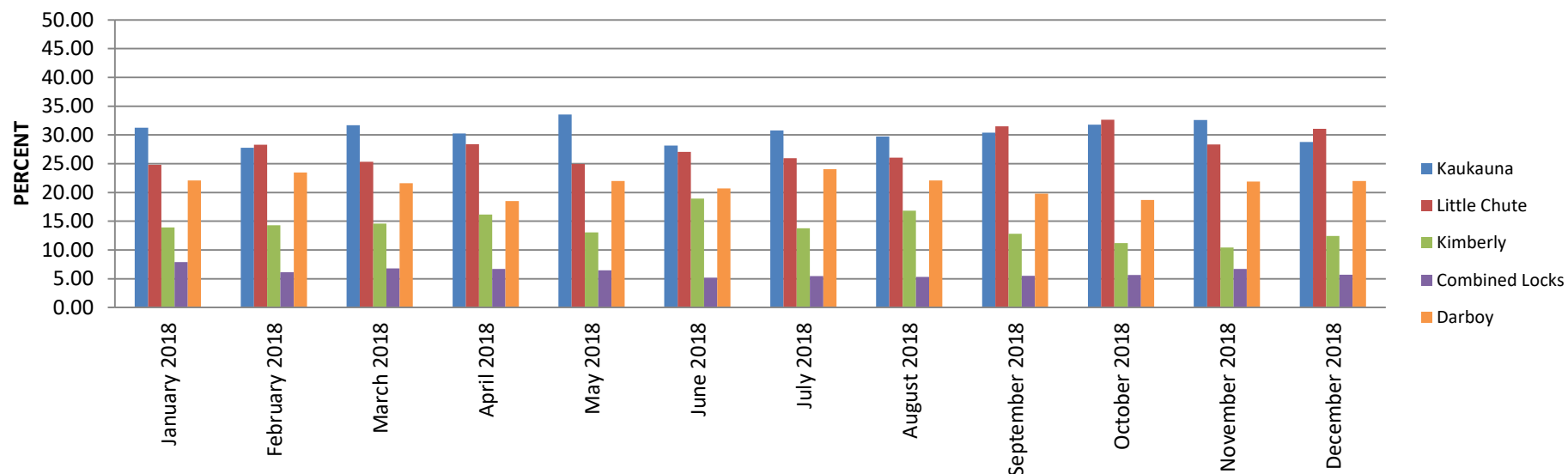
% CONTRIBUTION BY COMMUNITY -TOTAL SUSPENDED SOLIDS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	31.24	24.81	13.94	7.91	22.10
February 2018	27.78	28.30	14.32	6.15	23.45
March 2018	31.67	25.34	14.58	6.82	21.59
April 2018	30.25	28.41	16.15	6.69	18.50
May 2018	33.55	24.96	13.05	6.47	21.97
June 2018	28.17	27.07	18.93	5.16	20.68
July 2018	30.76	25.97	13.75	5.48	24.04
August 2018	29.74	26.07	16.81	5.32	22.07
September 2018	30.40	31.49	12.81	5.51	19.79
October 2018	31.78	32.66	11.20	5.66	18.70
November 2018	32.60	28.35	10.45	6.71	21.89
December 2018	28.78	31.07	12.44	5.71	22.01

