

Technical Director's Report

November 20, 2013

Plant Loading and Operations Summary – October 2013

Biochemical Oxygen Demand, 5-Day (Avg. 21,600 lb./day)	32 percent of design
Total Suspended Solids (Avg. 40,400 lb./day)	36 percent of design
Average Daily Flow (23.4 million gallons/day)	57 percent of design
Maximum Daily Flow (49.7 million gallons/day)	40 percent of design

	Permit Limits (avg./max.)	Reported Values	Violations
CBOD ₅ , mg/L	20/40	3/7	0
TSS, mg/L	25/45	5/9	0
NH ₃ -N, mg/L	1.5/3.0	0.86/3.62	1
Fecal coliform per 100 mL	400*	340	0
Chlorine Residual, mg/L	0.05*	<0.015	0
Dissolved Oxygen, mg/L	6.0 (minimum)	7.4	0

*Effluent disinfection is required May 1 through October 31.

The NPDES daily maximum permit limit for ammonia nitrogen was exceeded on October 22. The primary cause of this exceedence was a rapid increase in the plant's incoming ammonia load. While the load was within the plant design capacity, the population of nitrifying bacteria in the activated sludge system could not increase quickly enough to treat the increased load. Additional possible contributing factors are being investigated and will be analyzed in an incident report, along with actions to reduce the likelihood of the situation occurring again. The October 24 sample was back within permit limits. This was the first exceedence of NPDES permit limits in 2013.

The total amount of stabilized sludge sent to storage at the Wyckles Road Land Application Facility last month was 502 tons. The digester gas engine generator was not available during October.

Land application of sludge began on October 9. As of November 14, around 17 million gallons of sludge had been removed from the Wyckles lagoons.

Activities

Personnel from Donohue & Associates are continuing with the conceptual design of sludge thickeners to replace the existing dissolved air flotation units. A review and brainstorming meeting was held to discuss various layouts for the units, and Donohue personnel are revising cost estimates.

Last month's report included background information on SDD's nutrient discharge and significant contribution to the statewide permitted discharge (or "point source") discharge load. Monte Cherry and I have joined the Illinois EPA Nutrient Strategy Working Group and the Point

Source Subcommittee on behalf of the District and IAWA. The goal of the statewide strategy is to reduce statewide discharge loads of nitrogen and phosphorus tributary to the Gulf of Mexico by 45 percent. For phosphorus, approximately 50 percent of the statewide load is discharged by point sources and about 50 percent by nonpoint sources, primarily runoff from agricultural land. Therefore major reductions will be required from municipal dischargers and because reductions can be mandated through NPDES permits, controls are easier to implement. The major points being articulated by municipal dischargers are that flexibility is needed because each discharger is different in terms of treatment plant configuration, site constraints, economics, and wastewater characteristics; permit limits may drive technologies that are more costly but do not necessarily lead to greater reductions; and solutions should be developed on an integrated, watershed basis rather than a statewide, one-size-fits-all requirement.

Statewide nitrogen loads are distributed differently, with about 85 percent from agricultural runoff and 15 percent from municipal discharges. The point source approach for nitrogen is developing more slowly than that for phosphorus.

Verbal agreements have been reached with both ADM and Tate & Lyle for participating in funding the Black & Veatch nutrient study. Written agreements are pending to share costs in the ratio SDD 55 percent/ADM 30 percent/Tate & Lyle 15 percent.

The scope of a study plan is still being resolved for the nickel toxicity testing required by U.S. EPA. Work on updating legal documents for the Illinois Pollution Control Board is also ongoing.

Other activities during the past month included preparing an RFP for the Information Technology Strategic Plan included in this year’s project list, and participation in a WEF work group addressing “nondispersibles” or “flushable wipes” in light of the sewer and pump clogging problems increasingly being caused by these materials. Greg Pyles conducted a plant tour for a Millikin biology class and I conducted a tour for a group participating in the Master Naturalist training program.

