City of Carroll

112 E. 5th Street Carroll, Iowa 51401-2799 (712) 792-1000 FAX: (712) 792-0139

MEMO TO: Mike Pogge-Weaver, City Manager MJP-W

FROM: Randall M. Krauel, Director of Public Works RMK

DATE: June 9, 2021

SUBJECT: Carroll County Solid Waste Management Commission
Wastewater Treatment Agreement
Waiver Request

The Carroll County Solid Waste Management Commission (Commission) currently discharges wastewater to the City's Wastewater Treatment Plant (WWTP) under a Treatment Agreement with the City. The Treatment Agreement limits the wastewater discharge volume and organic loading to the City's WWTP. The Commission frequently violates the discharge limits of the Agreement.

The Commission, through their consultant Foth Infrastructure & Environment, LLC (Foth), has requested a temporary waiver to the BOD loading limits included in the Agreement. The temporary waiver request is for a period of 12 months to reduce or eliminate Iowa Department of Natural Resources (DNR) Notices of Violation during which time the Commission proposes to work with the City to establish a solution that works for both parties.

The temporary waiver increases requested are as follows:

- Increase the monthly average BOD effluent limit from 50 lbs/day to 200 lbs/day.
- Increase the daily maximum BOD effluent limit from 50 lbs/day to 500 lbs/day.

A Data Evaluation & Temporary Waiver Request dated February 8, 2021, prepared by Foth is attached. Accompanying the Evaluation and Request were approximately 70 pages of supporting information. Those are available for review but not included here.

The City requested that Veenstra & Kimm, Inc. (V & K) prepare a response to the Commission's requested increase in Treatment Agreement capacity. A copy of the V & K response is attached. The conclusions included in the response are summarized as follows:

- The City cannot grant the Commission's request without altering the allocated BOD treatment capacity for domestic & commercial users or non-Commission Significant Industrial User or without rerating the WWTP BOD treatment capacity through the DNR.

- The City could temporarily increase the Commission's Treatment Agreement limits from 50 lbs/day to 150 lbs/day for the 30-day average limit and from 50 lbs/day to 250 lbs/day for the maximum day limit.

- The City could grant the 150 lbs/day and 250 lbs/day temporary limits for a 12-month period while working with the DNR to rerate the WWTP BOD treatment capacity.

RECOMMENDATION: Mayor and City Council consideration of denial of the Commission request for a temporary waiver to the Treatment Agreement for increased BOD limits and continue to work with the Commission to establish a solution that works for both parties.

RMK:ds

attachments (2)

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(319) 365-9565
www.foth.com

February 8, 2021

Randy Krauel and Sean Kleespies
City of Carroll
112 East 5th Street
Carroll, IA 51401-2799

RE: Data Evaluation & Temporary Waiver Request
Carroll County Solid Waste Management Commission

Dear Mr. Krauel and Mr. Kleespies:

On behalf of the Carroll County Solid Waste Management Commission (Commission), Foth Infrastructure & Environment, LLC (Foth) is submitting an evaluation of the Carroll County Landfill's leachate effluent volume and loading on the City of Carroll's wastewater treatment plant (WWTP) operations. This evaluation is based on data provided by the City of Carroll and the Commission's lift station flow meter. Graphs depicting flow, biochemical oxygen demand (BOD), ammonia, and total kjeldahl nitrogen (TKN) are provided in Figures 1-16 of Attachment 1. The Commission submitted two data requests to the City of Carroll regarding WWTP influent and effluent flow and concentrations, treatment operations, and plant design capacity. The data provided by the City of Carroll in response to these two data requests are included in Attachment 2. The Commission's leachate effluent flow, BOD, ammonia, and TKN data collected between January 2016 and October 2020 is provided in Attachment 3.

In addition, this letter includes a temporary waiver request for the Commission's Industrial User Agreement with the City of Carroll, as supported by this evaluation.

WWTP Background Information

The background information in this section is reiterated from the second data request responses provided by the City of Carroll. The WWTP was constructed in 1969, with the last major reconstruction occurring in 2005. For wastewater treatment, the WWTP utilizes an activated sludge process. The activated sludge process has limited nutrient removal capability consisting of nitrification without denitrification. Alkalinity is not injected into the wastewater. The City of Carroll indicated that there is no particular bottleneck or limiting feature in the WWTP, and the WWTP satisfactorily treats the design flows and loadings. Currently, there are no plans to expand or increase the design capacities of the WWTP.

The WWTP's influent design capacities for flow, BOD, and TKN are provided in Table 1.

