Agenda Item 10.e.i.
November 28, 2022
Prepared by Terry Lauritsen
Water Utilities

I. SUBJECT, ATTACHMENTS, AND BACKGROUND

Receive the 2021-2022 Annual Report for the Chickasaw Wastewater Treatment Plant

Attachments:

2021-2022 Veolia Water Annual Report

II. STAFF COMMENTS AND ANALYSIS

Veolia Water North America has been providing wastewater management, operation and maintenance services to the City of Bartlesville since 1986. Currently, Veolia operates the wastewater treatment plant and 20 lift stations. Attached is the annual report for these operations in accordance to the City's contract with Veolia. A few excerpts from the report are noted below.

- 2.492 billion gallons of wastewater was treated last fiscal year (July 2021 through June 2022);
- The daily average flow through the plant was 6.8 million gallons;
- Over 5.40 million gallons of Biosolids were land applied, which is equivalent to 868.2 dry tons of material;

The contract with Veolia is structured to share in savings for electrical, gas and chemical use as well as electrical power savings from the fine bubble diffuser system. The electrical, gas and chemical generated a savings of $74,231.07, and the fine bubble diffuser system generated a savings of $86,436.97. The maintenance ceiling established for the fiscal year, which is for repair/replacement of equipment, structures and vehicles, had a savings of $3,316.18. Thus, the net rebate for the City's wastewater plant capital reserve fund is $163,984.22.

III. RECOMMENDED ACTION

Staff recommends receipt of the annual report.

2021 – 2022 Veolia Water Annual Report

Prepared By:
Jonathon Roberts
Plant Manager II

VEOLIA

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EXECUTIVE SUMMARY

Veolia Water North America Central – LLC (“Veolia”) is pleased to submit to the City of Bartlesville the 2021/2022 Chickasaw Wastewater Treatment Plant Annual Report.

Veolia has been providing management, operation and maintenance services to the City of Bartlesville since July 1, 1986 and stands ready to serve Bartlesville in the future.

We extend our sincere thanks to the City’s staff and Council for the continuing support and for this unique opportunity to serve the citizens of Bartlesville.

Some of the achievements and milestones during the year of July 2021 through June 2022 are:

- The Plant treated 2.492 billion gallons of wastewater.
- Over 5.40 Million gallons equivalent to 868.2 dry tons of anaerobically stabilized and digested Class B Biosolids were land applied.
- Monitored four permitted industries which are Significant Industrial Users (SIU’s).

1 - OPERATIONS

Operations direct responsibility is to safely operate the wastewater treatment facility and maintain compliance with the Oklahoma Pollution Discharge Elimination System ("OPDES") discharge. Process decisions are based on data reviewed daily and from this data adjustments to various process units are made. Weekly Process Control meetings are held with the Plant, Operations, Maintenance and Laboratory managers, to predict and monitor changes in the different process areas, and coordinate equipment shutdowns for repair and maintenance.

Operations Summary

The Chickasaw WWTP experienced flows above the plant design of seven million gallons per day (7MGD) for 9 of the 12 months from July 1, 2021 through June 30, 2022.

Month	Monthly Average Flow (MGD)	Peak Daily Flow	Date of Peak Daily Flow (MGD)
Jul 2021	9.7	14.3	7/2/2021
Aug 2021	6.0	7.1	8/1/2021
Sep 2021	5.6	6.3	9/4/2021
Oct 2021	6.2	8.9	10/28/2021
Nov 2021	6.0	8.1	11/11/2021
Dec 2021	5.6	7.0	12/29/2021
Jan 2022	5.3	6.5	1/8/2022
Feb 2022	6.3	7.6	2/18/2022
Mar 2022	6.9	10.4	3/24/2022
Apr 2022	6.0	8.7	4/25/2022
May 2022	10.5	22.4	5/26/2022
Jun 2022	7.8	12.3	6/11/2022

Monthly average flows from July 1, 2021 to June 30, 2022 were 6.8 MGD. The monthly average flows for the previous three years were 8.0 MGD; 1,000,000 gallons/day over plant design flow capacity of 7 MGD.

Biochemical Oxygen Demand ("BOD") is a term that refers to the relative oxygen consumption capability of organisms and chemicals combined. During the year, influent loadings on the plant averaged 10,609 pounds of BOD per day. Plant design is 10,000 pounds per day. Effluent quality averaged 6.60 mg/l or 396 pounds per day. The discharge permit limit for BOD monthly average is 10 mg/l and 583.8 pounds per day.

Total Suspended Solids ("TSS") is a measure of non-filterable solid material in the influent and effluent. The influent loading averaged 12,488 pounds of TSS per day. Influent average design capacity is 11,700. Plant effluent quality averaged 5.61 mg/l or

350 pounds per day. The discharge permit limit for TSS monthly average is 15 mg/l and 875.7 pounds per day.

NH3-N, Ammonia Nitrogen, is a measure of the common constituent within a wastewater system. The two most common sources of ammonia are human waste and biological degradation of organic material. To reduce ammonia to a more stable compound takes a neutral pH, a high amount of oxygen, and a controlled environment to grow a special bacterium for its reduction. The wastewater plant received an average of 901.9 pounds of ammonia per day. The plant effluent quality averaged 0.5 mg/l or 28.63 pounds per day. The discharge permit limit for NH3-N monthly average is 2 mg/l and 116.8 pounds per day.

2 - LABORATORY

LABORATORY PROCESS CONTROL

The laboratory, operated by Veolia, performs analyses of soil, sludge, wastewater, upstream and downstream river samples and septic tank wastes. The laboratory provides consistent analysis for the daily process control tests to support decisions on the plant operations and procedures.

The laboratory utilizes a computerized laboratory data management program to provide analytical reports to management staff for process control of the plant.

The laboratory is required to perform biannual EPA proficiency testing to maintain status as a Certified Laboratory.

SEPTIC HAULERS

In the past year the plant has received 466,125 gallons of septic tank waste. This averages out to 38,844 gallons per month which is a 11.7% decrease from the previous year.

3 - BIOSOLIDS

BIOSOLIDS

A total of 1,072 loads equaling 5,400,000 gallons (868.2 Dry Tons) of biosolids averaging 3.83% solids was land applied from July 1, 2021 to June 30, 2022.

4 - INDUSTRIAL WASTEWATER PRETREATMENT

INDUSTRIAL WASTEWATER PRETREATMENT

The Industrial Waste Regulatory Program is focused on protecting the environment, capital facilities, personnel, and the local community from possible adverse effects of industrial waste discharge.

It is the role of Veolia Water to identify existing problems and notify the Director of Water Utilities to determine what administrative enforcement requirements are necessary and assist the industries to resolve all non-compliance issues which may arise.

At Present four facilities are permitted as Significant Industrial Users (SIU’s).

R/3 Industrial
Phillips 66 Technology
Image First
Wal-Mart Distribution Center

These SUIs were sampled and inspected on the following dates:

SIU	Sampled	Inspected
R/3 Industrial	6/28-29/22	6/28/22
Phillips 66 Technology	6/20-21/22	6/20/22
Image First	6/27-28/22	6/27/22
Wal-Mart Distribution Center	6/22-23/22	6/22/22

5 - MAINTENANCE

The purpose of the maintenance program at the Chickasaw WWTP is to perform routine preventive, predictive, and corrective maintenance on all equipment to maintain equipment performance and longevity. This is accomplished through a computerized maintenance management program. This enables the plant and lift stations to operate as designed and to keep repair costs at a minimum while operating on a fixed ceiling maintenance budget.

Veolia has established corporate purchasing agreements with major providers of parts, materials, equipment and chemicals for operations, maintenance and repairs at substantial discounts. These discounts are passed on directly to the City as an added value.

Unusual and/or unanticipated maintenance expenditures for the year were:

- T-Bars in Siphon #3. We removed them and sent them to SMC. We hadn't realized the condition of them until the drain, clean, and inspection was going on. All is well and back into service now.
- Thermo-pneumatic valve on Heat Exchanger #1 replaced after rebuild failed.
- New rodder machine for scum pit purchased to replace old unreliable one.
- Backup Hillcrest, Virginia, and Golf Course pump.

Major Work Orders Completed this year include:
July 2021

- Non-pot water leak between primaries 1 & 2 dug up and capped.
- Hughes Fisher line punctured during SCADA pole setting.
- New cameras installed on top of digesters to view lids.
- Sent Tuxedo pump #2 shaft to SMC. Rebuilt and reinstalled.

August 2021

- Installed new sprockets on Primary Clarifier #1.
- Replace hose on hose pump #3.
- Replaced shear bolt on Limestone valve after it stuck closed.

- Week long sample event for the plant upgrade.

September 2021

- Replace cable on #1 siphon and bridal on #3 siphon
- Replaced starter on Magnum.
- Replaced DAF hose in hose pump after a hole formed.
- Drain, clean, and inspection on the DAF. Replaced chain and reinstalled 7 fights.
- Put new assembly in service for Nebraska pump #2.

