



Town of Friday Harbor Water, Wastewater, and Solid Waste Utilities Summary Reports

www.fridayharbor.org

Period ending: December 2019

Data provided by
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Water Utility, Mike Deegan, Water System Mgr.
Frank Byrne, Water Treatment Plant Operator
Wastewater Utility, Don Reitan, Leadman
Solid Waste Utility, Dave Smith, Leadman

Analysis & Reports prepared by
Mike Greene, System Administrator

Water - use MTDsourceDate
12 / 2019

Spe=Special, Sfr=Single Family Residential, P.A= Public Authority, Mfr=Multi-family, Ind=Industrial, Com=Commerc

Water Class	Accounts	Gallons
Spe	3	13,677
Sfr	988	2,356,950
PA	76	849,590
Mfr	126	1,584,960
Ind	14	93,000
Com	222	1,308,380
TOTAL	1,429	6,206,557

Water use MTD - accounts with sewersourceDate
12 / 2019

Sewer Class	Accounts	Gallons
Location: IN		
Mfr In/low Strength	58	657,610
Com In/lo Strength	163	633,600
Dot In/lo Strength	3	39,950
Ind In/hi Strength	1	38,260
Ind In/lo Strength	10	50,370
Lmf In/lo Strength	1	2,670
Com In/hi Strength	44	546,820
Mfr In/lo Strength	58	486,780
Mhp In/lo Strength	2	330,500
PA In/hi Strength	3	51,910
PA In/lo Strength	42	278,550
Sfr IN Town	617	1,562,820
Low Rate / IN Town	4	6,240
	<hr/> 1006	<hr/> 4,686,080
Location: Out		
UW Out/hi Strength	1	402,100
Mfr Out/lo Strength	1	6,630
Sfr Out of Town	4	5,470
	<hr/> 6	<hr/> 414,200
TOTAL	1012	5,100,280

Water - use MTD by LocationsourceDate
12 / 2019

Spe=Special, Sfr=Single Family Residential, P.A= Public Authority, Mfr=Multi-family, Ind=Industrial, Com=Commerc

Water Class	Accounts	Gallons
Location: IN		
Spe	2	9,987
Sfr	636	1,589,110
PA	68	437,690
Mfr	121	1,521,620
Ind	13	93,000
Com	218	1,208,030
	<hr/>	
	1,058	4,859,437
Location: Out		
Spe	1	3,690
Sfr	352	767,840
PA	8	411,900
Mfr	5	63,340
Ind	1	0
Com	4	100,350
	<hr/>	
	371	1,347,120
TOTAL	1,429	6,206,557

Refuse - pickups by ClasssourceDate
12 / 2019

Location	Class	Pickups
IN	Sfr	1,431.0
	RefuseOnly	219.5
	PA	178.0
	Mfr	429.0
	Ind	19.5
	Com	1,855.5
		<hr/> 4,132.5
Out	Mfr	2.5
		<hr/> 2.5
	TOTAL	4,135.0

Refuse - active accountssourceDate
12 / 2019

Location	Refuse Type	Accounts
IN		
	Small Dumpster	46
	PA	39
	Medium Dumpste	54
	Large Dumpster	62
	Compactors	3
	Cans Low Rate	4
	Cans	835
		<hr/> 1,043
Out		
	Large Dumpster	1
		<hr/> 1
	TOTAL	1,044