Table 1 – WWTP Influent Design Capacity

Parameter	Design Capacity
Influent Flow	4.20 MGD
Influent BOD Loading	4,735 lbs/day
Influent TKN Loading	1,021 lbs/day

MGD = million gallons per day
lbs/day = pounds per day

Flow

Figures 1 and 2 depict the WWTP influent flows compared to the plant design capacity of 4.20 MGD from January 2016 through October 2020. Based on the average daily influent flow per month, the WWTP is using approximately 40% of the plant design capacity. Review of the maximum daily influent flows per month identified seven months between January 2016 and October 2020 where the maximum influent flows per month exceeded the plant design capacity.

Figures 3 and 4 depict the contribution of leachate effluent flow to the WWTP influent flow and usage of the plant design capacity for flow. Landfill leachate is not a major contributor to the volume of wastewater treated at the WWTP. Both the average and maximum daily leachate effluent flows per month comprised less than 2.4% of the influent flow and less than 1.7% of the plant design capacity.

Between January 2016 and October 2020, average daily leachate effluent flow ranged from 0.001-0.04 MGD, with maximum daily leachate effluent flow up to 0.07 MGD. The Commission's Industrial User Agreement with the City of Carroll has established a maximum daily flow limit of 0.05 MGD, which is 1.2% of the plant design capacity. While the maximum daily flow limit of the Industrial User Agreement was exceeded 13 times or 0.74% between January 2016 and October 2020, the exceeding flows were 0.05-0.07 MGD and comprised only 1.2-1.7% of the plant design capacity. This indicates that the 13 leachate effluent exceedances of the Industrial User Agreement were not impacting WWTP influent flow capacity.

BOD

Figure 5 depicts WWTP influent BOD concentrations, in milligrams per liter (mg/L), from January 2016 through October 2020. Average and maximum daily influent BOD concentrations per month were typically between 100-450 mg/L, with a maximum daily influent concentration per month of 615 mg/L. While fluctuation occurred from month to month, there was no obvious trend in the influent BOD concentrations.

Figure 6 depicts the WWTP influent BOD loading compared to the plant design capacity of 4,735 lbs/day. Based on the average daily influent BOD loading per month, the WWTP is using approximately 2,500 lbs/day or 53% of the plant design capacity. In addition, 85% of the time, the average daily influent BOD loading per month is less than 3,000 lbs/day or approximately 65% of the plant design capacity. Review of the maximum daily influent BOD loading per month identified nine months between January 2016 and October 2020 where the maximum daily influent BOD loading per month exceeded the plant design capacity. During maximum BOD loadings, the WWTP averages approximately 80% usage of the plant design capacity.

Figure 7 depicts leachate effluent BOD concentrations, in mg/L, from January 2016 through October 2020. A shift was identified starting with the 2018 BOD concentrations. In 2016 and 2017, BOD concentrations ranged from 80-902 mg/L with an average concentration of 425 mg/L. From January 2018 through October 2020, BOD concentrations ranged from 17-5,883 mg/L with an average concentration of 1,024 mg/L. With exception of the September 2020 concentration, no obvious trend within the 2018-2020 concentrations was identified. This indicates that further increases in BOD concentrations are not evident at this time. Comparison of the leachate effluent to WWTP influent concentrations, in mg/L, indicates that the impact of the leachate BOD concentrations are marginal in increasing the BOD concentrations for the WWTP influent.

Figure 8 depicts leachate effluent BOD loading, in lbs/day, from January 2016 through October 2020. Leachate effluent BOD loading shows a similar shift starting in 2018. In 2016 and 2017, average daily leachate BOD loading per month ranged from 1.7 to 91 lbs/day with an average loading of 20 lbs/day. From January 2018 through October 2020, average daily leachate BOD loading per month ranged from 0.3-448 lbs/day with an average loading of 71 lbs/day. Note that the maximum daily leachate BOD loading per month ranged from 2.3 to 366 lbs/day with an average of 75 lbs/day in 2016 and 2017 to a range of 1.6-734 lbs/day with an average of 218 lbs/day from January 2018 through October 2020.

The Commission's Industrial User Agreement with the City of Carroll has established average and maximum daily BOD loading limits of 50 lbs/day, which is 1.1% of the plant design capacity. The permit BOD loading limit of 50 lbs/day was exceeded 25% of the time during January 2016 to October 2020, or 430 days.

Figures 9 and 10 depict the contribution of leachate effluent BOD loading to the WWTP influent loading and usage of the plant design capacity for BOD loading. Except for October 2019 and September 2020, average daily leachate effluent BOD per month comprised less than 5% of the plant design capacity. Maximum daily leachate effluent BOD per month comprised up to 15.5% of the plant design capacity.

