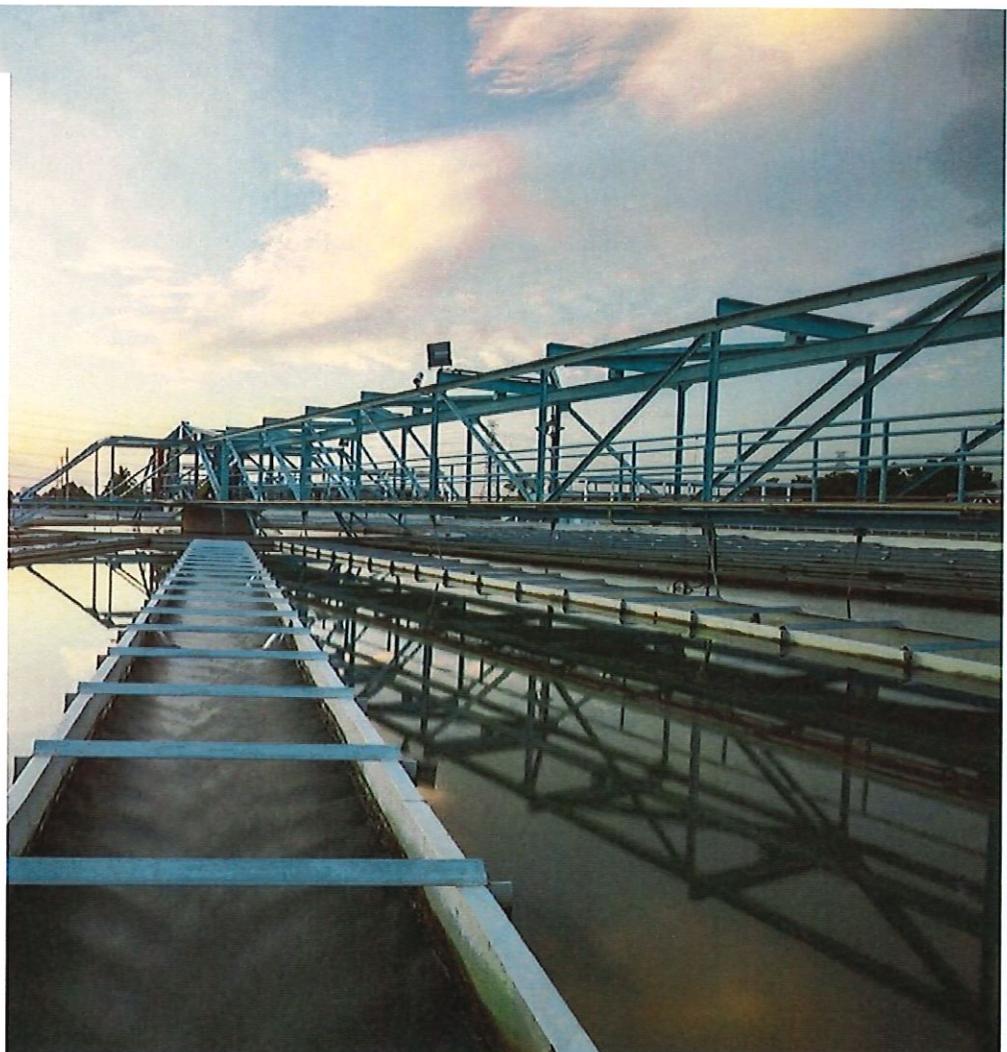


# UTILITY REPORT

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**MAY 2023**

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**King George County  
Service Authority**

**Authored by:  
Inboden Environmental  
Services, Inc.**



# INTRODUCTION

This Utility Report provides information on operations, facility performance, equipment issues, and regulatory compliance for the month prior. Information includes items related to water facility productions and wastewater effluent discharge volumes, laboratory analytical data, operations notes, and compliance auditing.

# WATER

## **Overview:**

IES is continuing to adjust chemical feed rates and mix ratios throughout each water system.

The greensand system at Fairview Beach WTP will be scheduled soon to have its media replaced.

Saft well is still offline due to holes in well casing allowing silt/sand to be pumped into system resulting in water quality complaints and damaging pump equipment. Repair PO has been approved and materials have been placed on order.

## Canterbury Subdivision – PWSID 6099085

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

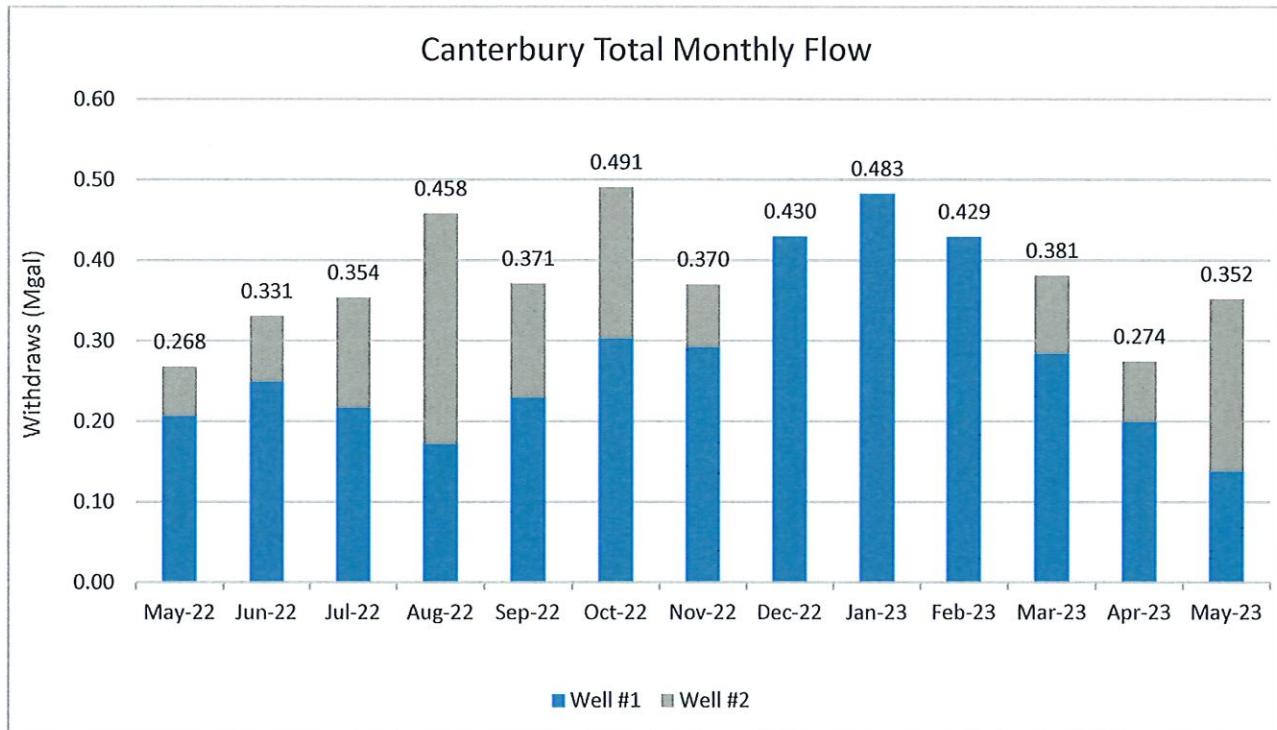
### Bacteriological Analysis

Location Code	Location Address	Date	Result
030	12135 Canterbury Ct.	5/23/2023	Absent

### Operational Notes:

- 5/3: Added 12.5% sodium hypochlorite at a mix ratio of 40:2 (40 gallons of water to 2 gallons of chlorine)
- 5/5: Added 2 gallons of water
- 5/8: Added 12.5% sodium hypochlorite at a mix ratio of 50:25
- 5/15, 24, 29: Added 12.5% sodium hypochlorite at a mix ratio of 20:1
- 5/19: Added 12.5% sodium hypochlorite at a mix ratio of 10:5

