

Director of Operations and Compliance Report

January 22, 2020

Plant Loading, CSO Report, and Director's Notes

Plant Loading

Biochemical Oxygen Demand, 5-Day (Avg. 38234 lbs/day)	60 percent of design
Total Suspended Solids (Avg. 31282 lbs/day)	29 percent of design
Average Daily Flow (34.73 million gallons/day)	85 percent of design
Maximum Daily Flow (50.19 million gallons/day)	40 percent of design

	Permit Limits (avg/max)	Reported Values	Violations
CBOD ₅ , mg/L	20/40	3/5	0
TSS, mg/L	25/45	5/8	0
NH ₃ -N, mg/L	1.5/3.0	0.12/0.14	0
Fecal coliform per 100mL	400* (max)	N/A	0
Chlorine Residual, mg/L	0.05* (max)	N/A	0
Dissolved Oxygen, mg/L	6.0 (min)	8.40	0
pH, S.U.	6.0/9.0 (min/max)	7.95/8.33	0
Total Nickel, mg/L	0.015 (avg.)	0.012	0
Total Zinc, mg/L	0.075/0.416	0.016/0.030	0

*Effluent disinfection is required May 1 through October 31.

CSO Report

Location	Events	Discharge (million gallons)	Estimated Total Duration of Discharges (hrs)
Oakland Avenue (Outfall 003)	1	0.22	1.7
Lincoln Park (Outfall 004)	0	0.0	0.0
McKinley Avenue (Outfall 007)	1	1.59	4.1
Seventh Ward (Outfall 008)	0	0.0	0.0

Director's Notes:

Permit Issues:

There has been no change in the status of the Permit during the month of December. There are plans for additional meeting(s) between the Agency and the District however no date(s) have been selected at this time. The District staff are currently working with HeplerBroom staff to refine our points of discussion on this topic for the advent of this future meeting.

Administrative Order on Consent:

There has been no further communication from USEPA about the AOC. The SDD met all our deadlines outlined in the AOC so far and we have no more action items until we hear from the USEPA.

Biosolids Application Operations:

Oros & Busch (O&B) has completed the biosolid applications for this year as of December 14th. At the end of the project the final production numbers were:

- 23.16 million gallons (MG)
- 3396 dry Tons (dT)
- 3678 truckloads (estimated)
- Biosolids averaged 3.58% solids concentration
- Average cost to the District for the year was \$209.30 per dT

Operations staff continued lagoon operations in concert with O&B to the point that the project was complete; all hours tallied the Operators expended 404 manhours (including dredge 292hrs and crawler 112hrs) at the Wyckles facility assisting with biosolids application operations. This does not take into consideration any manhours expended by Maintenance department staff.

Fecal Coliform Exceedance Update:

On January 7th Kent Newton and David Collard contacted Caleb Ruyle of the Illinois EPA concerning potential changes to previously reported values on the DMRs. Mr. Ruyle responded that it would only be possible to change the reported values of the Fecal Coliforms report(s) if there were additional tests ran the same day which would contradict the original test results. Since there were no additional tests ran at those times it will not be possible to vacate the reported results.

As an alternative to changing the values the District staff have included letters of explanation with subsequent DMR reports detailing the issues with the Colilert-18 tests presenting false positive results.

Additionally, the USEPA Enforcement Compliance History Online (ECHO) website which tracks facility reporting and compliance data does not currently indicate that either of the agencies have qualified the results as a violation. The website currently lists the District's compliance as "No Violation Identified - Resolved" for the quarters that included exceedances reported on Fecal Coliforms. Mr. Ruyle confirmed that based on his review of ECHO there has been no violations issued for the reported results.

Additional Topics:

Staff noted a periodical report from World Environment Federation (WEF) that Maine recently added monitoring and reporting of per- and polyfluoroalkyl substances (PFAS) chemicals for Wastewater Biosolids. The State does not appear to have any limits on these materials in the biosolids to-date. There are a variety of on-going responses by several States in regard to the PFAS issue, some of those are Washington, California, and Michigan. The District's Biosolids Master Plan update has processes that can potentially be employed should Illinois EPA enact new standards for PFAS in biosolids.

