

Technical Director's Report

November 21, 2011

Plant Loading and Operations Summary – October 2011

Biochemical Oxygen Demand, 5-Day (Avg. 25,300 lb./day)	37 percent of design
Total Suspended Solids (Avg. 51,900 lb./day)	47 percent of design
Average Daily Flow (21.9 million gallons/day)	53 percent of design
Maximum Daily Flow (31.3 million gallons/day)	25 percent of design

	Permit Limits (avg./max.)	Reported Values	Violations
CBOD ₅ , mg/L	20/40	2/2	0
TSS, mg/L	25/45	5/6	0
NH ₃ -N, mg/L	1.3/3.0	0.19/0.22	0
Fecal coliform per 100 mL	400*	100	0
Chlorine Residual, mg/L	0.05*	<0.011	0
Dissolved Oxygen, mg/L	6.0 (minimum)	6.9	0

*Effluent disinfection is required May 1 through October 31.

No violations of NPDES permit limits occurred in October.

The total amount of stabilized sludge sent to storage at the Wyckles Road Land Application Facility in October was 507 tons. Waste sludge totaling 267 tons was destroyed using the anaerobic digester stabilization process. The gas engines were not available due to mechanical problems. Land application of Wyckles sludge began on September 22 and approximately 25 million gallons had been hauled as of November 8.

Activities

District staff are continuing to work with Donohue and Associates on design of a receiving station for wastewater brought to the plant by truck. A meeting was held on November 1 to review the current design. Additions to the project scope have greatly increased the estimated cost and further design discussions will be needed.

Hauling of farnesene waste from Tate & Lyle began on November 2. Both waste volumes and concentrations have been low in this initial period.

Work on the Stevens Creek South Interceptor Rehabilitation project resulted in a sanitary sewer overflow on September 30. The District received a Violation Notice letter from Illinois EPA on November 4 regarding this incident. A response to Illinois EPA is due on December 19.

Other activities included attendance at the WEFTEC annual conference and WEF House of Delegates meeting, participation in a WERF nutrient treatment webinar, providing a short tour and discussion of work at the South Sludge Lagoons for Conservation District Board members, researching regulatory implications for treated wastewater use during drought conditions, and

preparing the petition for a site-specific nickel water quality standard including discussions or meetings with legal counsel, Dr. Bob Santore of Hydro-Qual, Illinois EPA, and ADM. There has been no action by Illinois EPA on our modified NPDES Permit; the public notice period ended on June 27.

CSO Activity Summary

Location	Events	Discharge (million gallons)	Estimated Total Duration of Discharges
Oakland Avenue (Outfall 003)	0		
Lincoln Park (Outfall 004)	0		
McKinley Avenue (Outfall 007)	1	2.2	1.5
Seventh Ward (Outfall 008)	0		

If there are any questions or comments concerning this report, please contact me at 217/422-6931 x214 or by email at timk@sdd.dst.il.us.

SANITARY DISTRICT OF DECATUR

501 DIPPER LANE, DECATUR, IL 62522

MEMORANDUM

TO: Tim Kluge

DATE: 11/07/11

FROM: Larry Arnold

SUBJECT: Laboratory activities for October 2011

Routine :

Monitoring of treatment plant, industrial users, and receiving stream samples for compliance purposes and process monitoring continued. Sampling, flushing, and analysis of monitoring wells in the vicinity of our Wyckle's sludge lagoons was conducted. Laboratory personnel continued monitoring H₂S and other odor causing chemicals within the covered areas of the activated carbon treatment units. Laboratory personnel continued to perform additional ammonia and nitrate analysis to monitor the effect of changes made by ADM in their wastewater treatment to help prevent the floating solids problem here at the plant. Analysis was continued to confirm water quality of plant groundwater and groundwater near the 7th Ward CSO facility in conjunction with the district's dissolved solids strategy. Chloride analysis of industrial users continued in support of this strategy, as well. Safety meetings have continued and there was no first report of injury in the laboratory during this period.