### System Production:



## Circle – PWSID 6099100

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

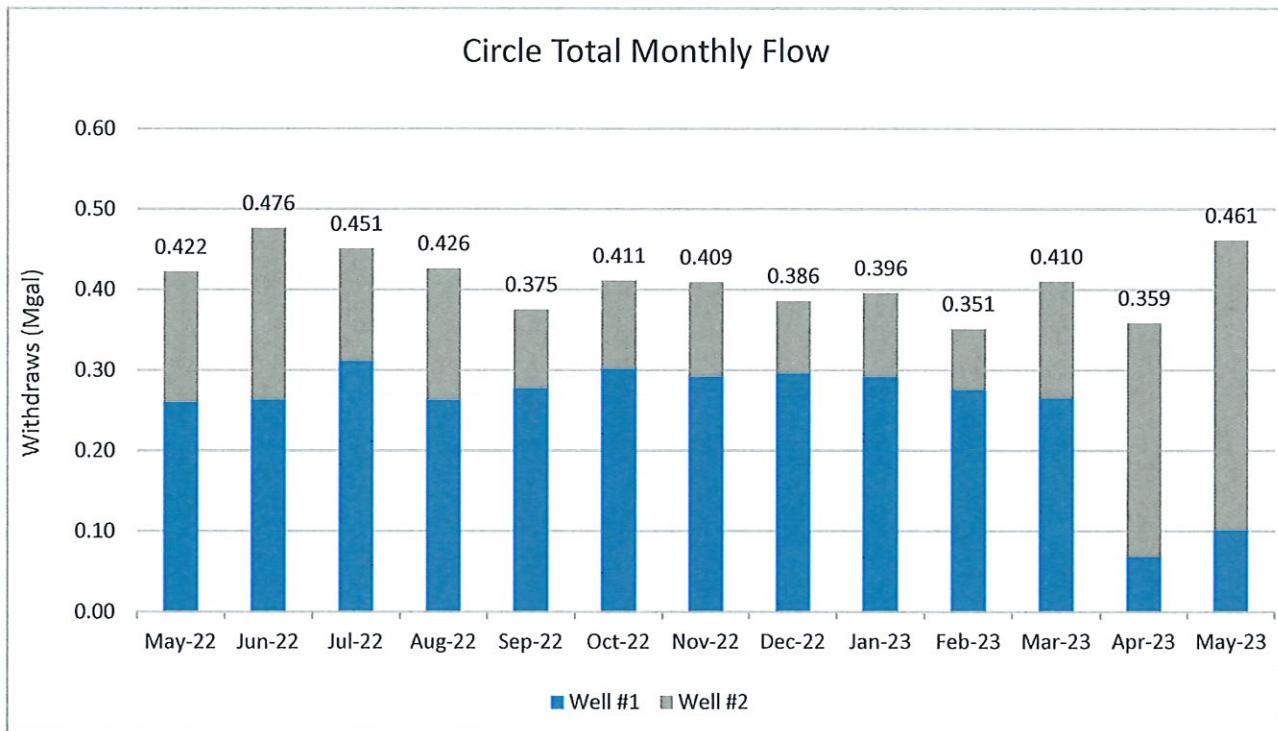
### Bacteriological Analysis

Location Code	Location Address	Date	Result
010	11393 Ridge Road	5/23/2023	Absent

### Operational Notes:

- 5/8, 12, 22: Add 30:1.5 mix of 12.5% sodium hypochlorite at Well 2
- 5/15, 26: Add 20:1 mix of 12.5% sodium hypochlorite at Well 2 and 25:1 mix at Well 1
- 5/19, 31: Add 20:1 mix of 12.5% sodium hypochlorite at Well 2

### System Production:



## KGC Courthouse – PWSID 6099050

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

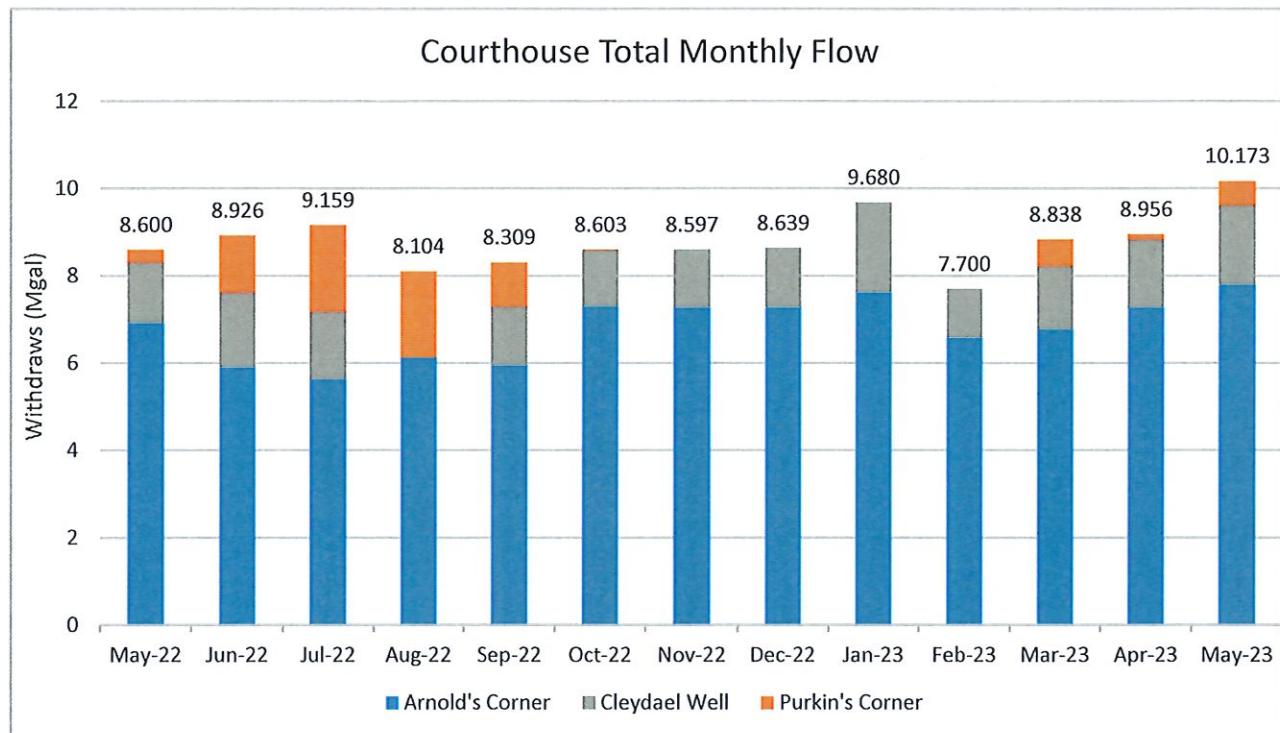
### Bacteriological Analysis

Location Code	Location Address	Date	Result
01	10459 Courthouse Drive	5/22/2023	Absent
04	8428 Eden Drive	5/26/2023	Absent
05	10111 King's Highway	5/26/2023	Absent
08	12382 Richard's Ride	5/26/2023	Absent
09	7323 Jackson Drive	5/23/2023	Absent

### Operational Notes:

- 5/1: Backwash greensand filters 1 & 2 at Purkins Corner; add 20:20 chlorine mix at Arnold's
- 5/5: Add 10:1 chlorine mix at Cleydael and 7:7 mix at Arnold's
- 5/8: Add 10:10 chlorine mix at Arnold's
- 5/9: Changed chemical feed pump at Cleydael
- 5/10, 13: Add 20:2 chlorine mix at Cleydael
- 5/12: Add 50:5 chlorine mix at Purkins and 20:20 mix at Arnold's
- 5/15, 19: Add 15:15 chlorine mix at Arnold's
- 5/20: Add 25:2.5 chlorine mix at Cleydael
- 5/22: Add 14:14 chlorine mix at Arnold's
- 5/24: Add 8:8 chlorine mix at Arnold's
- 5/25: Add 30:3 chlorine mix at Cleydael
- 5/26: Add 9:9 chlorine mix at Arnold's
- 5/29: Add 30:3 chlorine mix at Cleydael and 10:10 mix at Arnold's
- 5/31: Add 10:1 chlorine mix at Cleydael, 30:3 mix at Purkins, and 8:8 mix at Arnold's

