



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

www.fridayharbor.org

Period ending: Sept 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
9 / 2018

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

Water Class	Accounts	Gallons
Spe	4	163,934
Sfr	986	4,579,190
PA	76	2,052,880
Mfr	120	2,073,900
Ind	15	310,320
Com	218	2,904,901
TOTAL	1,419	12,085,125

Water - use MTD by LocationsourceDate
9 / 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	156,774
Sfr	633	2,587,540
PA	69	1,495,900
Mfr	115	1,845,730
Ind	13	308,690
Com	214	2,841,571
	1,047	9,236,205
Location: Out		
Spe	1	7,160
Sfr	353	1,991,650
PA	7	556,980
Mfr	5	228,170
Ind	2	1,630
Com	4	63,330
	372	2,848,920
TOTAL	1,419	12,085,125

Water use MTD - accounts with sewersourceDate
9 / 2018

Sewer Class	Accounts	Gallons
Location: IN		
Mfr In/low Strength	54	726,890
Com In/lo Strength	161	1,565,331
Dot In/lo Strength	3	77,580
Ind In/hi Strength	1	64,160
Ind In/lo Strength	10	231,500
Lmf In/lo Strength	1	3,200
Com In/hi Strength	41	1,193,420
Mfr In/lo Strength	56	661,390
Mhp In/lo Strength	2	390,300
PA In/hi Strength	3	157,520
PA In/lo Strength	43	770,740
Sfr IN Town	613	2,552,380
Low Rate / IN Town	5	9,160
	<hr/> 993	<hr/> 8,403,571
Location: Out		
UW Out/hi Strength	1	318,100
Mfr Out/lo Strength	1	5,380
Sfr Out of Town	4	14,750
	<hr/> 6	<hr/> 338,230
TOTAL	999	8,741,801

Refuse - pickups by ClasssourceDate
9 / 2018

Location	Class	Pickups
IN	Sfr	1,771.0
	RefuseOnly	561.0
	PA	290.5
	Mfr	473.5
	Ind	22.0
	Com	2,981.0
		<hr/> 6,099.0
Out	Sfr	0.0
	Mfr	6.5
		<hr/> 6.5
TOTAL		6,105.5

Refuse - active accountssourceDate
9 / 2018

Location	Refuse Type	Accounts
IN		
	Small Dumpster	47
	PA	39
	Medium Dumpste	51
	Large Dumpster	63
	Compactors	3
	Cans Low Rate	5
	Cans	804
		<hr/>
		1,012
Out		
	Large Dumpster	1
	Cans	1
		<hr/>
		2
		<hr/>
	TOTAL	1,014

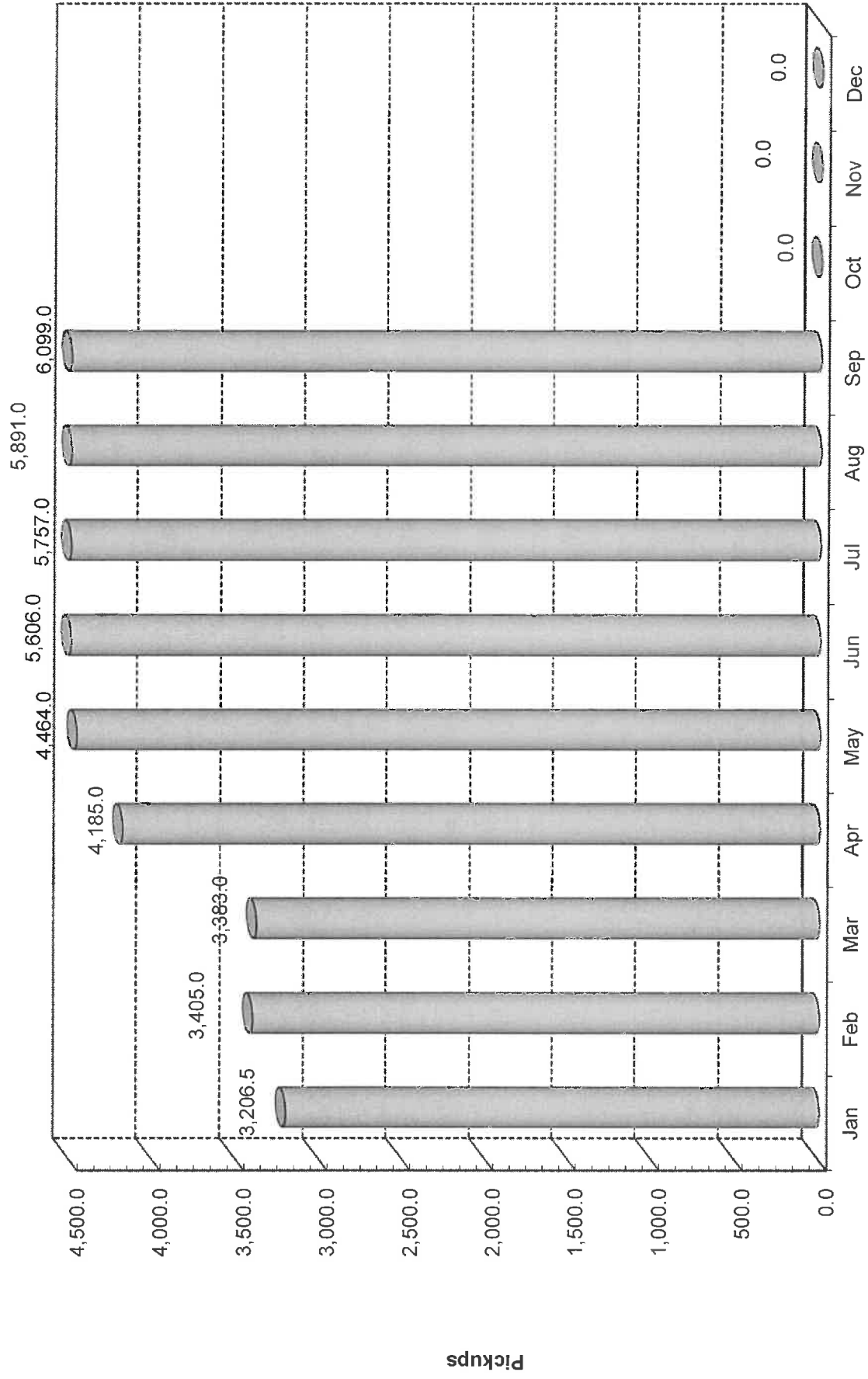
Recycle - pickups by ClasssourceDate
9 / 2018

