



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

www.fridayharbor.org

Period ending: August 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
8 / 2019

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

Water Class	Accounts	Gallons
Spe	4	64,549
Sfr	987	4,922,790
PA	76	2,573,210
Mfr	124	2,187,810
Ind	14	289,630
Com	221	3,160,640
TOTAL	1,426	13,198,629

Water use MTD - accounts with sewersourceDate
8 / 2019

Sewer Class	Accounts	Gallons
Location: IN		
Mfr In/low Strength	50	742,000
Com In/lo Strength	161	1,664,000
Dot In/lo Strength	3	80,430
Ind In/hi Strength	1	50,530
Ind In/lo Strength	10	226,260
Lmf In/lo Strength	1	3,060
Com In/hi Strength	45	1,312,350
Mfr In/lo Strength	64	731,160
Mhp In/lo Strength	2	403,700
PA In/hi Strength	3	159,800
PA In/lo Strength	42	1,096,040
Sfr IN Town	614	2,882,870
Low Rate / IN Town	5	6,920
	<hr/> 1001	<hr/> 9,359,120
Location: Out		
UW Out/hi Strength	1	495,100
Mfr Out/lo Strength	1	4,450
Sfr Out of Town	4	17,780
	<hr/> 6	<hr/> 517,330
TOTAL	1007	9,876,450

Water - use MTD by LocationsourceDate
8 / 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	3	59,539
Sfr	635	2,944,910
PA	68	1,914,840
Mfr	119	1,942,620
Ind	13	289,630
Com	217	3,094,030
	<hr/>	
	1,055	10,245,569
Location: Out		
Spe	1	5,010
Sfr	352	1,977,880
PA	8	658,370
Mfr	5	245,190
Ind	1	0
Com	4	66,610
	<hr/>	
	371	2,953,060
TOTAL	1,426	13,198,629

Refuse - pickups by ClasssourceDate
8 / 2019

Location	Class	Pickups
IN	Sfr	1,830.0
	RefuseOnly	423.5
	PA	220.5
	Mfr	474.5
	Ind	16.5
	Com	2,812.0
		<hr/> 5,777.0
Out	Mfr	10.0
		<hr/> 10.0
	TOTAL	<hr/> 5,787.0

Refuse - active accounts

sourceDate
8 / 2019

Location	Refuse Type	Accounts
IN	Small Dumpster	47
	PA	39
	Medium Dumpste	54
	Large Dumpster	62
	Compactors	3
	Cans Low Rate	5
	Cans	827
		<hr/> 1,037
Out	Large Dumpster	1
		<hr/> 1
TOTAL		1,038

Recycle - pickups by Class

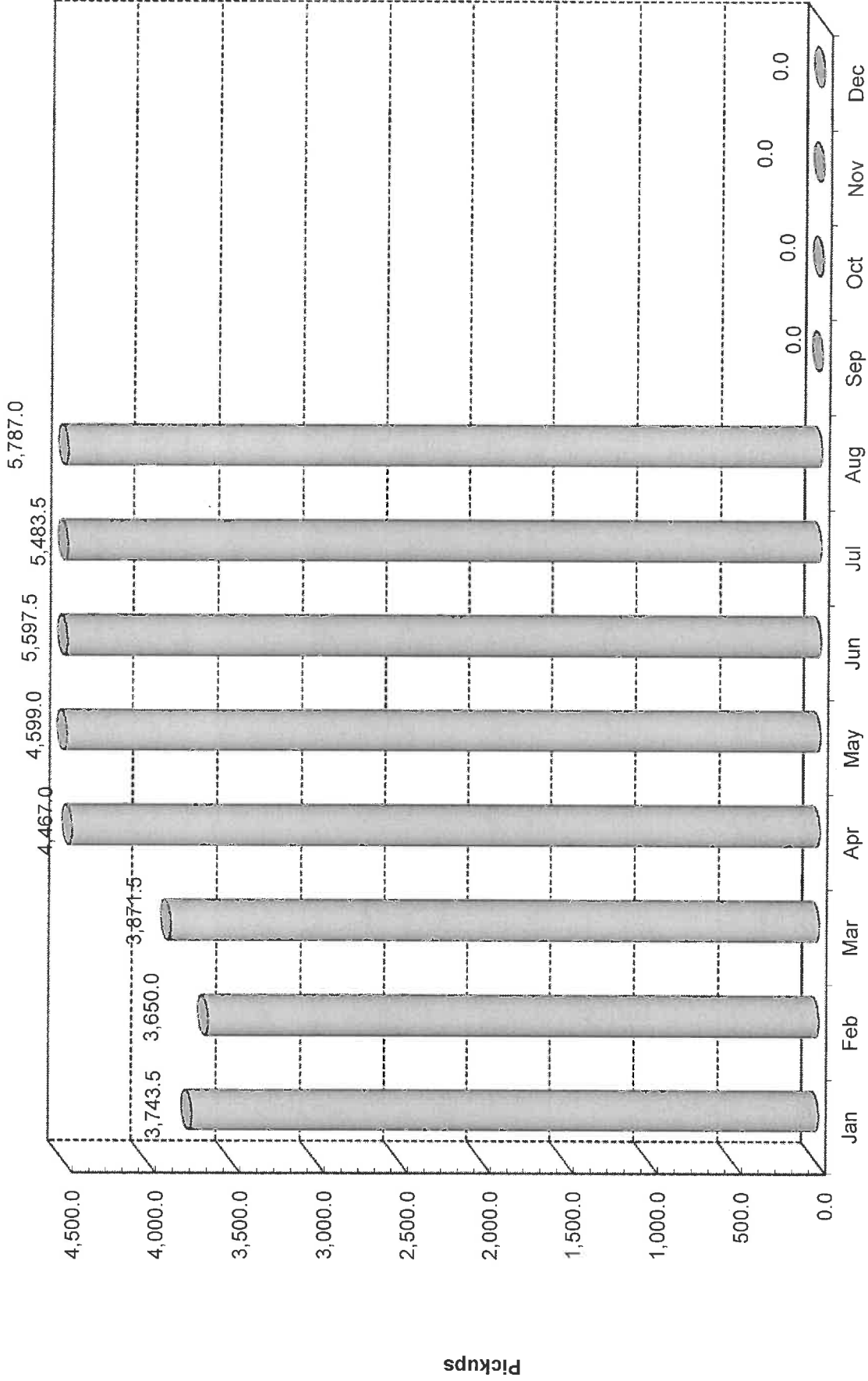
sourceDate
8 / 2019

Location	Class	Pickups
IN	Sfr	630
	RefuseOnly	18
	PA	0
	Mfr	50
	Ind	5
	Com	7
		<hr/>
Out	Mfr	0
		<hr/>
TOTAL		710

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								0.0
Oct								0.0
Nov								0.0
Dec								0.0
YTD	12,831.5	2,404.5	1,496.5	3,357.0	146.5	16,918.5	44.5	37,199.0

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.

	July 15, 2019		August 14, 2019
day	flow (total flow)	day	flow (total flow)
15	374	1	435
16	390	2	491
17	535	3	451
18	392	4	433
19	375	5	442
20	494	6	508
21	465	7	460
22	440	8	506
23	479	9	479
24	434	10	456
25	480	11	394
26	419	12	379
27	506	13	497
28	472	14	477
29	376	15	
30	505	16	
31	433		
days	7569	days	6408
	TOTAL DAYS	31	
TOTAL FLOW			13977
			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
	<i>to</i>		0	0	
	<i>to</i>		0	0	
	<i>to</i>		0	0	
	<i>to</i>		0	0	
	<i>to</i>		0	0	
			241	79,072,000	79072.0

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	-890,947	-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	0	0	0	0
3% meter loss	340,444	395,959	0	0	0	0
Flushing	201,600	180,000				
SJC#3 FD use	5,000	5,000				
Leaks	226,800	86,400				
notes						
other non-metered use						
notes						
Total other uses	-773,844	-667,359	0	0	0	0
Net production	11,385,156	13,309,641	0	0	0	0

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	YTD
Aug-17	13,661,250	74,657,390	14,809,000	-1,147,750	78,676,000	477,710	Unaccounted
Sep-17	14,093,015	88,750,405	14,968,000	-874,985	93,644,000	498,933	as % of Flow
Average	7,823,149	96,573,554	8,040,000	-216,851	101,684,000	259,355	5.10%
Monthly Use	6,680,806	103,254,360	7,273,000	-592,194	108,957,000	242,433	
9,176,124	6,859,133	110,113,492	7,071,000	-211,867	116,028,000	228,097	-5,914,508
YEAR TOTAL:	12	110,628,322	Cumulative	116,028,000	-5,914,508	Cumulative	317,735
		Metered/Other	Use YTD		Unaccounted	3% meter loss	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	YTD
Aug-18	14,508,241	72,836,607	15,364,000	-855,759	78,639,000	495,613	Unaccounted
Sep-18	12,454,526	85,291,133	13,769,000	-1,314,474	92,408,000	458,967	as % of Flow
Average	8,624,468	93,915,601	9,176,000	-551,532	101,584,000	296,000	8.25%
Monthly Use	7,401,706	101,317,307	8,322,000	-920,294	109,906,000	277,400	
9,031,729	7,063,439	108,380,746	8,225,000	-1,161,561	118,131,000	265,323	-9,750,254
YEAR TOTAL:	12	108,380,746	Cumulative	118,131,000	-9,750,254	Cumulative	323,377
		Metered/Other	Use YTD		Unaccounted	3% meter loss	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	YTD
Aug-19	13,865,988	74,200,336	13,977,000	-111,012	79,072,000	450,871	Unaccounted
Sep-19	0	74,200,336	0	0	79,072,000	0	as % of Flow
Average	0	74,200,336	0	0	79,072,000	0	6.16%
Monthly Use	0	74,200,336	0	0	79,072,000	0	
9,275,042	0	74,200,336	0	0	79,072,000	0	-4,871,664
YEAR TOTAL:	8	74,200,336	Cumulative	79,072,000	-4,871,664	Cumulative	325,072
		Metered/Other	Use YTD		Unaccounted	3% meter loss	2,036,736

3 YEAR AVERAGES:	Use	Flow	Daily Flow	3 Year Loss as % of Flow
	5,775,896 :gal/month	9,788,469 :gal/month	216,150	6.56%

source: Monthly Water Treatment Plant Report & utility.mdb's 3 yr cumulative flow 313,231,000
3 yr unaccounted -20,536,425

Utilization of Sustainable Annual Water System Capacity

Period start: Sep-18

Period end: Aug-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

118.6 million gallons
57.8%

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	-16.00
Jul-13	-21.00	Jul-16	-21.00	Jul-19	-26.25
Aug-13	-34.25	Aug-16	-36.50	Aug-19	-40.00
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

	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						
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	4.26						
Total	29.05	26.45	25.82	26.54	11.60	0.00	0.00	0.00	0.00	0.00

Cumulative thru

DEC	29.05	26.45	25.82	26.54	11.60	0.00	0.00	0.00	0.00	0.00
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Prevention of Wastewater Facility Overloading

Period start: Aug-18
 Period end: Jul-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