## System Production:



## Dahlgren – PWSID 6099295

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

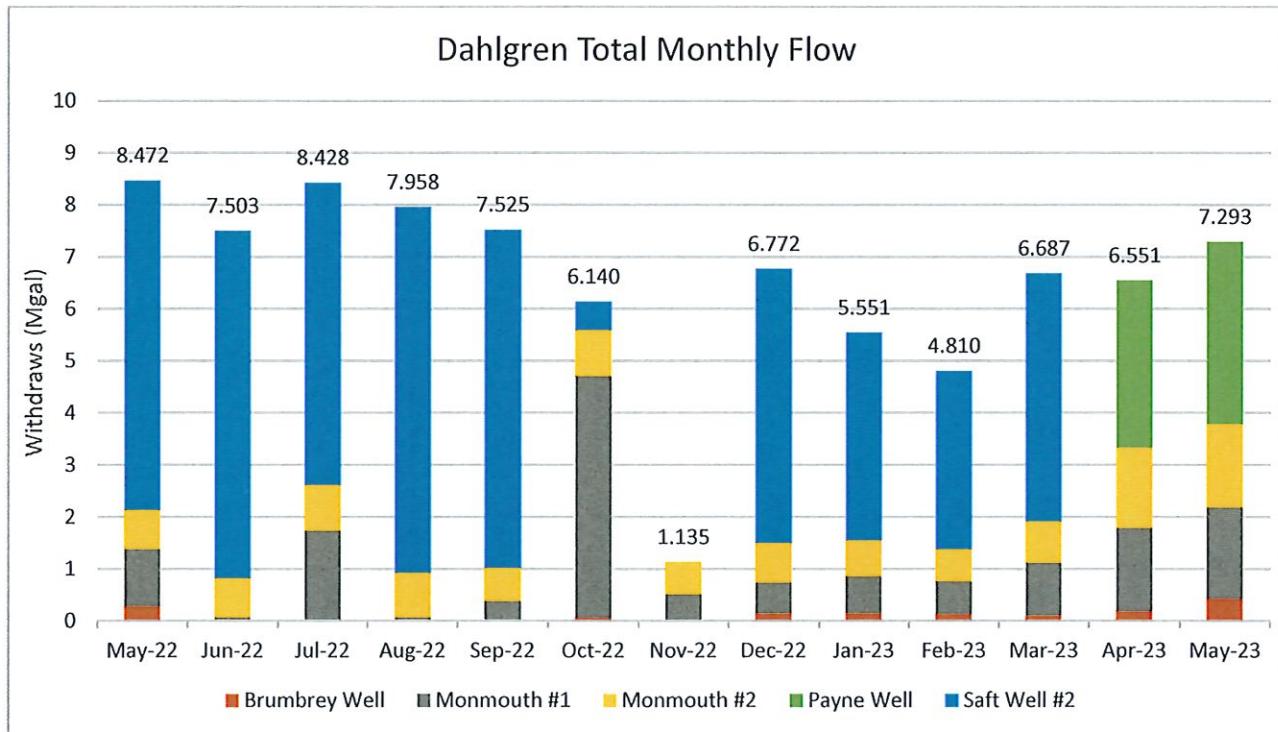
### Bacteriological Analysis

Location Code	Location Address	Date	Result
05	5479 Payne Drive	5/25/2023	Absent
06	4417 Danube Drive	5/25/2023	Absent
07	4378 Savannah Street	5/25/2023	Absent

### Operational Notes:

- 5/9: Replace chlorine pump in Payne well
- Saft Well still offline. Contractor has been procured and now waiting on materials to reline well casing.

### System Production:



## Fairview Beach – PWSID 6099250

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

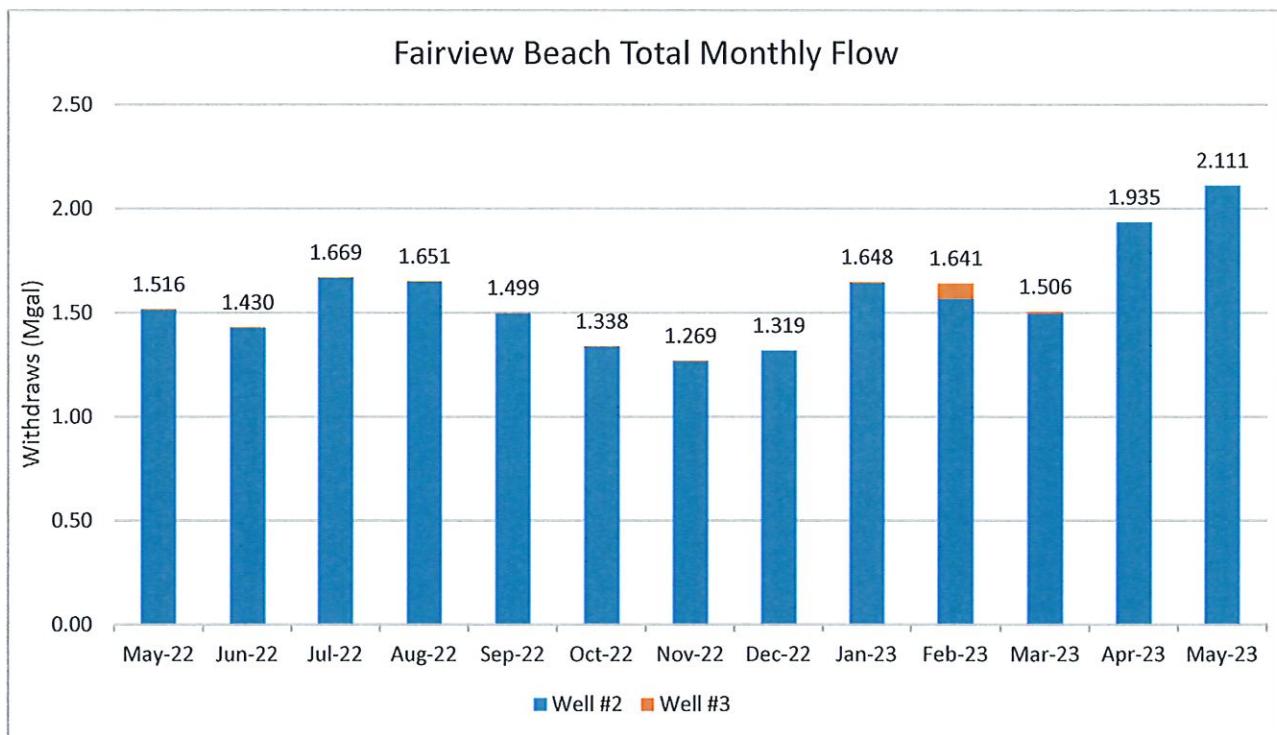
### Bacteriological Analysis

Location Code	Location Address	Date	Result
010	5435 Pavilion Drive	5/26/2023	Absent
050	6023 Marineview Drive	5/26/2023	Absent

### Operational Notes:

- 5/1: Backwash 1, 2; Well 3 offline
- 5/3: Add 12.5% sodium hypochlorite (19:19)
- 5/8, 19, 22, 26: Add 12.5% sodium hypochlorite (10:10)
- 5/10, 17, 23: Backwash 1,2
- 5/15: Add 12.5% sodium hypochlorite (18:18)
- 5/30: Add 12.5% sodium hypochlorite (13:13)