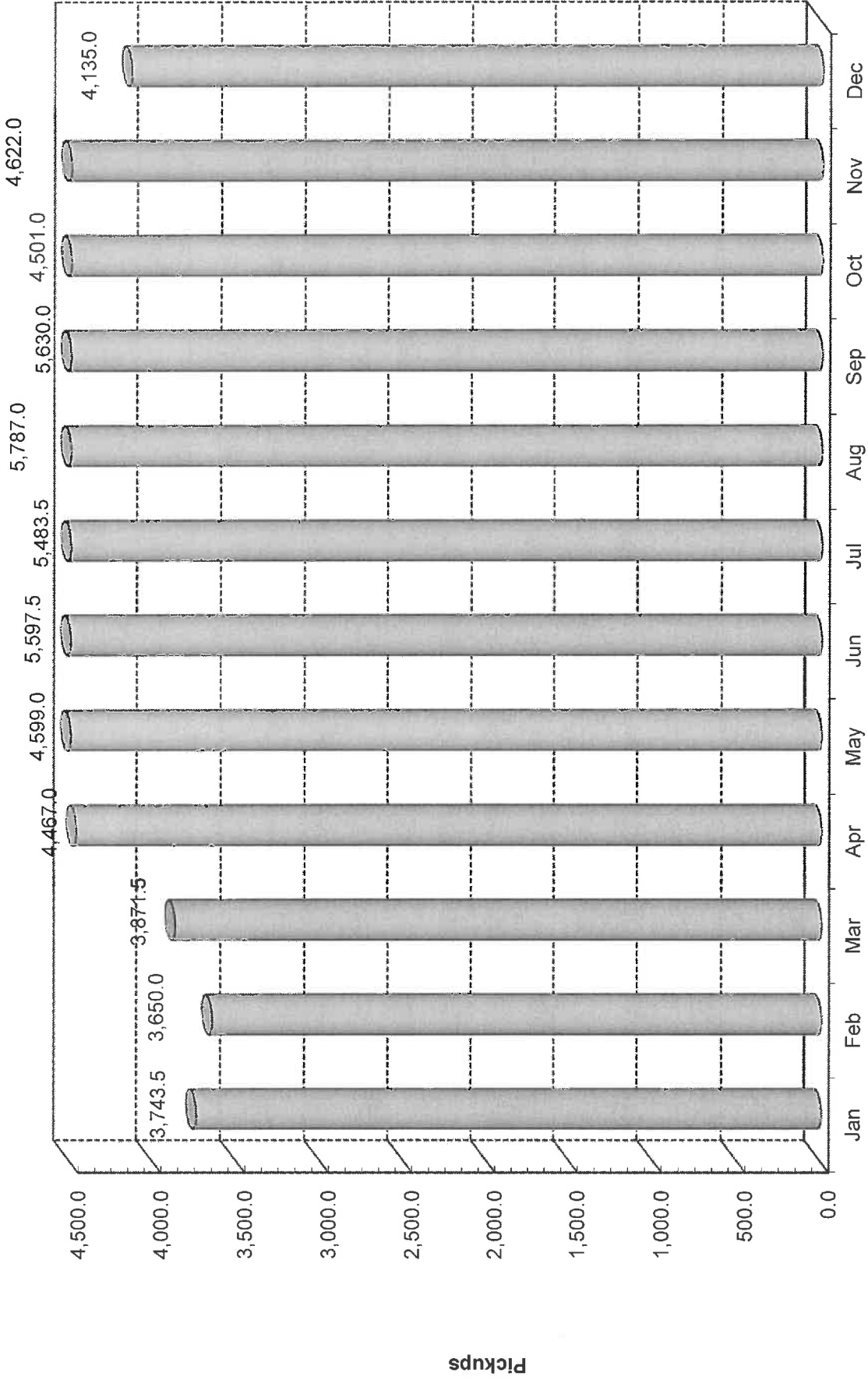
Recycle - pickups by ClasssourceDate
12 / 2019

Location	Class	Pickups
IN	Sfr	679
	RefuseOnly	24
	PA	0
	Mfr	56
	Ind	5
	Com	1
		<hr/> 765
Out	Mfr	0
		<hr/> 0
	TOTAL	765

Refuse Pickups - 2019 YTD

Account Type	SFR	Refuse Only	P.A	MFR	IND	COM	Other	Total
Jan	1,327.5	196.5	148.5	353.5	18.0	1,699.5		3,743.5
Feb	1,387.0	182.5	152.0	367.0	21.5	1,535.5	4.5	3,650.0
Mar	1,324.0	221.0	170.0	367.0	18.0	1,767.5	4.0	3,871.5
Apr	1,617.0	271.0	180.5	426.5	21.0	1,947.0	4.0	4,467.0
May	1,486.0	292.5	205.5	412.0	19.0	2,178.0	6.0	4,599.0
Jun	2,033.0	397.5	227.5	502.5	16.5	2,413.5	7.0	5,597.5
Jul	1,827.0	420.0	192.0	454.0	16.0	2,565.5	9.0	5,483.5
Aug	1,830.0	423.5	220.5	474.5	16.5	2,812.0	10.0	5,787.0
Sep	1,889.0	368.5	236.0	516.0	19.0	2,593.0	8.5	5,630.0
Oct	1,534.0	276.0	212.0	418.5	17.0	2,041.5	2.0	4,501.0
Nov	1,763.0	243.5	213.5	451.5	15.5	1,933.5	1.5	4,622.0
Dec	1,431.0	219.5	178.0	429.0	19.5	1,855.5	2.5	4,135.0
YTD	19,448.5	3,512.0	2,336.0	5,172.0	217.5	25,342.0	59.0	56,087.0