CSO Summary

Location	Events	Discharge (million gallons)	Estimated Total Duration of Discharges
Oakland Avenue (Outfall 003)	2	2.8	6.9
Lincoln Park (Outfall 004)	2	7.4	2.9
McKinley Avenue (Outfall 007)	2	4.0	10.8
Seventh Ward (Outfall 008)	2	6.8	4.1

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

SANITARY DISTRICT OF DECATUR

501 DIPPER LANE, DECATUR, IL 62522

MEMORANDUM

TO: Tim Kluge

DATE: 11/04/13

FROM: Larry Arnold

SUBJECT: Laboratory activities for October 2013

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. October's Effluent Ammonia violation was preceded by a sudden increase in incoming ammonia and metals.
- 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.
- 3) Personnel are now working on their Personal Development Plans which will be completed after senior management review of the Employee Input and Catalytic Coaching forms.
- 4) Work continues on a laboratory manager position standard operating procedure. A generic calendar was setup indicating at what time of year certain actions need to be taken in relation to infrequent events and also indicates primary daily activities. This effort is related to transition planning for the laboratory. During 2014, this calendar will be reviewed again on a daily basis to ensure that no activities are overlooked or new ones have been added. Transition documents prepared to date are stored on the laboratory intranet.

As part of the laboratory manager's personal development plan, a document has been prepared and submitted for review indicating general characteristics needed for to fill the Laboratory Manager position.

- 5) Laboratory management continued updating the district lab data handling manual as part of the transition effort and we anticipate beginning in house training for all interested laboratory personnel sometime in 2013 assuming personnel situation stabilizes. This may commence with some outside Microsoft Excel training prior to specific in-house training and will be part of the participating individuals' personal development plans.

Laboratory Management began assessment of utilizing Visual Basic for Applications programming to combine SCADA data from the iHistorian application with laboratory data from the Laboratory Information Management System (LIMS) to allow ongoing calculation of key operational parameters used for plant control and by engineers for process design. Project looks feasible and will commence upon completion of other Personal Development Plan goals and restoration of the iHistorian system after resolution of the virus related problems in the district's intranet system.

Pretreatment Activity during October 2013

Verbal Notices

We issued a Verbal Notice to **Carry Transit** on October 11, 2013 because they had not yet submitted the required zero process discharge flow certification.

Warning Notices

We issued a Warning Notice to **Carry Transit** on October 21, 2013 because they still had not submitted the required zero process discharge flow certification.

Other Enforcement

We did not issue any Notices of Violation or Executive Orders during October 2013.

Penalty Assessment

We assessed the following industrial penalties for October 2013:

Archer Daniels Midland Co.	\$13,000.00
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General Activity

1. We monitored eleven industrial users (IU) and we performed seven industrial user inspections during October 2013.
2. We sent a permit application package to **Prairie Farms Dairy, Inc.** during October, because their current discharge permit will expire in April 2014.
3. We sent a wastewater hauler permit application to **Portable Sanitation Systems** in October 2013 because their permit is due to expire soon. They responded by quickly applying for a new permit.

4. We calculated significant non-compliance (SNC) for the middle semester of 2013 during October 2013 and none of our users met the definition of SNC during the April 1 through September 30, 2013 SNC period.
5. I attended a Learn Linko Webinar on permit writing during October 2013.

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

TO: Tim Kluge
FROM: J. D. Malone, I&C Manager
DATE: 11/14/2013
SUBJECT: I&C Shop Monthly Activity Report for October 2013

Work Orders Completed:

48 Corrective
3 Improvement / New
181 PM
1 Process
3 Project
1 Safety

I&C Tech Monthly Activity:

Effluent pump #2 has been installed and baseline vibration readings have been collected with good results. An automatic lubrication system was installed to lubricate the pump bushings. This pump is operational and vibration will be monitored quarterly.

Effluent pump #1 has been repaired / installed. We will wait for failure analysis of the old pump to start up the repaired pump.

We have been working at the Wyckles facility to increase reliability and ease of use. LED lighting was added to the load out station to provide better light for the load out employees.

Updates to SCADA and process control are under way. We are working in conjunction with operations to improve operational efficiency and verify accuracy of data displayed on the screens. (Ongoing project)

Work continues for the Ammonia Station. Parts are on site and installation will begin when the structure is completed.