### System Production:



## Hopyard Farm – PWSID 6099283

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

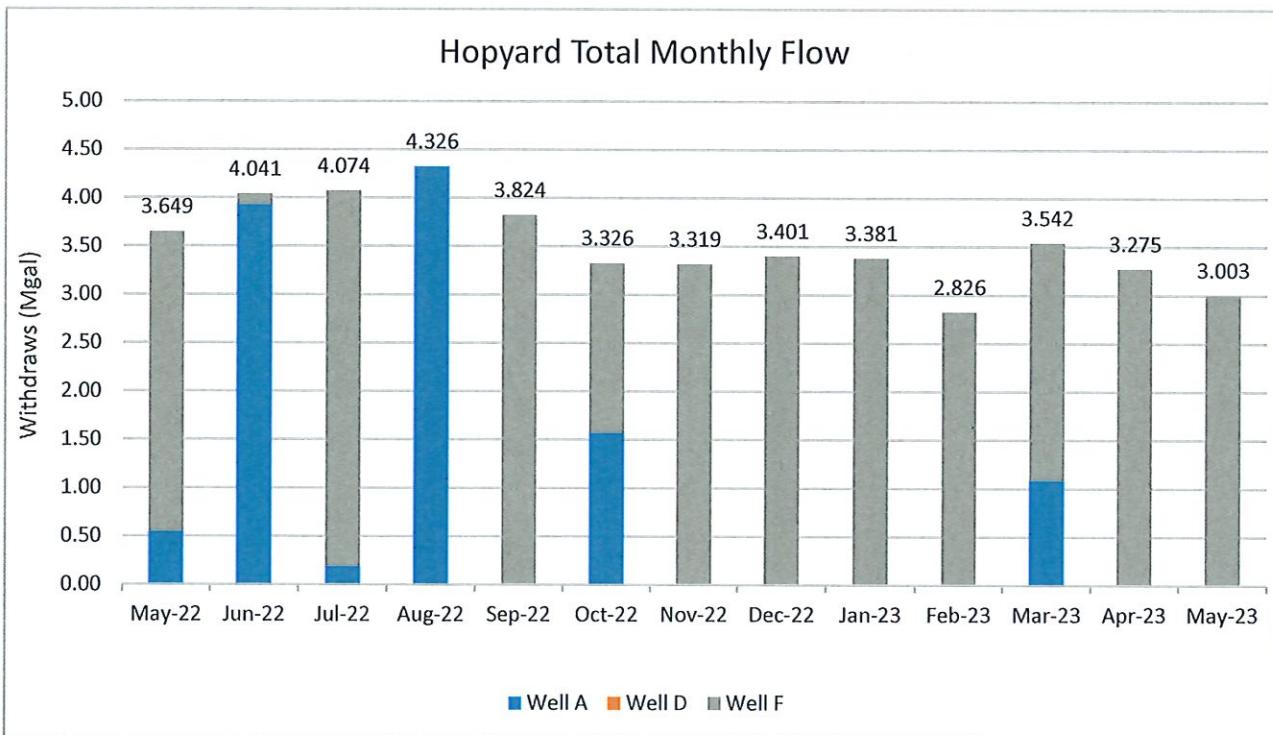
### Bacteriological Analysis

Location Code	Location Address	Date	Result
030	6190 McCarthy Drive	5/22/2023	Absent
060	5276 Longbow Road	5/22/2023	Absent

### Operational Notes:

- 5/1: Wells #D and #A offline

### System Production:



## KGC School Board Office – PWSID 6099296

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

### Bacteriological Analysis

Location Code	Location Address	Date	Result
030	9100 St. Anthony's Road – Old Art Room #10	5/26/2023	Absent

**Operational Notes:** N/A

**System Production:** No system data to display. May Meter Reading - 29456100

## Ninde's Store – PWSID 6099300

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

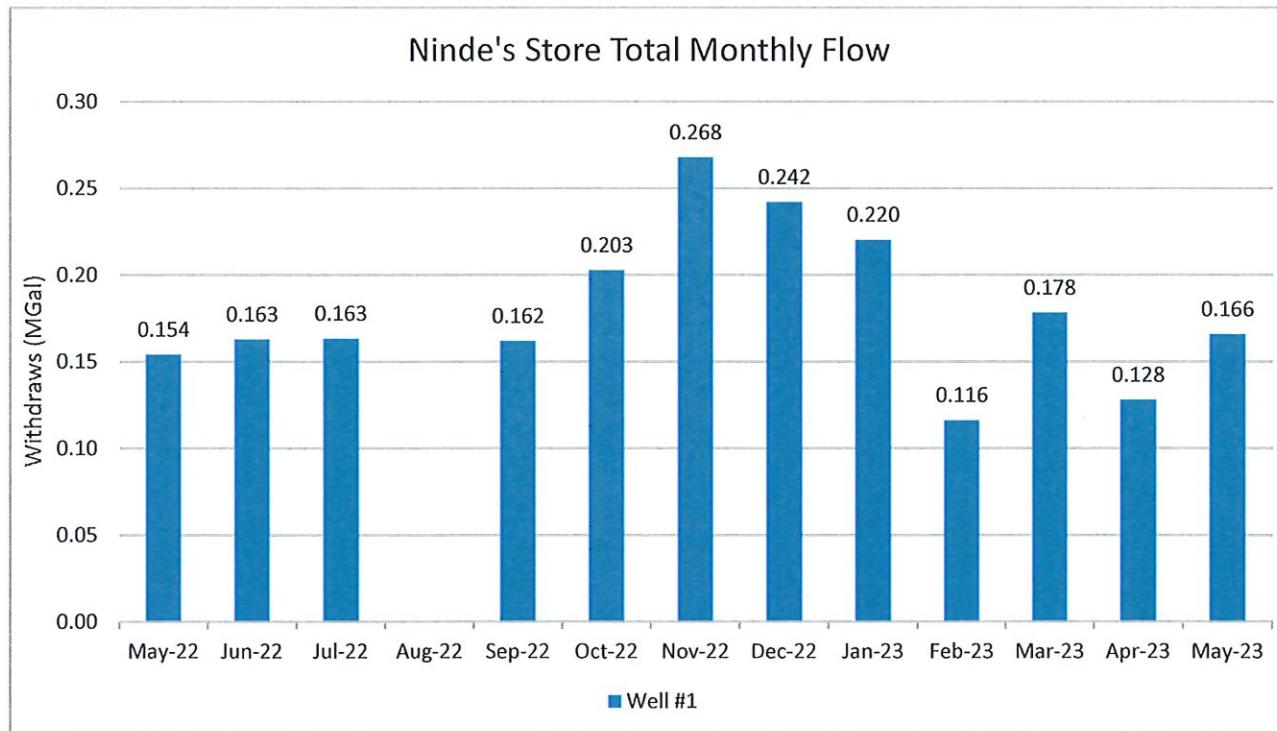
### Bacteriological Analysis

Location Code	Location Address	Date	Result
030	16475 Ridge Road	5/26/2023	Absent

### Operational Notes:

- 5/10: Added 12.5% sodium hypochlorite (20:1)
- 5/12: Well pump tripped/unplugged chemical feed pump; drained 4000 gal to dilute
- 5/24: Added 12.5% sodium hypochlorite (20:1)
- 5/31: Added 12.5% sodium hypochlorite (20:1)

### System Production:



## Oakland Park – PWSID 6099350

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

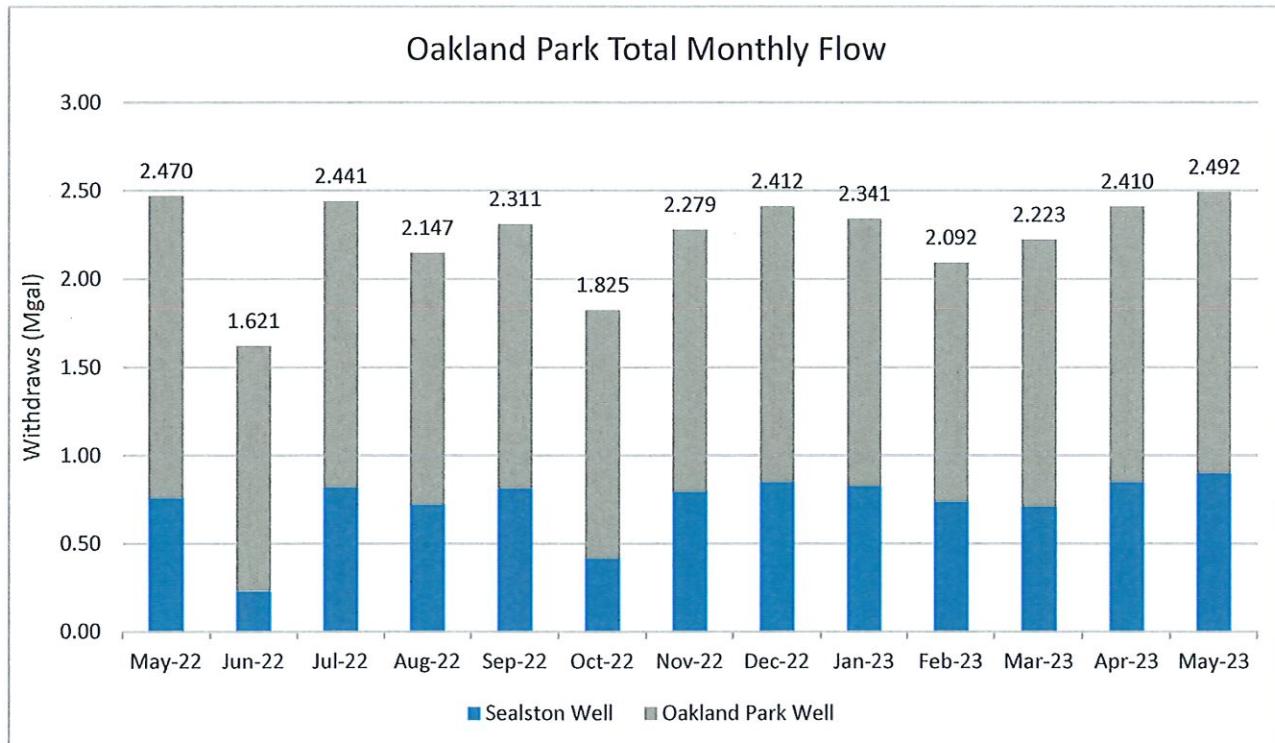
### Bacteriological Analysis

Location Code	Location Address	Date	Result
02	9124 Fletcher's Chapel Road	5/26/2023	Absent
05	10157 Fletcher's Chapel Road	5/26/2023	Absent