Refuse Pickups by Month - 2019



Finish Water Flow to Town
source: Water Treatment Facility Monthly Report

Revised reporting period: per K. Anderson 03/06/17
to reflect meter reading dates (?).
Start/End dates may change monthly.

31 :count of days in reporting period.

November 15, 2019		December 15, 2019	
day	flow (total flow)	day	flow (total flow)
15	261	1	211
16	260	2	257
17	213	3	245
18	226	4	271
19	243	5	266
20	220	6	270
21	234	7	221
22	230	8	242
23	277	9	122
24	218	10	349
25	236	11	202
26	232	12	213
27	240	13	291
28	257	14	213
29	243	15	222
30	231	16	
31			

<u>days</u> 16	<u>days</u> 15
3821	3595
TOTAL DAYS	31
TOTAL FLOW	7416
	1,000's gallons

TOWN OF FRIDAY HARBOR

Flow to Town (Gross Water Production) 2019

Revised reporting period: per K. Anderson 03/06/17
to reflect meter reading dates (?).

Reporting (meter reading) period			days in period	Gross flow to Town	Flow to Town (millions)
<i>from WTP Chem. Wts. & Finish Flow to Town Report</i>	<i>to</i>				
17-Dec	<i>to</i>	14-Jan	29	6,982,000	6,982
15-Jan	<i>to</i>	14-Feb	31	7,865,000	7,865
15-Feb	<i>to</i>	14-Mar	28	7,468,000	7,468
15-Mar	<i>to</i>	14-Apr	31	8,604,000	8,604
15-Apr	<i>to</i>	14-May	30	9,522,000	9,522
15-May	<i>to</i>	16-Jun	33	12,495,000	12,495
17-Jun	<i>to</i>	14-Jul	28	12,159,000	12,159
15-Jul	<i>to</i>	14-Aug	31	13,977,000	13,977
15-Aug	<i>to</i>	15-Sep	32	12,723,000	12,723
16-Sep	<i>to</i>	14-Oct	29	8,868,000	8,868
15-Oct	<i>to</i>	14-Nov	31	7,708,000	7,708
15-Nov	<i>to</i>	15-Dec	31	7,416,000	7,416
			364	115,787,000	115787.0

TOWN OF FRIDAY HARBOR

Net Water Production - 2019

amounts in gallons

	Jan	Feb	Mar	Apr	May	Jun
Gross Production for billing period from WTP Chemical Weights & Finish Flow to Town Report	6,982,000	7,865,000	7,468,000	8,604,000	9,522,000	12,495,000
3% meter loss	164,951	197,550	159,994	208,847	234,165	334,827
Flushing	308,800	309,700	341,200	245,100	183,500	144,000
SJC#3 FD use	5,000	5,000	5,000	5,000	5,000	35,900
Leaks	216,000	316,000	226,000	432,000	432,000	352,400
notes						
other non-metered use						
notes						
Additional water in storage						
notes						
Total other uses	-694,751	-828,250	-732,194	-690,947	-854,665	-867,127
Net production	6,287,249	7,036,750	6,735,806	7,713,053	8,667,335	11,627,873
	Jul	Aug	Sep	Oct	Nov	Dec
Gross Production for billing period from WTP Chemical Weights & Finish Flow to Town Report	12,159,000	13,977,000	12,723,000	8,868,000	7,708,000	7,416,000
3% meter loss	340,444	395,959	348,663	229,403	206,266	186,197
Flushing	201,600	180,000	108,000	275,900	108,000	171,600
SJC#3 FD use	5,000	5,000	5,000	5,000	5,000	5,000
Leaks	226,800	86,400	86,400	258,400	86,400	86,400
notes						
other non-metered use						
notes						
notes						
Total other uses	-773,844	-667,359	-548,063	-768,703	-405,666	-449,197
Net production	11,385,156	13,309,641	12,174,937	8,099,297	7,302,334	6,966,803

TOWN OF FRIDAY HARBOR

Water Consumption & Production

Revised meter loss reporting begin 07/09 (per Robert Krebs, Evergreen Rural Water Assoc.)

