

Town of Fairfield Wastewater Treatment Plant

Permit No.

004548 9

Annual Treatment Facility Review Report (Wasteload Assessment)

Reporting Year: From: **Jan 1 2023**

To: **Dec 31 2023**

Design Parameters:

Max monthly design flow (dry): **232000** gpd

Design Population Equivalent: **800**

Max monthly design flow (wet): **232000** gpd

Present Population Served: **620**

Peak daily design flow: **579000** gpd

Projected Population growth: **1.90%**

Design Influent BOD loading: **193** lbs/day

Compliance with effluent permit limitation?

Design Influent TSS loading: **212** lbs/day

Yes

No

Table 1, Influent Monthly Average Loading & Peak Daily Flow (From Monthly DMR)

Month	Avg flow (gpd)	Peak flow (gpd)	BOD (lbs/day)	TSS (lbs/day)
January	73502	103750	51.1	25.0
February	68437	96500	103.0	491.5
March	65206	169950	81.8	198.0
April	67802	85600	72.3	215.5
May	47474	87650	122.3	226.0
June	26660	35250	78.3	101.0
July	15942	19500	132.0	185.0
August	15007	26100	113.6	60.0
September	13893	16200	112.0	99.0
October	14427	29644	133.0	206.5
November	22185	42000	96.4	174.0
December	39824	71400	88.9	126.0

Table 2, Maximum Influent Monthly Average Loading (Highest Month)

	Month	Max Monthly Average Value	Design Capacity	% Design Capacity	Previous year Max Monthly Avg value	% Increase / Decrease
Weather Flow gpd	May	47474	232000	20.46%	59083	-19.65%
Wet Weather Flow gpd	January	73502	232000	31.68%	63291	16.13%
Peak Flow gpd	March	169950	579000	29.35%	220000	-22.75%
BOD (lbs/day)	October	133.0	193.0	68.91%	187.4	-29.03%
TSS (lbs/day)	February	491.5	212.0	** 231.84%	177.0	177.68%

* Flow or wasteload reached 85% of design capacity, ** Flow or wasteload reached or exceeded its design capacity

If actual flow or wasteload reaches 85% of design capacity for three consecutive months, the permittee shall submit a plan and schedule in accordance with their permit.

Table 3, Maximum Monthly Average Data for the Last Three Years (For Plotting)

Year	Flow (gpd)	BOD (lbs/day)	TSS (lbs/day)
2023	67802	133.00	263.50
2022	277900	202.00	174.00
2021	52220	20.00	19.10
2020	277900	202.00	174.00

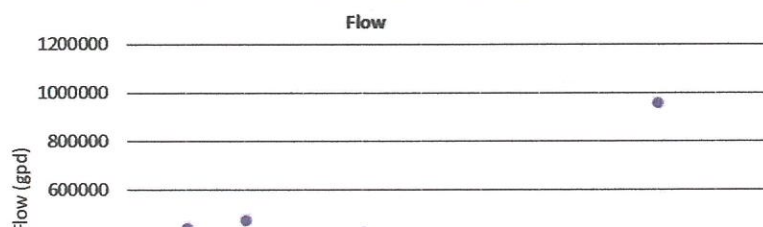
Estimated year when the design capacity is projected to be reached:

Comments:

Design Capacity Graphs

Table 4: Max month Flow Data

Year	max month avg Flow, gpd	design cap, gpd
2023	67,802	232,000
2022	277,900	232,000
2021	52,220	232,000



2020	277,900	232,000
2019	277,900	232,000
2018	76,293	232,000
2017	326,184	232,000
2016	326,184	232,000
2015	225,290	232,000
2014	333,390	232,000
2013	417,170	232,000

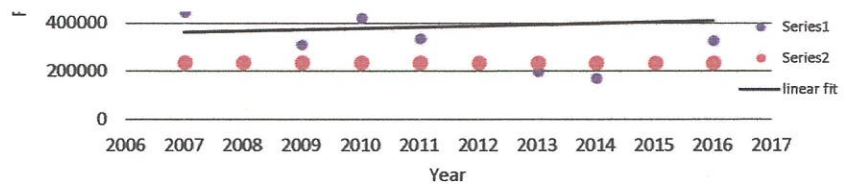
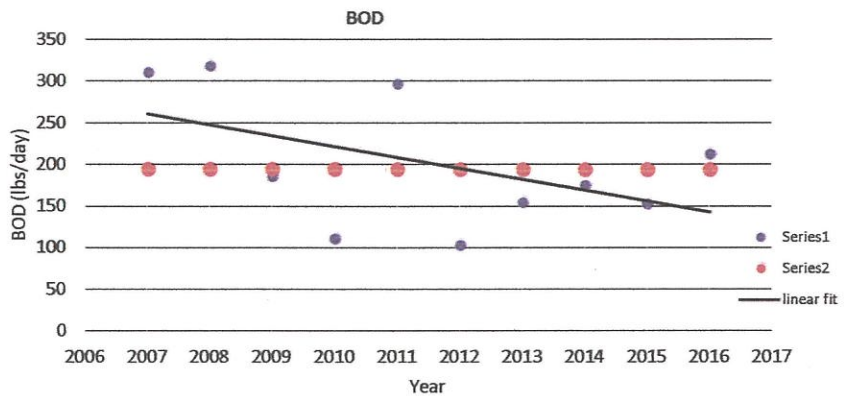


