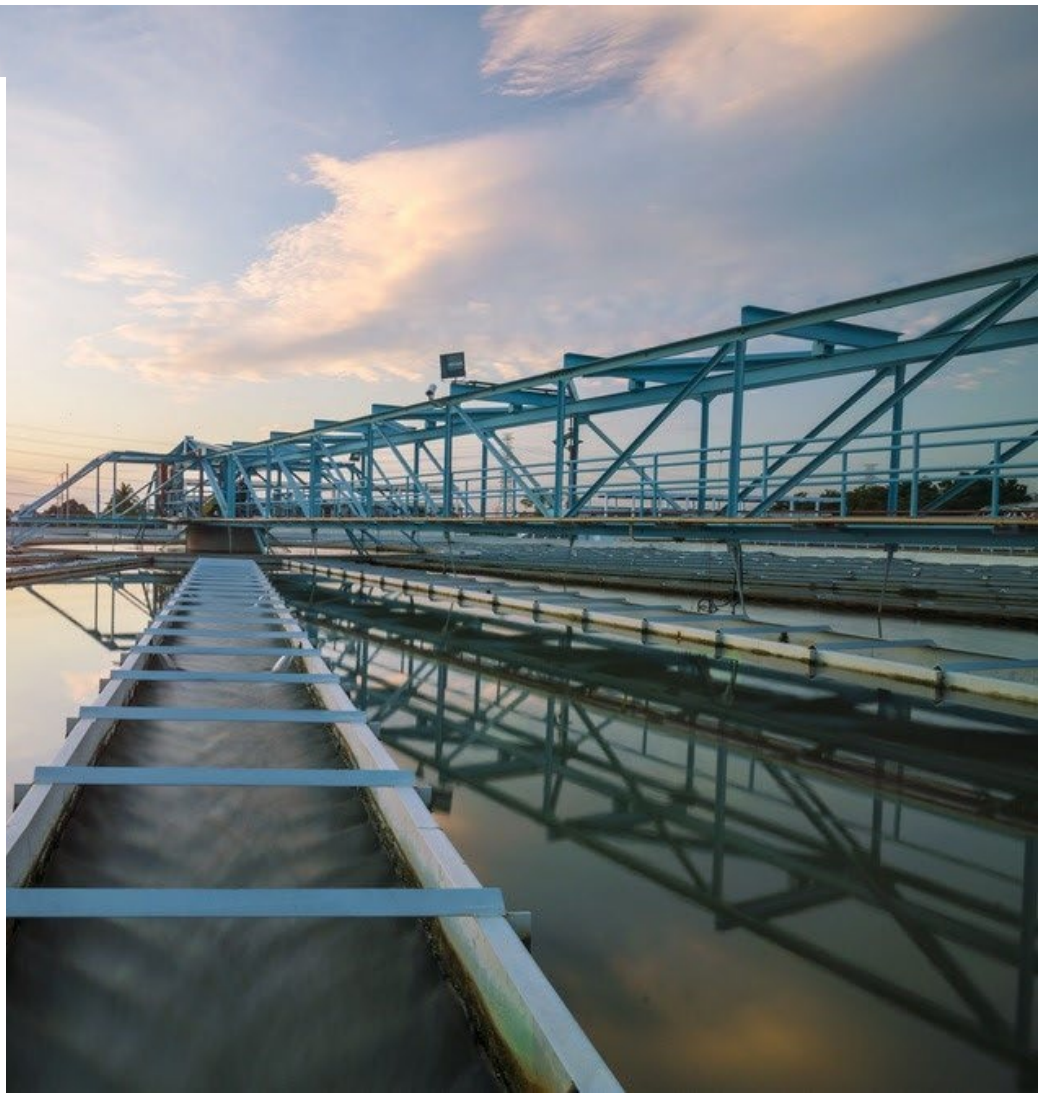
UTILITY REPORT



MAY 2024

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

Operational Notes:

- King George Maintenance replaced a booster pump at Canterbury well site.
- IES collected all required presence/absence tests and all samples passed.
- IES updated the BSSP for addresses in which sample collection from the distribution system is no longer feasible.
- IES Staff made the first pass of Lead and Copper samples. IES had to modify addresses for Lead and Copper sample collection.
- IES and King George Maintenance are communicating effectively to keep spare parts on the shelf.
- PFAS samples were collected and sent to the lab for Cleydael, Arnolds, and Purkins well systems.
- IES staff replaced a chemical feed pump in Monmouth 1.
- King George Maintenance and IES are collaborating on a plan to isolate Arnolds tower from the Courthouse system.
- King George Maintenance modified the altitude valves to allow for successful operation, isolating Arnold's tower for cleaning and inspection.

Canterbury Subdivision – PWSID 6099085

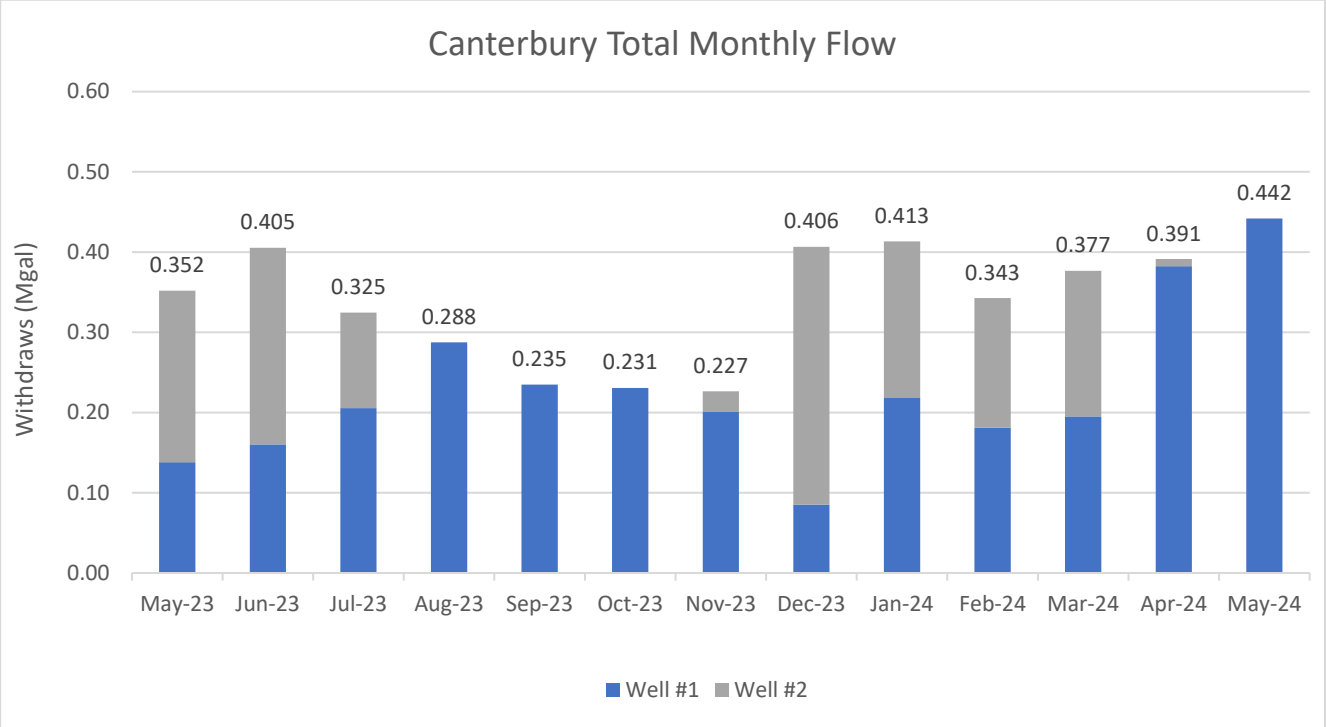
Water Quality:

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.	5/3/24	Absent

System Production:



Circle – PWSID 6099100

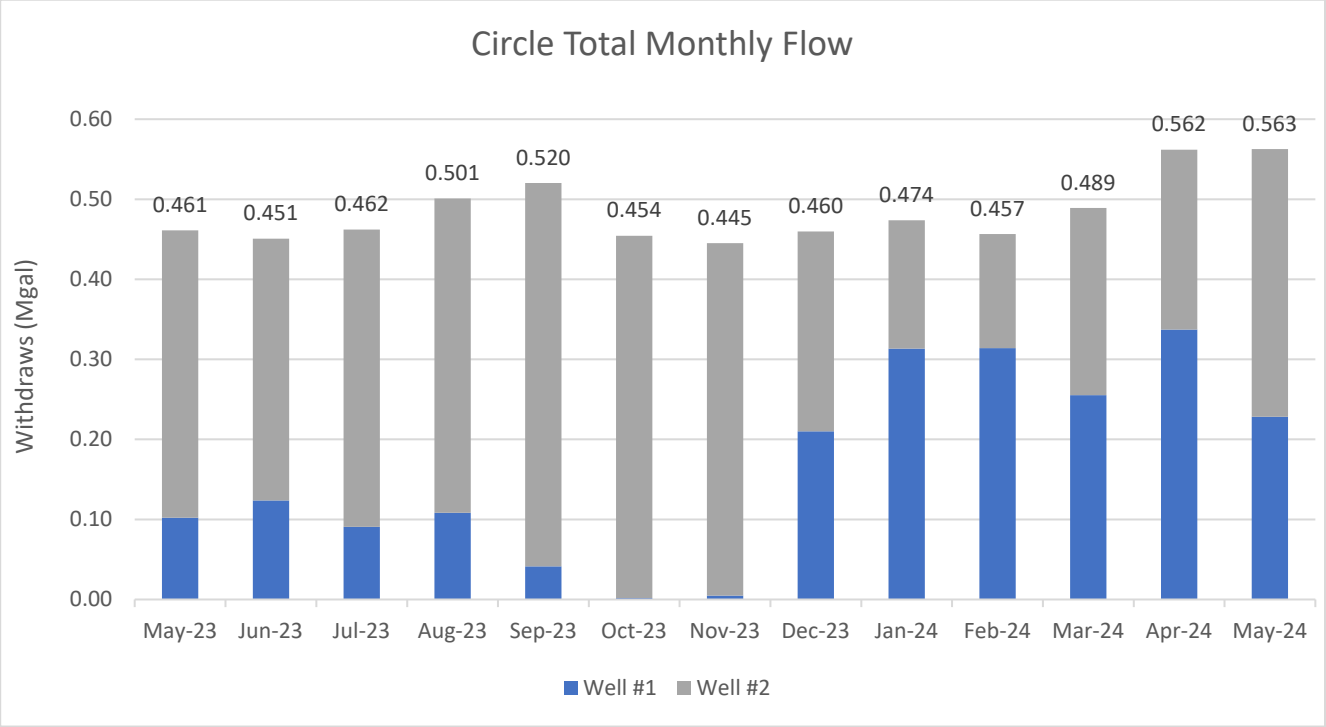
Water Quality:

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 Rd.	5/3/24	Absent

System Production:



KGC Courthouse – PWSID 6099050

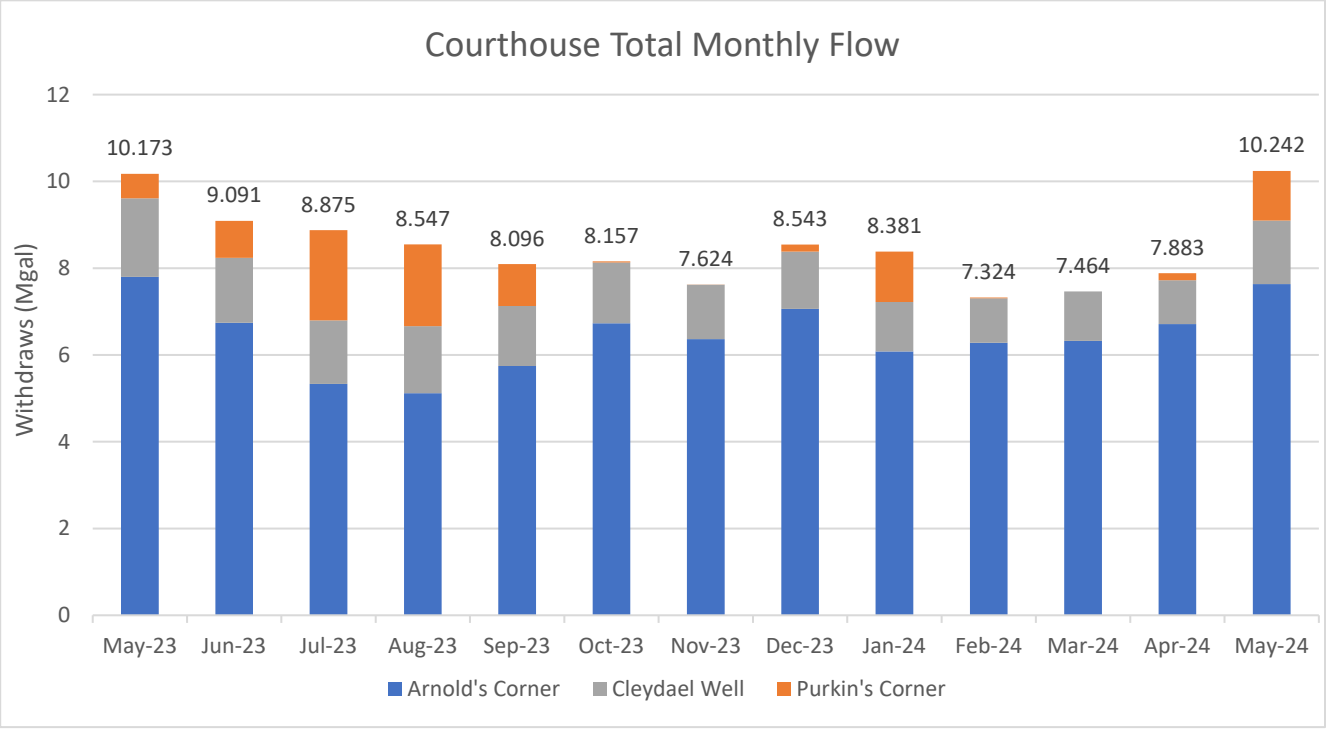
Water Quality:

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 Dr.	5/7/24	Absent
05 U	10067 King's Hwy.	5/7/24	Absent
09	7323 Jackson Dr.	5/3/24	Absent
04 U	8264 Eden Dr.	5/2/24	Absent
08	12382 Richard's Ride	5/2/24	Absent

System Production:



Note: New meter at Purkin's Corner; flow approximate.

Dahlgren – PWSID 6099295

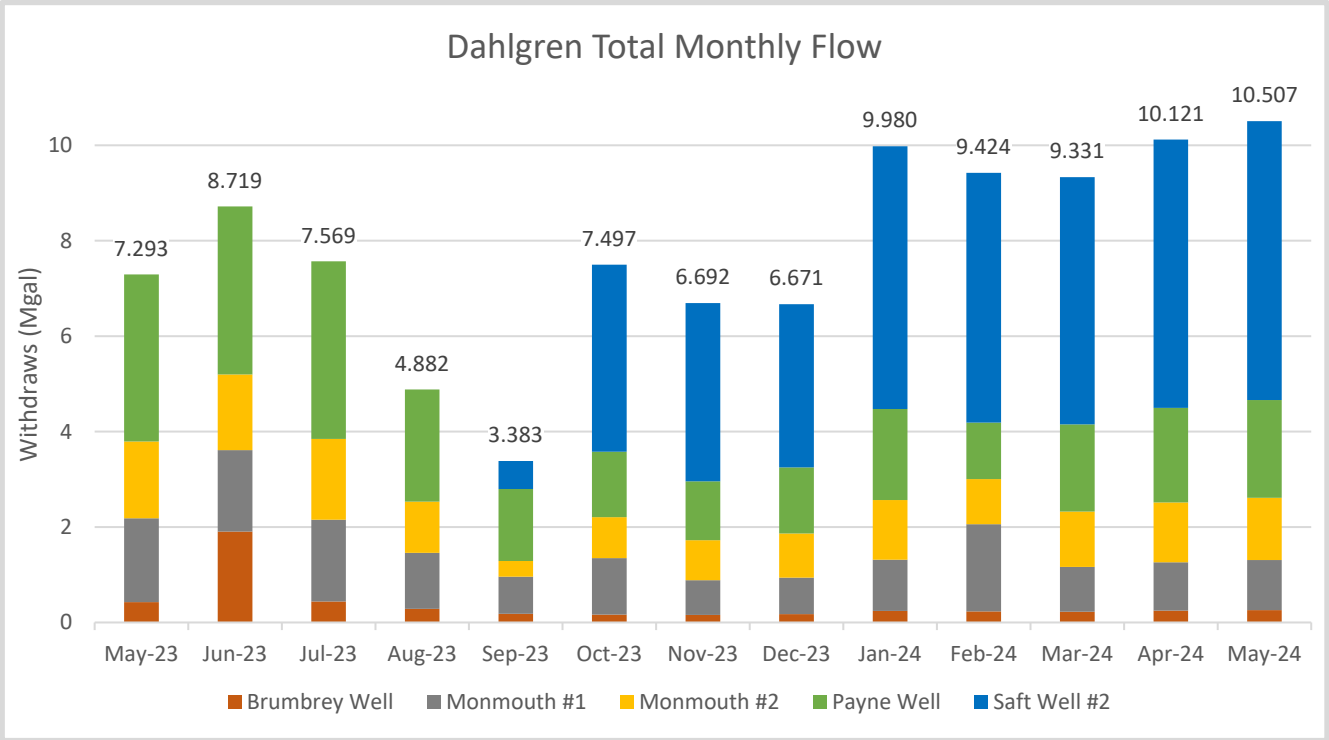
Water Quality:

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
07	4378 Savannah	5/7/24	Absent
05 U	5461 Payne Dr.	5/6/24	Absent
06	4417 Danube Dr.	5/6/24	Absent

System Production:



Fairview Beach – PWSID 6099250

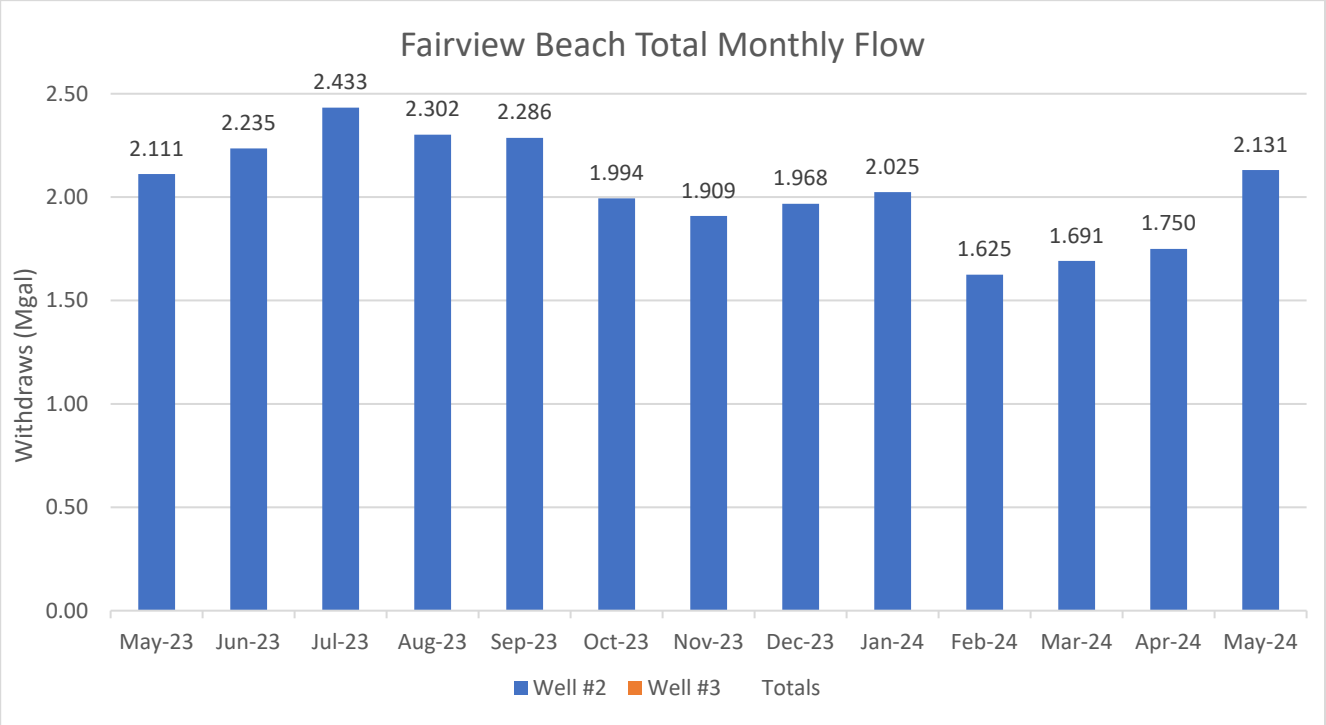
Water Quality:

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 U	5411 Pavillion Rd.	5/1/24	Absent
050	6023 Marineview Dr.	5/1/24	Absent

System Production:



Hopyard Farm – PWSID 6099283

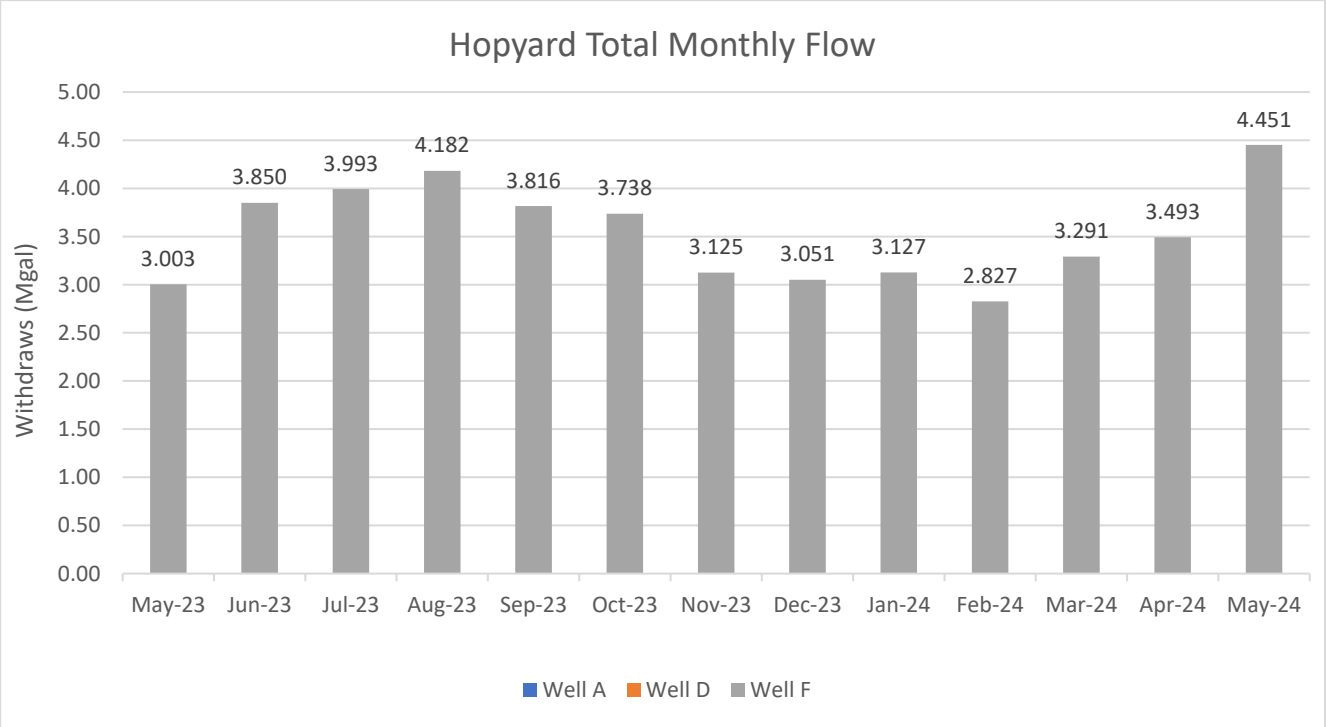
Water Quality:

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 Dr.	5/1/24	Absent
060 U	5282 Longbow Rd.	5/1/24	Absent

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	Old Art Room #10	5/7/24	Absent

System Production:

- Total well yield for May – 28,500 gallons

Ninde's Store – PWSID 6099300

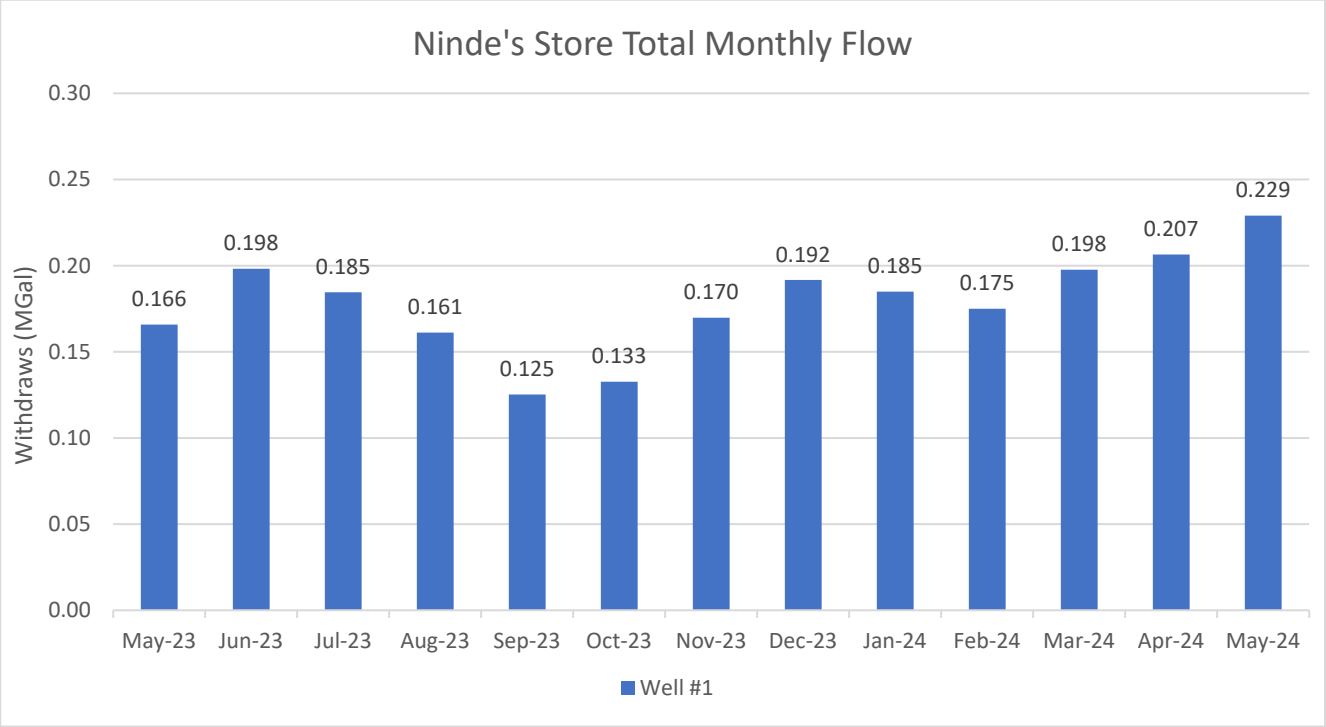
Water Quality:

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 U	16453 Ridge Rd.	5/3/24	Absent

System Production:



Oakland Park – PWSID 6099350

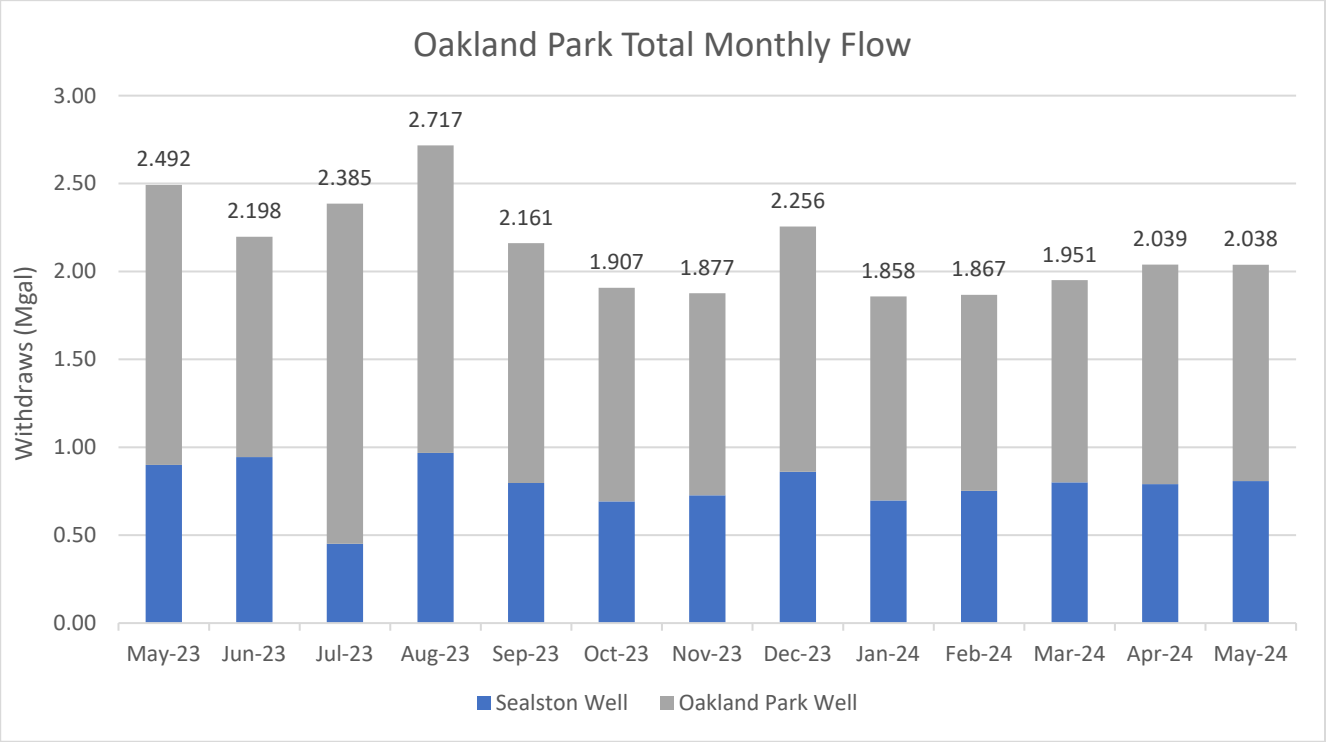
Water Quality:

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 Rd.	5/1/24	Absent
05	10157 Fletcher's Chapel Rd.	5/1/24	Absent

System Production:



St. Paul's/Owens – PWSID 6099550

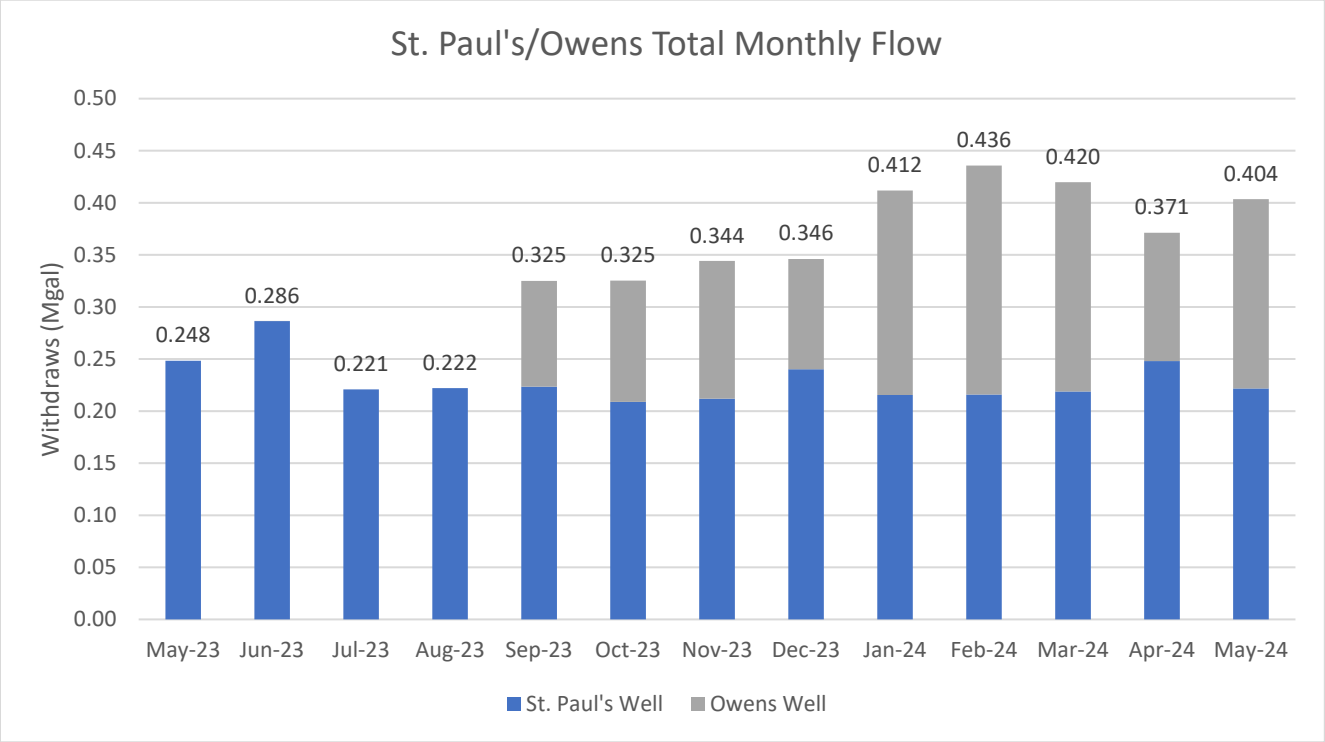
Water Quality:

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 Ave.	5/3/24	Absent

System Production:



Note: New meter at St. Paul's Well; flow approximate.