Table 2 – Capacity Exceedances for Maximum Daily WWTP Influent BOD Loading

	WWTP Influent	Leachate Effluent	
Date	Fraction of Maximum BOD Loading to Design Capacity (%)	Maximum Daily BOD Loading (lbs/day)	Fraction of Maximum BOD Loading to Design Capacity (%)
May-2016	104%	26.57	0.6%
Nov-2017	112%	3.42	0.1%
Mar-2018	182%	5.73	0.1%
Jun-2018	112%	636.21	13.4%
Jul-2018	106%	361.79	7.6%
Aug-2018	121%	167.06	3.5%
Dec-2018	118%	1.87	0%
Sep-2019	118%	715.43	15.1%

As shown on Table 2, during the design capacity exceedances for maximum daily WWTP influent BOD loading in May 2016, November 2017, March 2018, and December 2018, maximum daily leachate effluent BOD loading was below the permitted 50 lbs/day and comprised less than 1% of the BOD loading. This indicates that leachate effluent BOD loadings were not contributing to the WWTP influent BOD loading exceedances during these months. For the remaining four exceedances, maximum daily leachate effluent BOD loading contributed between 3.5-15.1% of the plant design capacity, indicating that leachate effluent was having an impact on BOD treatment capacity. However, it is noted that the maximum daily WWTP influent BOD loadings during these months was close to or exceeded 100% of the plant design capacity without the leachate effluent contribution. This indicates that there were other sources contributing to the maximum daily WWTP influent BOD loading exceedances.

Review of the daily leachate effluent BOD loadings provided in Attachment 3 indicated that 80% of the daily BOD loadings were less than 66 lbs/day or 1.4% of the plant design capacity; 90% of the daily BOD loadings were less than 120.64 lbs/day or 2.5% of the plant design capacity; and 97% of the daily BOD loadings were less than 275.71 lbs/day or 5.8% of the plant design capacity. For average daily leachate effluent BOD loading per month, landfill leachate is not a major contributor to the plant design capacity for BOD loading. However, as noted in previous paragraphs, the maximum daily leachate effluent BOD loadings may be having more of an impact on BOD loading capacity.

As a final example, the overall average leachate effluent BOD loading from January 2016 to October 2020 was 50.38 lbs/day compared to the overall average WWTP influent BOD loading of 2,492.97 lbs/day. Therefore, leachate effluent BOD loadings are approximately 2% of the WWTP influent loading, on average. As previously mentioned, the WWTP utilizes 53% of the plant design capacity on average and during maximum daily influent BOD loadings; the WWTP averages 80% of the plant design capacity. While maximum leachate effluent BOD loadings up to 15.5% of the plant design capacity have been identified, leachate effluent BOD loading is less than 6% of the plant design capacity 97% of the time. In most cases, including maximum, leachate BOD loadings do not contribute to an exceedance of the WWTP design capacity for BOD loading.

The City of Carroll did not identify exceedances of their carbonaceous biochemical oxygen demand (CBOD) effluent limit, indicating that the WWTP satisfactorily treats the BOD loadings such that surface water discharges comply with their National Pollutant Discharge Elimination System (NPDES) permit. Note that CBOD represents dissolved oxygen depletion from carbonaceous sources only and BOD represents dissolved oxygen depletion from both carbonaceous and nitrogenous sources.

Ammonia and Total Kjeldahl Nitrogen

Figure 11 depicts WWTP influent ammonia concentrations, in mg/L, from January 2016 through October 2020. Ammonia data was not available for 2017-2019. Average and maximum daily influent ammonia concentrations per month were typically between 10-50 mg/L, with a maximum daily influent concentration per month of 58 mg/L. Due to the limited data, trend evaluation is not possible; however, the 2020 ammonia concentrations appear to indicate an increase in concentrations.

Figure 12 depicts the WWTP influent ammonia loading. Since the plant design capacity is based on TKN, which consists of ammonia plus organic nitrogen, comparisons were not made between influent ammonia and the plant design capacity for TKN. Average and maximum daily influent ammonia loading per month typically ranged between 150-400 lbs/day, with a maximum daily influent loading per month of 440 mg/L.

Figure 13 depicts leachate effluent ammonia and TKN concentrations, in mg/L, from January 2016 through October 2020. Ammonia concentrations ranged from 1.74-782 mg/L, with an average concentration of 315 mg/L. TKN concentrations ranged from 58.62-1,093 mg/L, with an average concentration of 475 mg/L. An increasing trend was identified, more notable with ammonia. Comparison of the leachate effluent to WWTP influent ammonia concentrations, in mg/L, indicates that the impact of leachate ammonia concentrations are marginal in increasing the ammonia concentrations for the WWTP influent.