Period	USE (consumption)	Cumulative Use YTD	Flow (production)	Unaccounted over / (under)	Cumulative Flow YTD	Average Daily Flow	
2017							
<i>gallons</i>	Jan-17	8,403,985	8,484,000	-80,015		273,677	
	Feb-17	6,321,628	14,725,613	7,092,000	-770,372	15,576,000	253,286
	Mar-17	6,110,787	20,836,401	6,799,000	-688,213	22,375,000	219,323
	Apr-17	8,344,725	29,181,126	9,739,000	-1,394,275	32,114,000	324,633
	May-17	7,085,245	36,266,371	6,413,000	672,245	38,527,000	206,871
	Jun-17	10,048,456	46,314,827	10,305,000	-256,544	48,832,000	343,500
	Jul-17	14,681,313	60,996,140	15,035,000	-353,687	63,867,000	485,000
	Aug-17	13,661,250	74,657,390	14,809,000	-1,147,750	78,676,000	477,710
	Sep-17	14,093,015	88,750,405	14,968,000	-874,985	93,644,000	498,933
Average	Oct-17	7,823,149	96,573,554	8,040,000	-216,851	101,684,000	259,355
Monthly Use	Nov-17	6,680,806	103,254,360	7,273,000	-592,194	108,957,000	242,433
9,176,124	Dec-17	6,859,133	110,113,492	7,071,000	-211,867	116,028,000	228,097
YEAR TOTAL:	12	110,628,322	Cumulative Metered/Other Use YTD	116,028,000	-5,914,508	Cumulative Unaccounted 3% meter loss	317,735 2,915,731
2018							
<i>gallons</i>	Jan-18	6,473,834	7,347,000	-873,166		237,000	
	Feb-18	6,318,823	12,792,658	7,054,000	-735,177	14,401,000	251,929
	Mar-18	5,860,732	18,653,389	6,566,000	-705,268	20,967,000	211,806
	Apr-18	7,416,815	26,070,204	8,256,000	-839,185	29,223,000	275,200
	May-18	7,687,108	33,757,312	7,932,000	-244,892	37,155,000	255,871
	Jun-18	11,419,190	45,176,502	11,939,000	-519,810	49,094,000	397,967
	Jul-18	13,151,864	58,328,366	14,181,000	-1,029,136	63,275,000	457,452
	Aug-18	14,508,241	72,836,607	15,364,000	-855,759	78,639,000	495,613
	Sep-18	12,454,526	85,291,133	13,769,000	-1,314,474	92,408,000	458,967
Average	Oct-18	8,624,468	93,915,601	9,176,000	-551,532	101,584,000	296,000
Monthly Use	Nov-18	7,401,706	101,317,307	8,322,000	-920,294	109,906,000	277,400
9,031,729	Dec-18	7,063,439	108,380,746	8,225,000	-1,161,561	118,131,000	265,323
YEAR TOTAL:	12	108,380,746	Cumulative Metered/Other Use YTD	118,131,000	-9,750,254	Cumulative Unaccounted 3% meter loss	323,377 2,989,222
2019							
<i>gallons</i>	Jan-19	6,193,133	6,982,000	-788,867		225,226	
	Feb-19	7,413,239	13,606,372	7,865,000	-451,761	14,847,000	280,893
	Mar-19	6,065,311	19,671,683	7,468,000	-1,402,689	22,315,000	240,903
	Apr-19	7,852,517	27,524,200	8,604,000	-751,483	30,919,000	286,800
	May-19	8,660,158	36,184,358	9,522,000	-861,842	40,441,000	307,161
	Jun-19	12,028,022	48,212,379	12,495,000	-466,978	52,936,000	416,500
	Jul-19	12,121,969	60,334,348	12,159,000	-37,031	65,095,000	392,226
	Aug-19	13,865,988	74,200,336	13,977,000	-111,012	79,072,000	450,871
	Sep-19	12,170,164	86,370,500	12,723,000	-552,836	91,795,000	424,100
Average	Oct-19	8,415,461	94,785,961	8,868,000	-452,539	100,663,000	286,065
Monthly Use	Nov-19	7,281,193	102,067,154	7,708,000	-426,807	108,371,000	256,933
9,060,242	Dec-19	6,655,754	108,722,907	7,416,000	-760,246	115,787,000	239,226
YEAR TOTAL:	12	108,722,907	Cumulative Metered/Other Use YTD	115,787,000	-7,064,093	Cumulative Unaccounted 3% meter loss	317,242 3,007,264