Non-Routine :

- 1) The laboratory continues to investigate the potential role of amounts of incoming Total Kjeldahl Nitrogen (Ammonia plus forms of Organic Nitrogen) in affecting the plant's nitrification ability. Incoming Total Kjeldahl Nitrogen concentrations during the month of October were under our plant's loading capacity for it. We saw no significant NH₃-N levels in the plant effluent during the month.
- 2) The laboratory continued additional analyses of the supernatant returned from Wyckle's sludge lagoons. This study was at the request of Black and Veatch and is related to the reclaimed water study and potential future EPA plant performance requirements. This will also be of significance in determination of return plant loadings via sludge lagoon supernatant generated by the Tate and Lyle/Amyris project which will commence in November.
- 3) Laboratory personnel completed work generating extra analytical data for use with the biotic ligand model which the district is pursuing as a possible approach to obtain less stringent nickel and zinc limits for the plant effluent. This extra analysis was suggested by the US EPA to determine variability of parameters that affect this model (Calcium, Magnesium, Sodium, and Potassium). The district's inductively coupled plasma- optical emission spectrometer (ICP-OES) was used for these determinations.

- 4) Work continued on a laboratory manager position standard operating procedure. This effort is related to transition planning for the laboratory.
- 5) Laboratory personnel continued analysis of samples obtained at the south sludge lagoons in conjunction with operation start up and samples obtained at the Wyckle's Road solids handling facility in conjunction with land application.
- 6) Laboratory management completed evaluation of quotations received in relation to replacement of equipment available for anion analysis and determined that the lowest quotation which was received from Thermo Fisher was responsive. The system was ordered and installation date in the laboratory is tentatively set for November 21. The new system will feature computer software control, automated sample introduction, and automated sample filtration/dilution.
- 7) Laboratory management began evaluation of replacement equipment available for digester gas analysis for methane, carbon dioxide, and hydrogen sulfide. The new system will feature computer software control and automated sample introduction. Available technologies are gas chromatography (as we currently use), infrared analyzers, or laser ablation. Efficiency of operation, operational costs, and initial capital investment will all figure into the determination.

Pretreatment Activity during October 2011

Verbal Notices

We issued a Verbal Notice to **Carry Transit** on October 19, 2011, because they discharged wastewater with a pH above their maximum permit limit on October 17, 2011.

We issued a Verbal Notice to **Prairie Farms Dairy** on October 19, 2011, because they exceeded their daily maximum total suspended solids (TSS) limit with wastewater discharged on October 17, 2011.

Warning Notices

We did not issue any Warning Notices during October 2011.

Violation Notices

We did not issue any Notices of Violation during October 2011.

Executive Orders

We issued an Executive Order to **Prairie Farms Dairy** on October 5, 2011 in response to a series of BOD, TSS, and pH excursions.

Penalty Assessment

We assessed the following industrial penalties for October 2011:

Prairie Farms Dairy:	\$2,000
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General Activity

1. We monitored twelve commercial and industrial users (IU) and we performed five industrial user inspections during October 2011.
2. We continued monitoring the H₂S level under the SDD headworks and PE channel covers during October 2011.
3. We received wastewater discharge permit applications from **ADM** and **Akorn, Inc.** during October 2011 because their existing permits were due to expire soon. We issued a new permit to **Akorn, Inc.** and a new permit for **ADM** is pending completion of the application review process.
4. **ADM** continued to run a pilot scale test of two DTC-containing chemical treatment systems designed to remove nickel from their wastewater. They also continue to test the wastewater from the pilots for compatibility with our wastewater treatment system.
5. We purchased a new portable sampler in October to replace one of our aging portable samplers.

SANITARY DISTRICT OF DECATUR
501 Dipper Lane Decatur, Illinois (217) 422-6931

I&C Shop Monthly Activity Report For October 2011

I&C Shop Maintenance

Work Order Activity:

- Completed 56 Corrective work orders, no Project Work Orders, and 107 PM Work Orders. We had no Priority 1 (Emergency) nor any Safety-related Work Orders this month.

I&C Shop Projects

Electrical Switchgear Service: During servicing, eleven circuit breakers were identified as needing repairs or replacement. Ralph Turner is coordinating the replacement or repair tasks with a contractor for the final two breakers to be repaired.

Parts are on hand for repairs in Buildings 203 and 231 when activities can be coordinated with Operations.