Figure 14 depicts leachate effluent ammonia loading, in lbs/day, from January 2016 through October 2020. Average daily leachate ammonia loading per month ranged from 0.07-138 lbs/day with an average loading of 17 lbs/day. Maximum daily leachate ammonia loading per month ranged from 0.16-291 lbs/day, with an average of 57 lbs/day. Loading increased after 2016, with no obvious trend in the January 2017 to October 2020 data.

Figure 15 depicts the leachate effluent TKN loading compared to the plant design capacity of 1,021 lbs/day. Average daily leachate TKN loading per month ranged from 1.58-188 lbs/day with an average loading of 25 lbs/day. Maximum daily leachate TKN loading per month ranged from 3.9-431 lbs/day, with an average of 81 lbs/day. Loading increased after 2016, with no obvious trend in the January 2017 to October 2020 data.

Figure 16 depicts the contribution of leachate effluent TKN loading to usage of the plant design capacity for TKN loading. Except for September 2019, average daily leachate effluent TKN loading per month comprised less than 5% of the plant design capacity. Maximum daily leachate effluent TKN per month comprised up to 42% of the plant design capacity. Review of the daily leachate effluent TKN loadings provided in Attachment 3 indicated that 90% of the daily TKN loadings were less than 44.99 lbs/day or 4.4% of the plant design capacity; 95% of the daily TKN loadings were less than 77.56 lbs/day or 7.6% of the plant design capacity; and 99% of the TKN loadings were less than 158.341 lbs/day or 25% of the plant design capacity. Similar to BOD, landfill leachate is not a major contributor to the plant design capacity for TKN loading based on average daily leachate effluent TKN loading per month. However, maximum daily leachate effluent TKN loadings may be having more of an impact on TKN loading capacity.

The Commission's Industrial User Agreement with the City of Carroll does not have limits for ammonia or TKN.

The City of Carroll did not identify exceedances of the TKN effluent limit, indicating that the WWTP satisfactorily treats the TKN loadings such that surface water discharges comply with their NPDES permit.

Temporary Waiver Request

Based on the previous evaluation, average BOD, ammonia, and TKN loadings are not having an impact on the plant design capacity. However, the spikes in daily flow and concentrations could potentially have isolated impacts on the plant design capacity. This concern is primarily related to the top 5% of the data. For BOD and TKN, the daily leachate effluent loadings are less than 5% of the plant design capacity 96% of the time for BOD and 91% of the time for TKN. Since the data is based on a single monthly lab analysis, the actual daily maximums are subject to the assumption that the BOD, ammonia, and TKN concentrations were uniform for the entire reporting period or month.

Additional data collection is recommended to evaluate maximum loadings. Until recently, BOD, ammonia, and TKN samples of the leachate effluent have been collected on a monthly basis. As a result, daily loadings are based on a single concentration (in mg/L) which may or may not be representative on actual conditions throughout the entire month. Collection of weekly samples will help delineate the extent and amount of time maximum loadings are occurring. It is noted that flows are recorded on a daily basis and provide an accurate representation of the contribution of flow to daily loadings.

While this additional data collection is being conducted, a temporary waiver is requested for a period of 12 months to increase the BOD loading limits to reduce or eliminate Notices of Violation, given that the WWTP has design capacity to handle these flows and loadings at least on a temporary basis. The Commission is requesting this temporary increase for 12 months to work with the City of Carroll to establish a solution that works for both parties.

The following temporary increases are requested:

- Increase the monthly average BOD effluent limit from 50 lbs/day to 200 lbs/day.
- Increase the daily maximum BOD effluent limit from 50 lbs/day to 500 lbs/day.

Increasing the monthly average BOD effluent limit to 200 lbs/day will allow landfill leachate to contribute up to 4.2% of the plant design capacity for BOD loading. Given that the WWTP utilizes 53% of the design capacity on average, the temporary increase to 4.2% is within the remaining plant capacity and therefore, not anticipated to impact WWTP operations during the waiver period.

Increasing the daily maximum BOD effluent limit to 500 lbs/day will allow landfill leachate to contribute up to 10.6% of the plant design capacity during short-term increases in leachate effluent flow. Given that the WWTP utilizes 80% of the plant design capacity on average during maximum influent BOD loadings, the temporary maximum increase to 10.6% is also within the remaining plant design capacity and therefore, not anticipated to impact WWTP operations during the waiver period.

Please notify us regarding your response to this request prior to the City Council meeting on February 22, 2021. Foth and the Commission will attend this meeting for formal decision notification or to present the data evaluation and request to City Council for consideration. In

addition, if you have any questions or need additional information prior to the City Council meeting, please contact Gina or Brian at the numbers listed below.

Sincerely,

Foth Infrastructure & Environment, LLC

Gina Wilming
Lead Environmental Scientist
(319) 297-2065

Brian K. Harthun, P.E.
Senior Project Manager
(319) 297-2063

cc: Ms. Mary Wittry, Carroll County Solid Waste Management Commission
Foth Project File

Attachments:

Attachment 1 – Figures
Attachment 2 – City of Carroll Data Request Responses
Attachment 3 – Leachate Effluent Data

VEENSTRA & KIMM, INC.
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515-225-8000 • 515-225-7848(FAX) • 800-241-8000 (WATS)

June 7, 2021

Randy Krauel
Public Works Director
City of Carroll
112 East 5th Street
Carroll, Iowa 51401

CARROLL, IOWA
RESPONSE TO CARROLL COUNTY SOLID WASTE MANAGEMENT COMMISSION
REQUESTED INCREASE IN USER AGREEMENT TREATMENT CAPACITY

The following is in response to the request submitted by Foth Infrastructure & Environment, LLC ("Foth") on behalf of the Carroll County Solid Waste Management Commission ("CCSWMC").

CCSWMC currently has an Industrial User Agreement with the City of Carroll to discharge wastewater, limited by both volume and organic loadings, to the City's Wastewater Treatment Plant ("WWTP"). CCSWMC is requesting a temporary waiver to the current User Agreement to increase the amount of BOD it is permitted to send to the City on both an average daily basis and a maximum daily basis. Foth provided rationale behind this request, noting the relatively small hydraulic and organic portion of the City's WWTP treatment capacity that CCSWMC uses. While Foth was correct in noting that CCSWMC is only allocated a small portion of the overall City WWTP treatment capacity, they were incorrect in the assumption that the City's WWTP had additional unused and unreserved capacity for additional BOD treatment.

<u>BOD Treatment Capacity and Current Allocations</u>
The City's existing WWTP is a Vertical Loop Reactor facility. It was constructed in 2006. It's NPDES Operating Permit No. 1415001 lists the rated capacity for BOD treatment at a maximum influent 30-day average BOD loading of 4,735 ppd. Construction Permit Application Schedule H2 from the facility's 2003 design lists a maximum influent single day BOD loading of 7,139 ppd.

Of the 4,375 ppd 30-Day BOD capacity and the 7,139 ppd Max-Day BOD capacity, the City has allocated the following permitted discharges to the domestic and commercial population and existing Significant Industrial Users (SIUs):

Table 1 – Existing City WWTP BOD Treatment Capacity & Allocation

	30-Day Loading	Max-Day Loading
Total Treatment Capacity (ppd)	4,735	7,139
Domestic & Commercial Population (ppd)*	2,978	4,467
Internal Recycle (15%) (ppd)	604	903
Existing SIU (non-CCSWMC) (ppd)	1,000	1,500
CCSWMC Existing Agreement (ppd)	50	50
Total Allocated (ppd)	4,632	6,920
Remaining Capacity (ppd)	103	219

**as presented in the IDNR approved 2001 Facility Plan*

The 2001 Facility Plan is on record with IDNR for the allocated domestic & commercial population BOD treatment capacity. The two (2) existing SIUs (including CCSWMC) also have Treatment Agreements on file with IDNR. Any amendments to the Treatment Agreements would need to be routed through IDNR for approval/concurrence. IDNR would limit the City to not exceed its 30-Day Loading or Max-Day Loading capacity. Accordingly, the City only has 103 ppd of "average" BOD treatment capacity and 219 ppd of "maximum" BOD treatment capacity available without either modifying the allocation for the domestic & commercial population or the non-CCSWMC existing SIU.

<u>CCSWMC Requested Increase in BOD Capacity</u>

As show in Table 1, CCSWMC currently has an Industrial User Agreement with the City of Carroll to accept a maximum of 50 ppd on a 30-day average *and* on a single maximum day. CCSWMC has had issues in the past meeting these limitations, and is requesting a temporary 12 month increase in both the 30-day average and single maximum day limits while they further fine-tune their pretreatment. This temporary increase would also allow the City to see if they can effectively treat the additional BOD loading.