3 YEAR	Use	Flow	Daily Flow	3 Year Loss
AVERAGES:	6,093,090 :gal/month	9,720,722 :gal/month	213,540	as % of Flow 6.49%

source: Monthly Water Treatment Plant Report & utility.mdb's 3 yr cumulative flow 349,946,000
3 yr unaccounted -22,728,854

Utilization of Sustainable Annual Water System Capacity

Period start: Jan-19

Period end: Dec-19

Sustainable Annual Yield (TFH
Comprehensive Water System Plan
Update, June, 2013, page 3-6)

205 million gallons

Annual use - 12 month period
percent of Sustainable Annual Yield

115.8 million gallons
56.5%

exceeds Sustainable Yield?

No

Trout Lake Reservoir Level

Months with positive levels may reflect that a removable 7.25 inch riser has been added to the top of the original spillway.

end of	Inches above/(below) original spillway	end of	Inches above/(below) original spillway	end of	Inches above/(below) original spillway
Jan-12	-1.75	Jan-15	0.00	Jan-18	0.00
Feb-12	0.00	Feb-15	0.00	Feb-18	0.00
Mar-12	0.00	Mar-15	0.00	Mar-18	8.75
Apr-12	8.00	Apr-15	6.50	Apr-18	8.25
May-12	0.00	May-15	0.00	May-18	1.50
Jun-12	7.00	Jun-15	-13.00	Jun-18	-10.50
Jul-12	-19.00	Jul-15	-29.50	Jul-18	-29.50
Aug-12	-32.75	Aug-15	-42.25	Aug-18	-42.00
Sep-12	-45.00	Sep-15	-49.50	Sep-18	-50.00
Oct-12	-48.00	Oct-15	-54.50	Oct-18	-54.50
Nov-12	-24.25	Nov-15	-17.25	Nov-18	-55.50
Dec-12	0.00	Dec-15	0.00	Dec-18	-26.00
Jan-13	0.00	Jan-16	0.00	Jan-19	0.00
Feb-13	0.00	Feb-16	0.00	Feb-19	0.00
Mar-13	0.00	Mar-16	0.00	Mar-19	2.75
Apr-13	8.50	Apr-16	6.00	Apr-19	2.75
May-13	3.75	May-16	-2.50	May-19	-0.75
Jun-13	-3.75	Jun-16	-11.00	Jun-19	-2.00
Jul-13	-21.00	Jul-16	-21.00	Jul-19	-16.00
Aug-13	-34.25	Aug-16	-36.50	Aug-19	-26.25
Sep-13	-39.25	Sep-16	-49.50	Sep-19	-40.00
Oct-13	-43.50	Oct-16	-51.00	Oct-19	-46.25
Nov-13	-44.75	Nov-16	-45.50	Nov-19	-49.75
Dec-13	-26.00	Dec-16	-10.35	Dec-19	-49.50
Jan-14	0.00	Jan-17	0.00	Jan-20	
Feb-14	0.00	Feb-17	0.00	Feb-20	
Mar-14	0.00	Mar-17	2.75	Mar-20	
Apr-14	8.25	Apr-17	9.00	Apr-20	
May-14	5.00	May-17	4.75	May-20	
Jun-14	7.00	Jun-17	-4.00	Jun-20	
Jul-14	-20.50	Jul-17	-19.00	Jul-20	
Aug-14	-30.25	Aug-17	-32.00	Aug-20	
Sep-14	-42.75	Sep-17	-43.00	Sep-20	
Oct-14	-45.25	Oct-17	-50.50	Oct-20	
Nov-14	-46.50	Nov-17	-48.00	Nov-20	
Dec-14	0.00	Dec-17	-11.50	Dec-20	