October 2021

- Installed new flapper valve on Nebraska pump #2
- Mixing Pump #2 pulled and rebuilt.
- Drilled and tapped out nipple for pressurizing tank (DAF)
- Rebuilt Magnum.
- Installed new methane lines to eliminate the use of natural gas.
- Welded up on the feed distribution lines on the Calumet.

November 2021

- Fixed scum bars on #2 siphon after getting caught and broken.
- Vac'd out scum pit.
- Repaired the east influent gate and rebuilt the east grit chamber. (in service)
- Repaired the west influent gate and rebuilt the west grit chamber. (in service)

December 2021

- Replace effluent pumps #1 & 2 diaphragm valves.
- Rebuilt Tuxedo pump #1 and put into service.
- Took burner out of Heat Exchanger #1 and cleaned.
- Replace cable on #3 siphon.
- Replace #1 primary hose pump hose.
- Lovejoy replaced on primary #3 drive motor.
- Bridal changed out on siphon #1

January 2022

- Drain, clean, and inspect siphon #3. T-bars taken to SMC for repair.
- Repair level tape for primary digester #2.
- Rebuilt Raw pump #1. (bearings, seals, and mechanical seal)
- Removed gate that had fallen causing short circuiting in siphon #3

February 2022

- Installed new water pump on Shawnee L/S generator after rebuild.
- Vac'd out scum pit.
- Replaced radiator on Magnum pump.
- Installed a new generator at Comanche L/S.
- Installed a new polymer scale in the belt room.

March 2022

- Replace thermo-pneumatic valve on heat exchanger #1.
- Installed new hydroranger and transducer in Hughes Fisher L/S.
- Rebuild gearbox on electric eel rodder after the clutch failed. (ordered new rodder)
- Change out the gas regulator valve for heat exchanger #2.
- Replaced Golf Course generator engine controller.
- Replaced the belt on the Gravity Belt Thickener.

April 2022

- Replace clutch master slave cylinder on big crane truck.
- Drill out holes on heat exchanger #1 to increase flame size.
- Replaced hydraulic line on the influent channel monster that blew.
- Replaced bearings and lovejoy coupler on effluent pump #3.

May 2022

- Shawnee pump #3 dropped the impeller bolt. Replaced and torqued to specs.
- Replace love joy on pump #1 at Shawnee L/S
- Replaced main motor oil seal for ex mark mower.
- Drain, clean, and inspect clarifier #4 during the RAS relocation project.
- Replaced pump assembly on Nebraska pump #1.

June 2022

- Vac'd out the scum pit.
- Replaced bearing on blower #3 inlet side.
- Cable replaced on siphon #3 after Sunday night callout.
- Rebuilt starter on Herrick generator.
- Rebuilt housing for Silverlake and Nebraska L/S for the shelf.
- Repainted the Tuxedo L/S buildings, barricades, stairs, and hydrants.
- Tuxedo pump #2 had a seal fail. When isolating the inlet valve it failed. (waiting on new on to arrive)
- Change out all wear shoes on primary clarifier #3.

ITEMS FOR FUTURE CONSIDERATION

Many items that could be listed here are being addressed in the future plant upgrade, which is currently in the engineering phase.

ANTICIPATED OR CONTINUED PROJECTS FOR 2022-2023

The following projects will require significant amounts of man-hours and or dollars to complete. They will be prioritized and completed as current available resources will allow.

- Rebuild all 3 RAS pumps and WAS #1. (Bearings, seals, and mechanical seal)
- Replace inlet gate valve on Tuxedo pump #2 then rebuild.

- Replace all chain on Primary clarifier #3 and 25 flights. Also the main drive sprocket and chain.
- Replace generator at Virginia and Walmart L/S's.

CAPITAL BUDGET ITEMS FOR FY 2022-2023

- Replace the Golf Course L/S Panel
- Purchase a new Calumet and Tractor for land application of biosolids.
- Purchase a new generator for Virginia and Walmart L/S's.
- Replace tanker on old semi. Keeping day cab
- Engineering and design for WWTP upgrade.

6 - Safety

Safety is the number one priority at Veolia Water. Through daily safety reminders and monthly safety training, personnel are made aware of the proper procedures to follow and equipment to use to reduce the potential for a safety incident.

At the end of June 2022, the employees at the Chickasaw WWTP have worked a total of 5 years and 1 month with no lost time accidents to report.

- Employees are provided with hard hats, safety shoes, and safety glasses, and are required to wear personal protective equipment at all times while at the workplace. In addition, other safety and protective devices are provided, including but not limited to rubber boots, gloves, suits, self-contained breathing apparatus, and abatement equipment for hazardous chemical spills and leaks.
- Annual audits are conducted at the facility to monitor the safety program and to identify potential safety hazards. Monthly inspections are also conducted to assure compliance with safety policies and procedures.
- Housekeeping is a top priority at the Chickasaw WWTP to reduce and eliminate possible safety hazards

TRAINING

Operations, Maintenance and Safety training is of paramount importance to maintain a proficient and productive workforce for the City's facilities.

The quality of wastewater treatment is directly related to the qualifications, competence, and commitment of our staff. We place a strong emphasis on employee training to ensure and provide the City of Bartlesville with a quality operation.

In 2021-2022, over 409 hours of training were provided to the Chickasaw Wastewater Treatment Plant staff. That equates to 37 hours of training per person.

Training Hours

Safety Training – 274 Hrs. Technical & Other Training – 135 Hrs.

APENDICE

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ANNUAL COMPLIANCE

SUMMARY

Annual Compliance Summary

Month	EFFLUENT Flow (mgd) mgd 5	*Eff BOD (lbs/d) lbs/d 110	Chl Eff BOD (mg/l) mg/l 91	7 Day BOD Average mg/l 546	*Eff TSS (lbs/d) lbs/d 109	Chl Eff TSS (mg/l) mg/l 92	7 Day TSS Average mg/l 547	*EFF NH3 (lbs/d) lbs/d 113	Chl Eff NH3 (mg/l) mg/l 93	7 Day NH3-3 Avg. mg/l 548	Eff pH SU 102	DECHLOR EFF MAX CL2 RES. mg/l 232	Fec Colif (#/100ml) #/100ml 108
Jul 2021	9.717	923	10.53	9.7	924	10.40	9.7	72.94	0.81	0.78	7.02	0.04	
Aug 2021	6.023	419	8.36	8.4	241	4.81	4.8	36.81	0.72	0.77	6.72	0.03	
Sep 2021	5.551	242	5.30	5.5	211	4.61	4.7	6.12	0.13	0.14	6.64	0.05	
Oct 2021	6.197	264	5.09	5.1	322	6.16	6.2	13.27	0.24	0.24	6.72		
Nov 2021	5.982	320	6.42	6.2	331	6.66	6.5	16.19	0.32	0.28	6.65		
Dec 2021	5.545	373	7.86	7.9	316	6.71	6.8	24.02	0.49	0.51	6.67		
Jan 2022	5.304	380	8.66	8.8	311	7.10	7.2	21.54	0.49	0.51	6.68		
Feb 2022	6.291	313	6.06	6.1	243	4.70	4.8	27.12	0.52	0.52	6.67		
Mar 2022	6.930	320	5.63	5.6	164	2.79	2.8	28.87	0.53	0.51	6.78		
Apr 2022	5.975	194	3.87	3.9	114	2.26	2.3	11.30	0.22	0.22	7.05		
May 2022	10.517	709	7.24	7.3	820	8.30	8.8	34.18	0.32	0.34	7.00	0.06	
Jun 2022	7.791	297	4.43	4.6	202	2.81	2.8	51.16	0.79	0.77	6.93	0.05	
Minimum	5.304	194	3.87	3.9	114	2.26	2.3	6.12	0.13	0.14	6.64	0.03	
Maximum	10.517	923	10.53	9.7	924	10.40	9.7	72.94	0.81	0.78	7.05	0.06	
Total	81.823	4,755	79.45	79.0	4,198	67.31	67.4	343.52	5.59	5.57	81.55	0.22	
Average	6.819	396	6.62	6.6	350	5.61	5.6	28.63	0.47	0.47	6.79	0.05	
Permit	***7.0**	**583.8**	**10**	**15**	**875.7**	**15**	**22.5**	**116.8**	**2**	**3**	**6.5-9.0**	**0.1**	**200 M Avg 400 Day Max**

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COMPENSATION ADJUSTMENT

2022 - 2023

Veolia Water North America

Bartlesville, Oklahoma

COMPENSATION ADJUSTMENT

Compensation Adjustment

CPI - U (All Items Index, 1967=100)
Per Bureau of Labor Statistics

Feb-22	**849.887**
Feb-21	**787.872**
Rate of Change:	**62.015**
Percent Change:	**7.871%**

Electrical Rate of Change		**Cost / KWH**
$/KWH	**Mar 2021 - Feb 2022**	**0.07457**
$/KWH	**Mar 2020 - Feb 2021**	**0.06035**
Rate Change		**0.01422**
% Change		**23.568%**

INDEX	WEIGHT	CHANGE	WEIGHTED
CPI-U	75%	7.871%	5.903%
ELECTRICAL	25%	23.568%	5.892%

% ANNUAL INCREASE / DECREASE	11.795%
ANNUAL SERVICE FEE (July 2021)	$2,367,984.60
ANNUAL BASE FEE INCREASE / DECREASE	$279,310.47
ANNUAL SERVICE FEE (July 2022)	$2,647,295.07

MONTHLY SERVICE FEE (July 2022)	$220,607.92

MAINTENANCE CEILING ADJUSTMENT

July 2021 - June 2022:	**$164,992.23**
% CPI CHANGE:	**7.871%**
INCREASE:	**$12,986.87**
2022 - 2023 ANNUAL CEILING:	**$177,979.10**
MONTHLY CEILING MAINTENANCE: **(July 2022 - June 2023)**	**$14,831.59**

Electrical rate = total electrical cost/total Kwh.

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ELECTRICAL RATE ANALYSIS

Electrical Rate 2021-2022

Plant Electric	KWH	21/22 Cost	Rate
21-Mar	243600	$15,725.07	0.064553
21-Apr	238000	$15,691.80	0.065932
21-May	230400	$16,212.84	0.070368
21-Jun	246800	$16,768.15	0.067942
21-Jul	233200	$16,089.65	0.068995
21-Aug	207200	$14,578.20	0.070358
21-Sep	232000	$15,387.71	0.066326
21-Oct	209600	$14,638.58	0.069841
21-Nov	254,400	$16,797.12	0.066026
21-Dec	240,800	$18,382.70	0.07634
22-Jan	253600	$18,429.74	0.072672
22-Feb	231200	$17,201.41	0.074401
Plant Totals	2820800	$195,902.97	0.069449436

Lift Electric	KWH	21/22 Cost	Rate	Multi-billing		Nebraska		Woodland		Silver Lake		Walmart		Covington	
21-Mar	141856	$9,808.96	0.069147	5357	$412.53	2670	$185.02	6765	$391.22	3184	$210.91	1120	$107.76	1472	$124.67
21-Apr	77323	$5,964.63	0.077139	4195	$351.29	1907	$148.28	2916	$199.97	1535	$129.20	1280	$117.52	1277	$115.99
21-May	140839	$12,945.17	0.091915	4730	$395.80	5602	$481.87	6328	$540.66	2713	$247.89	1120	$109.63	1615	$158.98
21-Jun	108579	$10,241.28	0.094321	5880	$558.20	5401	$465.58	2857	$259.55	1680	$164.24	1200	$129.58	1275	$132.76
21-Jul	100776	$9,632.97	0.095588	6667	$623.48	1205	$127.50	2677	$244.97	1878	$180.25	1440	$147.32	1242	$130.28
21-Aug	55222	$5,475.92	0.099162	5020	$492.36	1543	$153.40	1440	$145.39	907	$105.30	1040	$117.81	1116	$121.02
21-Sep	48142	$4,854.54	0.100838	4049	$416.58	1018	$114.67	1316	$137.39	590	$82.05	1040	$117.22	1323	$137.93
21-Oct	61587	$5,678.38	0.092201	3962	$413.76	1184	$122.20	1673	$150.53	648	$84.88	1200	$130.42	1431	$136.60
21-Nov	68683	$5,865.62	0.085401	4723	$418.58	1284	$127.38	1814	$157.56	1270	$126.58	1200	$126.15	1667	$149.19
21-Dec	71135	$6,630.53	0.093211	2995	$318.28	1352	$143.92	1922	$181.84	1974	$185.30	1360	$134.06	1725	$168.74
22-Jan	62460	$5,691.13	0.091116	2971	$341.19	1471	$151.65	1693	$166.13	1924	$181.17	1360	$149.00	1683	$165.47
22-Feb	70223	$6,744.43	0.096043	3632	$383.86	1372	$145.35	1939	$182.37	1968	$184.25	1280	$141.71	1549	$156.91
Lift Station Totals	1006825	$89,533.56	0.088926635												
GRAND TOTALS	3827625 KWH	$285,436.53 21/22 Cost	0.07457275 RATE												

Electrical Rate 2021-2022

Lift Electric	Maple		Limestone Basin		8th St.		12th Pl.		Comanche		Shawnee	
21-Mar	8316	$449.90	31	$38.14	424	$63.19	71	$25.10	364	$59.49	37560	$2,654.01
21-Apr	5337	$319.31	34	$38.40	222	$50.94	13	$21.55	262	$53.44	22680	$1,745.86
21-May	6824	$400.23	29	$38.12	357	$63.86	307	$43.78	289	$58.76	44880	$4,265.09
21-Jun	6572	$560.41	32	$38.70	268	$57.17	146	$31.68	293	$59.05	32040	$3,025.80
21-Jul	7479	$633.87	30	$38.55	210	$52.83	27	$22.75	271	$57.40	32880	$3,208.09
21-Aug	3606	$320.21	28	$38.39	161	$49.17	8	$21.33	147	$48.12	15960	$1,536.80
21-Sep	2682	$245.85	28	$38.40	157	$49.03	4	$21.03	153	$48.73	13200	$1,158.11
21-Oct	2602	$242.00	27	$38.36	172	$51.77	4	$22.51	155	$50.56	16320	$1,409.02
21-Nov	2716	$210.55	29	$40.96	231	$55.71	3	$22.45	222	$55.10	20880	$1,623.41
21-Dec	2889	$218.79	32	$41.16	245	$58.84	5	$22.53	221	$56.69	23640	$2,092.42
22-Jan	3286	$272.54	23	$40.59	246	$56.79	10	$21.43	304	$61.49	19800	$1,613.05
22-Feb	3035	$253.57	21	$37.83	252	$57.30	13	$21.68	276	$59.25	22680	$2,001.07

Lift Electric	Golf Course		HC		DP		Tuxedo		Hughes Fisher		Polaris	
21-Mar	19290	$1,302.93	16698	$891.43	685	$79.26	34320	$2,534.58	2182	$160.44	1347	$118.38
21-Apr	10129	$764.63	8281	$474.89	328	$57.55	14460	$1,149.93	1414	$123.01	1053	$102.87
21-May	15262	$1,286.95	10851	$906.97	624	$83.90	36960	$3,612.32	1001	$112.19	1347	$138.17
21-Jun	11278	$1,043.22	12691	$1,055.97	438	$69.94	24240	$2,343.58	990	$111.36	1298	$134.49
21-Jul	12098	$1,096.63	13023	$1,082.86	379	$65.50	16980	$1,674.20	707	$90.12	1583	$156.37
21-Aug	5467	$566.54	4170	$444.96	204	$52.42	12240	$1,025.72	866	$102.20	1299	$134.78
21-Sep	5013	$506.44	4311	$471.81	213	$53.30	11040	$1,029.01	511	$76.02	1494	$150.97
21-Oct	7700	$673.07	7429	$664.84	270	$58.58	13500	$1,135.89	736	$91.01	2574	$202.38
21-Nov	7414	$612.95	6519	$575.86	595	$80.86	15300	$1,216.67	933	$104.17	1883	$161.49
21-Dec	7659	$692.59	6150	$601.92	324	$65.03	15960	$1,364.16	1021	$119.77	1661	$164.49
22-Jan	6260	$553.19	5241	$477.27	314	$62.30	13440	$1,110.77	1001	$117.90	1433	$149.20
22-Feb	7249	$685.29	6387	$618.23	305	$61.62	15900	$1,492.27	939	$112.98	1426	$148.89

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REBATE SUMMARY

21/22 Rebate Summary

Shared Savings = $74,231.07

	Total	City's Share(75%)	Units Saved	Cost	Rate
Elect. Plant	$44,701.36	$33,526.02	607,600	$202,112.55	$0.07357
Elect. Pump	$21,490.64	$16,117.98	215,226	$92,101.45	$0.09985
Chlorine	$4,288.88	$3,216.66	6000	$5,718.50	$0.71481
Sulfur Dioxide	$2,344.92	$1,758.69	3850	$1,309.50	$0.6091
Natural Gas	$20,154.98	$15,116.24	2083.983	$9,967.35	$9.67
Polymer (Sludge)	$5,993.97	$4,495.48	2742.8	$31,469.00	$2.19
Polymer (Process)	$0	$0	0	$0	$0
Antifoam	$0	$0	0	$0	$0
Total	$98,974.76	$74,231.07			

Fine Bubble Diffuser Savings = $86,436.97

	21/22 KWH Reduction	%	Savings Cost / KWH
Jul-21	105,300	46.0%	$7,265.17
Aug-21	104,900	47.3%	$7,380.55
Sep-21	84,500	40.4%	$5,604.55
Oct-21	91,600	41.2%	$6,397.44
Nov-21	83,600	39.1%	$5,519.77
Dec-21	93,300	41.0%	$7,122.52
Jan-22	94,700	40.2%	$6,882.04
Feb-22	84,800	40.0%	$6,309.20
Mar-22	93,900	40.4%	$7,440.07
Apr-22	101,900	44.5%	$8,087.70
May-22	120,700	50.2%	$9,670.12
Jun-22	109,000	48.4%	$8,757.82

Totals	1,168,200	**$86,436.97**
Maintenance Ceiling Budget=		$164,992.20
Maintenance Ceiling Cost =		$161,676.02
Maintenance Surplus =		**$3,316.18**

Totals

$74,231.07	Shared Savings
$86,436.97	Fine Bubble Diffuser Savings
$3,316.18	Repair and Maintenance

$163,984.22 **Balance Due to BARTLESVILLE for under spending on Ceiling Maintenance, shared savings, and fine bubble diffuser savings.**

APENDICE

E

SHARED SAVINGS

	Total	City's Share(75%)	Units Saved	Cost	Rate
Elect. Plant	$44,701.36	$33,526.02	607600	$202,112.55	$0.07357
Elect. Pump	$21,490.64	$16,117.98	215226	$92,101.45	$0.09985
Chlorine	$4,288.88	$3,216.66	6000	$5,718.50	$0.71481
Sulfur Dioxide	$2,344.92	$1,758.69	3850	$1,309.50	$0.6091
Natural Gas	$20,154.98	$15,116.24	2083.983	$9,967.35	$9.67
Polymer (Sludge)	$5,993.97	$4,495.48	2742.8	$31,469.00	$2.19
Polymer (Process	$0.00	$0.00	0	$0.00	$0.00
Antifoam	$0.00	$0.00	0	$0.00	
Total	$98,974.76	$74,231.07			

Plant Electric	KWH	Baseline	Delta	21/22 Cost	Rate
Jul-21	233200	360000	126800	$16,089.65	0.068995
Aug-21	207200	331200	124000	$14,578.20	0.070358
Sep-21	232000	340000	108000	$15,387.71	0.066326
Oct-21	209600	235200	25600	$14,638.58	0.069841
Nov-21	254,400	259600	5,200	$16,797.12	0.066026
Dec-21	240,800	325200	84,400	$18,382.70	0.076340
Jan-22	253600	272400	18800	$18,429.74	0.072672
Feb-22	231200	272400	41200	$17,201.41	0.074401
Mar-22	221200	243600	22400	$17,526.49	0.079234
Apr-22	220000	238000	18000	$17,461.20	0.079369
May-22	236400	230400	-6000	$18,939.74	0.080117
Jun-22	207600	246800	39200	$16,680.01	0.080347
	2747200	3354800	607600	$202,112.55	0.073570

Lift Electric	KWH	Baseline	Delta	21/22 Cost	Rate	Multi-billing		Nebraska		Woodland		Silver Lake	
Jul-21	100776	54663	-46113	$9,632.97	0.095588	6667	$623.48	1205	$127.50	2677	$244.97	1878	$180.25
Aug-21	55222	50444	-4778	$5,475.92	0.099162	5020	$492.36	1543	$153.40	1440	$145.39	907	$105.30
Sep-21	48142	53321	5179	$4,854.54	0.100838	4049	$416.58	1018	$114.67	1316	$137.39	590	$82.05
Oct-21	61587	59649	-1938	$5,678.38	0.092201	3962	$413.76	1184	$122.20	1673	$150.53	648	$84.88
Nov-21	68683	99568	30885	$5,865.62	0.085401	4723	$418.58	1284	$127.38	1814	$157.56	1270	$126.58
Dec-21	71135	108519	37384	$6,630.53	0.093211	2995	$318.28	1352	$143.92	1922	$181.84	1974	$185.30
Jan-22	62460	137344	74884	$5,691.13	0.091116	2971	$341.19	1471	$151.65	1693	$166.13	1924	$181.17
Feb-22	70223	105505	35282	$6,744.43	0.096043	3632	$383.86	1372	$145.35	1939	$182.37	1968	$184.25
Mar-22	78048	141856	63808	$7,808.15	0.100043	4420	$451.66	1570	$164.52	2451	$225.51	1919	$188.66
Apr-22	88868	77323	-11545	$8,655.32	0.097395	6015	$557.20	2306	$215.46	3527	$299.98	1088	$129.39
May-22	135155	140839	5684	$15,395.96	0.113913	6105	$603.31	3131	$353.89	4118	$457.77	1669	$200.02
Jun-22	82085	108579	26494	$9,668.50	0.117786	6033	$708.61	914	$125.47	1955	$230.14	802	$114.61
	922384	1137610	215226	92101	0.099852								

Walmart		Covington		Maple		Limestone Basin		8th St.		12th Pl.		Comanche	
1440	$147.32	1242	$130.28	7479	$633.87	30	$38.55	210	$52.83	27	$22.75	271	$57.40
1040	$117.81	1116	$121.02	3606	$320.21	28	$38.39	161	$49.17	8	$21.33	147	$48.12
1040	$117.22	1323	$137.93	2682	$245.85	28	$38.40	157	$49.03	4	$21.03	153	$48.73
1200	$130.42	1431	$136.60	2602	$242.00	27	$38.36	172	$51.77	4	$22.51	155	$50.56
1200	$126.15	1667	$149.19	2716	$210.55	29	$40.96	231	$55.71	3	$22.45	222	$55.10
1360	$134.06	1725	$168.74	2889	$218.79	32	$41.16	245	$58.84	5	$22.53	221	$56.69
1360	$149.00	1683	$165.47	3286	$272.54	23	$40.59	246	$56.79	10	$21.43	304	$61.49
1280	$141.71	1549	$156.91	3035	$253.57	21	$37.83	252	$57.30	13	$21.68	276	$59.25
1360	$147.21	1449	$156.13	3838	$306.28	17	$37.51	218	$55.42	13	$21.73	206	$54.40
1440	$158.70	1501	$159.73	3755	$315.79	30	$38.65	210	$54.73	13	$21.73	156	$50.14
1440	$159.16	1573	$189.92	5560	$440.73	28	$38.49	336	$69.43	29	$23.44	273	$63.33
1360	$172.17	1120	$145.42	6897	$750.22	29	$38.92	193	$55.59	16	$22.17	150	$51.42

Shawnee		Golf Course		HC		DP		Tuxedo		Hughes Fisher		Polaris	
32880	$3,208.09	12098	$1,096.63	13023	$1,082.86	379	$65.50	16980	$1,674.20	707	$90.12	1583	$156.37
15960	$1,536.80	5467	$566.54	4170	$444.96	204	$52.42	12240	$1,025.72	866	$102.20	1299	$134.78
13200	$1,158.11	5013	$506.44	4311	$471.81	213	$53.30	11040	$1,029.01	511	$76.02	1494	$150.97
16320	$1,409.02	7700	$673.07	7429	$664.84	270	$58.58	13500	$1,135.89	736	$91.01	2574	$202.38
20880	$1,623.41	7414	$612.95	6519	$575.86	595	$80.86	15300	$1,216.67	933	$104.17	1883	$161.49
23640	$2,092.42	7659	692.59	6150	$601.92	324	$65.03	15960	$1,364.16	1021	$119.77	1661	$164.49
19800	$1,613.05	6260	$553.19	5241	$477.27	314	$62.30	13440	$1,110.77	1001	$117.90	1433	$149.20
22680	$2,001.07	7249	$685.29	6387	$618.23	305	$61.62	15900	$1,492.27	939	$112.98	1426	$148.89
23400	$2,278.76	9507	$917.81	8200	$812.74	308	$63.08	16680	$1,647.05	915	$114.68	1577	$165.00
27000	$2,476.32	9202	$897.04	8309	$811.10	288	$61.37	21600	$2,131.09	1020	$123.59	1408	$153.31
44160	$5,085.69	16463	$1,758.63	11996	$1,386.39	556	$90.76	35220	$4,159.19	1156	$148.89	1342	$166.92
26280	$3,092.03	11990	$1,398.81	10649	$1,253.88	345	$70.32	11220	$1,157.49	533	$88.56	1599	$192.67

Natural Gas	MCF	Baseline	Delta	21/22 Cost	Rate	Plant		Nebraska		Woodland	
Jul-21	139.960	129.927	-10.033	$955.84	6.83	137.11	$760.67	2.748	$51.62	0.000	$21.18
Aug-21	188.983	134.551	-54.432	$1,425.91	7.55	187.861	$1,247.28	0.816	$32.61	0.204	$23.38
Sep-21	170.050	176.922	6.872	$1,304.59	7.67	168.93	$1,128.08	0.611	$30.19	0.509	$26.61
Oct-21	174.161	168.566	-5.595	$1,355.04	7.78	173.242	$1,162.46	0.715	$31.43	0.000	$21.11
Nov-21	6.590	298.246	291.656	$302.63	45.92	3.672	$125.41	0.510	$30.05	0.306	$24.95
Dec-21	37.613	307.03	269.417	$617.59	16.42	20.703	$250.32	10.199	$182.13	0.102	$22.33
Jan-22	106.209	452.702	346.493	$1,033.48	9.73	78.913	$700.09	0.816	$0.00	0.102	$22.36
Feb-22	94.571	321.293	226.722	$963.77	10.19	85.022	$745.69	0.513	$0.00	0.000	$21.11
Mar-22	77.942	438.116	360.174	$885.79	11.36	66.758	$654.32	0.516	$0.00	0.000	$21.11
Apr-22	27.160	313.321	286.161	$506.15	18.64	24.518	$348.52	0.616	$0.00	0.923	$34.60
May-22	3.674	242.732	239.058	$296.08	80.59	2.858	$135.05	0.510	$11.22	0.000	$21.11
Jun-22	3.690	131.18	127.490	$320.48	86.85	2.46	$132.37	0.410	$29.71	0.102	$22.60

Silver Lake		Walmart		Limestone		Maple		Covington	
0.000	$21.18	0	$18.91	0.000	$36.84	0.000	$21.18	0.102	$24.26
0.000	$21.51	0	$18.91	0.000	$36.84	0.000	$21.18	0.102	$24.20
0.000	$21.44	0	$18.91	0.000	$36.77	0.000	$21.11	0.000	$21.48
0.000	$21.44	0	$18.91	0.000	$36.77	0.000	$21.11	0.204	$25.90
0.000	$21.11	2	$34.82	0.000	$36.77	0.000	$21.11	0.102	$24.32
0.000	$21.44	1	$18.91	5.507	$76.63	0.000	$21.11	0.102	$24.72
0.000	$21.44	3	$31.82	23.378	$214.46	0.000	$21.44	0.000	$21.87
0.000	$21.77	0	$18.91	8.420	$105.89	0.616	$28.91	0.000	$21.49
0.000	$21.77	2	$34.82	8.358	$107.29	0.310	$25.00	0.000	$21.48
0.103	$23.58	1	$18.91	0.000	$37.95	0.000	$21.11	0.000	$21.48
0.000	$21.79	0	$18.91	0.000	$38.54	0.204	$24.48	0.102	$24.98
0.000	$22.12	0	$18.91	0.000	$38.56	0.615	$30.82	0.103	$25.39

Polymer	Lbs	Baseline	Delta	21/22 Cost	Rate
Jul-21	1800	1800	0	$3,258.00	1.8100
Aug-21	1800	0	-1800	$3,675.00	2.0417
Sep-21	0	0	0	$0.00	0.0000
Oct-21	1800	0	-1800	$4,015.50	2.2308
Nov-21	0	1350	1350	$0.00	0.0000
Dec-21	0	4092.8	4092.8	$0.00	0.0000
Jan-22	1800	1350	-450	$3,858.00	2.1433
Feb-22	0	1350	1350	$0.00	0.0000
Mar-22	1800	1800	0	$4,124.50	2.2914
Apr-22	1800	1800	0	$4,152.00	2.3067
May-22	1800	1800	0	$4,188.00	2.3267
Jun-22	1800	1800	0	$4,198.00	2.3322
	14400	17142.8	2742.8	$31,469.00	$2.19

Chlorine	lbs	Baseline	Delta	21/22 Cost	Rate
Jul-21	2000	4000	2000	$1,290.50	$0.65
Aug-21	2000	2000	0	$1,308.00	$0.65
Sep-21	0	0	0	$0.00	$0.00
Oct-21	0	0	0	$0.00	$0.00
Nov-21	0	0	0	$0.00	$0.00
Dec-21	0	0	0	$0.00	$0.00
Jan-22	0	0	0	$0.00	$0.00
Feb-22	0	0	0	$0.00	$0.00
Mar-22	0	2000	2000	$0.00	$0.00
Apr-22	0	0	0	$0.00	$0.00
May-22	4000	4000	0	$3,120.00	$0.78
Jun-22	0	2000	2000	$0.00	$0.00
	8000	14000	6000	$5,718.50	$0.71

Sulfur Dioxide	lbs	Baseline	Delta	21/22 Cost	Rate
Jul-21	0	0	0	$0.00	$0.00
Aug-21	2000	2000	0	$1,200.00	$0.60
Sep-21	0	0	0	$0.00	$0.00
Oct-21	0	0	0	$0.00	$0.00
Nov-21	0	0	0	$0.00	$0.00
Dec-21	0	0	0	$0.00	$0.00
Jan-22	0	0	0	$0.00	$0.00
Feb-22	0	0	0	$0.00	$0.00
Mar-22	0	2000	2000	$0.00	$0.00
Apr-22	0	0	0	$0.00	$0.00
May-22	0	2000	2000	$0.00	$0.00
Jun-22	150	0	-150	$109.50	$0.73
					$0.00
	2150	6000	3850	$1,309.50	$0.61

APENDICE

F

FINE BUBBLE DIFFUSER SAVINGS

Fine Bubble Diffuser Savings

BASELINE

2001 BLOWER ELECTRICAL COST

2001 Month	Blower KWH	Actual $/KWH	Monthly $Cost
Jan-01	235,800	$0.0494993	$11,671.93
Feb-01	211,900	$0.0578418	$12,256.67
Mar-01	232,700	$0.0597276	$13,898.61
Apr-01	229,000	$0.0607310	$13,907.40
May-01	240,400	$0.0601067	$14,449.64
Jun-01	225,000	$0.0564393	$12,698.84
Jul-01	228,800	$0.0560895	$12,833.28
Aug-01	222,000	$0.0571088	$12,678.15
Sep-01	208,900	$0.0282903	$5,909.84
Oct-01	222,400	$0.0276361	$6,146.26
Nov-01	213,600	$0.0281237	$6,007.22
Dec-01	227,800	$0.0329580	$7,507.83
Totals	2,698,300	$0.5745519	$129,965.66
Average	224,858	$0.0478793	$10,830.47

2022 BLOWER ELECTRICAL COST

ACTUAL YTD

2022 Month	Blower KWH	Actual $/KWH	Monthly $Cost
Jan-22	141,100	0.072672	$10,254.02
Feb-22	127,100	0.074401	$9,456.37
Mar-22	138,800	0.079234	$10,997.68
Apr-22	127,100	0.079369	$10,087.80
May-22	119,700	0.080117	$9,590.00
Jun-22	116,000	0.080347	$9,320.25
Jul-21	123,500	0.068995	$8,520.88
Aug-21	117,100	0.070358	$8,238.92
Sep-21	124,400	0.066326	$8,250.95
Oct-21	130,800	0.069841	$9,135.20
Nov-21	130,000	0.066026	$8,583.38
Dec-21	134,500	0.07634	$10,267.73
Totals	1,530,100		$112,703.19
Average	127,508	$0.073669	$9,391.93

KWH & COST SAVINGS

	21/22 KWH Reduction	%	Savings @ 21/22 Cost / KWH
Jan	94,700	40.2%	$6,882.04
Feb	84,800	40.0%	$6,309.20
Mar	93,900	40.4%	$7,440.07
Apr	101,900	44.5%	$8,087.70
May	120,700	50.2%	$9,670.12
Jun	109,000	48.4%	$8,757.82
Jul	105,300	46.0%	$7,265.17
Aug	104,900	47.3%	$7,380.55
Sep	84,500	40.4%	$5,604.55
Oct	91,600	41.2%	$6,397.44
Nov	83,600	39.1%	$5,519.77
Dec	93,300	41.0%	$7,122.52
		43.2%	
Total $ Savings =			**$86,436.97**
1,168,200	**=**		**YTD KWH SAVED**

APENDICE

G

MAINTENANCE CEILING

(Repair & Maintenance)

RECONCILIATION

Bartlesville R & M BUDGET 2021-2022

	ACTUAL	BUDGETED	Monthly Running Total
Early Posting			$ -
Jul-21	$ 7,802.43	$ (13,749.35)	$ (5,946.92)
Aug-21	$ 3,901.17	$ (13,749.35)	$ (9,848.18)
Sep-21	$ 18,477.84	$ (13,749.35)	$ 4,728.49
Oct-21	$ 12,667.36	$ (13,749.35)	$ (1,081.99)
Nov-21	$ 13,651.45	$ (13,749.35)	$ (97.90)
Dec-21	$ 18,239.64	$ (13,749.35)	$ 4,490.29
Jan-22	$ 7,332.73	$ (13,749.35)	$ (6,416.62)
Feb-22	$ 11,932.23	$ (13,749.35)	$ (1,817.12)
Mar-22	$ 4,912.97	$ (13,749.35)	$ (8,836.38)
Apr-22	$ 15,430.62	$ (13,749.35)	$ 1,681.27
May-22	$ 9,165.93	$ (13,749.35)	$ (4,583.42)
Jun-22	$ 49,605.84	$ (13,749.35)	$ 35,856.49
Trailing	$ (11,444.19)		$ (11,444.19)
	$ 161,676.02	$ (164,992.20)	$ (3,316.18)
	% of budget spent	98%	

APENDICE

H

BIOSOLIDS LAND APPLICATION

Annual Biosolids Land Applied

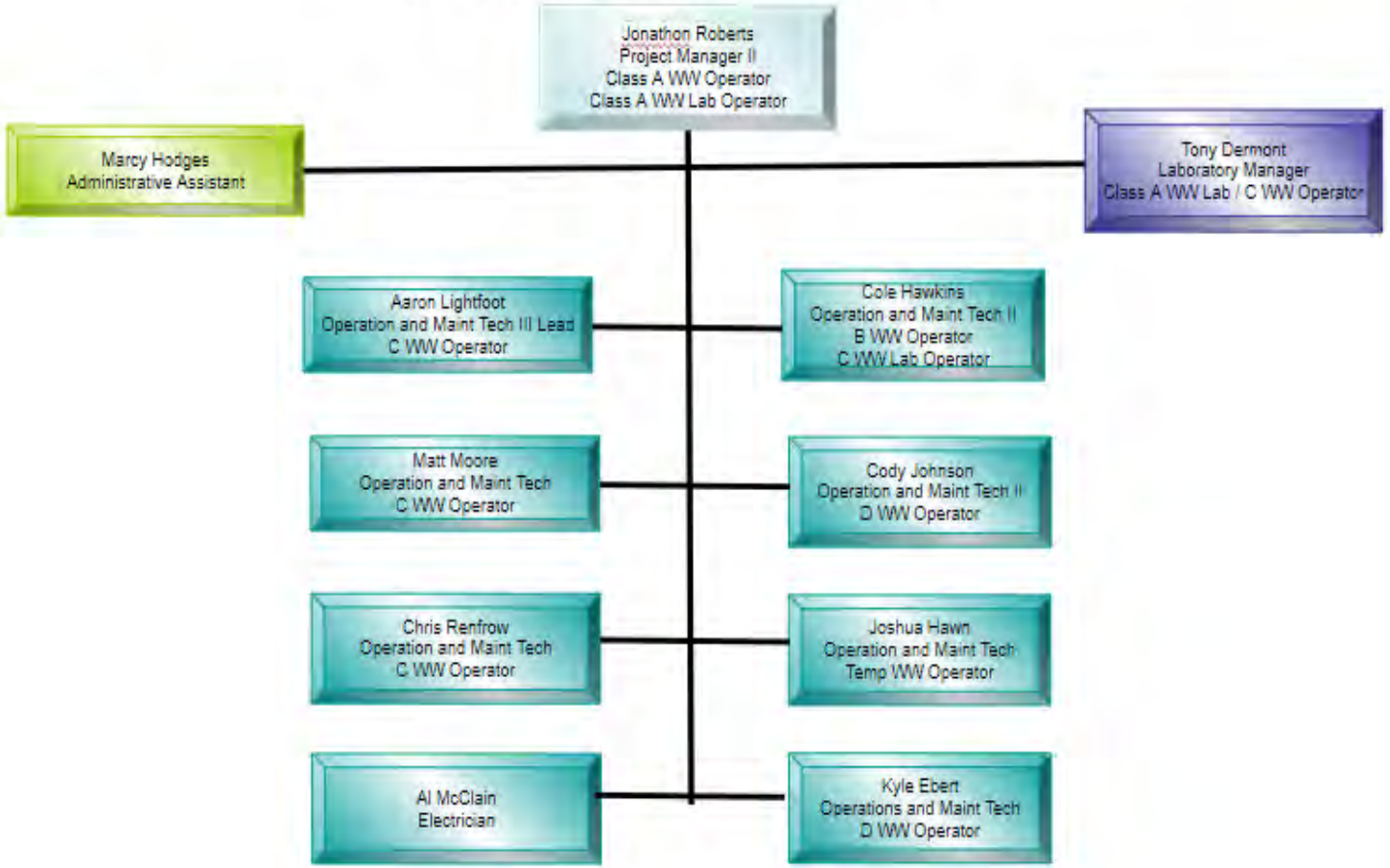
Month	AVG %TS OF TRK LOAD % 363	Sludge Land Applied Tons 567	METRIC TONS OF SLUDGE DISPOSED Tons 817	Sludge Land Applied Gal KGAL 568	Sldg Loads/Day Lds 151	Total Tons to Dig/day Tons 505	Total MTons Sludge to Digesters MTons 582
Jul 2021	4.35	46.8	42.5	255	51	75.9	68.8
Aug 2021	4.20	126.7	114.9	715	143	100.7	91.3
Sep 2021	4.41	123.4	111.9	665	133	70.6	64.0
Oct 2021	3.98	53.8	48.8	315	54	149.4	135.5
Nov 2021	4.02	68.8	62.4	415	83	157.2	142.6
Dec 2021	3.56	125.7	114.0	830	166	192.1	174.3
Jan 2022	3.36	75.0	68.1	525	106	235.5	213.6
Feb 2022	3.43	45.9	41.7	320	64	188.5	171.0
Mar 2022	3.38	81.4	73.8	585	117	248.3	225.3
Apr 2022	3.23	51.2	46.5	385	77	335.2	304.1
May 2022						78.4	71.1
Jun 2022	4.24	69.5	63.0	390	78	125.5	113.9
Minimum	3.23	45.9	41.7	255	51	70.6	64.0
Maximum	4.41	126.7	114.9	830	166	335.2	304.1
Total	42.15	868.2	787.6	5,400	1,072	1,957.2	1,775.6
Average	3.83	78.9	71.6	491	97	163.1	148.0

APENDICE

I

FACILITY ORGANIZATION CHART

VEOLIA WATER
CHICKASAW WASTEWATER PROJECT
BARTLESVILLE, OKLAHOMA



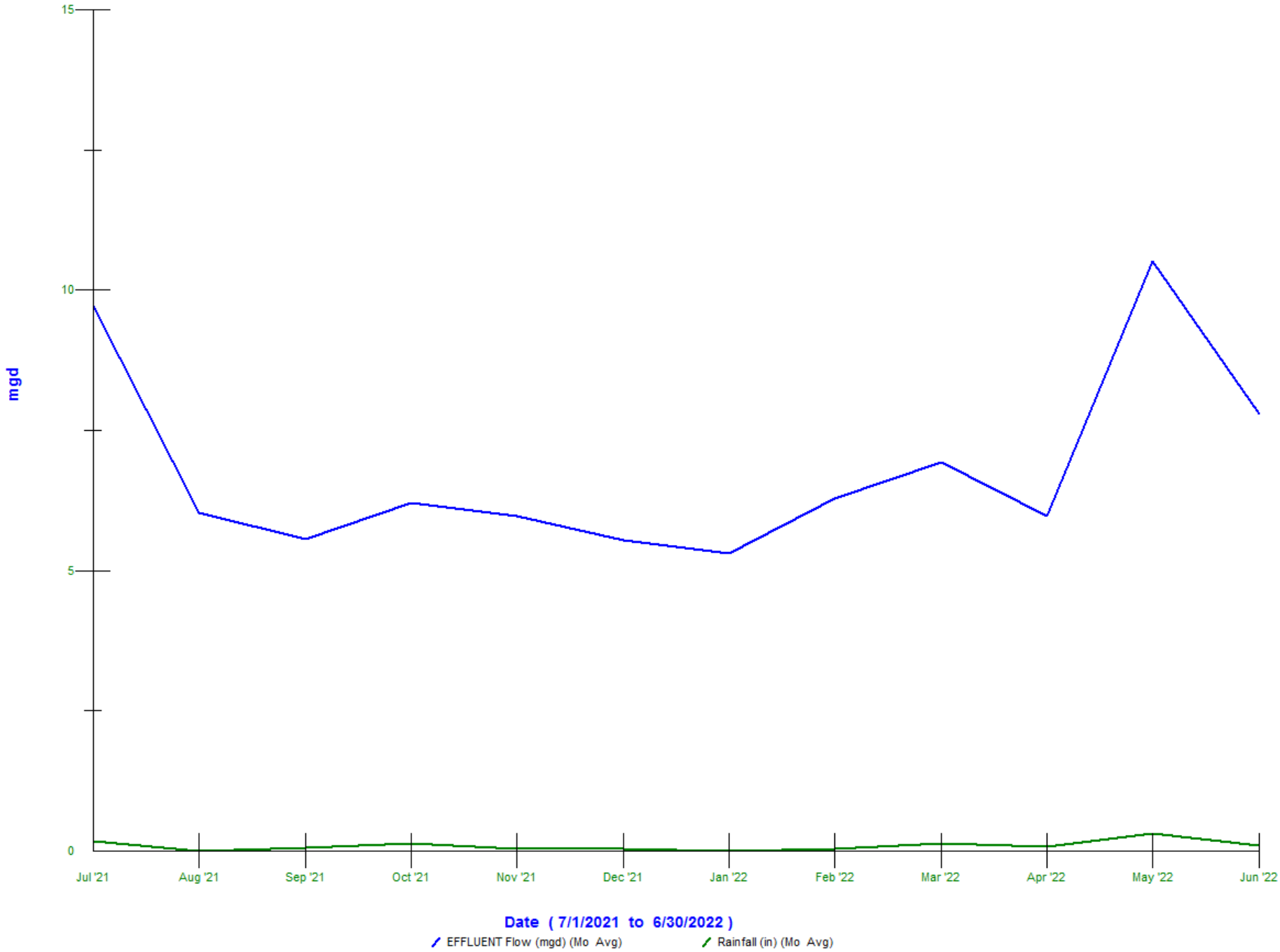
APENDICE

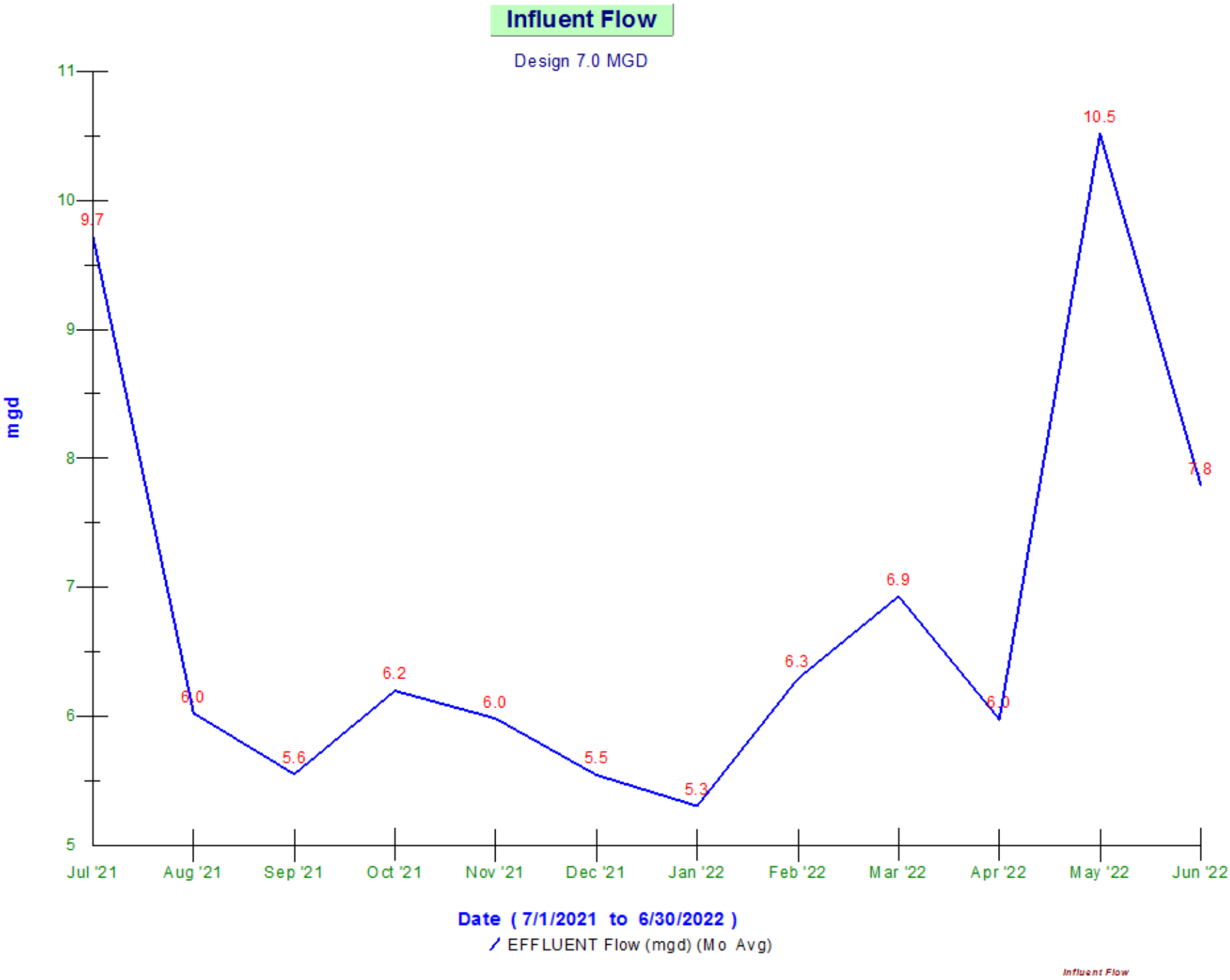
J

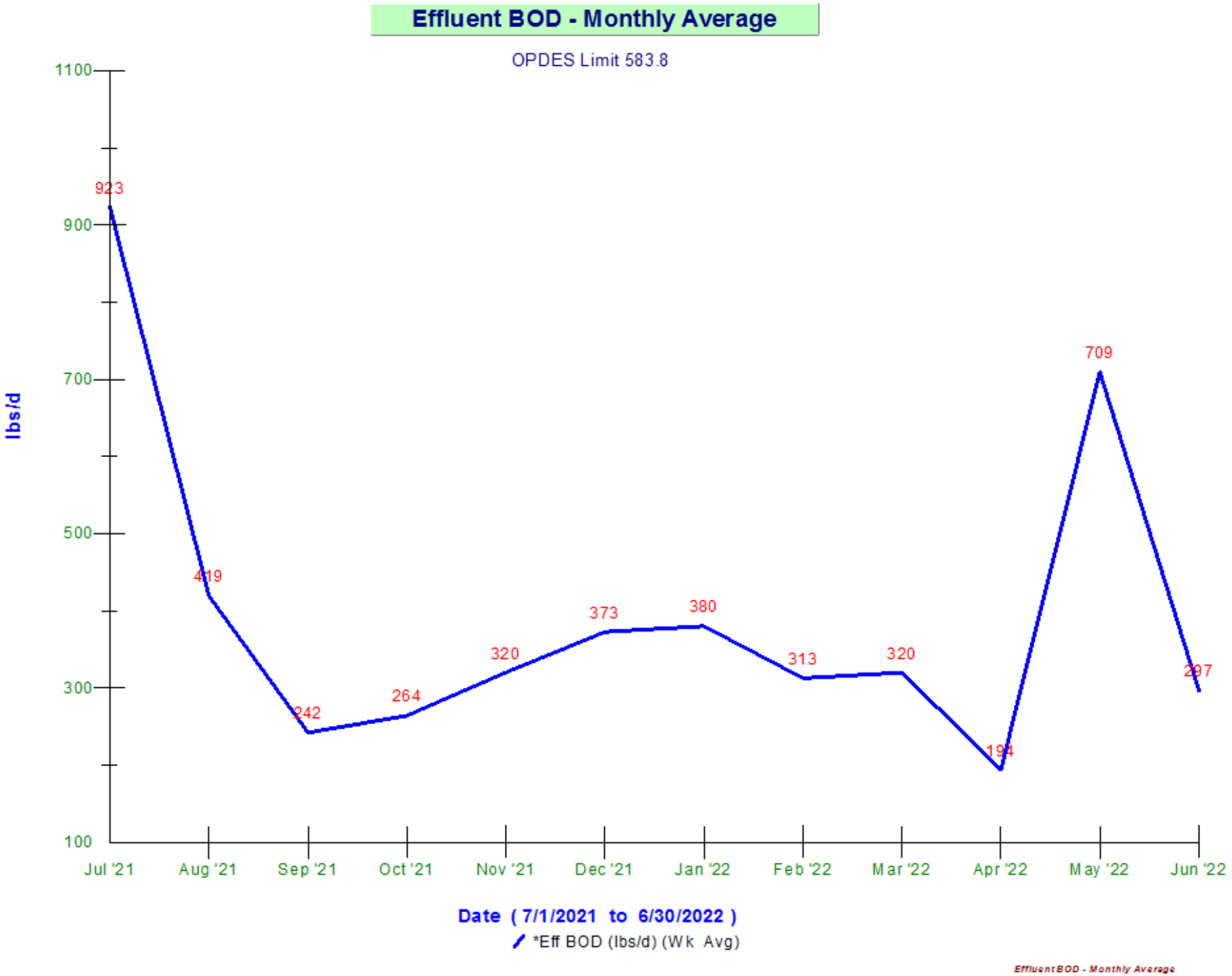
GRAPHS

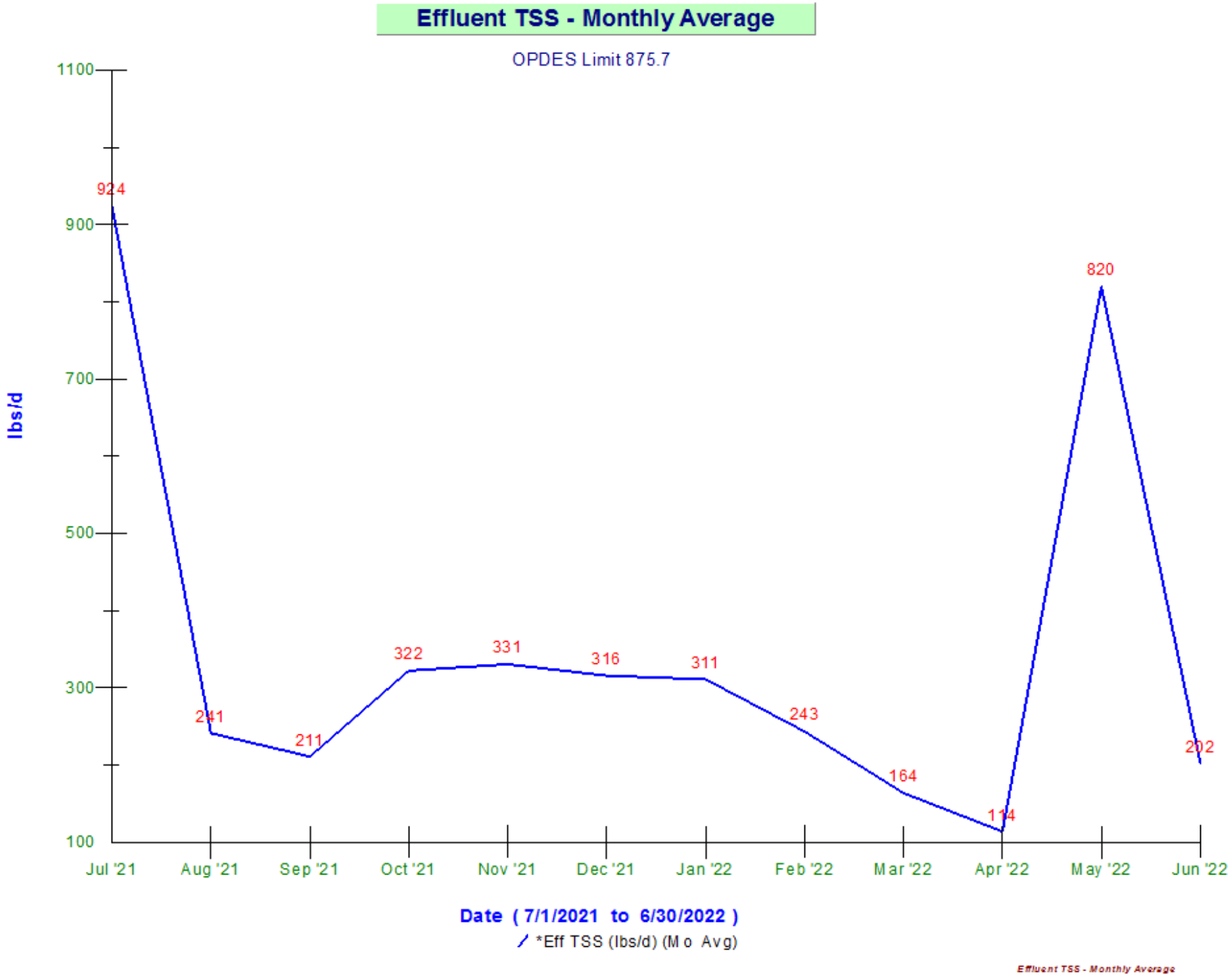
- Precipitation Influence on Flow
- Influent Flow
- Effluent BOD
- Effluent TSS
- Effluent Ammonia

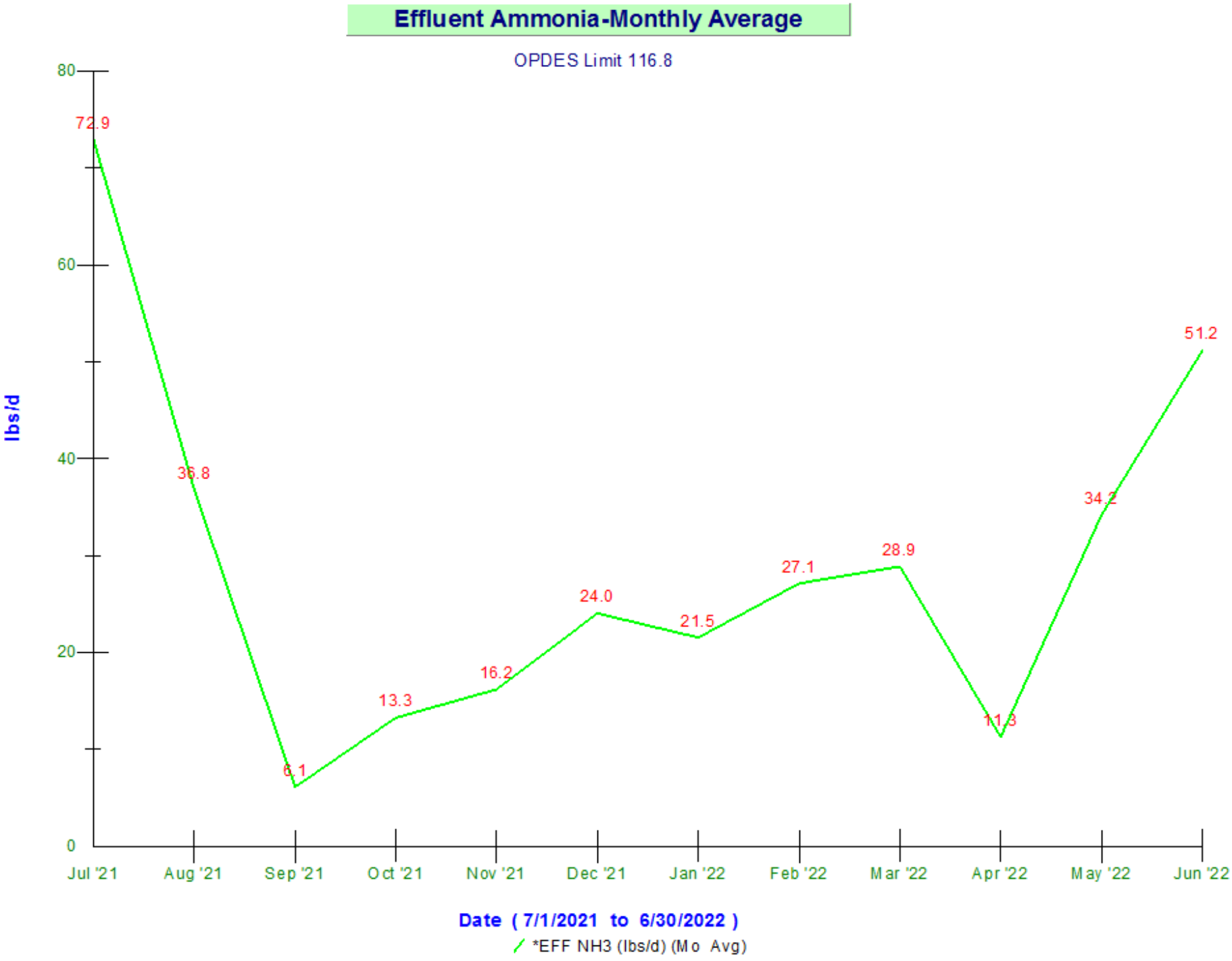
Precipitation Influence on Flow




Influent Flow
Design 7.0 MGD
mgd
11
10
9
8
7
6
5
9.7
6.0
5.6
6.2
6.0
5.5
5.3
6.3
6.9
6.0
10.5
7.8
Jul '21
Aug '21
Sep '21
Oct '21
Nov '21
Dec '21
Jan '22
Feb '22
Mar '22
Apr '22
May '22
Jun '22
Date (7/1/2021 to 6/30/2022)
EFFLUENT Flow (mgd) (Mo Avg)
Influent Flow


Effluent BOD - Monthly Average
OPDES Limit 583.8
1100
900
700
500
300
100
lbs/d
923
419
242
264
320
373
380
313
320
194
709
297
Jul '21
Aug '21
Sep '21
Oct '21
Nov '21
Dec '21
Jan '22
Feb '22
Mar '22
Apr '22
May '22
Jun '22
Date (7/1/2021 to 6/30/2022)
*Eff BOD (lbs/d) (Wk Avg)
Effluent BOD - Monthly Average


Effluent TSS - Monthly Average
OPDES Limit 875.7
1100
900
700
500
300
100
lbs/d
924
241
211
322
331
316
311
243
164
114
820
202
Jul '21
Aug '21
Sep '21
Oct '21
Nov '21
Dec '21
Jan '22
Feb '22
Mar '22
Apr '22
May '22
Jun '22
Date (7/1/2021 to 6/30/2022)
*Eff TSS (lbs/d) (Mo Avg)
Effluent TSS - Monthly Average


Effluent Ammonia-Monthly Average
OPDES Limit 116.8
lbs/d
80
60
40
20
0
72.9
35.8
6.1
13.3
16.2
24.0
21.5
27.1
28.9
11.3
34.2
51.2
Jul '21
Aug '21
Sep '21
Oct '21
Nov '21
Dec '21
Jan '22
Feb '22
Mar '22
Apr '22
May '22
Jun '22
Date (7/1/2021 to 6/30/2022)
*EFF NH3 (lbs/d) (Mo Avg)
Effluent Ammonia-Monthly Average