CCSWMC is requesting the following adjustments to their User Agreement:

Table 2 – CCSWMC Request

	30-Day Loading	Max-Day Loading
CCSWMC Existing Agreement	50	50
CCSWMC Requested Temporary Agreement	200	500
Increase in CCSWMC Limit	150	450

Comparing Table 2 to Table 1, it is clear that the City does not have the capacity to grant the requested temporary waiver without adjusting the reserved capacity for domestic & commercial users or modifying the existing Industrial User Agreement is has with the non-CCSWMC SIU.

The City could, however, **consider increasing CCSWMC's 30-day average limit from 50 ppd to 150 ppd** while still staying just within their rated capacity based on current allocations. The City could also **consider increasing CCSWMC's maximum day limit from 50 ppd to 250 ppd** while still staying just within their rated capacity based on current allocations.

BOD Removal Performance of Existing City WWTP

The City submits monthly operating reports (MORs) to IDNR that include influent and effluent twice per week samples of BOD (and CBOD5) from the WWTP.

As previously discussed, the City's WWTP is currently rated to treat a maximum influent 30-day average BOD loading of 4,735 ppd and a maximum influent single day BOD loading of 7,139 ppd. The City's NPDES Operating Permit also limits the amount of effluent BOD (CBOD5) it can discharge into the Unnamed Creek to 876 ppd on an average 30-day basis and 1,401 ppd on an average 7-day basis.

Below, Figure 1 shows the historical influent and effluent loading at the City's WWTP plotted against both the rated influent capacities and the permitted effluent limits.

Figure 1 – Historical Influent and Effluent BOD Loading

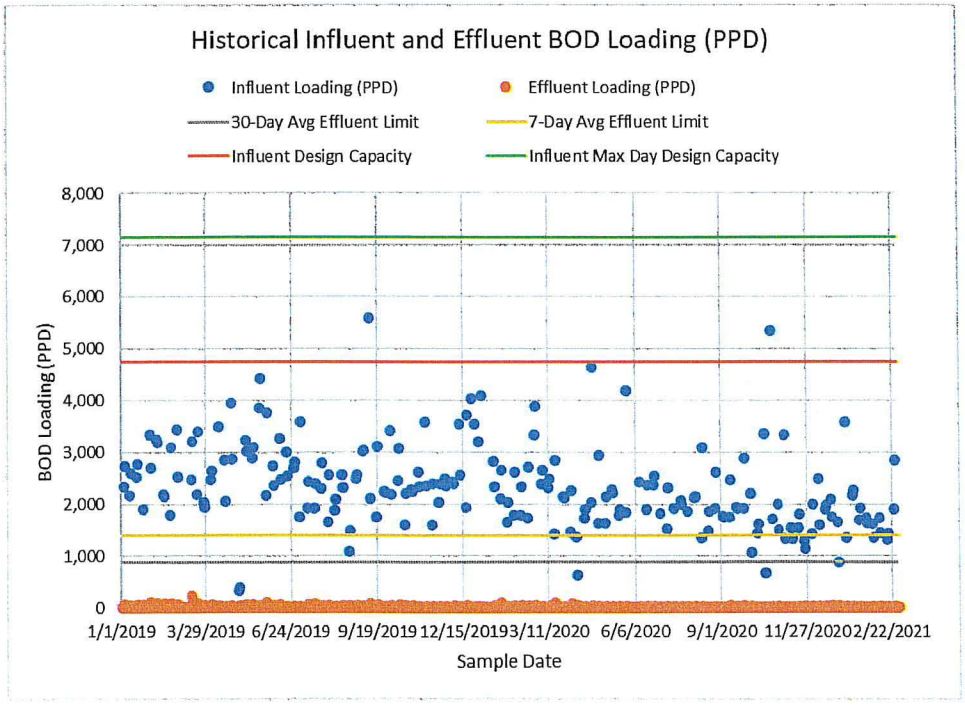
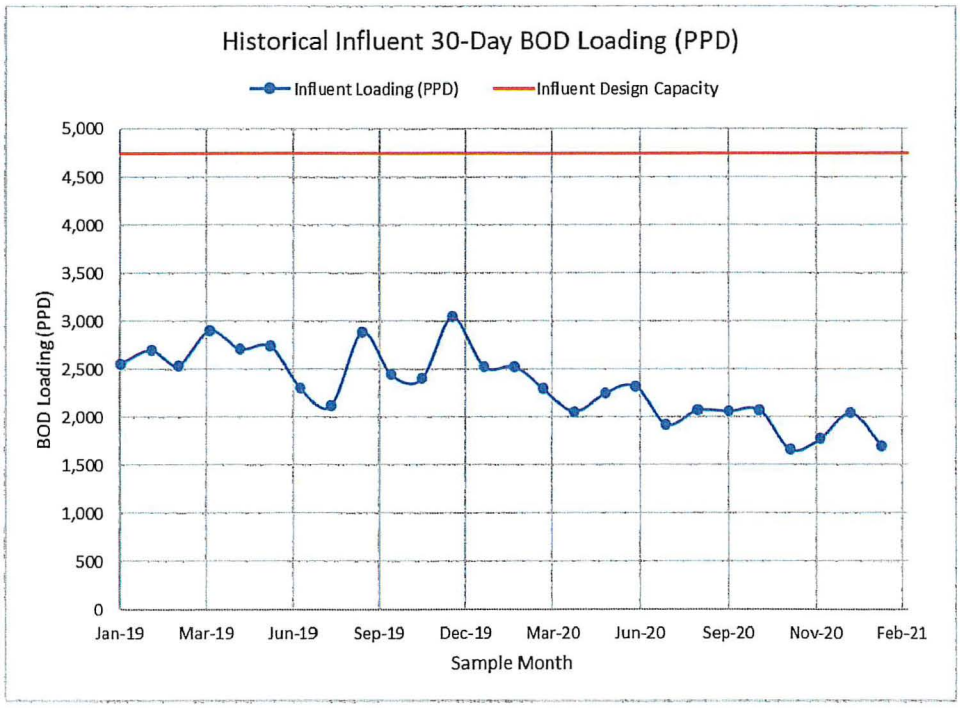