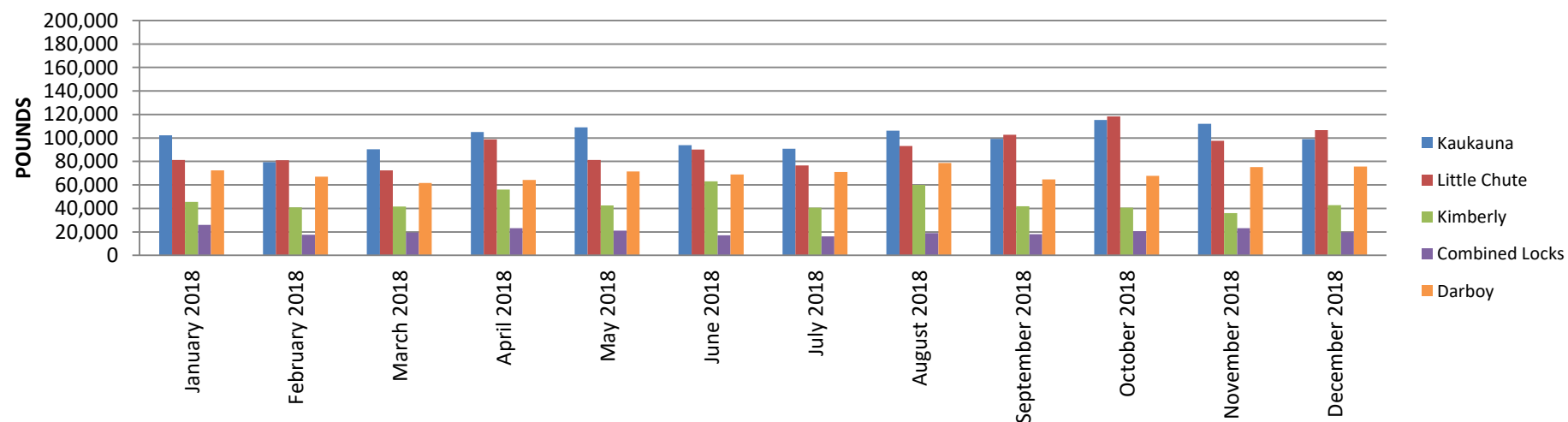
POUNDS CONTRIBUTION BY COMMUNITY - TOTAL SUSPENDED SOLIDS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	102,297	81,227	45,639	25,895	72,372
February 2018	79,448	80,940	40,972	17,598	67,074
March 2018	90,343	72,301	41,602	19,470	61,582
April 2018	105,064	98,675	56,092	23,255	64,262
May 2018	109,090	81,176	42,441	21,055	71,429
June 2018	93,869	90,208	63,100	17,186	68,913
July 2018	90,741	76,621	40,576	16,162	70,940
August 2018	106,145	93,046	60,001	18,994	78,778
September 2018	99,219	102,754	41,794	17,984	64,599
October 2018	115,180	118,374	40,580	20,525	67,761
November 2018	112,079	97,463	35,911	23,085	75,260
December 2018	98,878	106,752	42,729	19,601	75,612

