

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

www.fridayharbor.org

Period ending: Nov 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

Water - use MTDsourceDate
11 / 2018

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

Water Class	Accounts	Gallons
SPE	3	43,275
Sfr	986	2,552,950
PA	75	995,910
Mfr	121	1,517,110
Ind	15	82,860
Com	218	1,674,600
TOTAL	1,418	6,866,705

Water use MTD - accounts with sewersourceDate
11 / 2018

Sewer Class	Accounts	Gallons
Location: IN		
Mfr In/low Strength	49	460,130
Com In/lo Strength	159	809,680
Dot In/lo Strength	3	43,750
Ind In/hi Strength	1	25,760
Ind In/lo Strength	10	53,700
Lmf In/lo Strength	1	2,480
Com In/hi Strength	44	781,890
Mfr In/lo Strength	61	660,680
Mhp In/lo Strength	2	296,100
PA In/hi Strength	3	74,500
PA In/lo Strength	42	330,990
Sfr IN Town	611	1,647,670
Low Rate / IN Town	6	10,020
	<hr/> 992	<hr/> 5,197,350
Location: Out		
UW Out/hi Strength	1	304,400
Mfr Out/lo Strength	1	4,120
Sfr Out of Town	4	8,370
	<hr/> 6	<hr/> 316,890
TOTAL	998	5,514,240

Water - use MTD by LocationsourceDate
11 / 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	43,275
Sfr	633	1,677,250
PA	68	531,580
Mfr	116	1,463,760
Ind	13	82,860
Com	214	1,615,620
	<hr/>	
	1,047	5,414,345
Location: Out		
Sfr	353	875,700
PA	7	464,330
Mfr	5	53,350
Ind	2	0
Com	4	58,980
	<hr/>	
	371	1,452,360
TOTAL	1,418	6,866,705

Refuse - pickups by ClasssourceDate
11 / 2018

Location	Class	Pickups
IN	Sfr	1,450.0
	RefuseOnly	220.5
	PA	203.0
	Mfr	391.5
	Ind	20.0
	Com	2,348.0
		<hr/> 4,633.0
Out	Sfr	0.0
	Mfr	4.5
		<hr/> 4.5
	TOTAL	4,637.5

Refuse - active accounts

sourceDate
11 / 2018

Location	Refuse Type	Accounts
IN	Small Dumpster	48
	PA	39
	Medium Dumpste	51
	Large Dumpster	61
	Compactors	3
	Cans Low Rate	6
	Cans	817
		<hr/> 1,025
Out	Large Dumpster	1
	Cans	1
		<hr/> 2
TOTAL		1,027

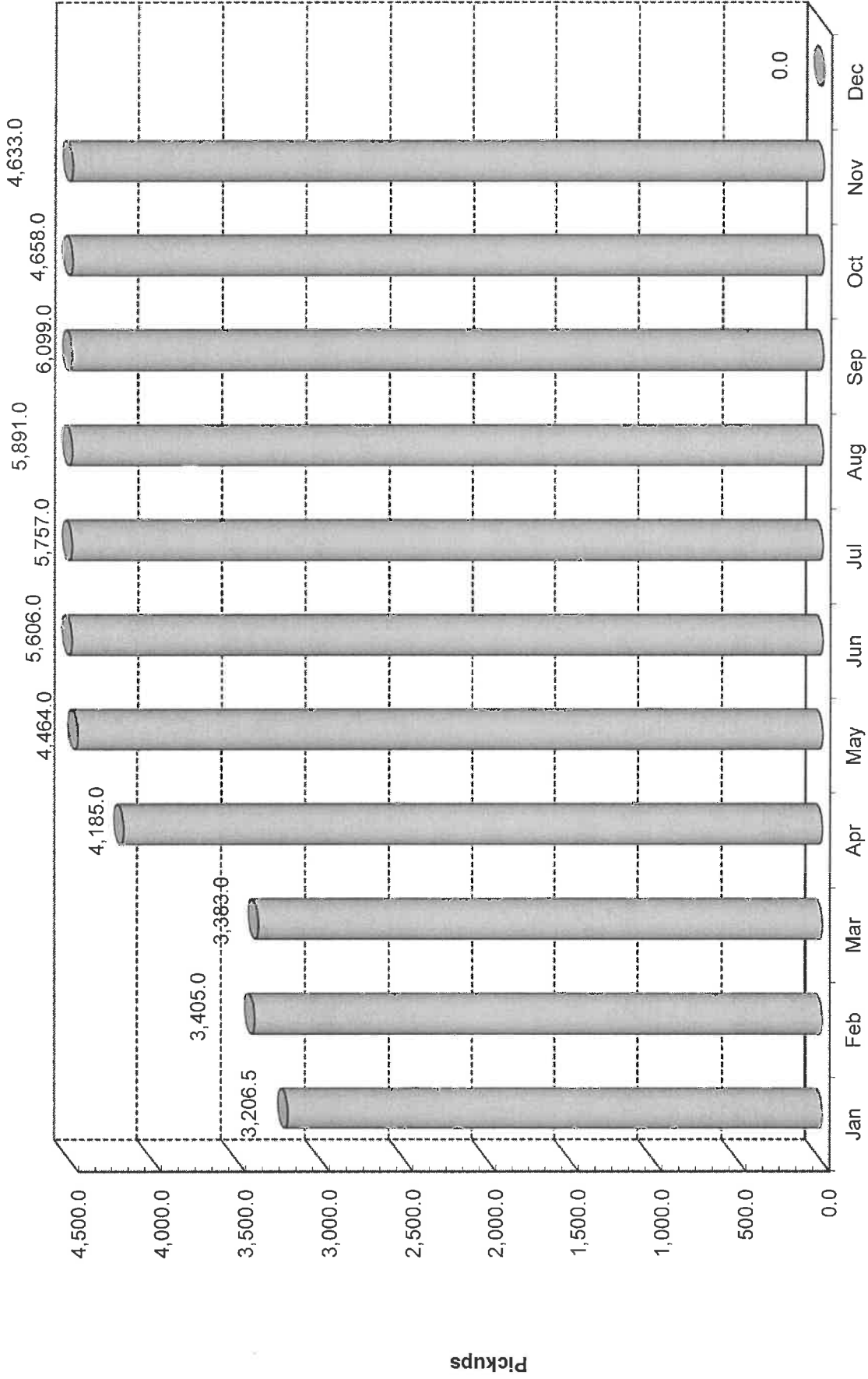
Recycle - pickups by ClasssourceDate
11 / 2018