WASTEWATER

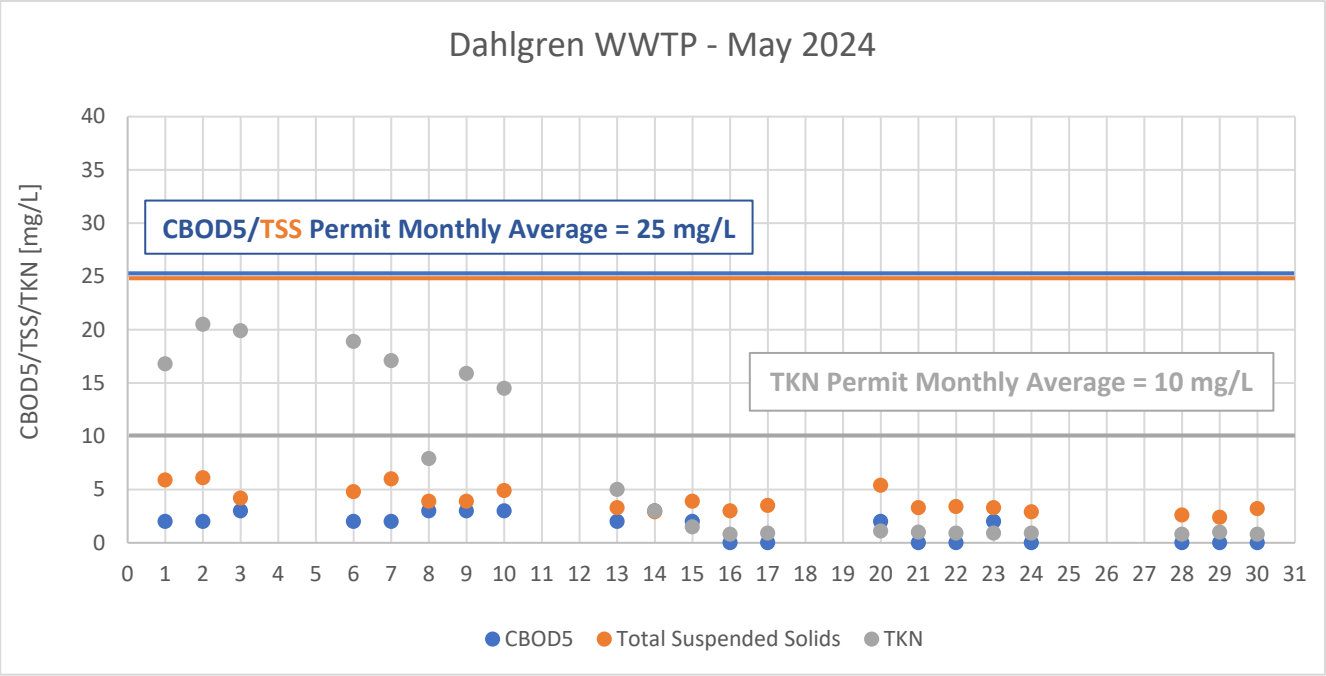
Dahlgren WWTP

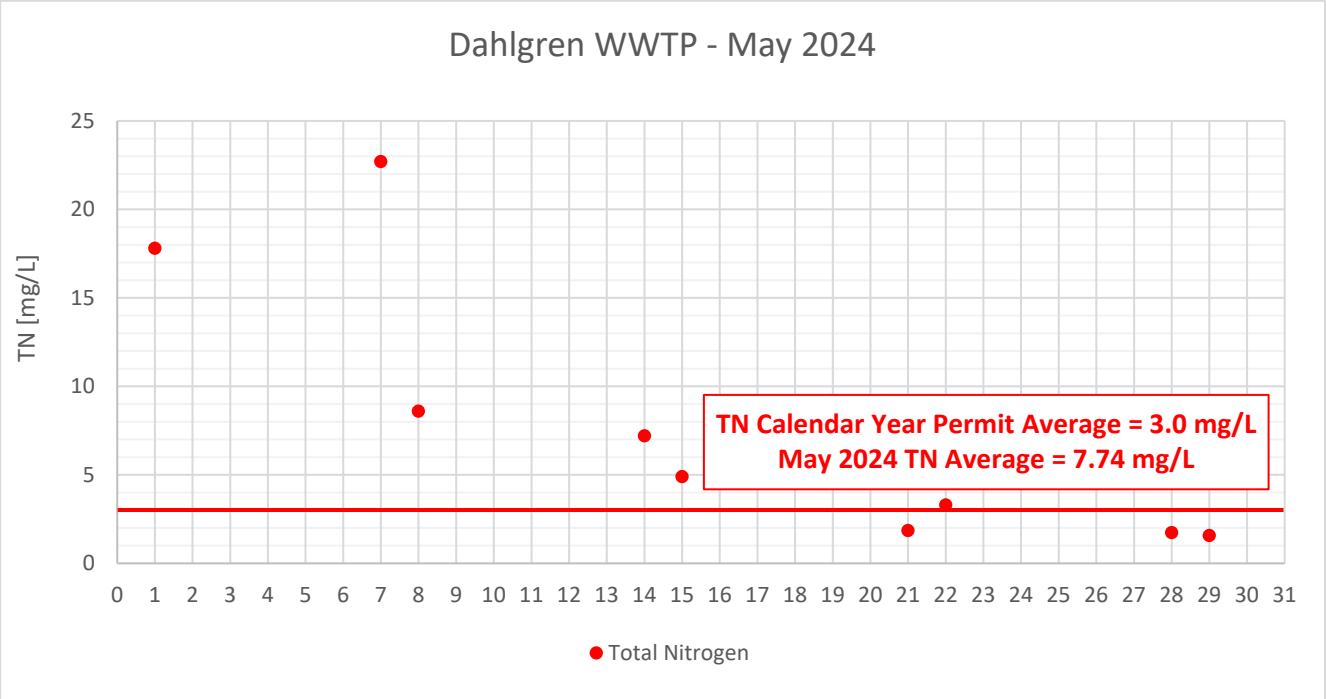
Effluent Quality:
The wastewater treatment facility maintained compliance with all permit-required sampling.

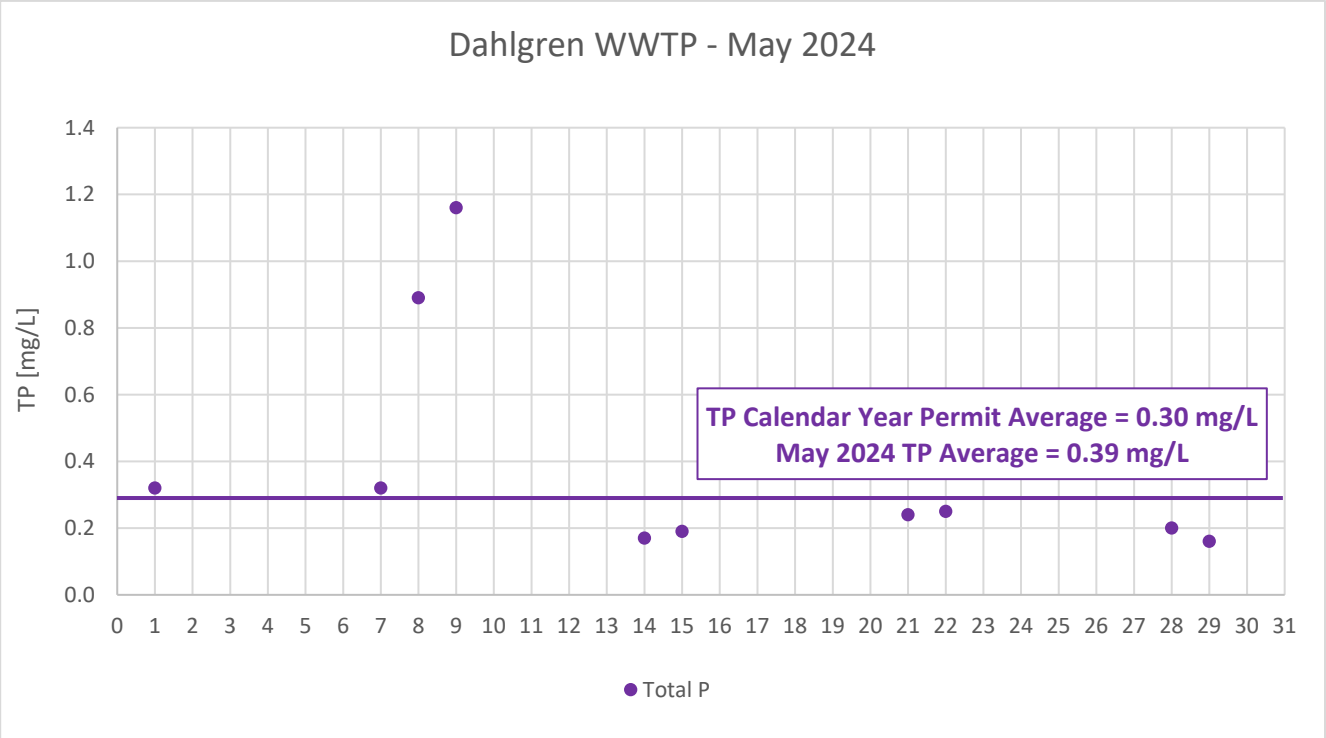
Wastewater Treatment:
The Dahlgren WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.583 MGD for a total monthly discharge of 18.070 MG.