Location	Class	Pickups
IN	Sfr	750
	RefuseOnly	19
	PA	0
	Mfr	50
	Ind	7
	Com	17
		<hr/> 843
Out	Sfr	0
	Mfr	0
		<hr/> 0
	TOTAL	843

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								0.0
Nov								0.0
Dec								0.0
YTD	14,097.5	3,180.0	1,859.0	3,985.5	183.0	18,691.5	0.0	41,996.5

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.

33 :count of days in reporting period.

Aug-18		Sep-18	
day	flow (total flow)	day	flow (total flow)
15	489	1	409
16	490	2	433
17	513	3	444
18	597	4	417
19	415	5	398
20	396	6	380
21	482	7	427
22	506	8	449
23	482	9	419
24	450	10	180
25	461	11	409
26	356	12	319
27	374	13	281
28	482	14	345
29	423	15	374
30	400	16	317
31	452		

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; border-bottom: 1px solid black;">days</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: right;">17</td> <td style="text-align: right; border-bottom: 1px solid black;">7768</td> </tr> </table>	days		17	7768	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; border-bottom: 1px solid black;">days</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: right;">16</td> <td style="text-align: right; border-bottom: 1px solid black;">6001</td> </tr> </table>	days		16	6001
days									
17	7768								
days									
16	6001								
TOTAL DAYS	33								
TOTAL FLOW	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; border-bottom: 3px double black;">13769</td> </tr> <tr> <td style="text-align: right;">1,000's gallons</td> </tr> </table>	13769	1,000's gallons						
13769									
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
	<i>to</i>		0	0	
	<i>to</i>		0	0	
	<i>to</i>		0	0	
			276	92,408,000	92408.0

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	0	0	0
3% meter loss	273,310	292,320	256,401	0	0	0
Flushing	108,000	108,000	108,000			
SJC#3 FD use	5,000	5,000	5,000			
Leaks	72,000					
notes						
other non-metered use						
notes						
notes						
Total other uses	-458,310	-405,320	-369,401	0	0	0
Net production	13,722,690	14,958,680	13,399,599	0	0	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	0	85,291,133	0	92,408,000	0	7.70%
Monthly Use	Nov-18	0	85,291,133	0	92,408,000	0	
9,476,793	Dec-18	0	85,291,133	0	92,408,000	0	-7,116,867
YEAR TOTAL:	9	85,291,133	Cumulative Metered/Other Use YTD	92,408,000	-7,116,867 Unaccounted	Cumulative 3% meter loss	337,978 2,426,844

3 YEAR AVERAGES:	Use	Flow	Daily Flow	3 Year Loss as % of Flow
	5,828,325 :gal/month	9,532,152 :gal/month	218,571	4.01%

source: Monthly Water Treatment Plant Report & utility.mdb's 3 yr cumulative flow 314,561,000
3 yr unaccounted -12,623,238

Utilization of Sustainable Annual Water System Capacity

Period start: Oct-17

Period end: Sep-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

114.8 million gallons
56.0%

exceeds Sustainable Yield?

No

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

SEP	16.15	14.86	19.08	12.78	14.32	19.11	20.57	16.69	20.85	16.66
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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							
NOV	6.19	3.47	4.32							
DEC	5.26	4.02	3.83							
Total	29.05	26.45	25.82	15.73	0.00	0.00	0.00	0.00	0.00	0.00

Cumulative thru

SEP	14.07	14.16	13.39	15.73	0.00	0.00	0.00	0.00	0.00	0.00
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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	
Nov-12	-24.25	Nov-15	-17.25	Nov-18	
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	

Prevention of Wastewater Facility Overloading

Period start: Sep-17
 Period end: Aug-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