

Technical Director's Report

February 20, 2013

Plant Loading and Operations Summary – January 2013

| | |
|--|----------------------|
| Biochemical Oxygen Demand, 5-Day (Avg. 40,900 lb./day) | 60 percent of design |
| Total Suspended Solids (Avg. 70,100 lb./day) | 63 percent of design |
| Average Daily Flow (25.0 million gallons/day) | 61 percent of design |
| Maximum Daily Flow (50.6 million gallons/day) | 40 percent of design |

| | Permit Limits (avg./max.) | Reported Values | Violations |
|---------------------------|---------------------------|-----------------|------------|
| CBOD ₅ , mg/L | 20/40 | 4/6 | 0 |
| TSS, mg/L | 25/45 | 8/11 | 0 |
| NH ₃ -N, mg/L | 1.5/3.0 | 0.57/1.96 | 0 |
| Fecal coliform per 100 mL | 400* | | 0 |
| Chlorine Residual, mg/L | 0.05* | | 0 |
| Dissolved Oxygen, mg/L | 6.0 (minimum) | 8.1 | 0 |

*Effluent disinfection is required May 1 through October 31.

No exceedences of the NPDES permit limits occurred during January.

The total amount of stabilized sludge sent to storage at the Wyckles Road Land Application Facility last month was 418 tons. Methane utilized to generate electricity saved the District an estimated \$7310 for the month in electrical costs.

Although the City lifted water restrictions because of the increasing lake level, we continue to experience reduced total plant flows and lower flows from our largest industrial user. A chart showing average industrial flows is included on the next page of this report.

Ameren did not read the plant electric meter in January, and is currently billing delivery charges with a one-month delay. The power charts are not included in this month's report due to the missing information.

Activities

A follow-up letter regarding financing for the farnesene receiving station project was sent to vice-presidents of both Tate & Lyle and Amyris. The letter responded to questions raised during the January 10 meeting with the company representatives and asked for an early response. In spite of a subsequent request for response, this issue is not resolved.

An inquiry letter was received from the U.S. Army Corps of Engineers regarding the status of the permit application submitted last August for the temporary dam. The District is preparing a plan for mitigation to submit to the Corps.

Donohue & Associates is completing design work on the digester mixer project. Loan documents have been submitted and we met with Donohue on February 11 to review the plans and specifications. Operational information has been provided to Donohue for the Wyckles Road facility evaluation.

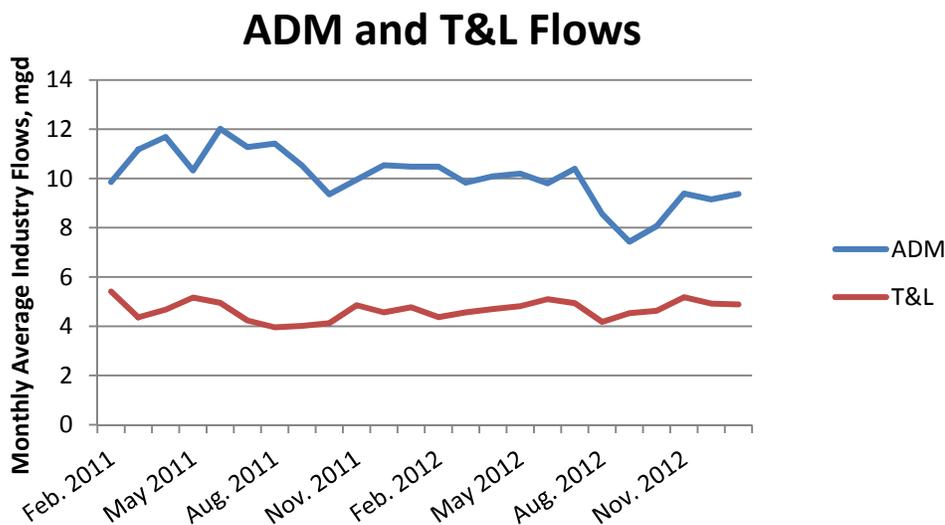
Technical memoranda have been received from Black & Veatch for the chlorination review study. Their recommendations will be used to improve our control of the chlorination system and of ammonia feed during the chlorination season.

Other activities during the past month included attendance at the IWEA Government Affairs Seminar, participation in water supply meetings with the City and with Illinois EPA, several discussions with ADM personnel regarding nickel sampling and results, and budget planning.

CSO ACTIVITY SUMMARY

| Location | Events | Discharge (million gallons) | Estimated Total Duration of Discharges |
|-------------------------------|--------|--------------------------------|---|
| Oakland Avenue (Outfall 003) | 2 | 0.52 | 10.3 |
| Lincoln Park (Outfall 004) | 1 | 0.5 | 1.1 |
| McKinley Avenue (Outfall 007) | 1 | 2.5 | 7.7 |
| Seventh Ward (Outfall 008) | 2 | 5.5 | 7.1 |

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: 02/01/13

FROM: Larry Arnold

SUBJECT: Laboratory activities for January 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 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. We did observe several higher than normal NH₃-N levels in the plant effluent towards the end of the month. However, no permit limits were violated. Industrial loadings for both ammonia and BOD were elevated during this period and some intermittent work was being performed on the blower system, as well.
- 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 commenced in November 2011. The number of analytes evaluated were increased in February 2012 to include anions and metals for comparison with pre-Amyris discharge results obtained for the supernatant for these parameters last year.
- 3) 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 2013, this calendar will be reviewed on a daily basis to ensure that no activities are overlooked. Transition documents prepared to date are stored on the laboratory intranet. At least one individual currently on the laboratory staff has indicated an interest in this position after the current laboratory manager's retirement in 2015.

- 4) 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. This may commence with some outside Microsoft Excel training prior to specific in-house training.
- 5) District laboratory purchased an automated nutrient analyzer (Ammonia, Organic Nitrogen, Total Nitrogen, and Total Phosphorus) to replace existing classical macro wet chemical methods currently being used. Installation and training was completed in mid December. District laboratory staff has completed required initial performance checks and correlation studies comparing data obtained with the new equipment to that obtained with the previously used methods. The instrument is now being used for all of the aforementioned analyses and we are in the process of developing standard operating procedures and job safety analyses for these. Once the nutrient methods have been optimized and cross training conducted, the use of this analyzer can be expanded to other colorimetric analyses such as total phenolics and cyanide, among others.
- 6) The district laboratory began additional analyses of Nickel and Zinc in both the total and soluble form in our influent and effluent to assist ADM in their efforts to determine how to proceed when these limits become effective.

Pretreatment Activity during January 2013

Verbal Notices

We issued a Verbal Notice to **Bulkmatic Transport Company** on January 7, 2013 because they were discharging wastewater with a pH value below 6.0 on January 7, 2013.

We issued a Verbal Notice to **Tate and Lyle** on January 11, 2013 because they exceeded their permit limit for total dissolved sulfides on January 11, 2013.

Warning Notices

We issued a Warning Notice to **Bulkmatic Transport Company** on January 16, 2013 because they discharged wastewater with a pH below 6.0 standard units on January 7 and 16, 2013.

Violation Notices

We did not issue any Notices of Violation during January 2013.

Executive Orders

We did not issue any Executive Orders during January 2013.

Penalty Assessment

We assessed the following industrial penalties for January 2013:

| | |
|-----------------------|------------|
| Tate and Lyle: | \$2,000.00 |
|-----------------------|------------|

General Activity

1. We monitored fourteen commercial and industrial users (IU) and we performed nine industrial user inspections during January 2013.
2. We issued an amended wastewater discharge permit to **Archer Daniels Midland Company** during January because their environmental auditors asked that we clarify the monitoring and sample submittal requirements. We also issued a new permit to **Mueller Company Plant #4** during January because their old permit was due to expire soon.
3. Our new monitoring technician, who started on December 17, 2012, has been learning his new duties and performing them well.
4. We reviewed the files to determine which industries, if any, were in significant non-compliance (SNC) during the latest SNC semester and during any of the four calculation periods for 2012. **ADM Railcar Repair** is the only industry in SNC during the latest period. Four other significant industrial users (SIU) were in SNC at some time during 2012. The four included Prairie Farms Dairy for multiple discharge excursions, Stripmasters Services for multiple issues with late reporting, Canadian National/Illinois Central Railroad for a single monthly average violation of the ordinance limit for zinc, and Akorn, Inc. for a single violation of their monthly average acetone limit.

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

TO: Tim Kluge
FROM: J. D. Malone, I&C Manager
DATE: 1/8/2013
SUBJECT: I&C Shop Monthly Activity Report for January 2013

Work Orders Completed:

66 Corrective
4 Improvement / New
105 PM
0 Process
0 Project
1 Safety

I&C Tech Monthly Activity:

We are beginning to run new conduit for the lighting in the DAF building. This project will be completed as time allows.

The Wyckles dredge pump motor has failed. Failure analysis was performed by Bodine Electric. Don Miller and I were present during initial disassembly. Corrective action for the failure was identified and the repair quote was approved. The unit is in the repair process and will be installed upon completion.