Operations, Laboratory, and Pretreatment Activity Reports

Operations Activities: December 2019

- 1) Normal operational activities were conducted as proscribed by standard procedures or in response to conditions within the plant and the Operators participated in the weekly safety training sessions.

- 2) Operations staff spent 50 manhours to complete 85 PMs during December these numbers reflect the fact that the Operations department are caught up on outstanding PMs and are now performing these tasks as new PMs are issued. Total manpower expended between PMs and biosolids operations was 113hrs or 0.65 FTE.
- 3) Due to a high pH discharge from T&L's pretreatment system on December 18th which reached the treatment facility, Operations had to temporarily place the secondary aeration tanks in service for a short time to capture the high pH material and then they slowly blend it back into the regular flow.
- 4) Plocher Construction is in the final stages of completion, work primarily is going on in the area of Building 003. This has relieved the operations staff of all but minimal duties related to the West Headworks upgrade construction activities.
- 5) Work by the contractors to clear the plugged ferrous feed lines near the 003 building was completed which has allowed operations staff to reestablish ferrous feed to the anaerobic digesters.
- 6) Operations staff attended training on control and operations of the Huber Classifier equipment and appurtenances in Building 003.
- 7) Preparations began in late December for the planned start-up of the West Headworks which is scheduled for the beginning weeks of January 2020.

Laboratory Activities: December 2019

Routine:

A total of 1,718 analyses were performed in the laboratory during the month of December 2019.

Monitoring of treatment plant, industrial users, and receiving stream samples for compliance purposes and process monitoring continued. Laboratory personnel continued to perform additional background nutrient monitoring to help fully characterize the nutrient loading on the plant.

Non-Routine:

- 1) Keith Richard, Matt Nihiser and David Collard attended the Illinois Nutrient Loss Reduction Strategy (NLRs) Partnership Conference in Springfield on December 3-4, 2019. The conference was hosted by the Illinois EPA. The purpose of the conference was to update the attendees on the current state of the NLRs and highlight the successes of the past year.
- 2) Keith Richard conducted a series of experiments using lactase enzyme to try to create a false-positive result for fecal coliform using the IDEXX Colilert-18 test method. The hypothesis being tested was that lactase enzyme, which is used by several of the industrial users in our sewer system, could potentially cause false-positive results for fecal coliform. The results of the experiments demonstrated that false-positive fecal coliform results could indeed be created using sterile deionized water that was spiked with varying amounts of lactase enzyme. Further investigation will be conducted to determine if lactase enzyme could be responsible for the suspected false-positive results for fecal coliform that resulted in fecal coliform violations during the 2019 disinfection season.
- 3) A bench study was started in the research lab on December 16, 2019, at the request of the Engineering Department, to measure the amount of volatile fatty acids (VFAs) that could be created by the fermentation of a combination of raw primary sludge and waste activated sludge. A constant supply of VFAs will be needed in the future as part of the nutrient removal treatment process. An economical source of these VFAs is from the fermentation of existing waste streams.

The results of this bench study showed very good creation of VFAs during the duration of the study. Additional bench studies will be conducted using varying ratios of raw primary sludge and waste activated sludge.

- 4) The river study with Eastern Illinois University continued in December 2019. Water samples from all six field sites were analyzed for nickel content. The nickel levels this month were less than the reporting limit at all six sites.

Pretreatment Activities: December 2019

General Activities:

- 1) Pretreatment personnel monitored five industrial users and performed three industrial user inspections during December 2019.
- 2) A Wastehauler Permit was issued to Environmental Works.
- 3) Matt Nihiser attended the Illinois Nutrient Loss Reduction Strategy Conference in Springfield.
- 4) Annual Report letters have begun to arrive from our Industrial Users. The Annual Reports are due to Matt Nihiser by March 1, 2020.