Added a PLC and wireless transmitter in Bldg 011 (Control House 2), programming and testing of system to be completed.

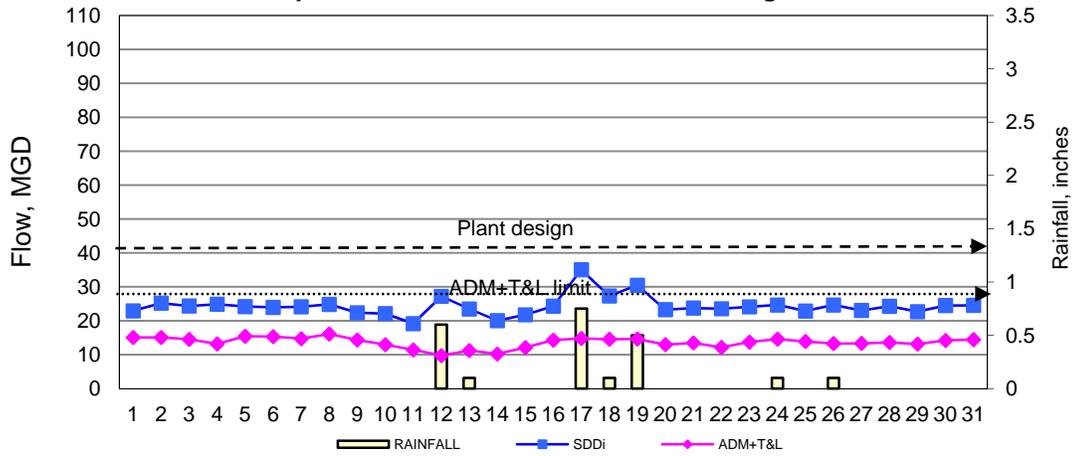
At North Storm Water added fiber optic patches at the PLC for the front gate for cameras, and the station is now operational from SCADA.

Upgraded 480VAC wiring for the Secondary Aerations Tanks gates and tested gates to ensure operation.

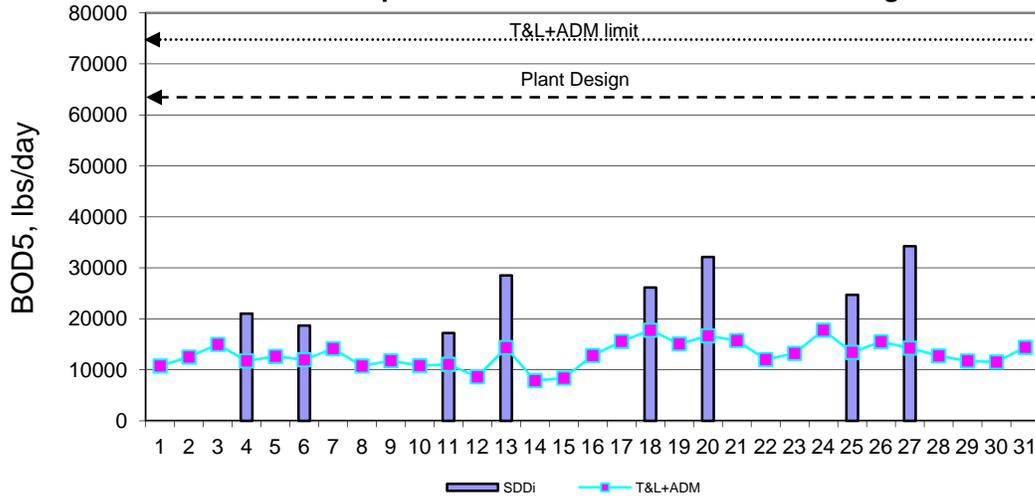
Parts arrived for replacement of HVAC controls in the Accounting wing and men's locker room with work being completed and system under test.

Replacement Projects: Work is continuing to restore damaged power wiring to the secondary aeration tanks. Budgeted upgrades to lighting in the Administration building are in progress. Programming for wireless communication facilities for the north and west storm water pump stations is underway. Additional lighting was added to the polymer building area at the South Sludge Lagoons. Programming is underway with 4 stations left to convert SCADA readings for run time meters at the pump stations to 0.1 hour increments, for better monitoring at low flow pump stations.

