



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

www.fridayharbor.org

Period ending: Dec 2018

Data provided by
Wayne Haefele, PE, Public Works Director
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

Recycle - pickups by ClasssourceDate
12 / 2018

Location	Class	Pickups
IN	Sfr	677
	RefuseOnly	16
	PA	0
	Mfr	45
	Ind	2
	Com	2
		<hr/> 742
Out	Sfr	0
	Mfr	0
		<hr/> 0
	TOTAL	742

Refuse - active accountssourceDate
12 / 2018

Location	Refuse Type	Accounts
IN		
	Small Dumpster	48
	PA	39
	Medium Dumpste	51
	Large Dumpster	61
	Compactors	3
	Cans Low Rate	6
	Cans	818
		<hr/>
		1,026
Out		
	Large Dumpster	1
	Cans	1
		<hr/>
		2
		<hr/>
	TOTAL	1,028

Refuse - pickups by ClasssourceDate
12 / 2018

Location	Class	Pickups
IN	Sfr	1,465.0
	RefuseOnly	220.5
	PA	181.0
	Mfr	368.5
	Ind	22.5
	Com	1,939.5
		<hr/> 4,197.0
Out	Sfr	0.0
	Mfr	4.0
		<hr/> 4.0
	TOTAL	4,201.0

Water - use MTD by LocationsourceDate
12 / 2018

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

Water Class	Accounts	Gallons
Location: IN		
Spe	3	24,649
Sfr	633	1,758,860
PA	68	452,860
Mfr	116	1,487,000
Ind	13	77,270
Com	215	1,454,030
	<hr/>	
	1,048	5,254,669
Location: Out		
Sfr	354	798,290
PA	7	531,650
Mfr	5	60,240
Ind	2	0
Com	4	70,690
	<hr/>	
	372	1,460,870
TOTAL	1,420	6,715,539

Water use MTD - accounts with sewersourceDate
12 / 2018

Sewer Class	Accounts	Gallons
Location: IN		
Mfr In/low Strength	61	618,370
Com In/lo Strength	161	678,310
Dot In/lo Strength	3	47,680
Ind In/hi Strength	1	19,600
Ind In/lo Strength	10	53,340
Lmf In/lo Strength	1	3,100
Com In/hi Strength	43	750,340
Mfr In/lo Strength	49	495,510
Mhp In/lo Strength	2	323,500
PA In/hi Strength	3	63,190
PA In/lo Strength	42	293,600
Sfr IN Town	611	1,707,900
Low Rate / IN Town	6	10,120
	<hr/> 993	<hr/> 5,064,560
Location: Out		
UW Out/hi Strength	1	314,000
Mfr Out/lo Strength	1	4,480
Sfr Out of Town	4	9,740
	<hr/> 6	<hr/> 328,220
TOTAL	999	5,392,780

Water - use MTDsourceDate
12 / 2018

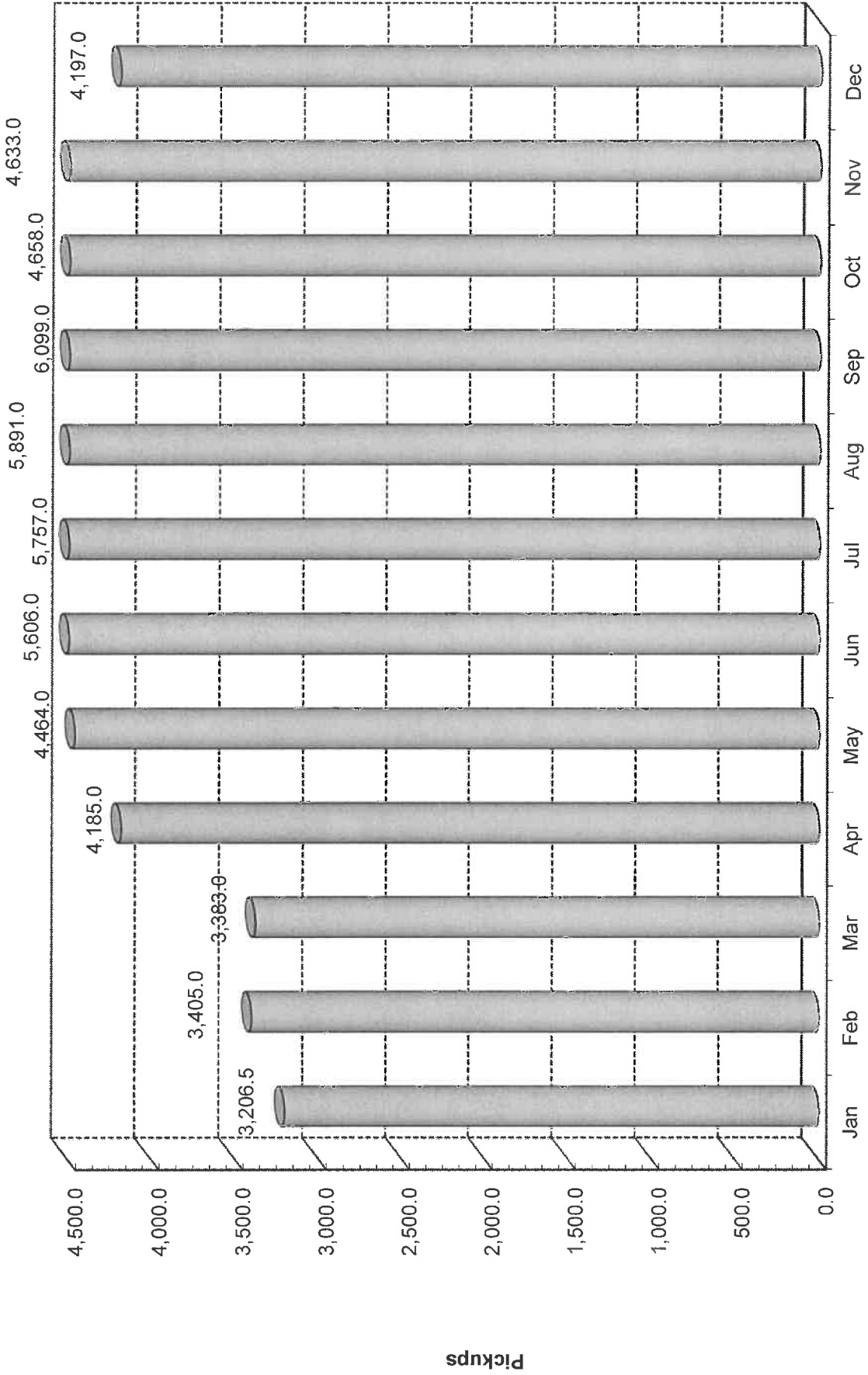
Spe=Special, Sfr=Single Family Residential, P.A= Public Authority, Mfr=Multi-family, Ind=Industrial, Com=Commerc

Water Class	Accounts	Gallons
Spe	3	24,649
Sfr	987	2,557,150
PA	75	984,510
Mfr	121	1,547,240
Ind	15	77,270
Com	219	1,524,720
TOTAL	1,420	6,715,539

Refuse Pickups - 2018 YTD

Account Type	SFR	Refuse Only	P.A	MFR	IND	COM	Other	Total
Jan	1,433.0	151.5	145.5	435.5	24.5	1,016.5		3,206.5
Feb	1,347.0	149.0	172.5	385.5	18.0	1,333.0		3,405.0
Mar	1,218.0	166.0	165.5	389.0	15.5	1,429.0		3,383.0
Apr	1,635.0	206.0	205.5	458.5	21.0	1,659.0		4,185.0
May	1,558.0	247.5	210.5	421.0	19.0	2,008.0		4,464.0
Jun	1,871.5	452.5	252.5	487.0	20.0	2,522.5		5,606.0
Jul	1,697.0	577.5	199.5	480.5	22.5	2,780.0		5,757.0
Aug	1,567.0	669.0	217.0	455.0	20.5	2,962.5		5,891.0
Sep	1,771.0	561.0	290.5	473.5	22.0	2,981.0		6,099.0
Oct	1,358.0	272.5	231.5	382.5	23.0	2,390.5		4,658.0
Nov	1,450.0	220.5	203.0	391.5	20.0	2,348.0		4,633.0
Dec	1,465.0	220.5	181.0	368.5	22.5	1,939.5		4,197.0
YTD	18,370.5	3,893.5	2,474.5	5,128.0	248.5	25,369.5	0.0	55,484.5

Refuse Pickups by Month - 2018



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.

32 :count of days in reporting period.