Received 2 out of 3 bids back for the lighting upgrade for the blower building, digester heat exchanger room, and WAS tank. DCEO paperwork will be filled out to see if grant money is available for this project.

Indication wiring is being run to primary clarifier 1 and 2 so this equipment can be monitored from SCADA.

MIS Monthly Activity Report:

1. Ongoing SDD Server Virtualization Project
2. Ongoing CMMS Upgrade
3. Proficy Historian Install and Workflow research

4. Camera System Set up and Adjustment
5. Network Administration, Helpdesk, Troubleshooting and Repair
6. Working on data integration project w/ MFS&W
7. Working on virus remediation and firewall upgrade

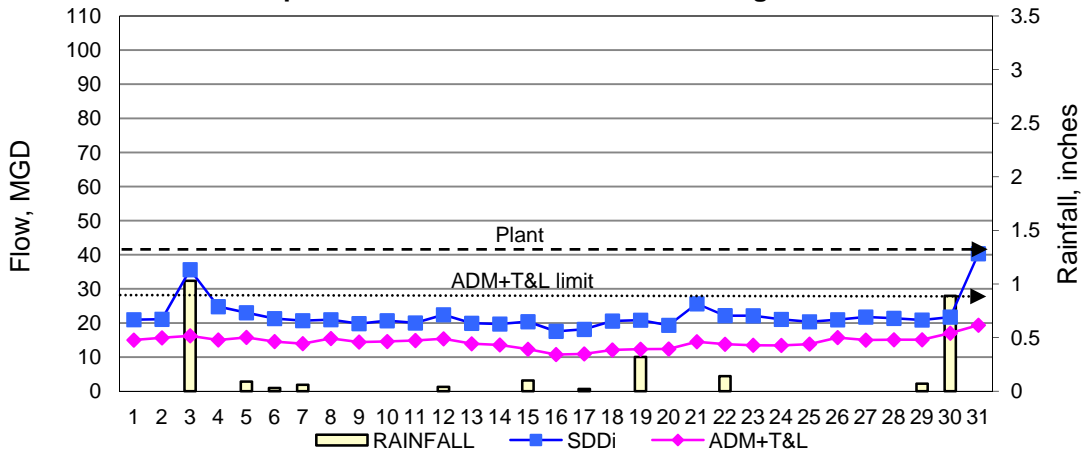
Planning and Scheduling:

Whole plant switchgear cleaning and protective relay testing delayed until completion of the digester project. The bulk of the equipment tested will be replaced during this project.