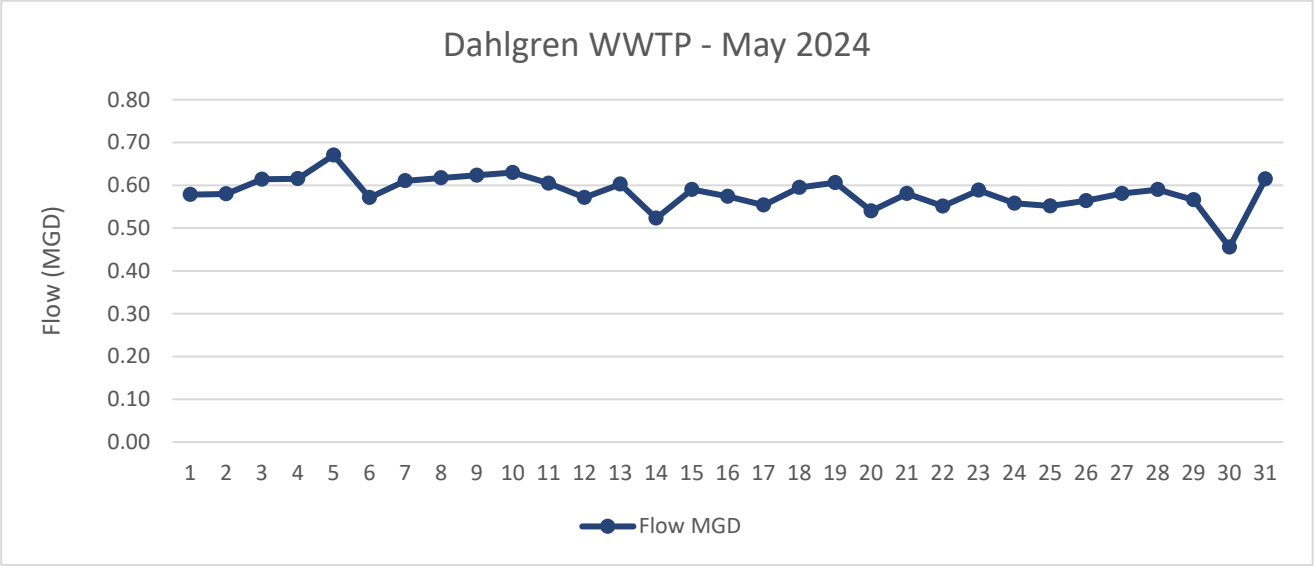
Operational Notes:
- Widespread power outage included the Dahlgren plant; generator kicked on resulting in minimal impact.
- Belt press had some minor faults that required King George Maintenance to diagnose the source and remedy.
- Experienced some operational challenges with treatment due to the contents in the EQ basin. IES carefully managed the EQ to reduce nutrient loads.

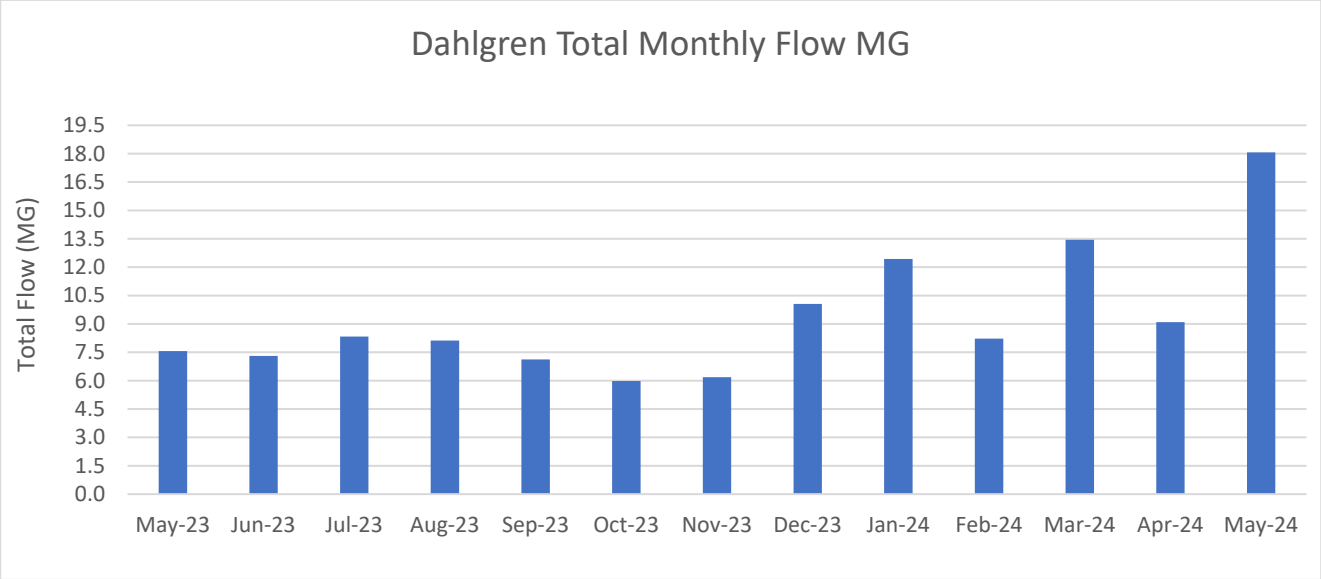
Data Trending:
The following charts depict a graphical analysis of effluent quality monitoring and treatment plant daily and total monthly flows.




Dahlgren WWTP - May 2024
TN [mg/L]
25
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
TN Calendar Year Permit Average = 3.0 mg/L
May 2024 TN Average = 7.74 mg/L
Total Nitrogen


Dahlgren WWTP - May 2024
TP [mg/L]
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
TP Calendar Year Permit Average = 0.30 mg/L
May 2024 TP Average = 0.39 mg/L
Total P


Dahlgren WWTP - May 2024
Flow (MGD)
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Flow MGD


Dahlgren Total Monthly Flow MG
Total Flow (MG)
19.5
18.0
16.5
15.0
13.5
12.0
10.5
9.0
7.5
6.0
4.5
3.0
1.5
0.0
May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24 Apr-24 May-24