November 15, 2018		December 16, 2018	
day	flow (total flow)	day	flow (total flow)
15	255	1	246
16	261	2	230
17	337	3	243
18	192	4	251
19	279	5	249
20	279	6	285
21	287	7	258
22	281	8	259
23	230	9	272
24	263	10	210
25	280	11	288
26	231	12	248
27	255	13	239
28	261	14	229
29	252	15	286
30	265	16	224
31			

<table border="0" style="width: 100%;"> <tr><td style="text-align: right;">days</td><td style="border-top: 1px solid black;"></td></tr> <tr><td style="text-align: right;">16</td><td style="border-top: 1px solid black; text-align: right;">4208</td></tr> </table>	days		16	4208	<table border="0" style="width: 100%;"> <tr><td style="text-align: right;">days</td><td style="border-top: 1px solid black;"></td></tr> <tr><td style="text-align: right;">16</td><td style="border-top: 1px solid black; text-align: right;">4017</td></tr> </table>	days		16	4017
days									
16	4208								
days									
16	4017								
TOTAL DAYS	32								
TOTAL FLOW	8225								
	1,000's gallons								

TOWN OF FRIDAY HARBOR

Flow to Town (Gross Water Production) 2018

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>				
15-Dec	<i>to</i>	14-Jan	31	7,347,000	7,347
15-Jan	<i>to</i>	14-Feb	31	7,054,000	7,054
15-Feb	<i>to</i>	14-Mar	28	6,566,000	6,566
15-Mar	<i>to</i>	15-Apr	32	8,256,000	8,256
16-Apr	<i>to</i>	14-May	29	7,932,000	7,932
15-May	<i>to</i>	15-Jun	32	11,939,000	11,939
16-Jun	<i>to</i>	15-Jul	30	14,181,000	14,181
16-Jul	<i>to</i>	14-Aug	30	15,364,000	15,364
15-Aug	<i>to</i>	16-Sep	33	13,769,000	13,769
17-Sep	<i>to</i>	14-Oct	28	9,176,000	9,176
15-Oct	<i>to</i>	14-Nov	31	8,322,000	8,322
15-Nov	<i>to</i>	16-Dec	32	8,225,000	8,225
			367	118,131,000	118131.0

Net Water Production - 2018

amounts in gallons

	Jan	Feb	Mar	Apr	May	Jun
Gross Production for billing period from WTP Chemical Weights & Finish Flow to Town Report	7,347,000	7,054,000	6,566,000	8,256,000	7,932,000	11,939,000
3% meter loss	181,712	177,273	160,076	200,073	214,798	326,464
Flushing	230,042	227,445	143,800	216,200	232,500	187,190
SJC#3 FD use	5,000	5,000	5,000	5,000	5,000	23,400
Leaks			216,000	247,840	14,400	0
notes			University Road	1st St N	Tucker/Larson	
other non-metered use				78,600	60,480	
notes				Strider-Tucker Ave.	849 Spring St.	
Additional water in storage						
notes						
Total other uses	-416,754	-409,718	-524,876	-747,713	-527,178	-537,054
Net production	6,930,246	6,644,282	6,041,124	7,508,287	7,404,822	11,401,946
	Jul	Aug	Sep	Oct	Nov	Dec
Gross Production for billing period from WTP Chemical Weights & Finish Flow to Town Report	14,181,000	15,364,000	13,769,000	9,176,000	8,322,000	8,225,000
3% meter loss	273,310	292,320	256,401	275,280	206,001	126,900
Flushing	108,000	108,000	108,000	108,000	108,000	126,900
SJC#3 FD use	5,000	5,000	5,000	5,000	5,000	5,000
Leaks	72,000				216,000	216,000
notes					Sj Valley Leak	Sj Valley OLD main Viv
other non-metered use						
notes						
Total other uses	-458,310	-405,320	-369,401	-388,280	-535,001	-347,900
Net production	13,722,690	14,958,680	13,399,599	8,787,720	7,866,999	7,877,100