Location	Class	Pickups
IN	Sfr	539
	RefuseOnly	15
	PA	0
	Mfr	37
	Ind	1
	Com	7
		<hr/> 599
Out	Sfr	0
	Mfr	0
		<hr/> 0
	TOTAL	599

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								0.0
YTD	16,905.5	3,673.0	2,293.5	4,759.5	226.0	23,430.0	0.0	51,287.5

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.

31 :count of days in reporting period.

October 15, 2018		November 14, 2018	
day	flow (total flow)	day	flow (total flow)
15	301	1	296
16	350	2	198
17	282	3	303
18	250	4	220
19	329	5	235
20	230	6	270
21	360	7	231
22	273	8	245
23	244	9	309
24	306	10	217
25	258	11	258
26	246	12	298
27	386	13	210
28	214	14	255
29	222	15	
30	309	16	
31	217		

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">days</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: center;">17</td> <td style="text-align: right; border-bottom: 1px solid black;">4777</td> </tr> </table>	days		17	4777	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">days</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: center;">14</td> <td style="text-align: right; border-bottom: 1px solid black;">3545</td> </tr> <tr> <td style="text-align: center;">31</td> <td style="text-align: right; border-bottom: 3px double black;">8322</td> </tr> </table>	days		14	3545	31	8322
days											
17	4777										
days											
14	3545										
31	8322										
TOTAL DAYS											
TOTAL FLOW	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>					
15-Dec	to	14-Jan	31	7,347,000	7,347
15-Jan	to	14-Feb	31	7,054,000	7,054
15-Feb	to	14-Mar	28	6,566,000	6,566
15-Mar	to	15-Apr	32	8,256,000	8,256
16-Apr	to	14-May	29	7,932,000	7,932
15-May	to	15-Jun	32	11,939,000	11,939
16-Jun	to	15-Jul	30	14,181,000	14,181
16-Jul	to	14-Aug	30	15,364,000	15,364
15-Aug	to	16-Sep	33	13,769,000	13,769
17-Sep	to	14-Oct	28	9,176,000	9,176
15-Oct	to	14-Nov	31	8,322,000	8,322
	to		0	0	
			335	109,906,000	109906.0

TOWN OF FRIDAY HARBOR

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	0
3% meter loss	273,310	292,320	256,401	275,280	0	0
Flushing	108,000	108,000	108,000	108,000	108,000	
SJC#3 FD use	5,000	5,000	5,000	5,000	5,000	
Leaks	72,000				216,000	
notes					SJ Valley Leak	
other non-metered use						
notes						
Total other uses	-458,310	-405,320	-369,401	-388,280	-329,000	0
Net production	13,722,690	14,958,680	13,399,599	8,787,720	7,993,000	0

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	7.81%
Monthly Use	Nov-18	7,401,706	101,317,307	-920,294	109,906,000	277,400	
9,210,664	Dec-18	0	101,317,307	0	109,906,000	0	-8,588,693
YEAR TOTAL:	11	101,317,307	Cumulative Metered/Other Use YTD	109,906,000	-8,588,693 Unaccounted	Cumulative 3% meter loss	328,655 2,879,931

3 YEAR	Use	Flow	Daily Flow	3 Year Loss
AVERAGES:	5,953,168 :gal/month	9,487,400 :gal/month	215,463	as % of Flow 4.24%

source: Monthly Water Treatment Plant Report & utility.mdb's
 3 yr cumulative flow 332,059,000
 3 yr unaccounted -14,095,064

Utilization of Sustainable Annual Water System Capacity

Period start: Dec-17

Period end: Nov-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

117.0 million gallons
57.1%

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	
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	8.50	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

NOV	23.93	27.18	23.52	19.76	26.32	23.43	27.36	26.41	24.76	24.66
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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						
FEB	2.95	4.83	2.99	3.80						
MAR	3.62	2.88	3.27	1.48						
APR	0.51	0.75	2.20	3.10						
MAY	0.30	0.48	1.61	0.07						
JUN	0.14	1.22	0.75	0.72						
JUL	0.36	0.32	0.15	0.18						
AUG	0.94	0.11	0.11	0.01						
SEP	1.28	1.40	0.71	1.27						
OCT	3.53	4.80	4.28	2.23						
NOV	6.19	3.47	4.32	4.32						
DEC	5.26	4.02	3.83							
Total	29.05	26.45	25.82	22.28	0.00	0.00	0.00	0.00	0.00	0.00

Cumulative thru

NOV	23.79	22.43	21.99	22.28	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