Rainfall - Trout Lake Water Treatment Facility

source: Water Treatment Plant Weather Reports

all figures in inches

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	average (2005-14)
JAN	5.49	6.87	6.51	2.34	3.82	4.73	5.90	3.46	4.14	2.86	4.61
FEB	1.01	1.61	2.83	1.78	1.50	1.24	2.74	3.38	1.32	4.22	2.16
MAR	2.33	0.91	3.70	1.99	2.05	3.30	3.37	3.09	3.63	3.88	2.83
APR	1.37	2.23	1.49	1.32	2.07	1.47	2.96	1.91	2.70	1.94	1.95
MAY	1.08	1.24	0.78	1.26	1.69	2.09	3.07	1.09	2.20	1.05	1.56
JUN	1.63	0.56	1.03	1.16	0.35	1.10	0.68	2.60	0.83	0.52	1.05
JUL	0.70	0.26	1.56	0.21	0.45	0.11	0.84	1.04	0.00	0.36	0.55
AUG	1.60	0.03	0.64	1.88	0.81	0.72	0.29	0.00	0.95	0.49	0.74
SEP	0.94	1.15	0.54	0.84	1.58	4.35	0.72	0.12	5.08	1.34	1.67
OCT	3.50	1.89	2.12	1.83	5.24	1.38	2.29	6.40	1.42	4.00	3.01
NOV	4.28	10.43	2.32	5.15	6.76	2.94	4.50	3.32	2.49	4.00	4.62
DEC	2.89	3.74	4.59	3.70	1.80	6.55	1.88	4.79	2.28	3.37	3.56
Total	26.82	30.92	28.11	23.46	28.12	29.98	29.24	31.20	27.04	28.03	28.29

Cumulative thru

DEC	26.82	30.92	28.11	23.46	28.12	29.98	29.24	31.20	27.04	28.03
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all figures in inches

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
JAN	3.97	2.17	1.60	5.10	3.87					
FEB	2.95	4.83	2.99	3.80	1.76					
MAR	3.62	2.88	3.27	1.48	0.87					
APR	0.51	0.75	2.20	3.10	1.61					
MAY	0.30	0.48	1.61	0.07	1.29					
JUN	0.14	1.22	0.75	0.72	0.61					
JUL	0.36	0.32	0.15	0.18	0.75					
AUG	0.94	0.11	0.11	0.01	0.84					
SEP	1.28	1.40	0.71	1.27	2.74					
OCT	3.53	4.80	4.28	2.23	3.33					
NOV	6.19	3.47	4.32	4.32	2.1					
DEC	5.26	4.02	3.83	4.26	3.63					
Total	29.05	26.45	25.82	26.54	23.40	0.00	0.00	0.00	0.00	0.00

Cumulative thru

DEC	29.05	26.45	25.82	26.54	23.40	0.00	0.00	0.00	0.00	0.00
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Prevention of Wastewater Facility Overloading

Period start: Dec-18
 Period end: Nov-19

INFLUENT BOD LOADING (pounds per day)	AVG. EFFLUENT FLOW (millions of gallons per day)	SUSPENDED SOLIDS LOADING (pounds per day)
Design Criteria (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.A) max.month 1,600	Design Criteria (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.A) max.month 0.69000	Design Criteria (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.A) max.month 1,110
85% Capacity Planning Threshold (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.B.1) 1,360	85% Capacity Planning Threshold (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.B.1) 0.58650	85% Capacity Planning Threshold (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.B.1) 944
Month with highest average loading in period Jan-19	Month with highest average flow in period Jan-19	Month with highest average loading in period Jan-19
Highest average monthly loading in period (pounds per day) 559	Highest average monthly flow in period (millions of gallons per day) 0.4088414	Highest average monthly loading in period (pounds per day) 488
% of Design Criteria 35%	% of Design Criteria 59%	% of Design Criteria 44%
exceeds Design Criteria? No	exceeds Design Criteria? No	exceeds Design Criteria? No
Previous month's loading 509	Previous month's flow 0.2541	Previous month's loading 319
Following month's loading 524	Following month's flow 0.2799	Following month's loading 245
exceeds Planning Threshold for 3 consecutive months? No	exceeds Planning Threshold for 3 consecutive months? No	exceeds Planning Threshold for 3 consecutive months? No