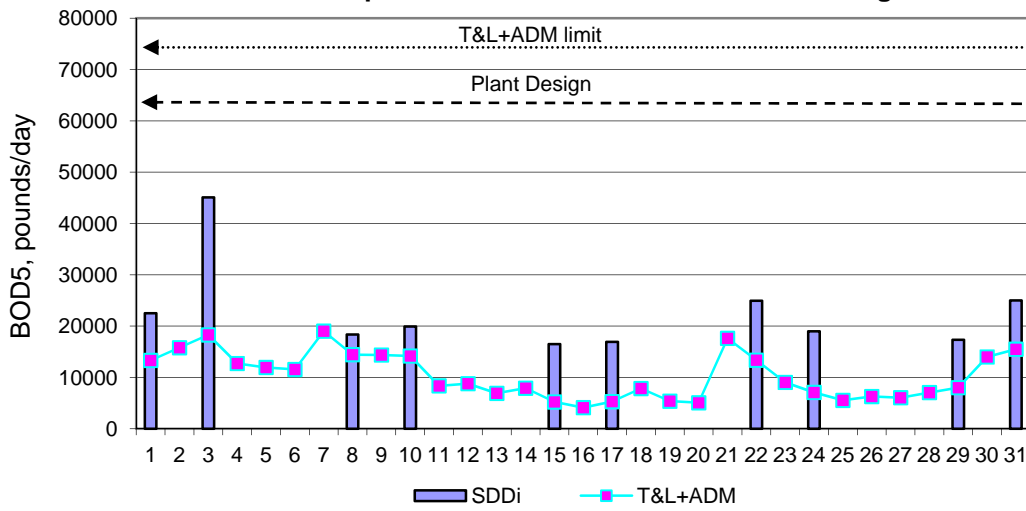
Respectfully,

J. D. Malone

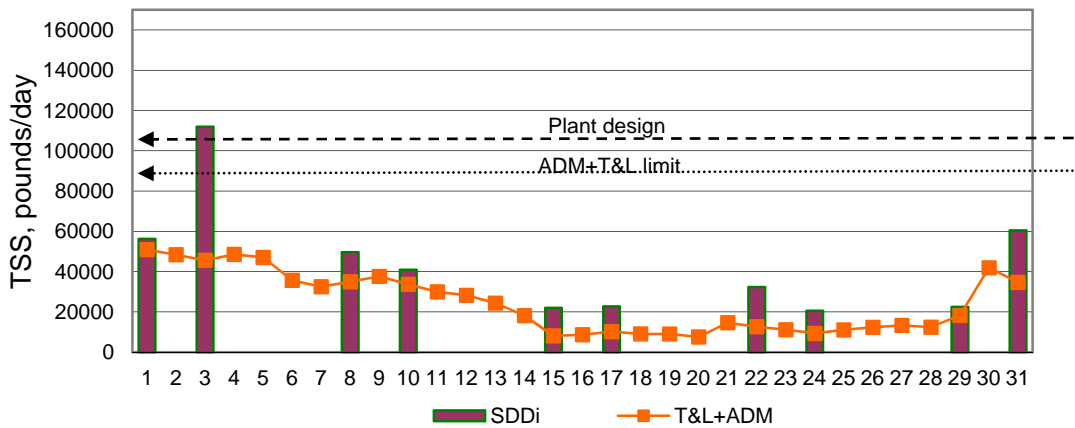
Flow Comparison: SDD vs. ADM + T&L Discharges and Rainfall



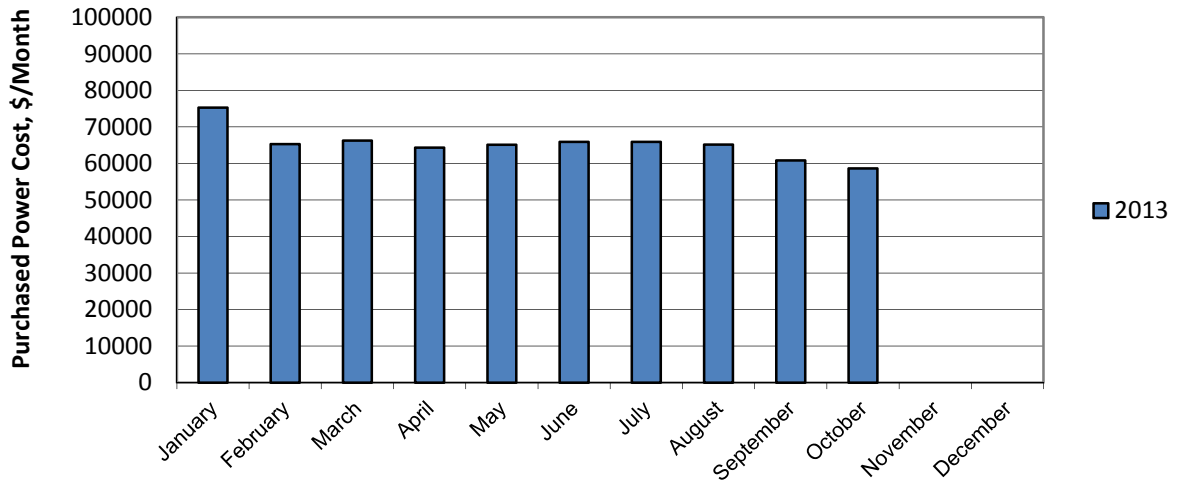
BOD Comparison: BOD Inf vs. T&L + ADM Discharges



TSS Comparison: SDD Inf T&L+ADM Discharges



ELECTRIC POWER COST: 2013



ELECTRIC POWER USE: 2011, 2012, 2013