% CONTRIBUTION BY COMMUNITY -TOTAL SUSPENDED SOLIDS POUNDS



POUNDS CONTRIBUTION BY COMMUNITY - TOTAL SUSPENDED SOLIDS POUNDS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

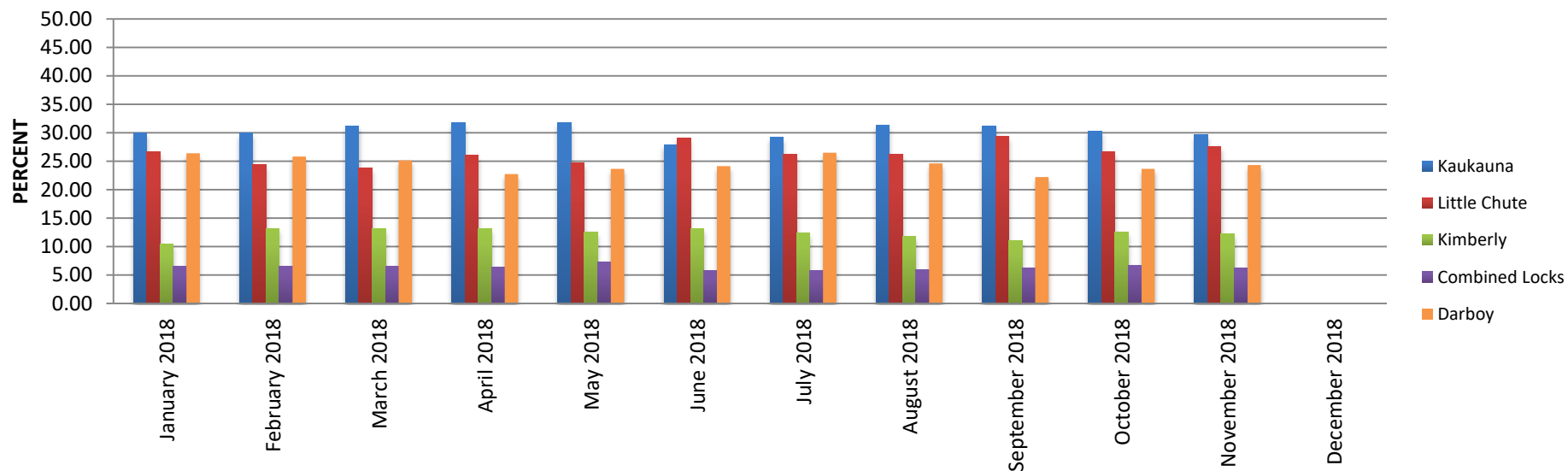
% CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	29.96	26.61	10.44	6.60	26.40
February 2018	29.98	24.42	13.22	6.58	25.80
March 2018	31.22	23.87	13.16	6.59	25.16
April 2018	31.70	26.02	13.19	6.36	22.73
May 2018	31.84	24.70	12.59	7.24	23.63
June 2018	27.89	29.06	13.08	5.83	24.13
July 2018	29.21	26.19	12.33	5.78	26.50
August 2018	31.37	26.28	11.75	5.99	24.61
September 2018	31.11	29.41	11.02	6.27	22.19
October 2018	30.34	26.69	12.56	6.76	23.65
November 2018	29.66	27.50	12.24	6.26	24.34
December 2018					

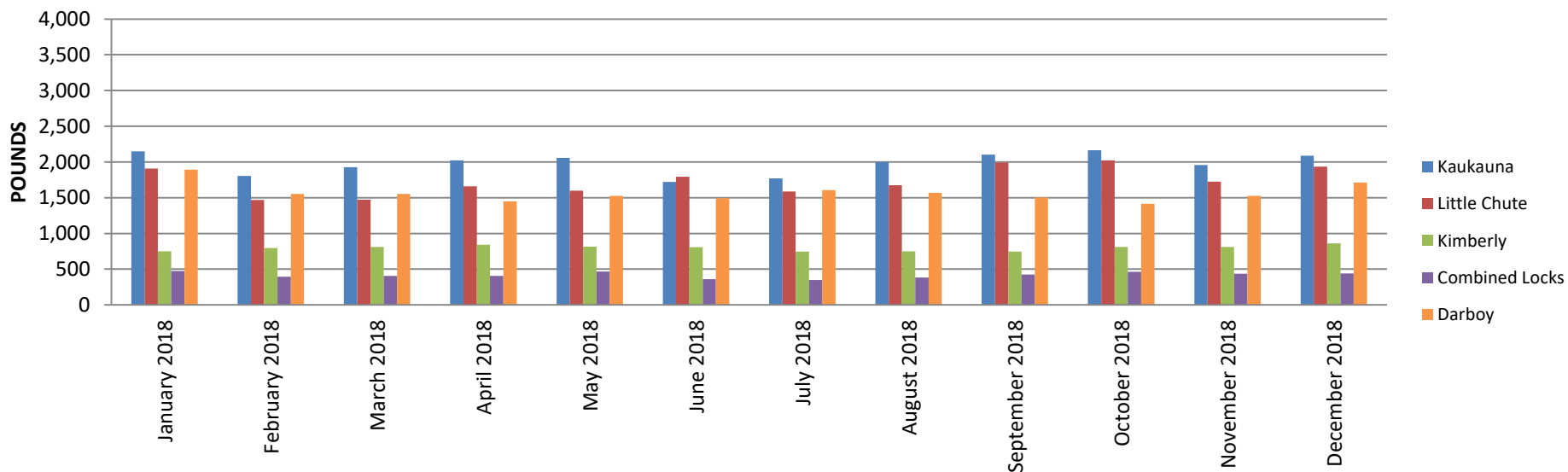
POUNDS CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	2,150	1,910	749	474	1,895
February 2018	1,805	1,470	796	396	1,553
March 2018	1,927	1,474	812	407	1,553
April 2018	2,021	1,659	841	406	1,449
May 2018	2,058	1,597	814	468	1,527
June 2018	1,722	1,794	808	360	1,490
July 2018	1,771	1,588	747	350	1,606
August 2018	2,000	1,675	749	382	1,569
September 2018	2,105	1,991	746	424	1,502
October 2018	2,164	2,024	811	465	1,414
November 2018	1,958	1,723	811	437	1,526
December 2018	2,086	1,935	861	441	1,712

% CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS



POUNDS CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

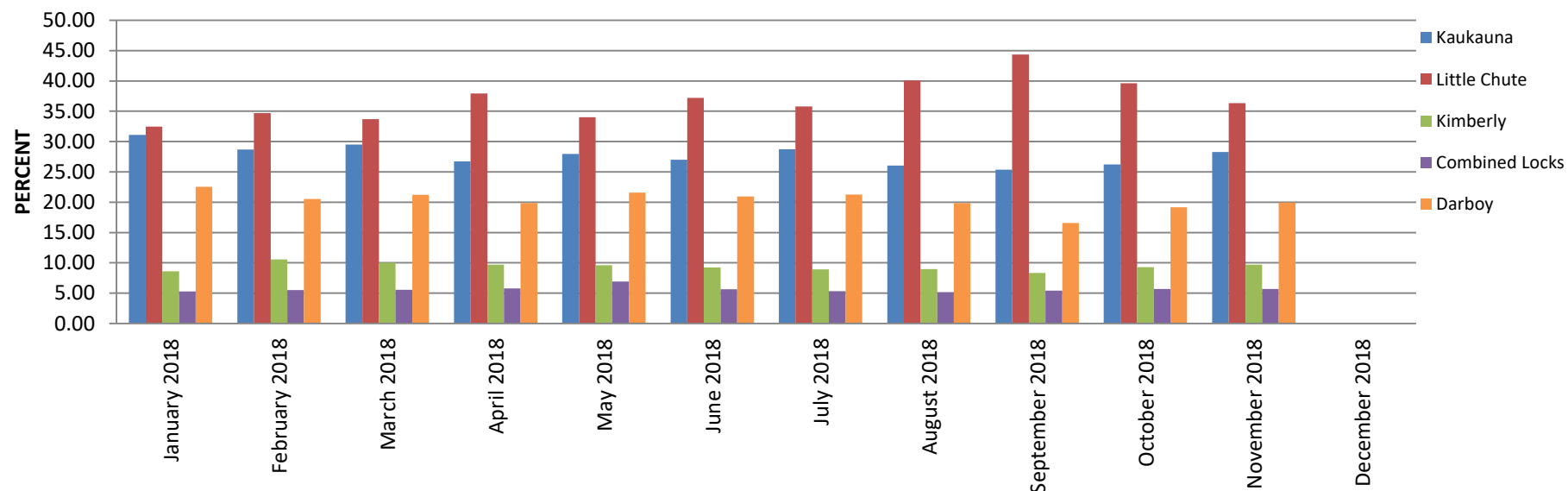
% CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	31.10	32.48	8.61	5.26	22.55
February 2018	28.69	34.71	10.57	5.49	20.54
March 2018	29.51	33.70	10.03	5.56	21.20
April 2018	26.73	37.94	9.69	5.78	19.86
May 2018	27.95	34.00	9.58	6.91	21.56
June 2018	26.98	37.22	9.23	5.64	20.93
July 2018	28.71	35.78	8.91	5.33	21.28
August 2018	26.03	40.07	8.95	5.12	19.83
September 2018	25.35	44.37	8.32	5.41	16.55
October 2018	26.24	39.61	9.27	5.69	19.19
November 2018	28.28	36.35	9.71	5.70	19.96
December 2018					