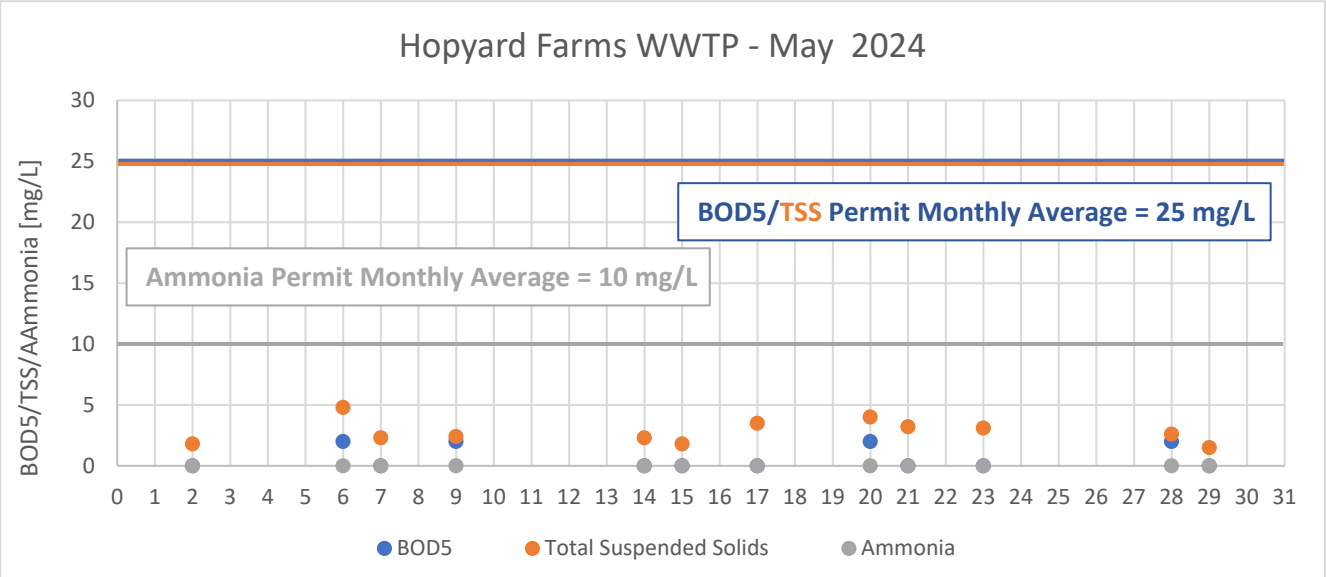
Hopyard Farms WWTP

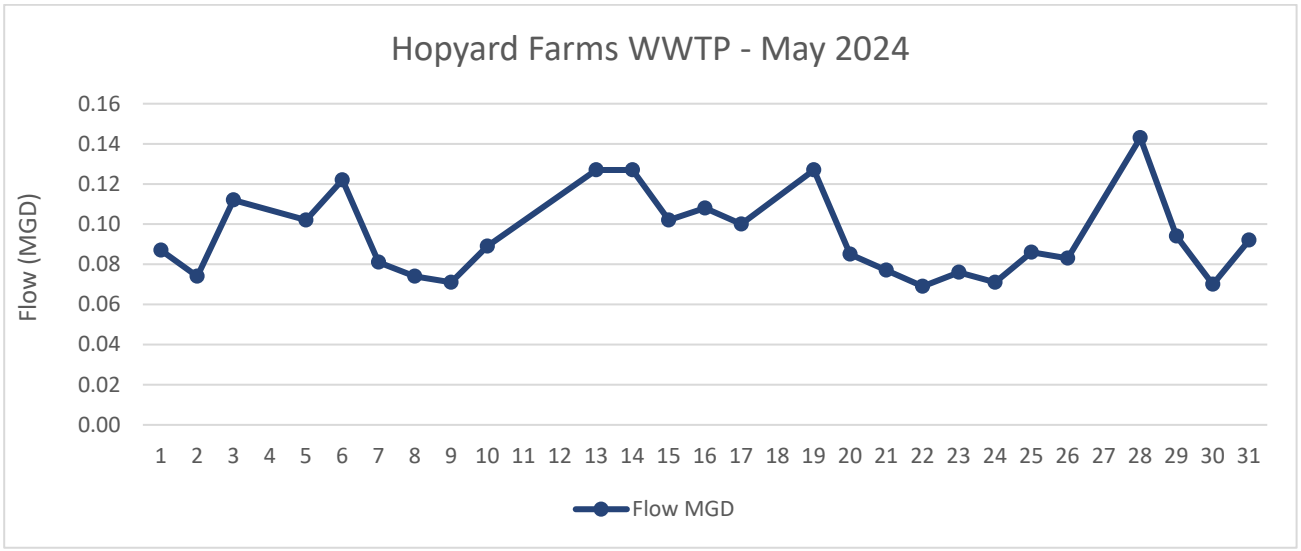
Effluent Quality:
The wastewater treatment facility maintained compliance with all permit-required sampling.

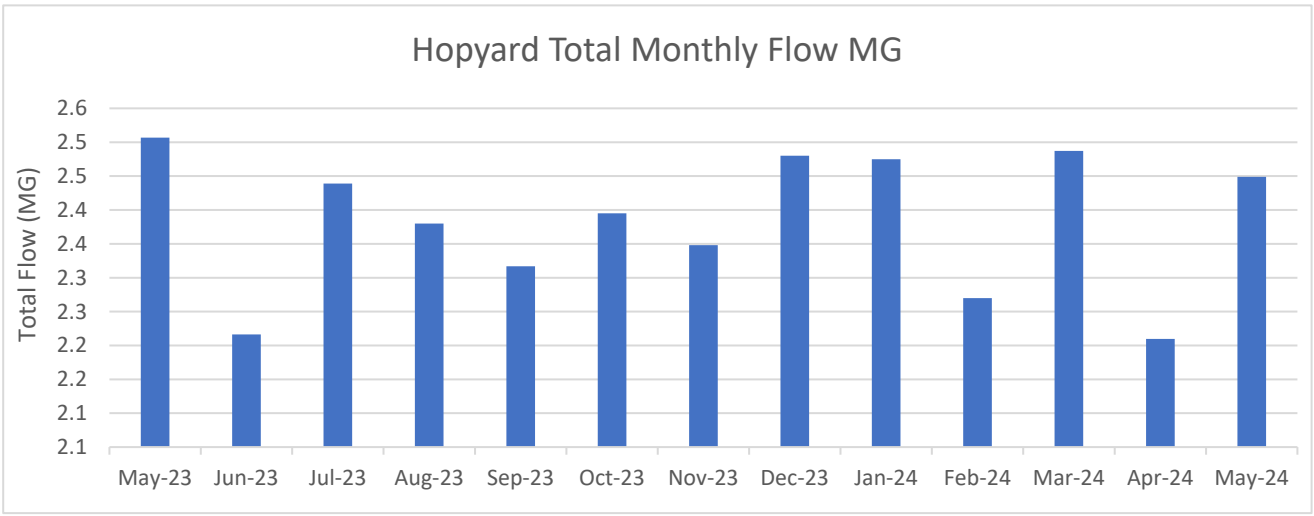
Wastewater Treatment:
The Hopyard Farms WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.094 MGD for a total monthly discharge of 2.449 MG.

Operational Notes:
- Widespread power outage included the Hopyard Farms plant; generator kicked on resulting in minimal impact.
- The fuse for the phase monitor on the plant site influent pump station blew; King George Maintenance replaced fuse. No overflows to report.
- IES staff found a failed auger for the influent screenings; King George Maintenance sent the motor for an emergency rebuild, otherwise it would have been 29 weeks without the equipment in use.
- IES staff found some faulty ballasts in the UV system and alerted King George Maintenance who replaced the faulty ballasts, increasing UV performance.
- IES staff found a check valve for pump #1 stuck shut and alerted King George Maintenance who disassembled, cleaned, and lubricated the valve which now operates freely.
- IES staff found the influent valve #1 faulty and notified King George Maintenance who adjusted the limit switch, allowing the full operation of the valve.

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




Hopyard Farms WWTP - May 2024
Flow (MGD)
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Flow MGD


Hopyard Total Monthly Flow MG
Total Flow (MG)
2.6
2.5
2.5
2.4
2.4
2.3
2.3
2.2
2.2
2.1
2.1
May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24 Apr-24 May-24

Purkins Corner WWTP

Effluent Quality:

The wastewater treatment facility maintained compliance with permit-required sampling except for TSS and TKN. A malfunctioning aluminum chloride pump caused the TSS exceedance and the TKN exceedance was caused by excessive coagulant.

Wastewater Treatment:

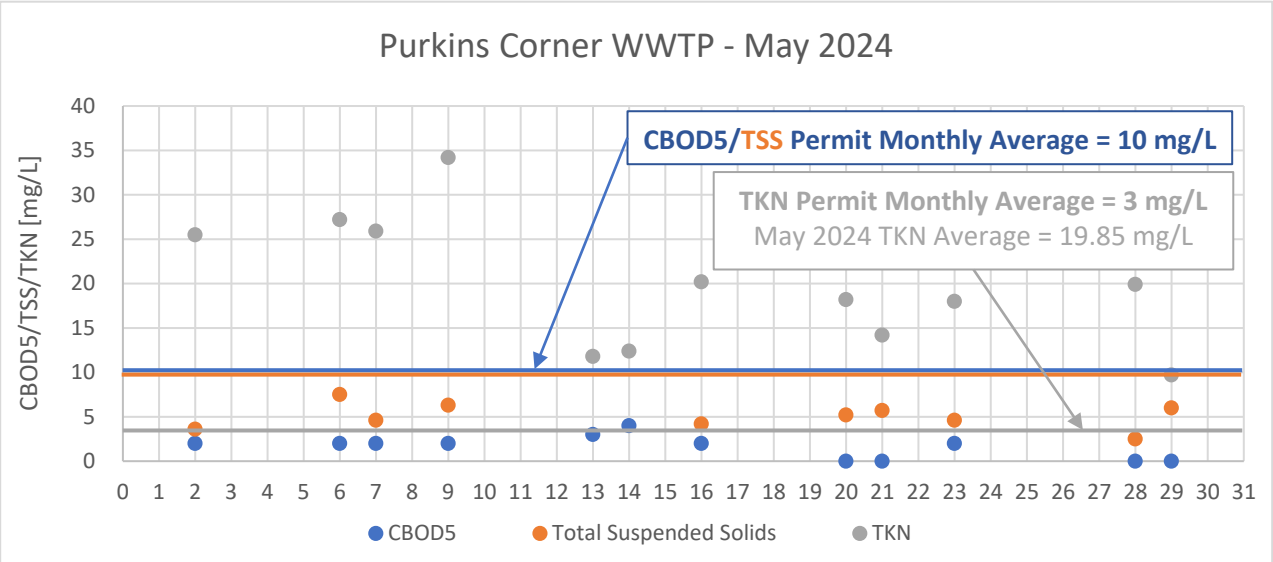
The Purkins Corner WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.070 MGD for a total monthly discharge of 2.181 MG.