Table 5: Max month BOD Data

Year	max month av BOD, lbs/day	design cap lbs/day
2023	133.0	193.0
2022	202.0	193.0
2021	20.0	193.0
2020	202.0	193.0
2019	202.0	193.0
2018	354.5	193.0
2017	212.4	193.0
2016	212.0	193.0
2015	296.6	193.0
2014	110.2	193.0

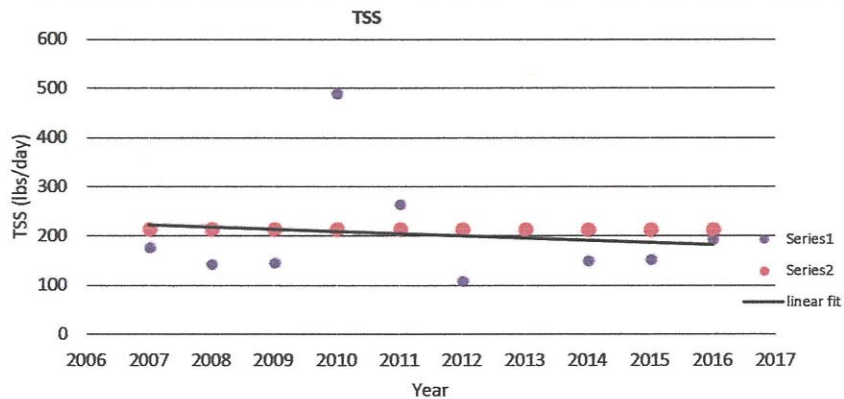


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Table 6: Max month TSS Data

Year	max month av TSS, lbs/day	design cap lbs/day
2023	263.5	212
2022	174	212
2021	19.1	212
2020	202	212
2019	174	212
2018	305	212
2017	193	212
2016	193	212
2015	264.1	212
2014	488.6	212



When loadings reach design capacity?

1. Fill in Table 4,5,and 6 with at least 3 years of data. The more data you enter the better is your projection.
2. Print on a paper.
3. Extend the dotted design capacity line (separately for flow/BOD/TSS) to intersect the linear fit line (solid).
4. Draw a vertical line from the point of intersection downwards to find the estimated year.
5. Report the earliest year among flow, BOD, and TSS in the first page.

EFFLUENT QUALITY SECTION—Permit Limits

Parameter	Monthly Avg.	Monthly Avg.	Weekly Avg.	Weekly Avg.
	Units	Limit Lb.	Units	Limit Lb.
*Flow (gpd)	232000			
BOD	30	173	45	259
TSS	30	188	45	281
Fecal Coliform (no./100 mL)	200			

<<Maximum wet weather design flow

pH max	8.5			
pH min	6.5			
Temperature °C Max				
NH3-N	5			
Other				

*Flow can be Influent or Effluent, whichever is appropriate

Table 7: Effluent monthly AVERAGES (max/min for pH) for subject year

Month	Avg flow gpd	Effluent BOD		Effluent TSS		Fecal Coliform no./100 mL	Min pH Std. Units	Max pH Std. Units	Temperature °C Avg.	NH3-N mg/L	NH3-N Lb.
		mg/L	Lb.	mg/L	Lb.						
January	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0		#DIV/0!	
February	6388	14.4	0.7	7.2	0.6	2	6.7	7.2		3.7	
March	8318	6.4	0.6	26.6	2.0	2	6.8	7.8		1.1	
April	28125	4.7	1.5	5.4	1.8	2	7.1	7.2		1.5	
May	15089	2.5	0.4	7.1	1.0	24	6.8	7.1		0.6	
June	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0		#DIV/0!	
July	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0		#DIV/0!	
August	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0		#DIV/0!	
September	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0		#DIV/0!	
October	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0		#DIV/0!	
November	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0		#DIV/0!	
December	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0		#DIV/0!	

Table 8: Effluent monthly MAXIMUMS for subject year

Month	Max flow gpd	Effluent BOD		Effluent TSS		Fecal Coliform no./100 mL	Min pH Std. Units	Max pH	Temperature °C Max	NH3-N mg/L	NH3-N Lb.
		mg/L	Lb.	mg/L	Lb.						
January	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0.0	0.0		0.0	
February	16200	14.4	0.7	7.2	0.6	2	6.7	7.2		6.4	
March	20100	6.4	0.6	26.6	2.0	2	6.8	7.8		1.8	
April	59250	4.7	1.5	5.4	1.8	2	7.1	7.2		2.5	
May	0	2.5	0.4	7.1	1.0	46	6.8	7.1		1.1	
June	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0.0	0.0		0.0	
July	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0.0	0.0		0.0	
August	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0.0	0.0		0.0	
September	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0.0	0.0		0.0	
October	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0.0	0.0		0.0	
November	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0.0	0.0		0.0	
December	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0.0	0.0		0.0	

Table 9: Effluent monthly VIOLATIONS calculated for subject year (violations are designated by an "X")

Month	Max flow gpd	Effluent BOD		Effluent TSS		Fecal Coliform no./100 mL	pH MIN S.U	pH MAX	Temperature °C Max	NH3-N mg/L	NH3-N Lb.
		mg/L	Lb.	mg/L	Lb.						
January		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!						
February										X	
March											
April											
May											
June		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!						
July		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!						
August		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!						
September		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!						
October		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!						
November		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!						
December		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!						