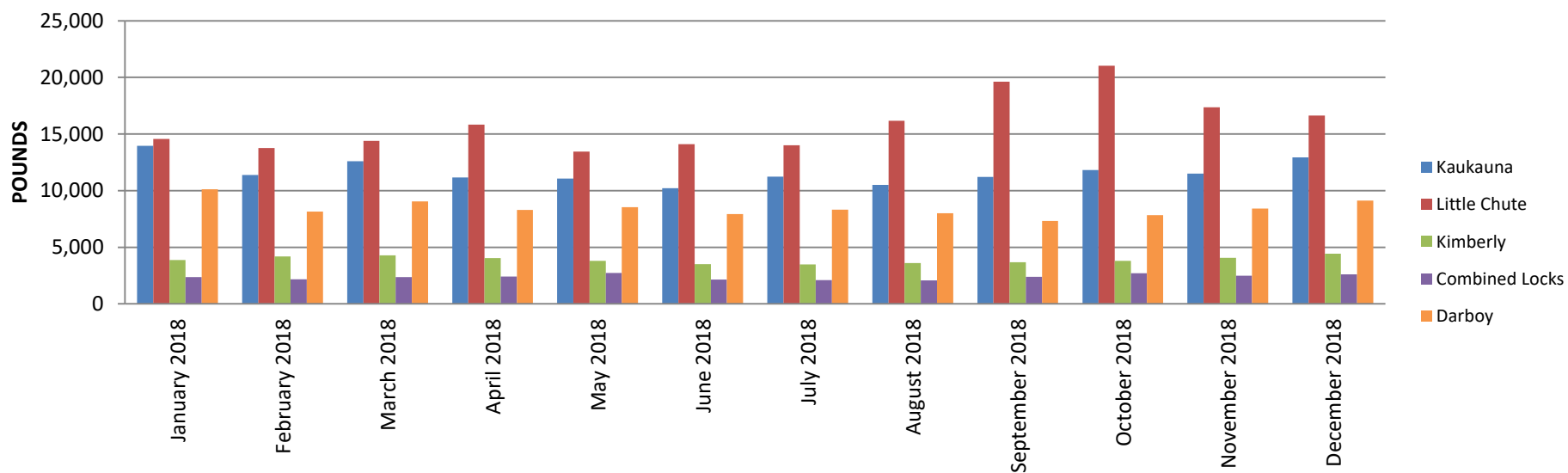
POUNDS CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	13,947	14,563	3,860	2,358	10,111
February 2018	11,375	13,761	4,191	2,176	8,142
March 2018	12,606	14,396	4,286	2,373	9,054
April 2018	11,159	15,835	4,044	2,413	8,291
May 2018	11,061	13,452	3,793	2,734	8,530
June 2018	10,214	14,092	3,496	2,137	7,925
July 2018	11,238	14,005	3,488	2,086	8,329
August 2018	10,497	16,160	3,608	2,063	7,996
September 2018	11,215	19,627	3,683	2,394	7,320
October 2018	11,830	21,026	3,806	2,714	7,826
November 2018	11,499	17,361	4,062	2,494	8,411
December 2018	12,931	16,619	4,438	2,605	9,128
		190,897			

% CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS



POUNDS CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS



HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

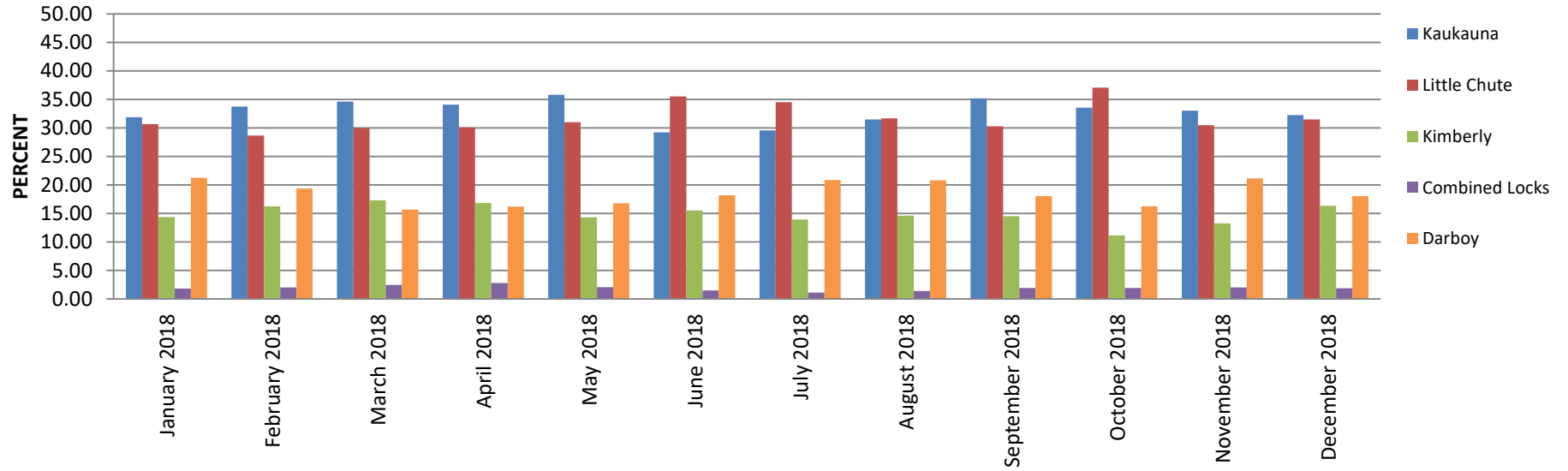
% CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	31.85	30.69	14.39	1.82	21.26
February 2018	33.73	28.65	16.24	2.03	19.36
March 2018	34.62	29.96	17.30	2.45	15.66
April 2018	34.09	30.08	16.81	2.81	16.21
May 2018	35.79	31.00	14.35	2.07	16.79
June 2018	29.25	35.52	15.54	1.49	18.20
July 2018	29.57	34.52	13.94	1.12	20.85
August 2018	31.49	31.68	14.60	1.43	20.81
September 2018	35.18	30.30	14.54	1.94	18.04
October 2018	33.55	37.07	11.18	1.96	16.24
November 2018	33.03	30.47	13.28	2.05	21.17
December 2018	32.24	31.48	16.36	1.91	18.01