### Operational Notes:

- 5/1: Backwash 1 & 2 at Sealston Well; Backwash 1, 2, & 3 at Oakland Park Well
- 5/10, 12: Backwash 1 & 2 at Sealston Well
- 5/17: Backwash 1 & 2 at Sealston Well; Backwash 1, 2, & 3 at Oakland Park Well
- 5/19: Add 10 gallons of 12.5% sodium hypochlorite at Oakland Park Well
- 5/24: Backwash 1 & 2 at Sealston Well; Add 10 gallons of 12.5% sodium hypochlorite at Sealston Well and 24 gallons at Oakland Park Well
- 5/31: Backwash 1 & 2 and add 8 gallons of 12.5% sodium hypochlorite at Sealston Well

### System Production:



## St. Paul's/Owens – PWSID 6099550

### Water Quality

The Water Treatment facility and distribution system maintained compliance with all required sampling. Routine bacteriological sample results are shown in the table below:

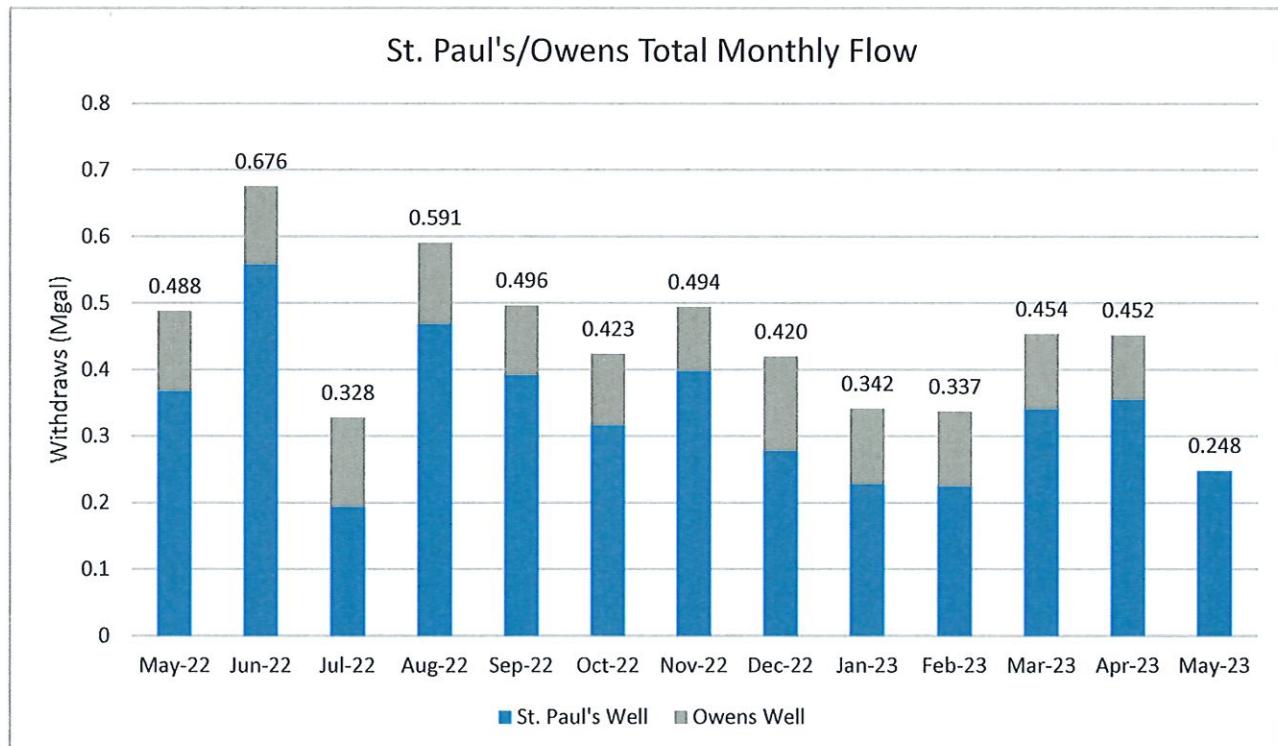
### Bacteriological Analysis

Location Code	Location Address	Date	Result
030	5109 Rose Avenue	5/30/2023	Absent

### Operational Notes:

- 5/1: Owens: meter needs replaced

### System Production:



# WASTEWATER

## Overview:

All wastewater treatment plants operated well in the month of May.

Treatment processes are continuing to be modified at all facilities to optimize performance and operational reliability.

The annual PCB Pollution Minimization Plan (PMP) was submitted to DEQ on May 5<sup>th</sup>. Additionally, the first round of sample monitoring for next year's reports has already been completed.

## Dahlgren – WWTP

### Effluent Quality:

The wastewater treatment facility operated well and maintained compliance with all permit-required sampling.

An error from sub-contracted laboratory, Eurofins Analytics, caused this facility to not meet permit monitoring requirements for Fecal Coliform for the week of the 28<sup>th</sup>. A letter of explanation was provided to DEQ.