Pretreatment Ordinance - Verbal Notices:

- 1) A Verbal Notice was issued to **Canadian National/Illinois Central Railroad** on December 4, 2019 because they did not submit their self-monitoring report by the December 1st deadline. They have since submitted their self-monitoring.
- 2) A Verbal Notice was issued to **Tate and Lyle** on December 13, 2019 because they exceeded their dissolved sulfide limit at their pt. C discharge.
- 3) A Verbal Notice was issued to **Prairie Farms** on December 18, 2019 because they failed to include all the required parameters on their second monthly self-monitoring.
- 4) A Verbal Notice was issued to **Tate and Lyle** on December 18, 2019 because they discharged wastewater to the SDD with a pH above 11.0.
- 5) A Verbal Notice was issued to **Tate and Lyle** on January 3, 2020 for exceeding their daily maximum BOD limit on December 23.
- 6) A Verbal Notice was issued to **voestalpine Nortrak** because they did not include all the required parameters on their self-monitoring report. They have resampled; however, they have not received the results yet.

Pretreatment Ordinance - Warning Notices:

No Warning Notices were issued during December 2019.

Pretreatment Ordinance - Notices of Violation (NOV):

No Notices of Violation were issued during December 2019.

Pretreatment Ordinance - Executive Orders:

No Executive Orders were issued during December 2019.

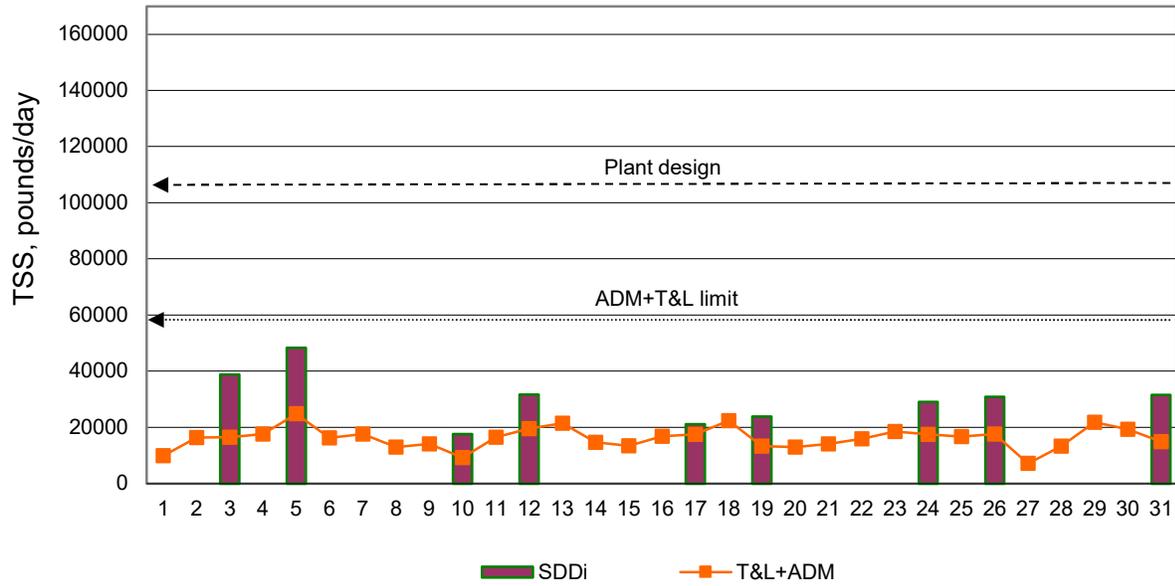
Pretreatment Ordinance - Penalty Assessments:

The following industrial penalties were assessed for December 2019:

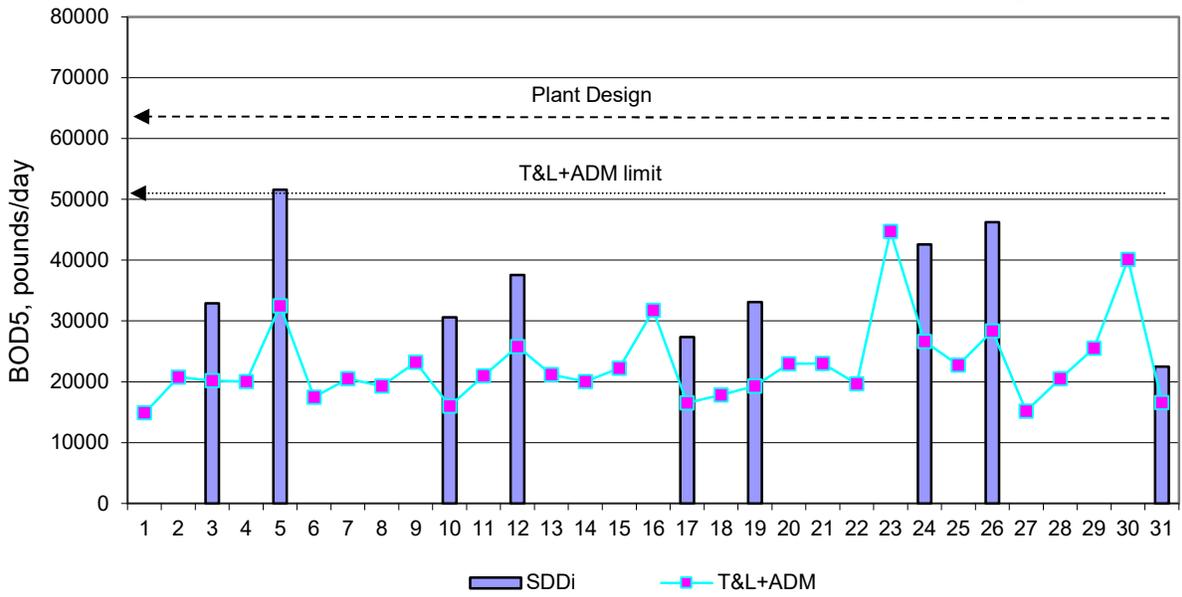
- | | |
|-------------------------|-----------------|
| 1) Prairie Farms | \$1,000 |
| 2) Tate and Lyle | \$37,000 |

Plant Operating Graphs:

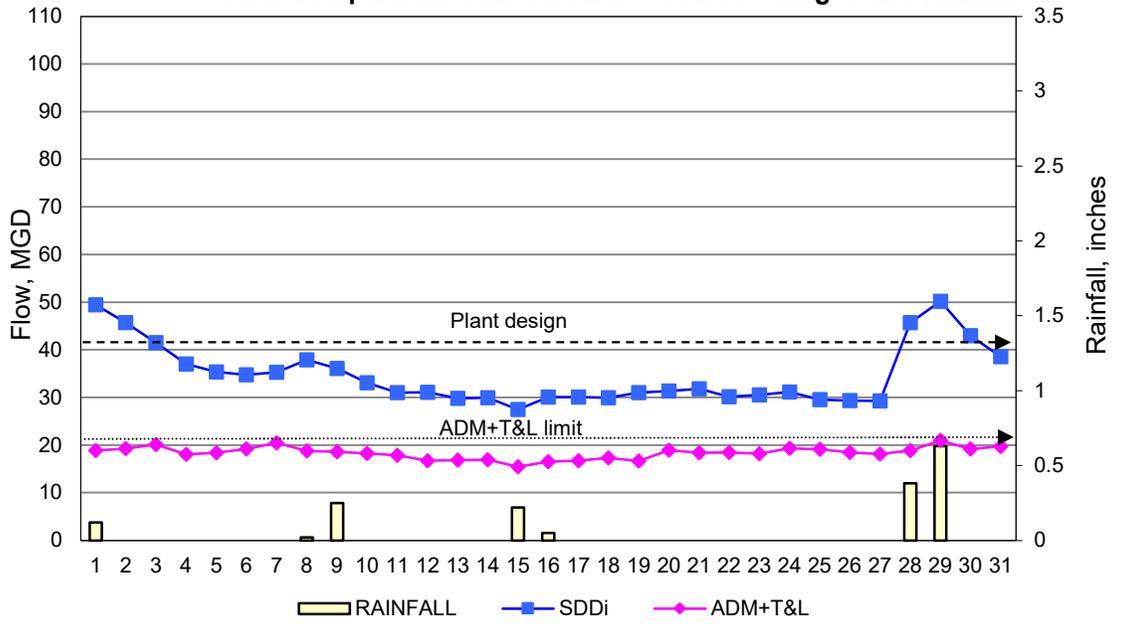
TSS Comparison: SDD Inf T&L+ADM Discharges



BOD Comparison: BOD Inf vs. T&L + ADM Discharges



Flow Comparison: SDD vs. ADM + T&L Discharges and Rainfall



Plant Efficiency Graphs:

