

Operation, Compliance and Innovation Report

May 17, 2023

Plant Loading, CSO Report, and Director's Notes

Plant Influent Report

Biochemical Oxygen Demand, 5-Day (Avg. 26533 lbs/day)	42 percent of design
Total Suspended Solids (Avg. 51505 lbs/day)	47 percent of design
Average Daily Flow (31.19 million gallons/day)	76 percent of design
Maximum Daily Flow (39.96 million gallons/day)	32 percent of design

Plant Effluent Report

<u>Parameter</u>	<u>Report Frequency</u>	<u>Permit Limits</u>	<u>Reported Values</u>	<u>Violations</u>
CBOD ₅ , mg/L	Mo./Wk. Avg	20/40	2/2	0
TSS, mg/L	Mo./Wk. Avg	25/45	5/6	0
NH ₃ -N, mg/L	Mo. Avg/Daily Max	1.5/3.0	0.12/0.12	0
DO, mg/L	Mo. Avg/Wk. Avg/Daily Min	6.0/6.25/5.0	8.13/7.94/7.84	0
pH, S.U.	Daily Min/Max	6.0/9.0	7.69/8.08	0
Total Nickel, mg/L	Mo. Avg	0.0381	0.019	0
CL ₂ Residual, mg/L	Daily Max	0.05	NA	0
Fecal Coliform CFU/100mL	Daily Max	400	NA	0

CSO Report

<u>Location</u>	<u>Events</u>	<u>Est. Total Duration of Discharges (hrs.)</u>	<u>Discharge (million gallons)</u>
Oakland Avenue (Outfall 003)	0	0	0
Lincoln Park (Outfall 004)	0	0	0
McKinley Avenue (Outfall 007)	0	0	0
Seventh Ward (Outfall 008)	0	0	0

Director's Notes:

2023 Disinfection Season:

Effluent disinfection and dechlorination began on May 1, per requirements of the SDD's NPDES permit and will continue until October 31. During this time, fecal counts and chlorine residual will be closely monitored to ensure compliance.

Compliance Reporting:

In accordance with the requirements of our NPDES permit the SDD has submitted all required reports to the appropriate entities up to now for 2023 calendar year, this includes the Annual Pretreatment Report. The report was submitted April 18, 2023, to the IEPA and USEPA and provides pretreatment information for all permitted industrial users of the SDD.

Staff Training Activities:

Tim Gorden attended his first CIPWO (Central Illinois Professional Wastewater Operators) officer meeting since being appointed as the organizations new Vice President on May 1, 2023. During the meeting, the officers discussed topics in which they thought other operators would like to learn more about and guest speakers for the upcoming summer meeting which will be held at the SDD on July 26, 2023.

Operations, Laboratory, and Pretreatment Activity Reports – April/May 2023

Operations Activities:

Normal operational activities were conducted as prescribed by standard procedures or in response to conditions within the plant. These include operation, monitoring, and adjusting facility equipment, performing process control testing, records keeping, and coordination with the other departments to realize optimal performance of the Plant.

- 1) Digester #2- Operators are diluting the sludge to reduce the gas levels in order to search for the gas leak in the attic space. We will continue this process until gas levels are at a safe level for entry.
- 2) Digester #1 mixer has been taken offline due to a bad seal. The mixers for digesters #2 and #4 are operational but currently off due to gas in the attic spaces.
- 3) Operators have started the disinfection system. The system started as it should with no problems. The new automated analyzers will come online on May 10 and operators will be trained on the 11TH.
- 4) Operations staff continue to actively address PMs as time, workload, and staff levels allow.
- 5) Tim Gorden and Ashley Bailey participated in giving numerous Decatur Public Schools students plant tours of the liquid process of the treatment plant on April 18, 20, and 21, 2023. It appeared the students seemed very interested and asked several questions.

Laboratory Activities:

Routine:

A total of 1,815 analyses were performed in the laboratory during the month of April 2023.

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) The SDD laboratory continued to send samples of raw influent twice a week throughout the month of April 2023 for the "COVID-19 in Wastewater" study funded by the Illinois Department of Public Health. A Zoom call was held on April 14, 2023, with the study participants and the researchers to discuss the results of the study thus far. They are now analyzing for Respiratory Syncytial Virus (RSV), influenza A and B and COVID in the samples.

- 2) The quarterly sampling of the groundwater monitoring wells was conducted at the South Sludge Lagoons and Wyckles Lagoons during the second week of April 2023.
- 3) The SDD laboratory/pretreatment collected and analyzed samples on April 15, 2023, for the ongoing nutrient study for Black and Veatch.
- 4) Several SDD laboratory staff members attended the Illinois Wastewater Professionals Conference (IWPC) in Springfield on April 10-12, 2023. Keith Richard served as the moderator of the Laboratory Session on the morning of April 11, 2023. Five speakers gave presentations on various laboratory-related topics. He then helped conduct the laboratory portion of the "Operations Challenge" that afternoon. The laboratory portion of the challenge involved properly collecting and shipping samples for three separate analytes. The participants included plant operators, lab technicians, engineers, and many people that had little, if any, laboratory experience. All the participants had fun taking on the challenge.
- 5) Keith Richard, Matthew Patricio, and Austin Gruber assisted with the microbiology, laboratory, solids handling and prairie portion of the plant tours for numerous Decatur Public Schools students on April 18, 20, and 21, 2023.
- 6) Keith Richard provided a presentation and plant tour on April 19, 2023, for a Microbiology class from Millikin University. The presentation was heavily focused on the microbiology of our treatment process. He also provided a presentation and plant tour on April 20, 2023, for a Freshwater Ecosystems class from Millikin University.

Pretreatment Activities:

General Activities:

- 1) Pretreatment personnel monitored ten commercial and industrial users (IU) during April 2023. Industrial site inspections were completed on 12 different sites.
 - a. Decatur Plating, Bulkmatic, Decatur Memorial Hospital, St. Mary's Hospital, Industrial and Custom Powder Coating, Mason MFG, VAE Nortrak, ADM Railcar Repair, ADM JRRRC, Stripmasters, HR Ewell, and H&M Trucking.
- 2) Bimonthly sampling for the Nutrient Study is ongoing. SDD personnel are utilizing our portable samplers to collect the extra samples from **Primient** and **ADM**.
- 3) An Industrial User Permit Renewal application was granted for **H&M Trucking**.
- 4) Wastewater Hauler Permit applications were granted for **H&M Trucking** and **Portable Sanitation Systems**.

Pretreatment Ordinance - Verbal Notices:

The SDD issued a total of 2 Verbal Notices to **Primient** in April 2023:

1. Notice 1 was issued on 4/1/2023 for a BOD limit violation and carried a \$1,000 penalty.
2. Notice 2 was issued on 4/10/2023 for a TSS limit violation and carried a \$1,000 penalty.

Pretreatment Ordinance - Warning Notices (WN):

No Warning Notices were issued during April 2023.

Pretreatment Ordinance - Notices of Violation (NOV):

No Notices of Violation were issued during April 2023.

Pretreatment Ordinance - Executive Orders:

No Executive Orders were issued during April 2023

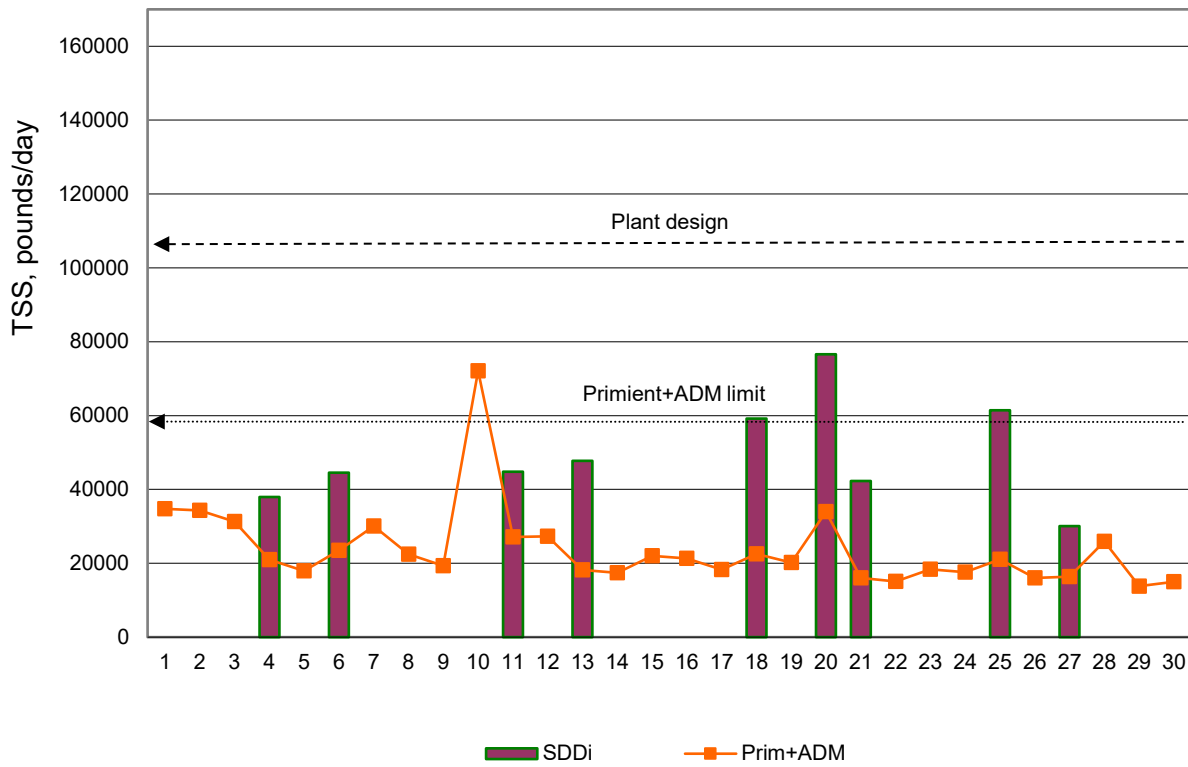
Pretreatment Ordinance - Penalty Assessments:

The following industrial penalties were assessed for April 2023:

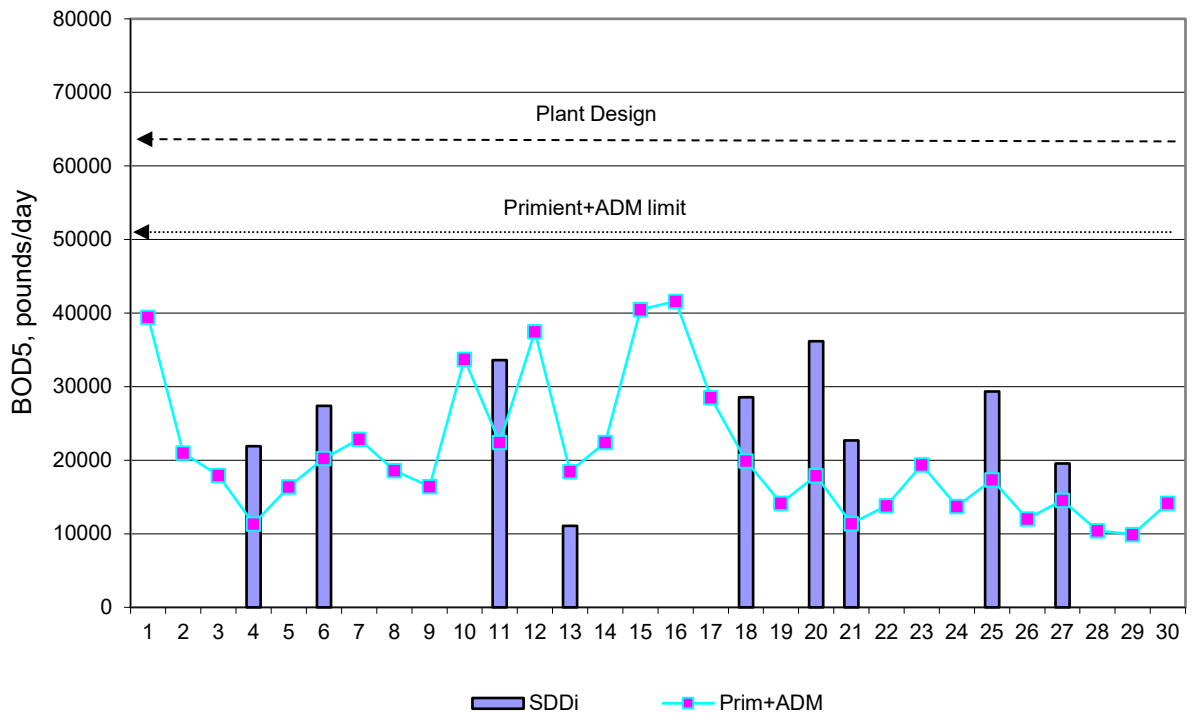
- | | |
|--------------------|----------------|
| 1) Primient | \$2,000 |
|--------------------|----------------|

Plant Operating Graphs:

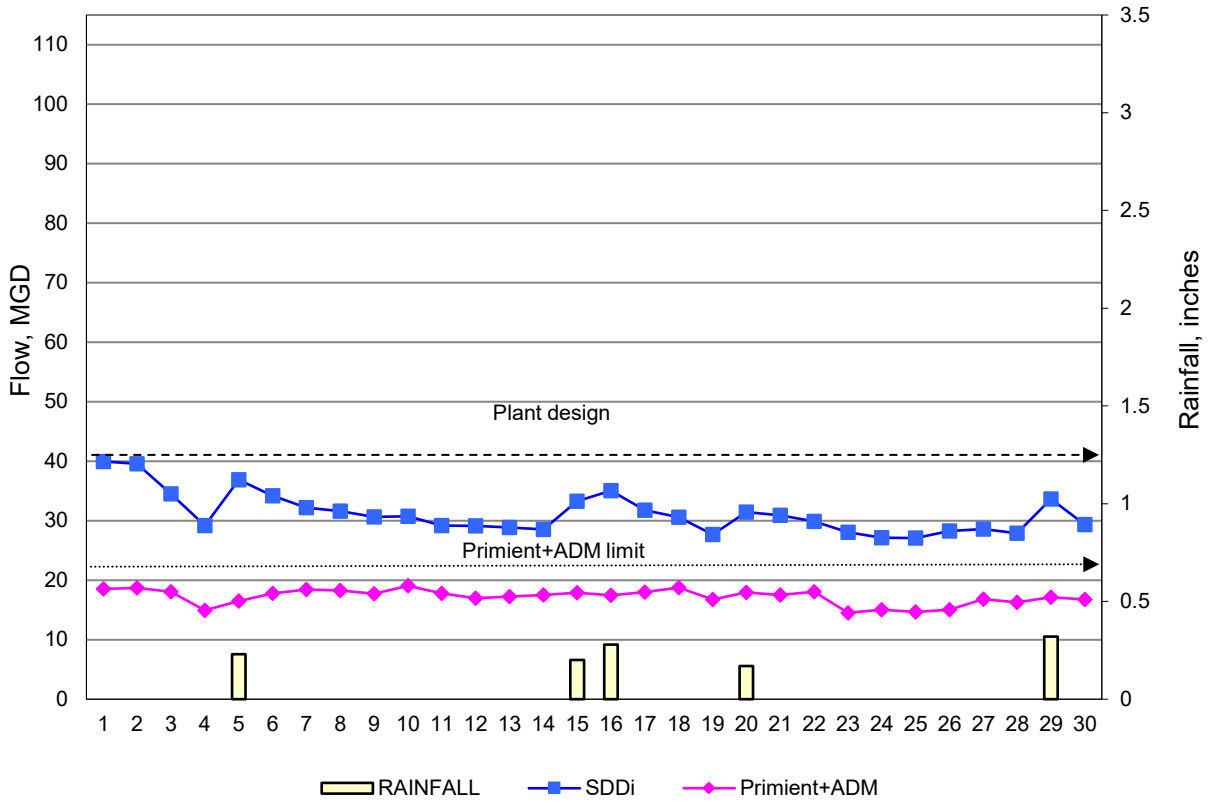
TSS Comparison: SDD Inf Primient+ADM Discharges



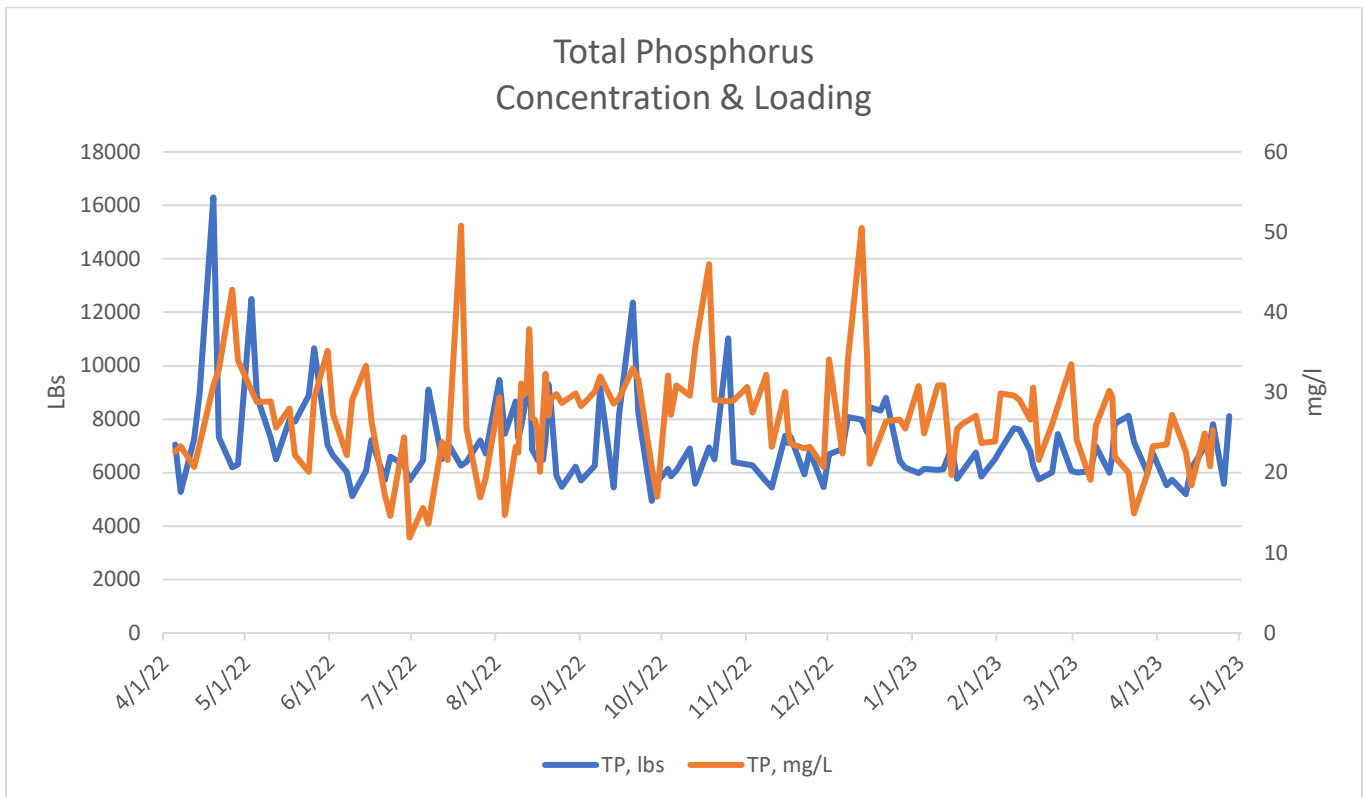
BOD Comparison: BOD Inf vs. Primient + ADM Discharges



Flow Comparison: SDD vs. Primient + ADM Discharges and Rainfall

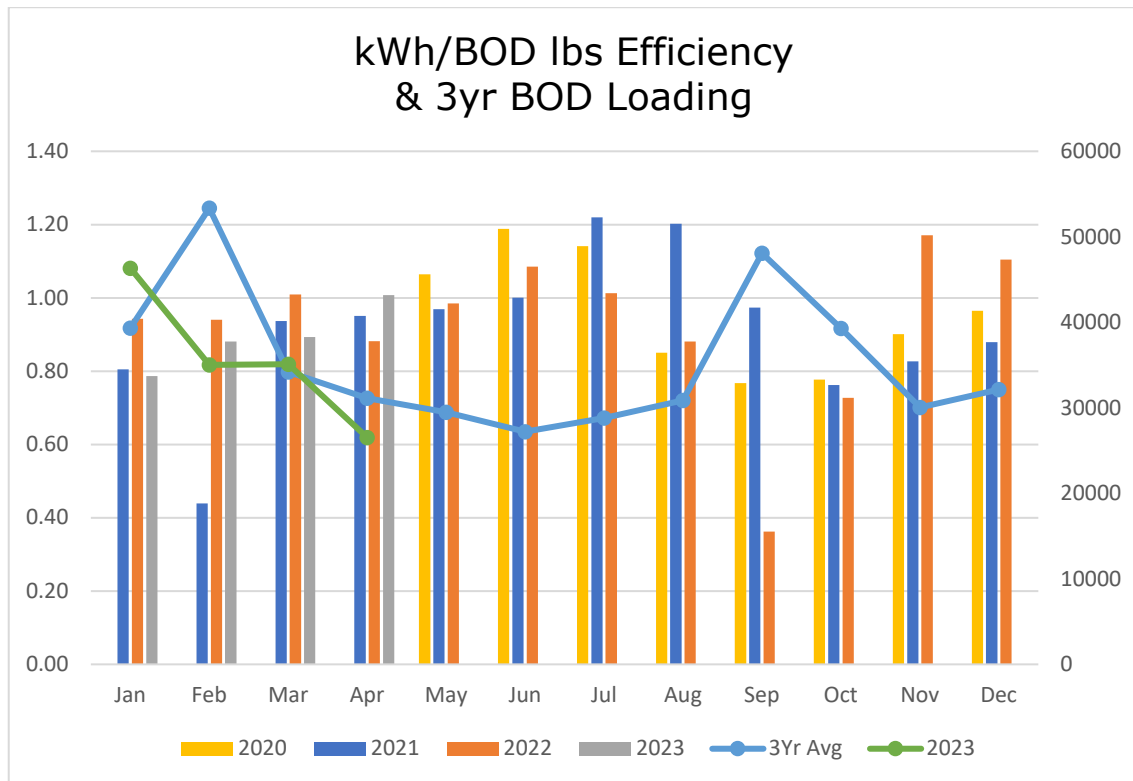
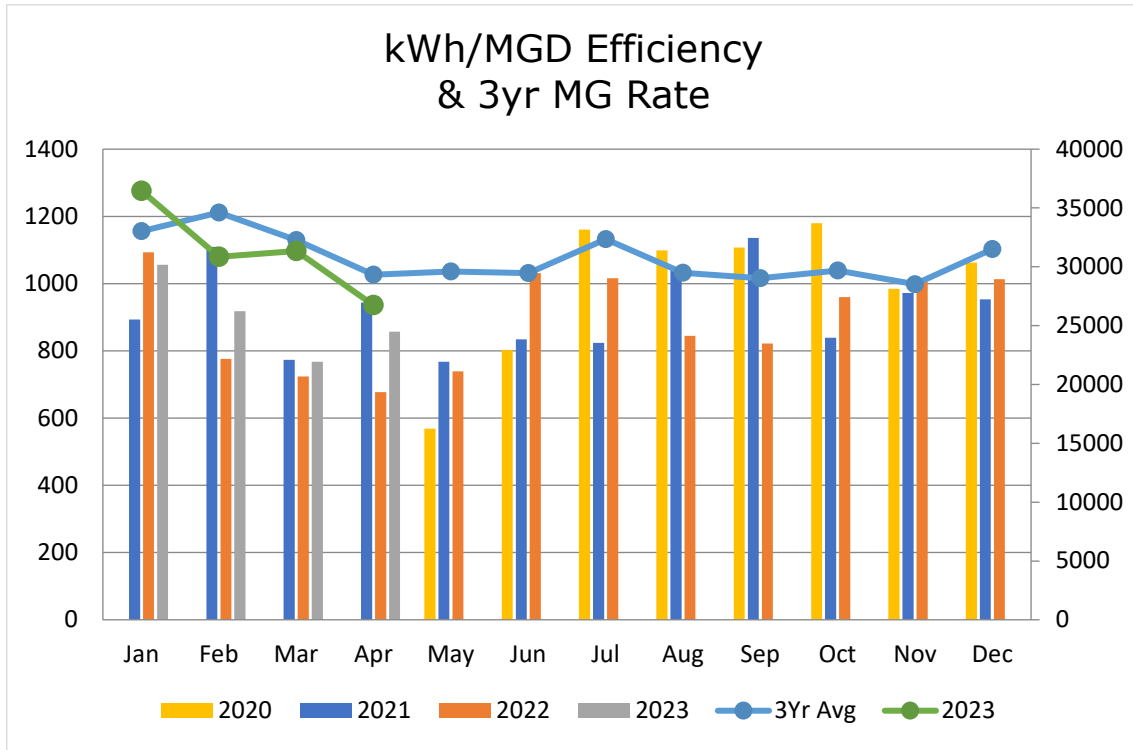


Phosphorus Tracking Graph:



Plant Efficiency Graphs:

April 2023



**Sanitary District of Decatur
Nutrient Program Management Report**

May 17, 2023

During the month of April District personnel attended meetings with members of the Black & Veatch Team to affect progress in nutrient reduction planning and activities.

Currently, activities continue to surround the gathering and sharing of data and information so that all parties can assist in how to move the projects forward as efficiently as possible. In the month of April, the District continued to gather and forward all requested industrial special sampling lab results and plant performance data as requested by the B&V.

B&V concentrated on continuing their efforts associated to the analysis and evaluations of solid stream alternatives. B&V also continued their analysis of liquid stream alternatives finalizing their Technical Memorandum. B&V has continued to request, receive, and assimilate data provided by SDD for integration into a Power BI dashboard for the Program. B&V also continues their efforts associated to the Industrial Pre-Treatment Program Update task with their subconsultant Jacobs. In addition, B&V has continued the development of their full facility model, began next steps for the aging infrastructure evaluations, and assisted with bid phase services of the Frac Tank Pilot Study.

Below you will find a list of the actual meetings conducted in chronological order. The information covers the subject, date, and agenda items of each meeting. Additional information related to any of these items can be supplied to the Board upon request including meeting minutes and documentation used during the meeting as it is all being stored as part of the permanent record.

Nutrient Reduction Program Meetings Conducted during April 2023

Subject	Date	Agenda Items
Aged Infrastructure Review of Facilities Existing Conditions	04/04/2023	<ol style="list-style-type: none"> 1. Discussion of Critical Assets to be Assessed 2. Approach to Aged Infrastructure Evaluation 3. Questions 4. Next Steps
Solids Handling Follow-up Workshop	04/06/2023	<ol style="list-style-type: none"> 1. Summary of Previous Biosolids Workshop 2. Liquid Stream Alternatives Summary 3. Phosphorus Chemistry: Brushite, Struvite and Vivianite 4. Updated Solids Handling Alternatives 5. Discussion of Agronomic Rates based on Nitrogen and Phosphorus Loading Rates 6. Next Steps
Nutrient Program Management Bi-weekly Meeting	4/12/2023	<ol style="list-style-type: none"> 1. Frac Tank Pilot Procurement Packages 2. Power BI 3. Pretreatment Program Update 4. PDOP/Annual Progress Report 5. Watershed Services 6. Aging Infrastructure Evaluation 7. WRRF Upgrade Plan
Nutrient Program Management Bi-weekly Meeting	4/26/2023	<ol style="list-style-type: none"> 1. Frac Tank Pilot Addendum #2, Bid Opening 2. Power BI 3. Pretreatment Program Update 4. Watershed Services 5. Aging Infrastructure Evaluation 6. WRRF Upgrade Plan

**Sanitary District of Decatur
Watershed Management Report**

May 17, 2023

During the month of April District personnel attended meetings with members of the Black & Veatch and Geosyntec Teams to affect progress in meeting the NARP requirements as listed in the NPDES permit as well as moving forward on the formation of a future watershed workgroup for the Middle Sangamon River.

Recent activities pertained to planning the program in order to complete the NARP Study. Foremost in these efforts included Geosyntec continuing their next steps for the NARP Study, and the development of the Bylaws for the Watershed Group formation.

Below you will find a list of the meetings conducted. The information covers the subject, date, and agenda items of each meeting. Black & Veatch provided a written summary. Additional information related to any of these items can be supplied to the Board upon request including meeting minutes and documentation used during the meeting as it is all being stored as part of the permanent record.

Watershed Management Meetings Conducted during April 2023

<u>Subject</u>	<u>Date</u>	<u>Agenda Items</u>
Watershed Services Bi-weekly Meeting	04/05/2023	1. Watershed Group 2. Instream Water Quality Model 3. Watershed Alternatives 4. Next Steps

May 1, 2023

Sanitary District of Decatur (SDD)
501 Dipper Lane
Decatur, IL 62522

Nutrient Program Manager
BV Project No. 411502

Attention: Don Miller, P.E., Director of Engineering

Subject: SDD Nutrient Program Management
April Monthly Progress Update (April 1, 2023 – April 30, 2023)

Dear Mr. Miller:

This letter summarizes the work associated to the SDD Nutrient Program Management project for services from April 1, 2023, through April 30, 2023.

1. Program Management, Administration, and Coordination
 - Conducted bi-weekly program conference calls to update progress and discuss key issues.
 - Provided Monthly Project Update.
 - Provided ongoing management of the project including program management, preparation/monitoring of the program schedule and budget as well as program administrative duties.
 - Continued to coordinate Power BI development including project data integration and dashboard development.
 - i. Continued to modify the SDD Historian data set to reconcile duplicate data.
 - ii. BV continued to modify the Power BI dashboards per District feedback.
 - iii. Began generating the final pages of the dashboard including items such as final clarifiers, chemical dosing, and other infrastructure.
2. Pretreatment Program Update
 - Continued to evaluate special sampling data
 - Continued to work with Jacobs and coordinate their review of pre-treatment programs for municipalities with similar influent as SDD due to industrial users.
 - Began next steps in preparation for industrial coordination quarterly meetings.
3. Phosphorus Discharge and Optimization Plan (PDOP)
 - No Services were completed this period.
4. Watershed Support Services
 - Conducted bi-weekly progress update meeting.
 - Geosyntec continued next steps with modeling associated to the NARP Study
 - Continued initial planning efforts and outline for the Watershed Group formation development providing comments from the review of the draft Bylaws developed by SDD.

5. WRRF Upgrade Plan

- Completed TM#1: Current Conditions, Industrial Influent, Emerging Concerns.
- Completed TM#2: BNR Liquid Stream Evaluations.
- Solutions Development Solids Stream
 - i. Updated B&V model to include phosphorus release and recovery (Calprex process) prior to digestion to include in analysis.
 - ii. Continued investigating the agronomic rate of biosolids based on phosphorus loading.
 - iii. Prepared for and completed BNR Solids Handling Evaluation – Workshop 3 which provided:
 1. Summary of Previous Biosolids Workshop
 2. Liquid Stream Alternatives Summary
 3. Phosphorus Chemistry: Brushite, Struvite and Vivianite
 4. Updated Solids handling Alternatives
 5. Discussion of Agronomic Rates based on Nitrogen and Phosphorus Loading Rates
 6. Established Next Steps
- Aged Infrastructure Evaluation
 - i. Continued to develop the overall condition assessment approach including evaluation criteria and associated forms for documentation.
 - ii. Conducted a detailed review with the District to determine the critical asses to be assessed
- Plant Facility Evaluation
 - i. Continued detailed modeling efforts to evaluate and provide whole plant process model simulations related to the alternatives identified for nutrient removal.

6. Pilot and Demonstration Testing

- Preparation of addenda to Procurement Documents for Progressing Cavity Pump and Air Mix System.
- Completed bid set review meeting for the Frac Tank Pilot, and incorporated comments into the final design bid set for advertisement.

FRAC TANK PILOT PROJECT SCHEDULE	
MILESTONE/ACTIVITES	DATE
Receive comments from Vendors	January 27, 2023
Issue draft procurement packages for primary sludge pumps, bubble mixing and Frac Tank to SDD	January 31, 2023
Issue 50% Design Documents to SDD	February 24, 2023

SDD to Issue Procurement Documents to Vendors for Primary Sludge Pump, Bubble Mixing System and Frac Tank (rental agreement)	Week of February 27, 2023
Receive Quotes from Vendors for Direct Procurement	March 10, 2023
Issue Final Bid Documents for SDD Review / Approval	March 17, 2023
Issue Purchase Orders / Rental Agreements with Vendors	March 23, 2023
Advertise for Bids (16 days)	March 20, 2023
Bid Opening	May 9, 2023
Issue Notice to Proceed	May 18, 2023
Early Receipt of Pre-purchased Equipment Primary Sludge Pumps (20-week delivery) Big Bubble Mixing (20-week delivery) Frac Tank (6 weeks delivery)	Five Months from Issuance of Purchase Order August 2023
Substantial Completion (pending equipment delivery times)	September 2023
Final Completion	September 2023

Please feel free to contact me with any questions, comments or if you need additional information.

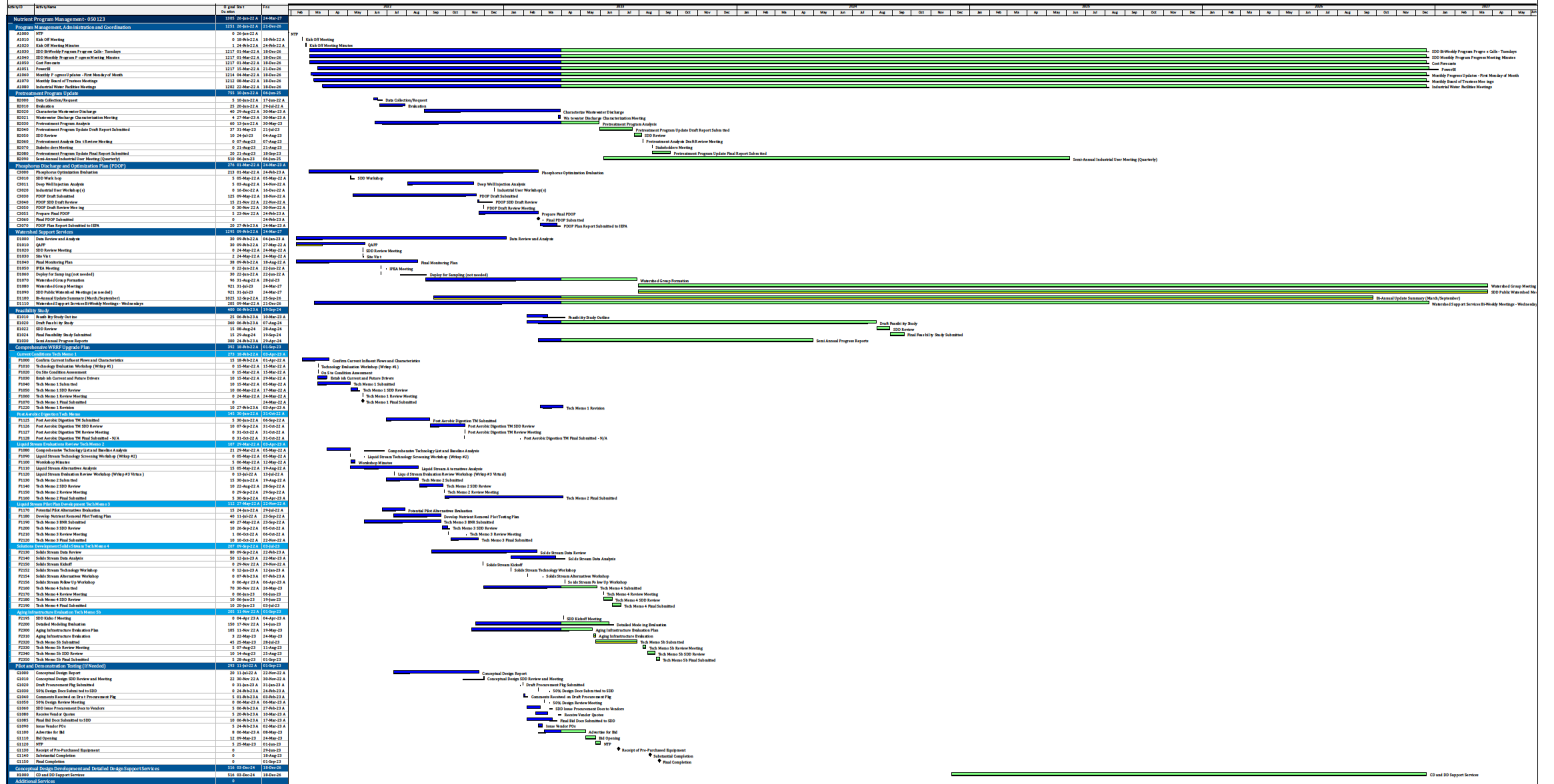
Sincerely,

Diane Grossenheider, P.E.
 Project Manager, Black & Veatch

Enclosure(s):

- SDD Nutrient Program Manager Schedule
- Anticipated Cost Forecast

Project: Nutrient Program Management - 050123



SANITARY DISTRICT OF DECATUR - NUTRIENT PROGRAM MANAGEMENT
2022 - 2023 COST FORECAST
BV Project Number 411502

Incremental		2022.02	2022.03	2022.04	2022.05	2022.06	2022.07	2022.08	2022.09	2022.10	2022.11	2022.12	2023.01	2023.02	2023.03	2023.04	2023.05	2023.06	2023.07	2023.08	2023.09	2023.10	2023.11	2023.12	2022 Total	2023 Total	
		Planned	13,683	108,359	237,519	168,336	497,476	284,217	100,648	86,219	109,725	91,822	91,820	204,625	175,033	184,839	230,195	181,219	171,412	188,595	126,472	126,461	158,090	126,472	126,465	1,789,824	1,999,878
Actuals	16,724	60,831	77,995	54,608	61,865	125,355	145,679	112,979	118,381	94,677	105,543	155,812	179,053	152,247	174,787										974,636	661,899	
Forecast	16,724	60,831	77,995	54,608	61,865	125,355	145,679	112,979	118,381	94,677	105,543	155,812	179,053	152,247	174,787	177,968	162,859	143,899	133,883	125,267	136,583	100,391	100,389	974,636	1,743,138		
Task 1 Program Mgmt	Planned	4,631	18,589	25,171	20,169	20,164	25,213	20,168	20,170	25,211	20,169	20,167	20,050	17,010	17,014	21,263	17,010	17,012	21,267	17,010	17,012	21,263	17,012	17,012	219,622	199,885	
	Actuals	7,905	2,198	2,585	3,303	2,115	3,760	4,348	5,103	3,173	9,068	4,320	9,295	8,708	21,585	22,291									47,875	61,876	
	Forecast	7,905	2,198	2,585	3,303	2,115	3,760	4,348	5,103	3,173	9,068	4,320	9,295	8,708	21,585	22,291	21,010	21,010	21,267	17,010	17,012	21,263	17,012	17,012	47,875	214,474	
Task 2 Pretreatment Program Update	Planned	1,726	15,177	42,250	17,294	10,680	30,576	19,616	5,192	6,491	5,192	5,192	-	-	-	-	-	-	-	-	-	-	-	-	159,386	-	
	Actuals			705	470	470	235	-	353	430	430	1,450	4,250	4,715	8,238	7,581									4,543	17,203	
	Forecast			705	470	470	235	-	353	430	430	1,450	4,250	4,715	8,238	7,581	31,576	30,576	5,192	6,491	5,192	5,192			4,543	109,002	
Task 3 Phosphorus Discharge and Optimization	Planned	536	3,756	4,694	7,073	26,718	5,977	4,881	4,879	6,099	4,877	4,879	6,748	5,656	5,213	5,665	4,536	4,531	5,665	4,533	4,531	5,668	4,533	4,531	74,369	55,062	
	Actuals		1,290	3,755	3,508	1,613	235	4,645	8,731	8,100	10,948	3,898	4,760	6,665	1,045	-	-	-	-	-	-	-	-	-	-	46,721	12,470
	Forecast		1,290	3,755	3,508	1,613	235	4,645	8,731	8,100	10,948	3,898	4,760	6,665	1,045	-	-	-	-	-	-	-	-	-	-	46,721	12,470
Task 4 Watershed Support Services	Planned	6,790	61,631	12,107	4,040	193,891	22,817	18,255	18,250	22,817	18,253	18,251	5,383	4,569	4,567	23,529	29,712	29,705	30,850	29,712	29,705	30,850	29,709	29,707	397,102	277,998	
	Actuals	940	14,809	17,206	28,841	21,065	45,297	54,170	36,587	44,435	12,003	34,319	16,395	4,931	31,212	21,029									309,674	73,567	
	Forecast	940	14,809	17,206	28,841	21,065	45,297	54,170	36,587	44,435	12,003	34,319	16,395	4,931	31,212	21,029	29,712	29,705	30,850	29,712	29,705	30,850	29,709	29,707	309,674	313,517	
Task 5 Comprehensive WRRF Upgrade Plan	Planned	-	9,206	122,984	89,447	32,035	35,466	-	-	-	-	-	62,344	52,898	52,900	66,121	52,900	52,898	66,124	52,898	52,898	66,124	52,898	52,898	289,138	621,557	
	Actuals	7,879	42,534	53,745	16,778	36,223	74,878	81,756	59,461	42,065	47,294	28,643	60,035	67,250	65,345	116,259									491,254	308,888	
	Forecast	7,879	42,534	53,745	16,778	36,223	74,878	81,756	59,461	42,065	47,294	28,643	60,035	67,250	65,345	116,259	67,000	52,898	52,000	52,000	44,688	44,688	25,000	25,000	491,254	672,162	
Task 6 Feasibility Study	Planned	-	-	-	-	-	-	-	-	-	-	-	-	3,670	3,670	4,590	3,670	3,670	4,590	3,670	3,670	4,590	3,670	3,670	-	43,130	
	Actuals													775	1,128	-	-	-	-	-	-	-	-	-	-	1,903	
	Forecast													775	1,128	-	3,670	3,670	4,590	3,670	3,670	4,590	3,670	3,670	-	33,103	
Task 7 Pilot and Demonstration Testing	Planned	-	-	-	-	213,988	164,168	37,728	37,728	49,107	43,331	43,331	105,773	91,229	101,474	54,736	43,787	43,787	54,736	43,789	43,785	54,736	43,789	43,787	589,381	725,408	
	Actuals				1,710	380	950	760	2,745	20,178	14,935	32,914	61,078	86,010	23,695	7,627									74,572	178,410	
	Forecast				1,710	380	950	760	2,745	20,178	14,935	32,914	61,078	86,010	23,695	7,627	25,000	25,000	30,000	25,000	25,000	30,000	25,000	25,000	74,572	388,410	
Cumulative	Planned	-	13,683	122,042	359,561	527,897	1,025,373	1,309,590	1,410,238	1,496,457	1,606,182	1,698,004	1,789,824	1,994,449	2,169,482	2,354,321	2,584,516	2,765,735	2,937,147	3,125,742	3,252,214	3,378,675	3,536,765	3,663,237	3,789,702	1,789,824	3,789,702
	Actuals	-	16,724	77,554	155,549	210,157	272,023	397,378	543,057	656,036	774,417	869,094	974,636	1,130,448	1,309,502	1,461,748	1,636,535	-	-	-	-	-	-	-	-	974,636	661,899
	Forecast	-	16,724	77,554	155,549	210,157	272,023	397,378	543,057	656,036	774,417	869,094	974,636	1,130,448	1,309,502	1,461,748	1,636,535	1,814,503	1,977,362	2,121,261	2,255,144	2,380,411	2,516,994	2,617,385	2,717,774	974,636	2,717,774