### Wastewater Treatment:

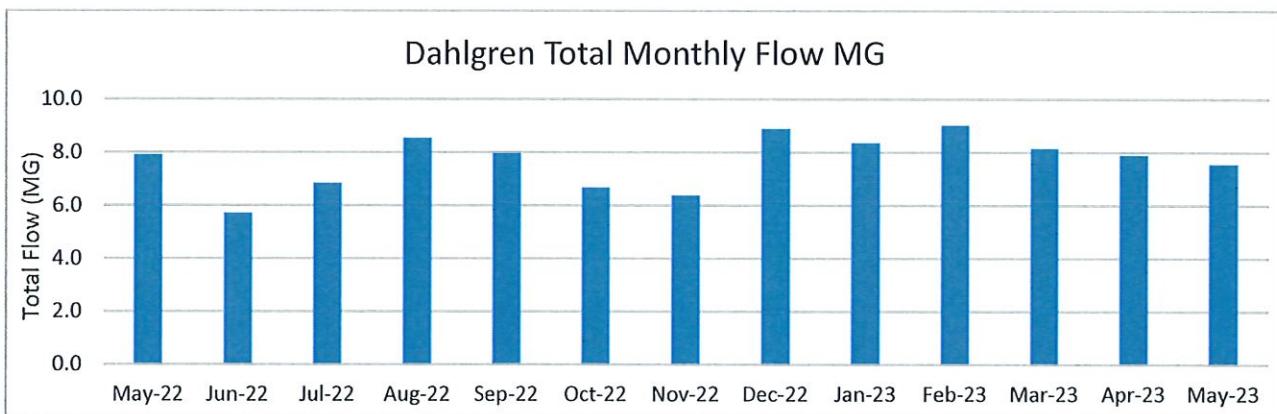
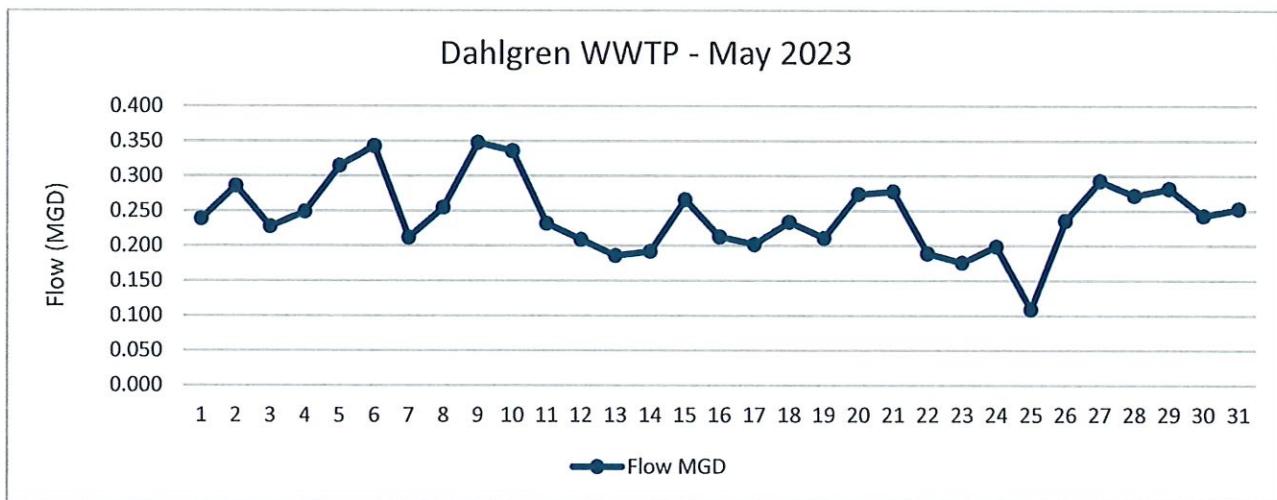
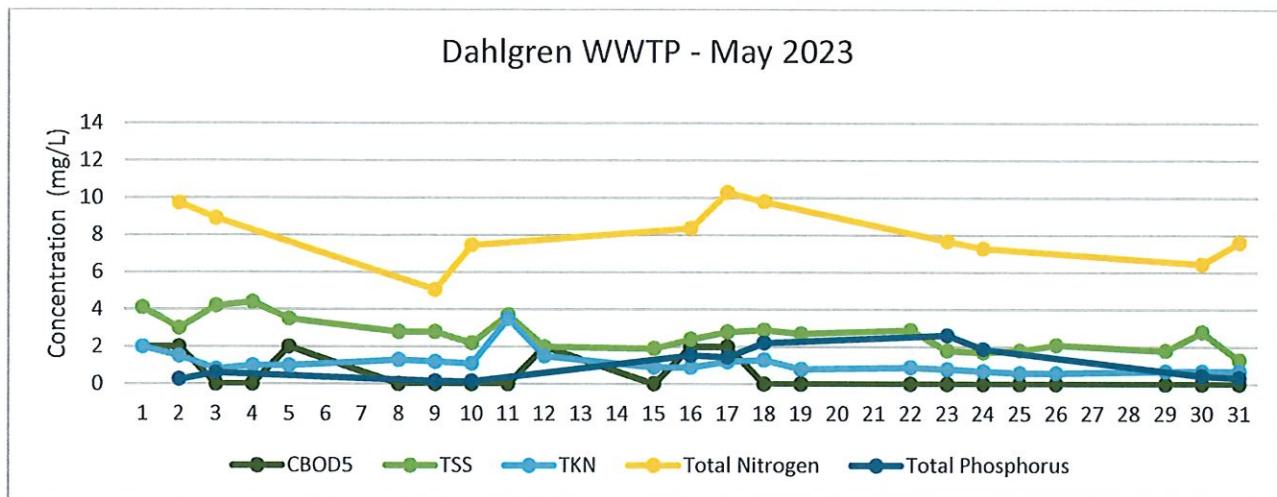
The Dahlgren WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.244 MGD and a total monthly discharge of 7.562 MG.

### Operational Notes:

- Flushed and optimized Bio-Carb feed system to help create an environment for the proper bacteria to flourish and effectively provide nutrient removal.
- A mixer located in the pre-anoxic zone and before the IFAS media failed. KGCSA maintenance relocated mixers from other parts of the system to compensate for its failure. Repairs are underway.
- Increased 1850 feed rate in response to higher concentrations of phosphorus being received from the collection system.
- Aluminum Sulfate proved to be inferior in contrast to 1850 especially against the increase PO<sub>4</sub> in primary influent.

### Data Trending:

The following charts depict a graphical analysis of effluent quality monitoring and treatment plant daily and total monthly flows.



## Hopyard – WWTP

### Effluent Quality:

The wastewater treatment facility operated well and maintained compliance with all permit-required sampling.

An operations miss-communication resulted in a discharge at the facility on Memorial Day. E. Coli samples were unable to be collected due to sub-contract laboratory's denial to receive samples on holidays.

### Wastewater Treatment:

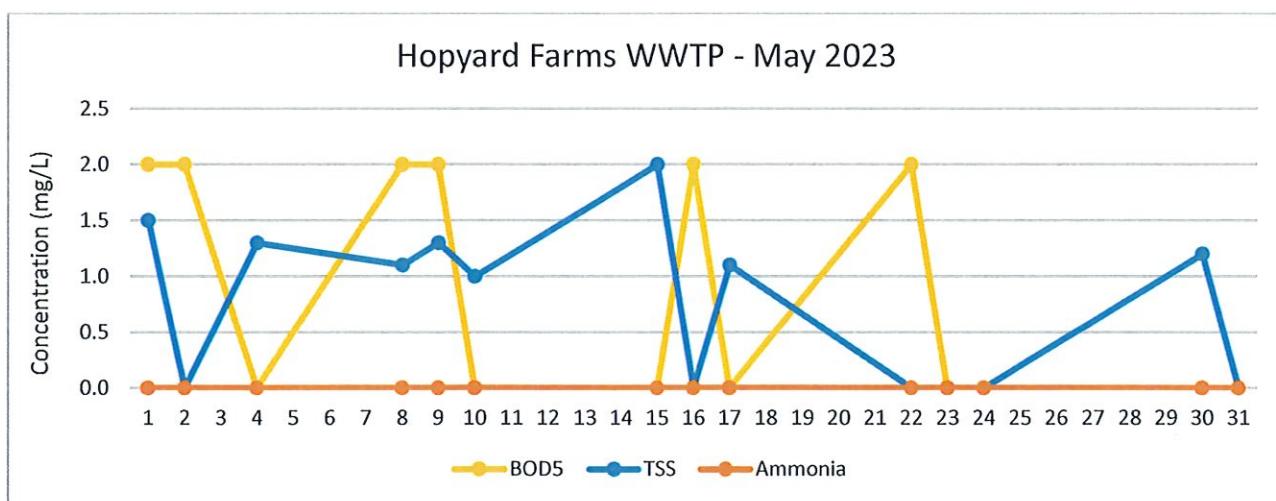
The Hopyard WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.081 MGD and a total monthly discharge of 2.507 MG.