Figure 1 illustrates that the City has historical operated within its permit limits, staying both below the maximum 30-day average influent BOD loading and maximum single day influent BOD loading, and always discharging effluent well below the NPDES permit limitations.

A closer look at the 30-day average influent loading in Figure 2 further confirms that the City is not currently operating outside of its design capacity:

Figure 2 – Historical Influent 30-Day BOD Loading



Figures 1 & 2 confirm that the City could consider temporarily increasing CCSWMC's User Agreement Limits from 50 ppd to 150 ppd for a 30-day average limit and from 50 ppd to 250 ppd for a maximum day limit.

Further Considerations

If the City and CCSWMC would like to investigate gaining additional BOD treatment capacity at the City's WWTP, conversations could be had with IDNR about the rated influent BOD capacity of the existing facility.

Figure 1 illustrates that the City has consistently been *well* below both the 30-day average effluent limit and the 7-day average effluent limit for BOD as listed in its NPDES Operating Permit. Figure 3 shows a closer look at the historical effluent samples from the City's WWTP MORs.

Figure 3 – Historical Effluent BOD Sampling

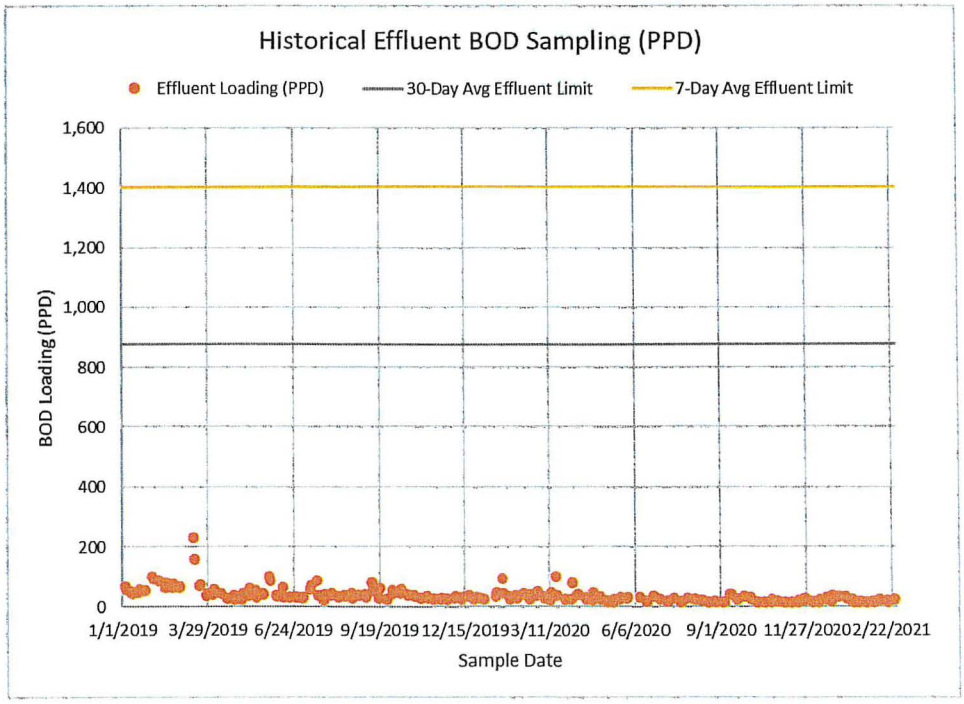
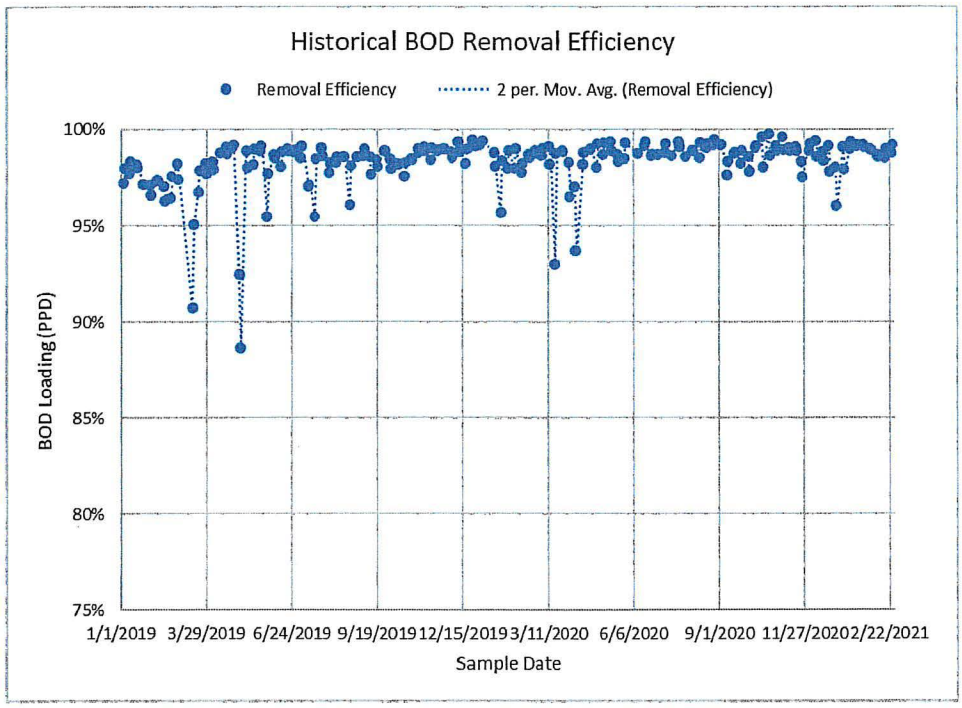


Figure 3 illustrates that, barring one sample, the City has not discharged wastewater from its WWTP within 20% of its 30-day effluent limitation. On average, the City's effluent quality is around 5% of the allowable limit. This indicates that the City's WWTP may be removing BOD at a higher rate than IDNR is currently crediting it.

