

Freeman School District #385 Wastewater Treatment Plant

Permit No. WA0045403

Annual Treatment Facility Review Report (Wasteload Assessment)

Reporting Year: From: 1/1/2016 To: 12/31/2016

Design Parameters:

| | | | | |
|--------------------------------|--------------|---------|---|-------------|
| Max monthly design flow (dry): | <u>43200</u> | gpd | Design Population Equivalent: | <u>1800</u> |
| Max monthly design flow (wet): | <u>43200</u> | gpd | Present Population Served: | <u>950</u> |
| Peak daily design flow: | <u>43200</u> | gpd | Projected Population growth: | <u>1000</u> |
| Design Influent BOD loading: | <u>72</u> | lbs/day | Compliance with effluent permit limitation? | |
| Design Influent TSS loading: | <u>72</u> | lbs/day | Yes | <u>X</u> 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 | 4208 | 5616 | 3.0 | 3.0 |
| February | 4464 | 4608 | 9.5 | 2.5 |
| March | 5745 | 5745 | 9.0 | 5.0 |
| April | 3600 | 3600 | 2.0 | 3.0 |
| May | 3960 | 4320 | 5.5 | 3.5 |
| June | No School | No School | No School | No School |
| July | No School | No School | No School | No School |
| August | No School | No School | No School | No School |
| September | 4680 | 5760 | 5.5 | 5.0 |
| October | 4320 | 5040 | 9.5 | 7.0 |
| November | 5496 | 6048 | 6.3 | 5.7 |
| December | 5760 | 5760 | 11.0 | 6.0 |

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 |
|----------------------|-----------|---------------------------|-----------------|-------------------|-------------------------------------|-----------------------|
| Dry Weather Flow gpd | September | 4680 | 43200 | 10.83% | 3429 | 36.48% |
| Wet Weather Flow gpd | December | 5760 | 43200 | 13.33% | 4320 | 33.33% |
| Peak Flow gpd | November | 6048 | 43200 | 14.00% | 5400 | 12.00% |
| BOD (lbs/day) | December | 11.0 | 72.0000 | 15.28% | 7.0 | 57.14% |
| TSS (lbs/day) | October | 7.0 | 72.0000 | 9.72% | 2.0 | 250.00% |

* 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) |
|------|------------|---------------|---------------|
| 2016 | 5760 | 11 | 7 |
| 2015 | 5400 | 12 | 8.5 |
| 2014 | 5088 | 7.5 | 5.5 |

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

20+ years

Signature and Title

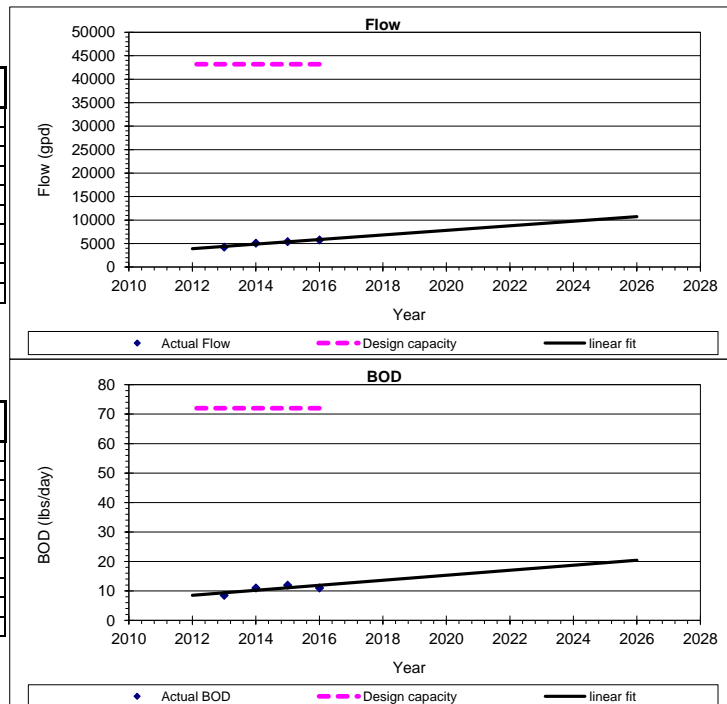
Design Capacity Graphs

Table 4: Max month Flow Data

| Year | max month avg Flow, gpd | design cap, gpd |
|------|-------------------------|-----------------|
| 2016 | 5760 | 43200 |
| 2015 | 5400 | 43200 |
| 2014 | 5088 | 43200 |
| 2013 | 4238 | 43200 |
| 2012 | | 43200 |
| | | |
| | | |
| | | |
| | | |