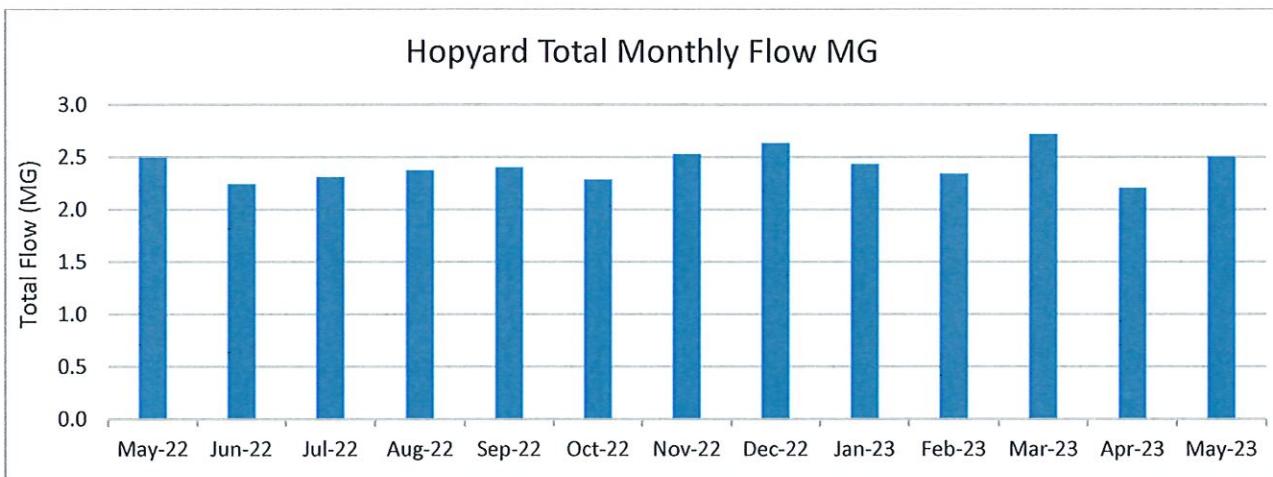
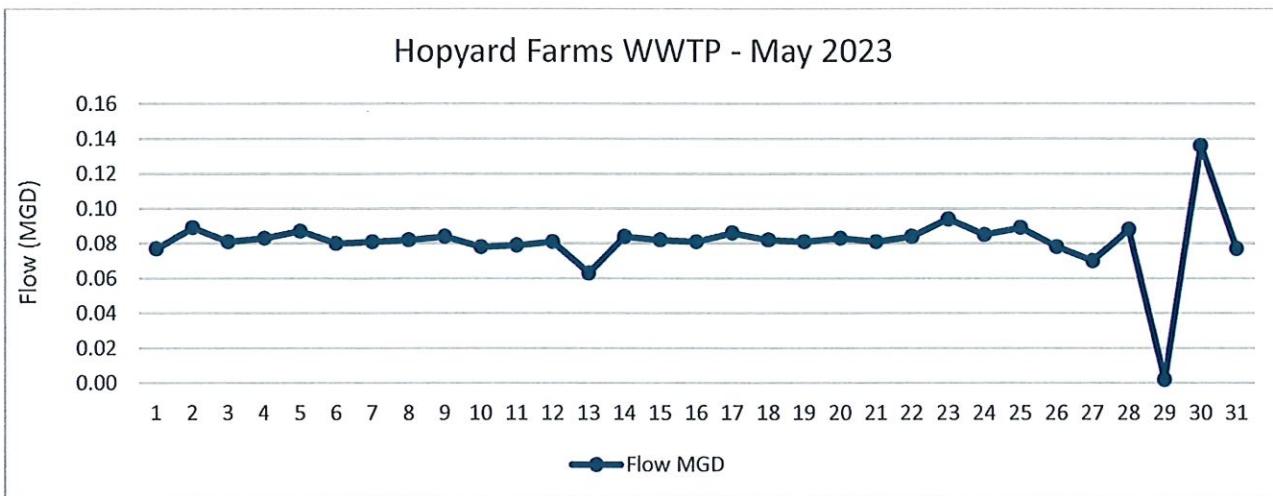
### Operational Notes:

- Working with KGCSA maintenance to identify what automation issues will and/or may be alleviated with replacing parts in the PLC, which will bring us closer to normalized operations of the SBR system.
- Influent valve on SBR 1 has been replaced and is functioning well.
- Lowering 1850 feed rates to maintain effective treatment, but also be more cost effective.

### Data Trending:

The following charts depict a graphical analysis of effluent quality monitoring and treatment plant daily and total monthly flows.





## Purkins Corner – WWTP

### Effluent Quality:

The wastewater treatment facility operated well and maintained compliance with all permit-required sampling.

### Wastewater Treatment:

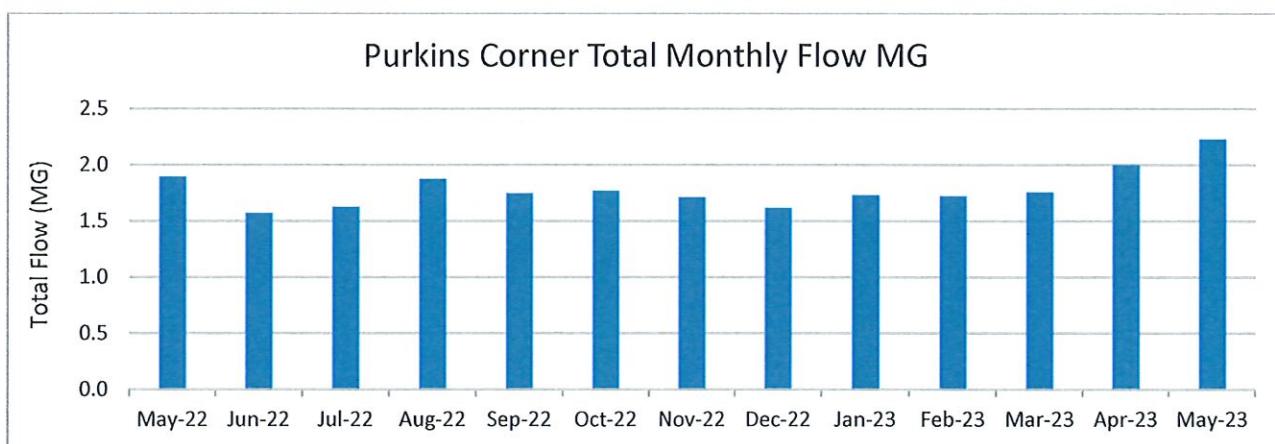
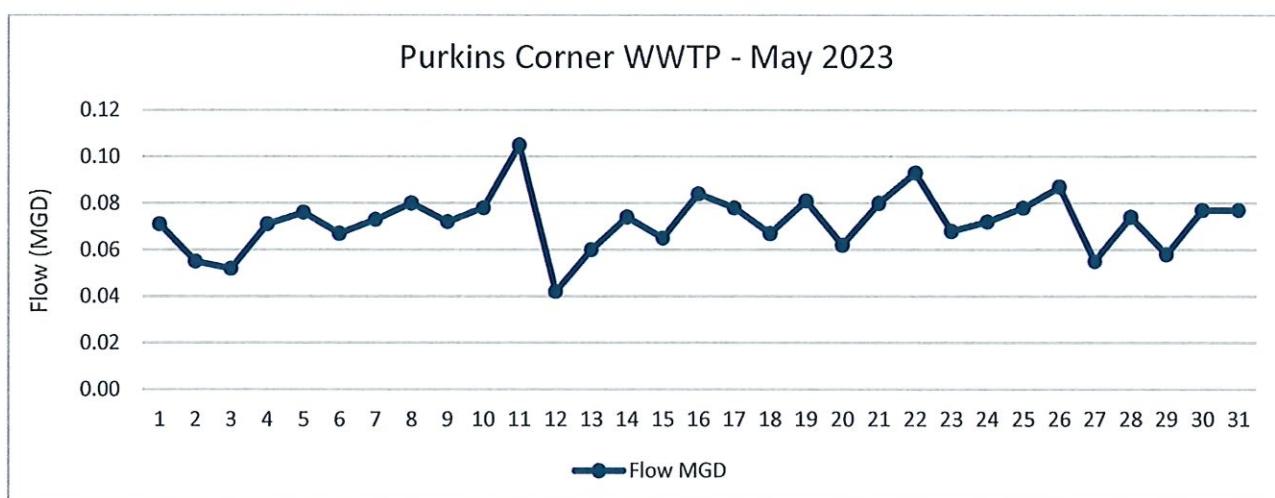
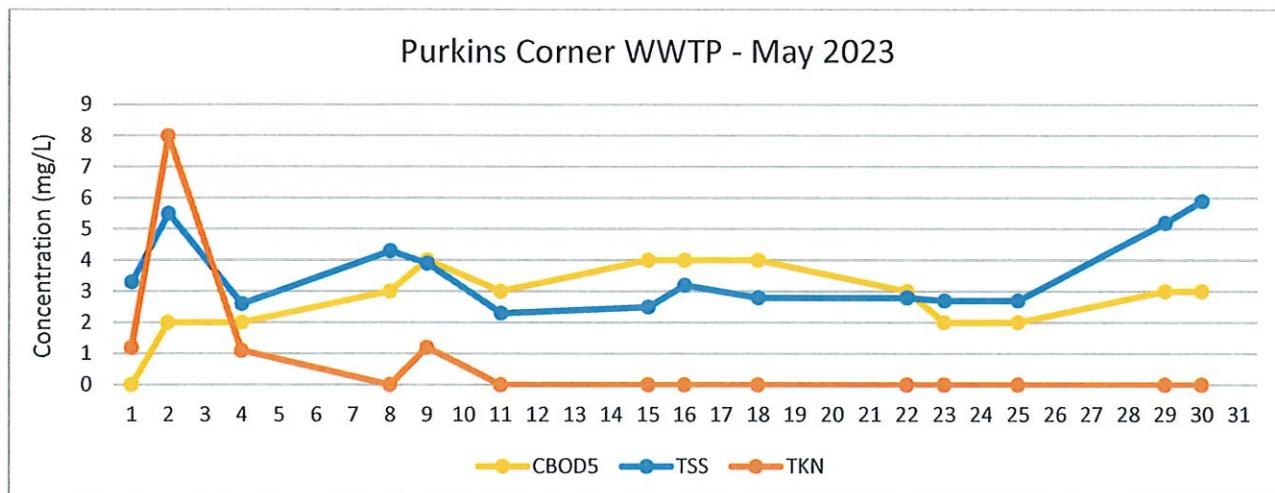
The Purkins Corner WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.072 MGD and a total monthly discharge of 2.232 MG.