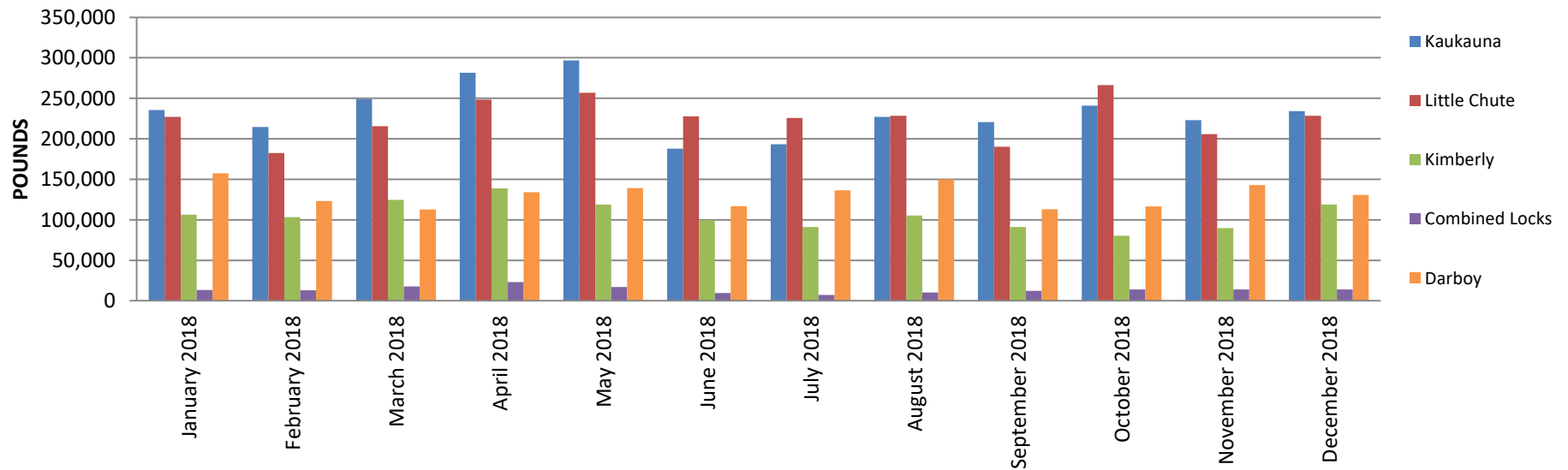
POUNDS CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2018	235,615	226,992	106,418	13,443	157,237
February 2018	214,675	182,327	103,385	12,914	123,204
March 2018	249,175	215,698	124,537	17,668	112,756
April 2018	281,686	248,544	138,915	23,201	133,966
May 2018	296,681	256,956	118,993	17,174	139,138
June 2018	187,710	227,900	99,728	9,568	116,752
July 2018	193,303	225,681	91,114	7,295	136,326
August 2018	227,047	228,434	105,252	10,312	150,018
September 2018	220,756	190,121	91,223	12,162	113,168
October 2018	240,951	266,211	80,311	14,070	116,598
November 2018	222,931	205,632	89,613	13,857	142,910
December 2018	234,074	228,506	118,727	13,878	130,749

% CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

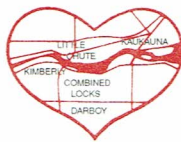


POUNDS CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS



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: December

Year: 2018

Gallons of Final Effluent Purchased (Billing)

<u>Date</u>	<u>Gallons</u>	<u>Date</u>	<u>Gallons</u>
12/1/2018	960,000	12/21/2018	2,572,000
12/2/2018	714,000	12/22/2018	1,792,000
12/3/2018	715,000	12/23/2018	1,709,000
12/4/2018	1,357,000	12/24/2018	1,078,000
12/5/2018	2,838,000	12/25/2018	724,000
12/6/2018	2,732,000	12/26/2018	1,496,000
12/7/2018	2,558,000	12/27/2018	2,200,000
12/8/2018	2,500,000	12/28/2018	2,287,000
12/9/2018	1,408,000	12/29/2018	2,074,000
12/10/2018	2,888,000	12/30/2018	2,074,000
12/11/2018	2,799,000	12/31/2018	2,074,000
12/12/2018	2,703,000		
12/13/2018	2,211,000		
12/14/2018	1,412,000		
12/15/2018	1,124,000		
12/16/2018	1,716,000		
12/17/2018	2,558,000		
12/18/2018	2,615,000		
12/19/2018	2,689,000		
12/20/2018	2,108,000		
		Total:	60,685,000

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

Attn: Account # N2310E

MONTHLY BILLING

Month: December

Year: 2018

GALLONS PURCHASED: 60,685,000

BILLING RATE: \$0.1532146 PER 1000 GALLONS

TOTAL AMOUNT DUE: \$9,297.83

**Heart of the Valley
Metropolitan Sewerage District**

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

2018

Final Effluent Sent to Fox Energy Facility

Gallons: 813,715,000

Charge Per 1000 Gallons: \$0.1532146 Per 1000 Gallons

Sale of Final Effluent (Revenue Collected): \$124,673.02