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	
2016							
<i>gallons</i>	Jan-16	6,904,531	6,697,000	207,531		216,032	
	Feb-16	6,043,999	12,948,530	-177,001	12,918,000	222,179	
	Mar-16	5,087,613	18,036,143	-972,387	18,978,000	195,484	
	Apr-16	7,613,121	25,649,264	-6,879	26,598,000	254,000	
	May-16	8,678,417	34,327,681	-317,583	35,594,000	290,194	
	Jun-16	10,308,890	44,636,572	-414,110	46,317,000	357,433	
	Jul-16	12,724,140	57,360,712	-241,860	59,283,000	418,258	YTD
	Aug-16	14,723,626	72,084,337	-1,091,374	75,098,000	510,161	Unaccounted
	Sep-16	12,583,251	84,667,588	-12,749	87,694,000	419,867	as % of Flow
Average	Oct-16	8,473,803	93,141,391	421,803	95,746,000	259,742	0.38%
Monthly Use	Nov-16	6,714,525	99,855,916	1,656,525	100,804,000	168,600	
8,877,761	Dec-16	6,677,221	106,533,136	1,356,221	106,125,000	171,645	408,136
YEAR TOTAL:	12	107,043,584	Cumulative Metered/Other Use YTD	106,125,000	408,136 Unaccounted	Cumulative 3% meter loss	290,300 2,915,731
2017							
<i>gallons</i>	Jan-17	8,403,985	8,484,000	-80,015		273,677	
	Feb-17	6,321,628	14,725,613	-770,372	15,576,000	253,286	
	Mar-17	6,110,787	20,836,401	-688,213	22,375,000	219,323	
	Apr-17	8,344,725	29,181,126	-1,394,275	32,114,000	324,633	
	May-17	7,085,245	36,266,371	672,245	38,527,000	206,871	
	Jun-17	10,048,456	46,314,827	-256,544	48,832,000	343,500	
	Jul-17	14,681,313	60,996,140	-353,687	63,867,000	485,000	YTD
	Aug-17	13,661,250	74,657,390	-1,147,750	78,676,000	477,710	Unaccounted
	Sep-17	14,093,015	88,750,405	-874,985	93,644,000	498,933	as % of Flow
Average	Oct-17	7,823,149	96,573,554	-216,851	101,684,000	259,355	5.10%
Monthly Use	Nov-17	6,680,806	103,254,360	-592,194	108,957,000	242,433	
9,176,124	Dec-17	6,859,133	110,113,492	-211,867	116,028,000	228,097	-5,914,508
YEAR TOTAL:	12	110,113,492	Cumulative Metered/Other Use YTD	116,028,000	-5,914,508 Unaccounted	Cumulative 3% meter loss	317,735 2,989,222
2018							
<i>gallons</i>	Jan-18	6,473,834	7,347,000	-873,166		237,000	
	Feb-18	6,318,823	12,792,658	-735,177	14,401,000	251,929	
	Mar-18	5,860,732	18,653,389	-705,268	20,967,000	211,806	
	Apr-18	7,416,815	26,070,204	-839,185	29,223,000	275,200	
	May-18	7,687,108	33,757,312	-244,892	37,155,000	255,871	
	Jun-18	11,419,190	45,176,502	-519,810	49,094,000	397,967	
	Jul-18	13,151,864	58,328,366	-1,029,136	63,275,000	457,452	YTD
	Aug-18	14,508,241	72,836,607	-855,759	78,639,000	495,613	Unaccounted
	Sep-18	12,454,526	85,291,133	-1,314,474	92,408,000	458,967	as % of Flow
Average	Oct-18	8,624,468	93,915,601	-551,532	101,584,000	296,000	8.25%
Monthly Use	Nov-18	7,401,706	101,317,307	-920,294	109,906,000	277,400	
9,031,729	Dec-18	7,063,439	108,380,746	-1,161,561	118,131,000	265,323	-9,750,254
YEAR TOTAL:	12	108,380,746	Cumulative Metered/Other Use YTD	118,131,000	-9,750,254 Unaccounted	Cumulative 3% meter loss	323,377 3,081,397

3 YEAR	Use	Flow	Daily Flow	3 Year Loss
AVERAGES:	5,984,009 :gal/month	9,452,333 :gal/month	213,704	as % of Flow 4.48%

source: Monthly Water Treatment Plant Report & utility.mdb's
 3 yr cumulative flow 340,284,000
 3 yr unaccounted -15,256,625

Utilization of Sustainable Annual Water System Capacity

Period start: Jan-18

Period end: Dec-18

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

118.1 million gallons
57.6%

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	
Feb-13	0.00	Feb-16	0.00	Feb-19	
Mar-13	0.00	Mar-16	0.00	Mar-19	
Apr-13	6.50	Apr-16	6.00	Apr-19	
May-13	3.75	May-16	-2.50	May-19	
Jun-13	-3.75	Jun-16	-11.00	Jun-19	
Jul-13	-21.00	Jul-16	-21.00	Jul-19	
Aug-13	-34.25	Aug-16	-36.50	Aug-19	
Sep-13	-39.25	Sep-16	-49.50	Sep-19	
Oct-13	-43.50	Oct-16	-51.00	Oct-19	
Nov-13	-44.75	Nov-16	-45.50	Nov-19	
Dec-13	-26.00	Dec-16	-10.35	Dec-19	
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

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

Cumulative thru

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

Period start: Nov-17
 Period end: Oct-18

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	Jul-16	Month with highest average flow in period	Feb-16	Month with highest average loading in period	Oct-16
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