### Operational Notes:

- Mixer failed in plant A. A blower and diffuser were added to help keep contents mixed, however this was not sufficient to maintain proper mixing and keeping appropriate conditions for the bacteria to treat effectively. IES has modified operations by diverting more flow through plant B to maintain permit compliance.

## Data Trending:

The following charts depict a graphical analysis of effluent quality monitoring and treatment plant daily and total monthly flows.



## Oakland Park – WWTP

### Effluent Quality:

The wastewater treatment facility operated well for the most part of the month. However, issues with the Bio-Carb feed system combined with electrical issues on the anoxic mixer, the facility exceeded the weekly average concentration of 5.30 mg/L. Chemical feed and electrical system repairs were made resulting in subsequent TKN sampling to be within compliance.

### Wastewater Treatment:

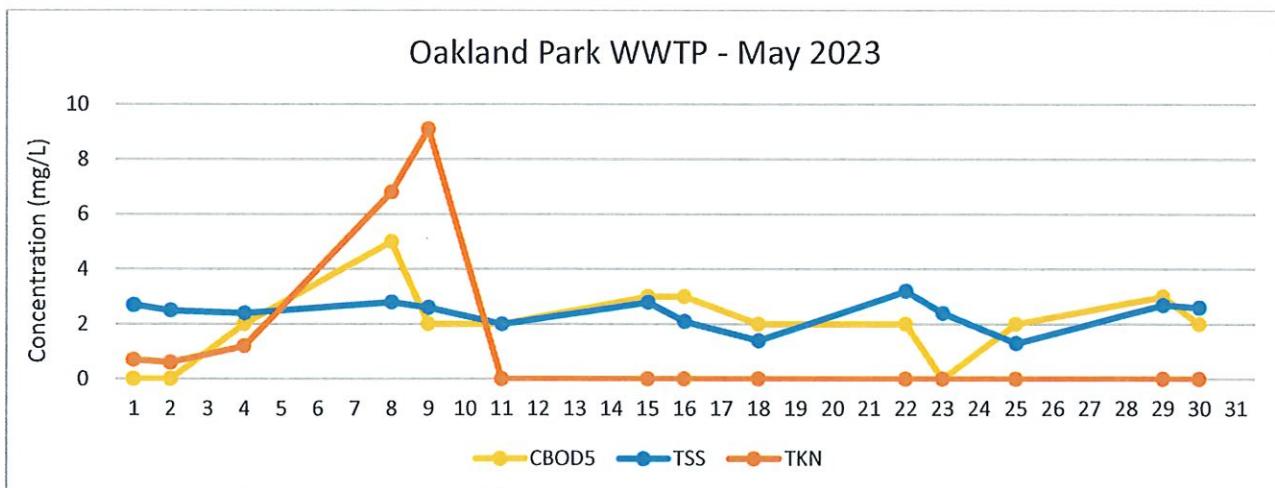
The Oakland Park WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.049 MGD and a total monthly discharge of 1.508 MG.

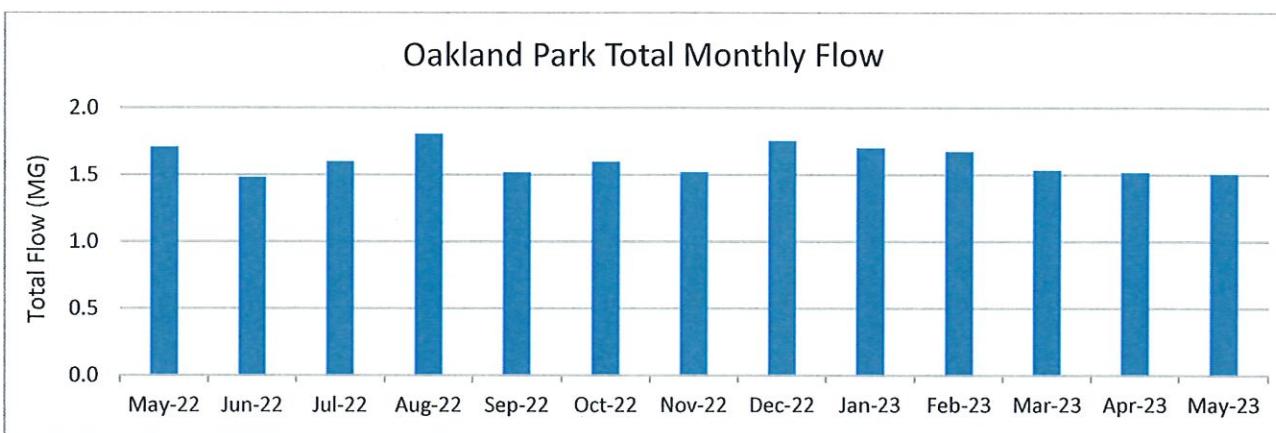
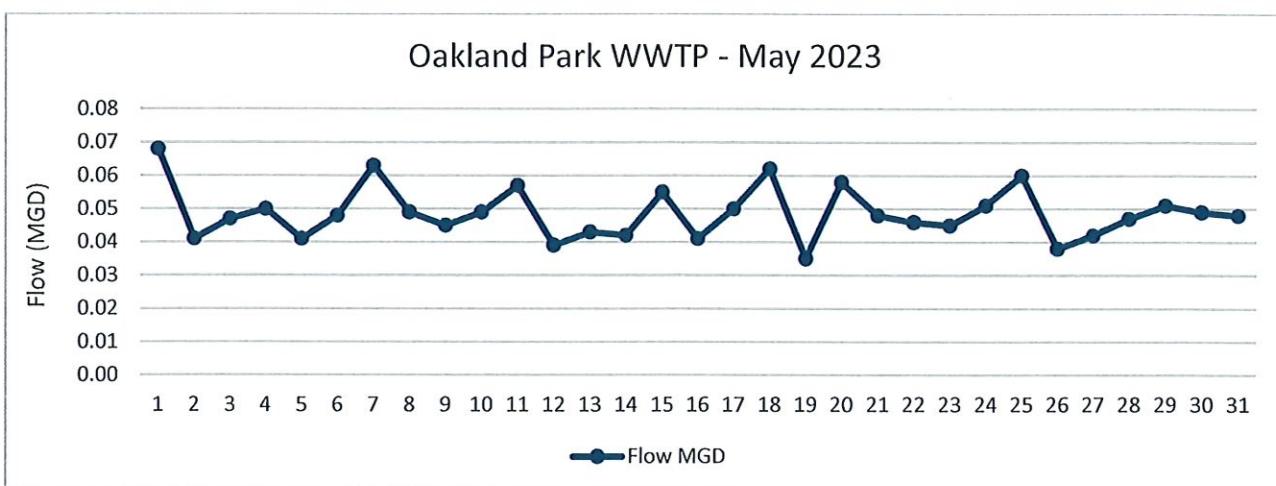
### Operational Notes:

- Optimized blower system with help of local manufactures representative. The changes allowed for more efficient delivery of Dissolved Oxygen during diurnal flows and temperature swings.
- IES operators continue to dial in chemical feed rates to optimize efficiency.
- Plant A is being feed intermittently with contents from EQ tank and the plant is responding well. Majority of flow is still being directed through plant B due to plant A mixer still non-operational (mixer has been ordered).

### Data Trending:

The following charts depict a graphical analysis of effluent quality monitoring and treatment plant daily and total monthly flows.





## Fairview Beach – WWTP

### Effluent Quality:

The wastewater treatment facility operated well and maintained compliance with all permit-required sampling.

### Wastewater Treatment:

The Fairview Beach WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.058 MGD and a total monthly discharge of 1.801 MG.

### Operational Notes:

- Changed cycle times from 6 hour to 12 hour cycles, and reduce 1850 chemical feed by more than 50%.
- Improved supernatant quality, to the extent that the ever present algae growth is now gone.
- Identified non-emergency mechanical issues, and worked with KGCSA on repairs/adjustments.

## Data Trending:

The following charts depict a graphical analysis of effluent quality monitoring and treatment plant daily and total monthly flows.