A report analyzing historical BOD removal could be compiled for IDNR's review and consideration to increase the rated BOD capacity of the City's existing WWTP without making physical or treatment process modifications to the WWTP.

Figure 4 illustrates the historical BOD removal efficiency the City's existing WWTP has accomplished.

Figure 4 – Historical Removal Efficiency



The City has historically maintained an average BOD removal efficiency of 98%. Between historical BOD removal percentages, and the historical pounds of BOD removed at the City's WWTP, the City could argue with IDNR that its facility should have a higher influent BOD loading capacity for both a maximum 30-Day average and a maximum single day. This, however, would need to be completed through a letter report and a submission of historical figures. Funding for this report could come from the City, CCSWMC, or a combination of both parties, depending upon interest, investment, and benefit from the potential rerating of the facility.

Conclusion

The City cannot grant CCSWMC's current request without altering the allocated BOD treatment capacity for its domestic & commercial users or its non-CCSWMC SIU -OR- without rerating the WWTP BOD treatment capacity through IDNR.

The City could consider temporarily increasing CCSWMC's User Agreement Limits from 50 ppd to 150 ppd for a 30-day average limit and from 50 ppd to 250 ppd for a maximum day limit.

The City could also grant the 150 ppd and 250 ppd temporary limits for a 12-month period while rerating the WWTP BOD treatment capacity is considered.

If you have any questions or comments about the contents of this analysis, please contact us at 515-225-8000.

VEENSTRA & KIMM, INC.

Olivia Patton

Olivia M. Patton

OMP
27358