Effluent pump #2 had a mechanical failure. It was found by maintenance that the locking nut on the top of the motor was loose. This allowed the impeller to drop / rub and vibrate. After the repair, vibration was checked and the unit is running correctly.

Baseline pricing for a new generator and transfer switch has been received and added to the budget proposal as a line item. This will run the computer room in the admin building in the event of a power outage.

Material / Labor baseline pricing for 259 building MCC replacement has been received and was added as a proposed budget line item.

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.

We have been coordinating with the electrical contractor on the 2012 Energy Efficiency Project. In coordination with the project, we will be replacing all DO probes in the Nitrification Aeration tank for more reliable operation.

Plant wide thermal scan (including outside pump stations) was performed January 2013. Only four issues were located during the scan. Materials have been ordered to correct the issues. This work will be completed February / March 2013.

MIS Monthly Activity Report:

1. Reqlogic update to include Catalog Connector
2. Mandatory WO# and Equipment Fields in Reqlogic
3. Ongoing SDD Server Virtualization Project
4. Ongoing CMMS Upgrade
5. Network Administration, Helpdesk, Troubleshooting and Repair

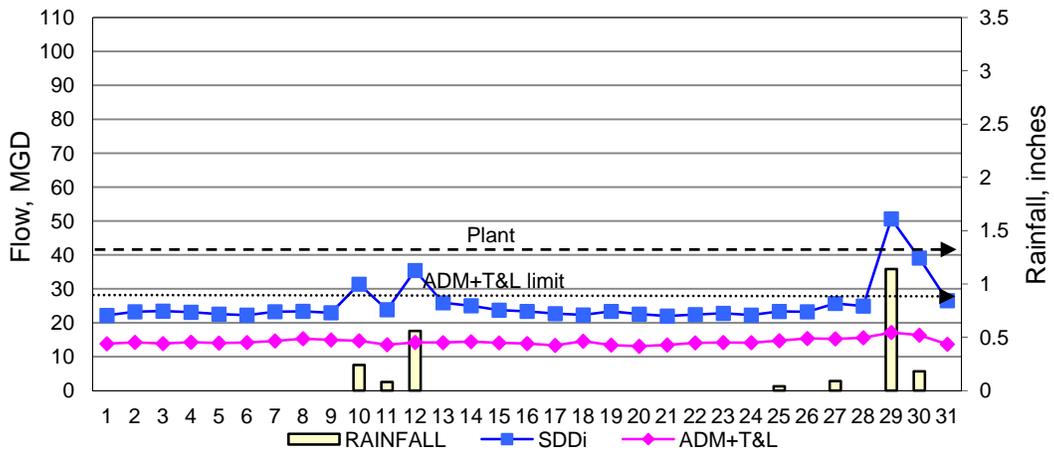
Planning and Scheduling:

Whole plant switchgear cleaning and protective relay testing is due in 2013. Added pricing to the proposed budget.

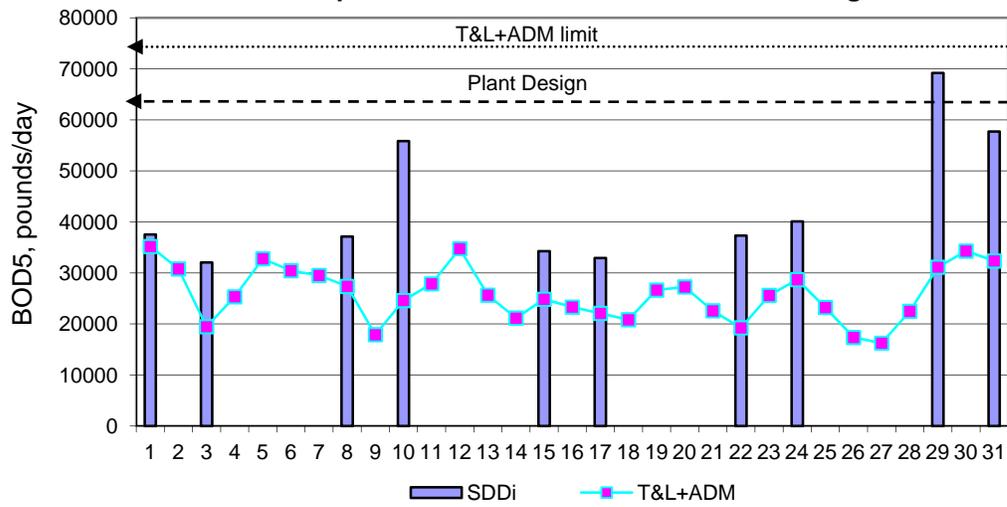
Respectfully,

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