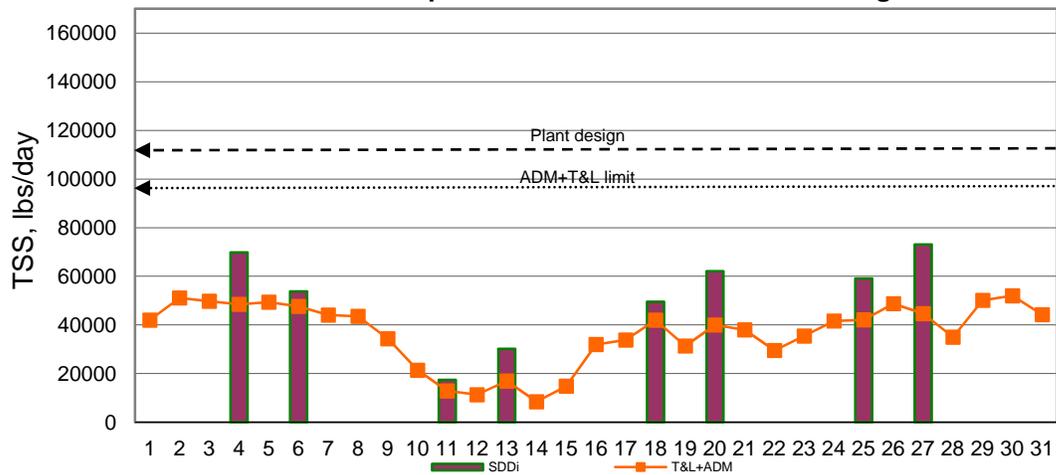
Flow Comparison: SDD vs. ADM + T&L Discharges and Rainfall



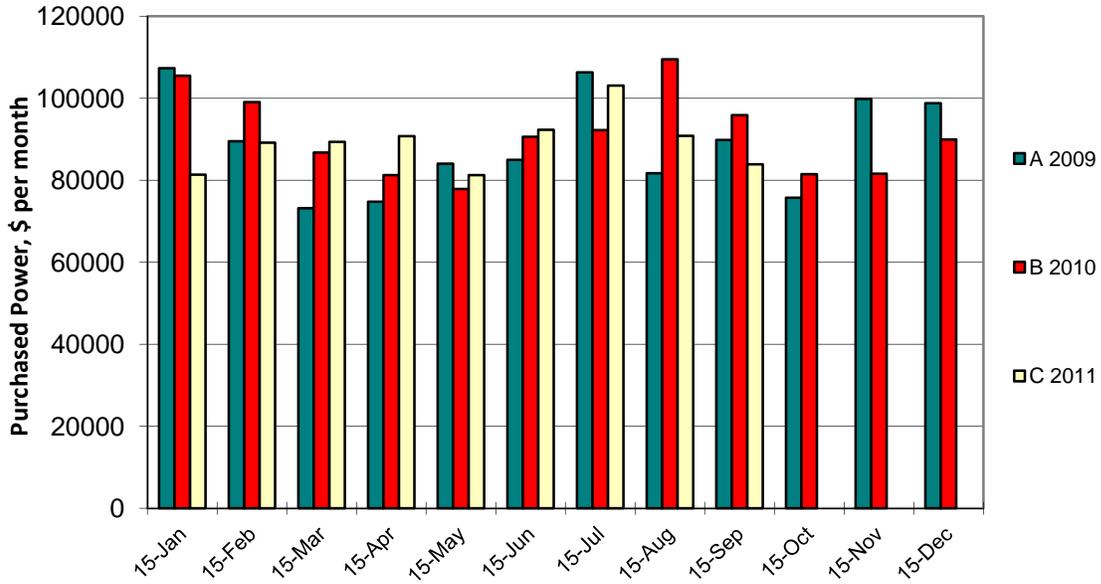
BOD Comparison: BOD Inf vs. T&L +ADM Discharges



TSS Comparison: SDD Inf T&L+ADM Discharges



ELECTRIC POWER COST: '09, '10, '11



ELECTRIC POWER USE: '09, '10, '11