Table 5: Max month BOD Data

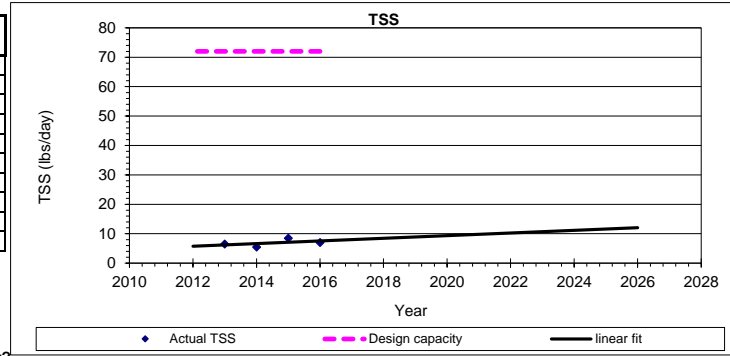
| Year | max month avg BOD, lbs/day | design cap, lbs/day |
|------|----------------------------|---------------------|
| 2016 | 11 | 72 |
| 2015 | 12 | 72 |
| 2014 | 11 | 72 |
| 2013 | 8.5 | 72 |
| 2012 | | 72 |
| | | |
| | | |
| | | |
| | | |



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Table 6: Max month TSS Data

| Year | max month avg TSS, lbs/day | design cap lbs/day |
|------|-------------------------------|-----------------------|
| 2016 | 7 | 72 |
| 2015 | 8.5 | 72 |
| 2014 | 5.5 | 72 |
| 2013 | 6.5 | 72 |
| 2012 | | 72 |
| | | |
| | | |
| | | |
| | | |



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. Units | Monthly Avg. Limit Lb. |
|-------------|-----------------------|---------------------------|
| *Flow (gpd) | 43200 | |
| BOD | 8.1 | 2.9 |
| TSS | 20 | 7.2 |

*Flow can be Influent or Effluent, whichever is appropriate

Table 7: Effluent monthly **AVERAGES**

| Month | Avg flow gpd | Effluent BOD | | Effluent TSS | |
|-----------|-----------------|--------------|---------|--------------|---------|
| | | mg/L | Lb. | mg/L | Lb. |
| January | 13716 | 12.0 | 1.3 | 11.0 | 0.9 |
| February | 6246 | 1.0 | 0.1 | 5.0 | 0.3 |
| March | 11088 | 3.5 | 0.5 | 8.0 | 0.8 |
| April | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| May | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| June | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| July | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| August | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| September | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| October | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| November | 9936 | 26.3 | 1.7 | 18.7 | 1.8 |
| December | 5976 | 2.0 | 0.1 | 24.0 | 1.0 |

Table 8: Effluent monthly **MAXIMUMS**

| Month | Max flow gpd | Effluent BOD | | Effluent TSS | |
|-----------|-----------------|--------------|---------|--------------|---------|
| | | mg/L | Lb. | mg/L | Lb. |
| January | 21600 | 12.0 | 2.2 | 14.0 | 1.4 |
| February | 7200 | 1.0 | 0.1 | 8.0 | 0.5 |
| March | 17280 | 4.0 | 0.6 | 14.0 | 1.3 |
| April | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| May | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| June | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| July | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| August | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| September | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| October | No DSCH | No DSCH | No DSCH | No DSCH | No DSCH |
| November | 17280 | 75.0 | 4.5 | 38.0 | 3.7 |
| December | 7200 | 2.0 | 0.1 | 24.0 | 1.0 |

Table 9: Effluent monthly **VIOLATIONS** calculated for subject year

| Month | Max flow gpd | Effluent BOD | | Effluent TSS | |
|-----------|-----------------|--------------|-----|--------------|-----|
| | | mg/L | Lb. | mg/L | Lb. |
| January | | X | | X | |
| February | | | | X | |
| March | | | | X | |
| April | | | | | |
| May | | | | | |
| June | | | | | |
| July | | | | | |
| August | | | | | |
| September | | | | | |
| October | | | | | |
| November | | X | X | X | X |
| December | | | | X | X |