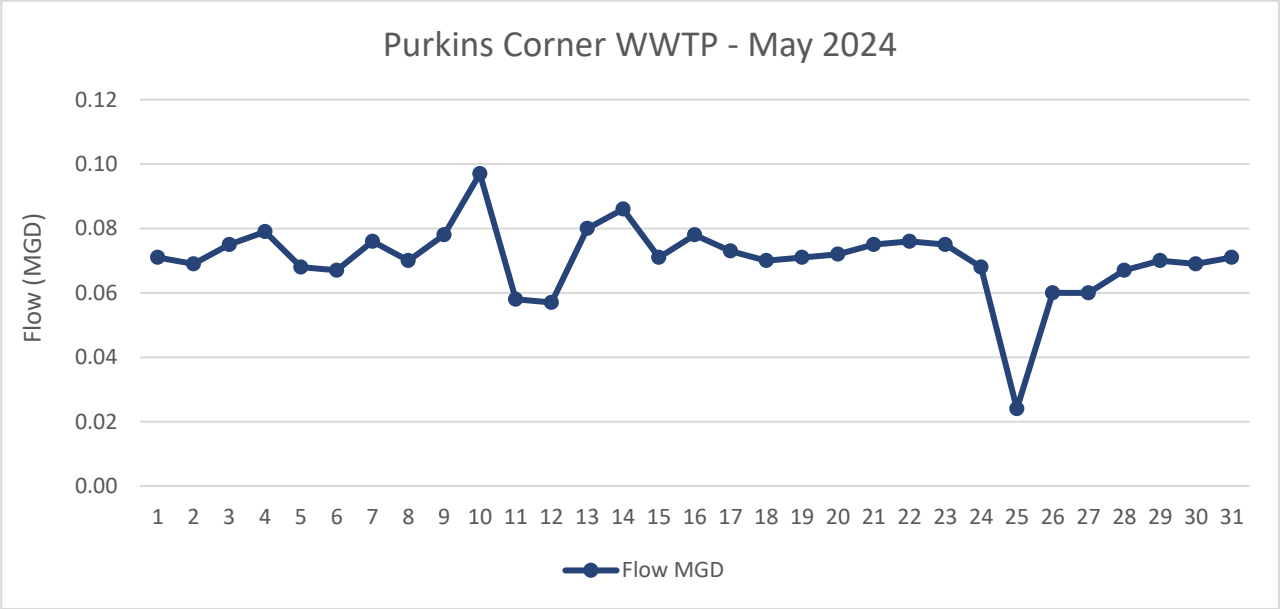
Operational Notes:

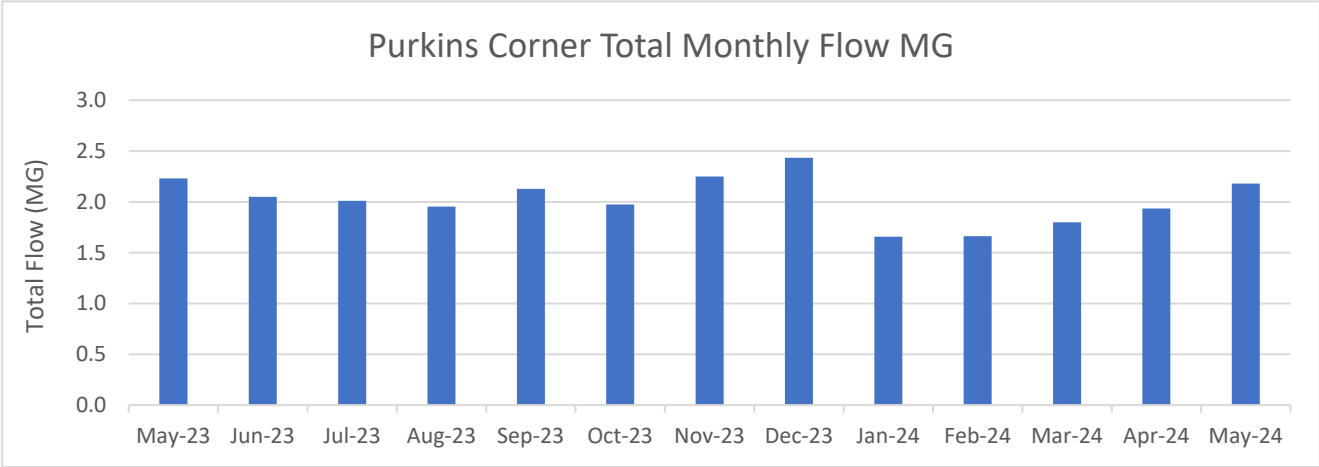
- Widespread power outage included the Purkins Corner plant; generator kicked on resulting in minimal impact.
- IES staff found a split in a chemical line split; King George Maintenance replaced the line.
- King George Maintenance installed alarm floats on the digester tank.
- Bioaugmentation is still in place at the sewer lift stations to oxidize FOG.
- King George Maintenance replaced the return line in B plant.

Data Trending:

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




Purkins Corner WWTP - May 2024
Flow (MGD)
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Flow MGD


Purkins Corner Total Monthly Flow MG
Total Flow (MG)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24 Apr-24 May-24

Oakland Park WWTP

Effluent Quality:

The wastewater treatment facility maintained compliance with all permit-required sampling with the exception of TKN. Operations determined that the TKN exceedance was due to a failed variable frequency drive.

Wastewater Treatment:

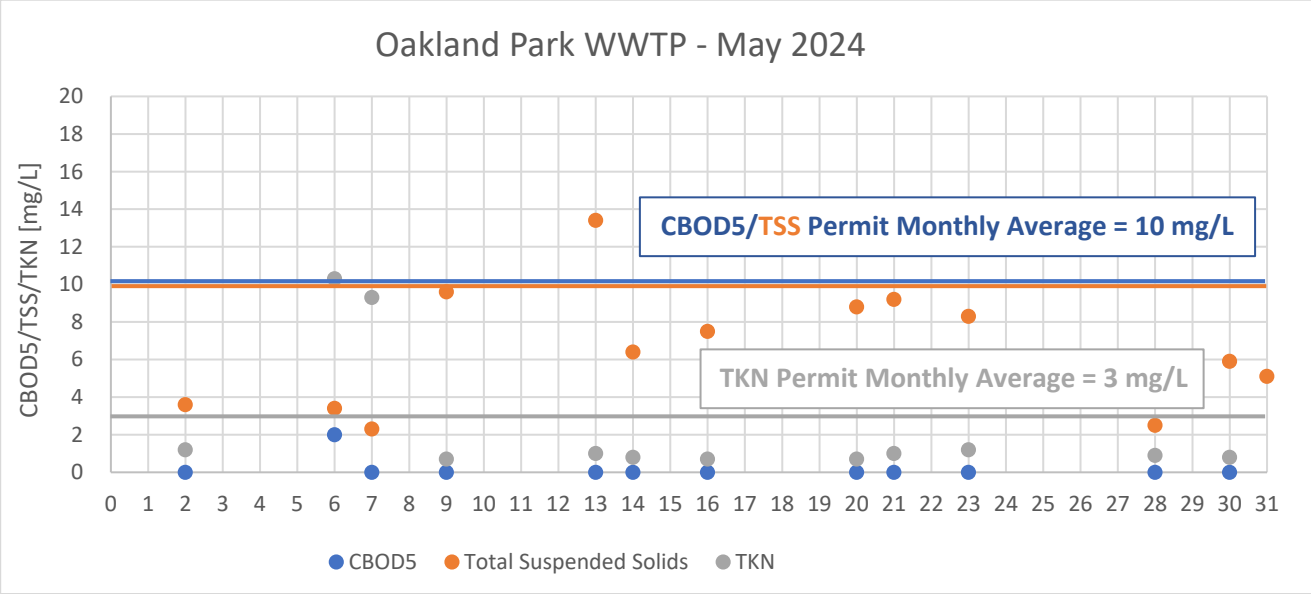
The Oakland Park WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.044 MGD for a total monthly discharge of 1.372 MG.

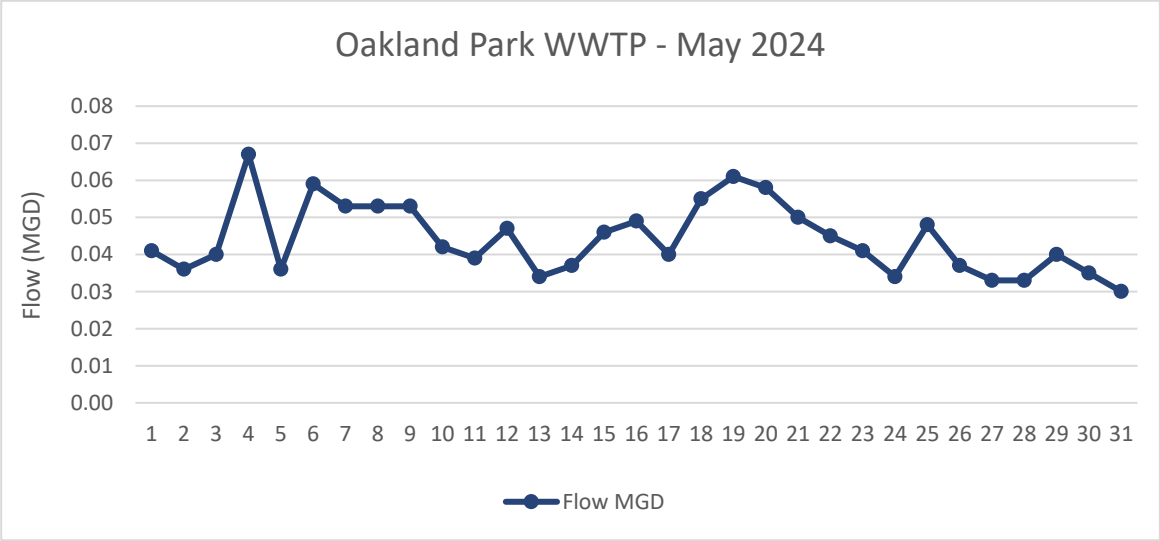
Operational Notes:

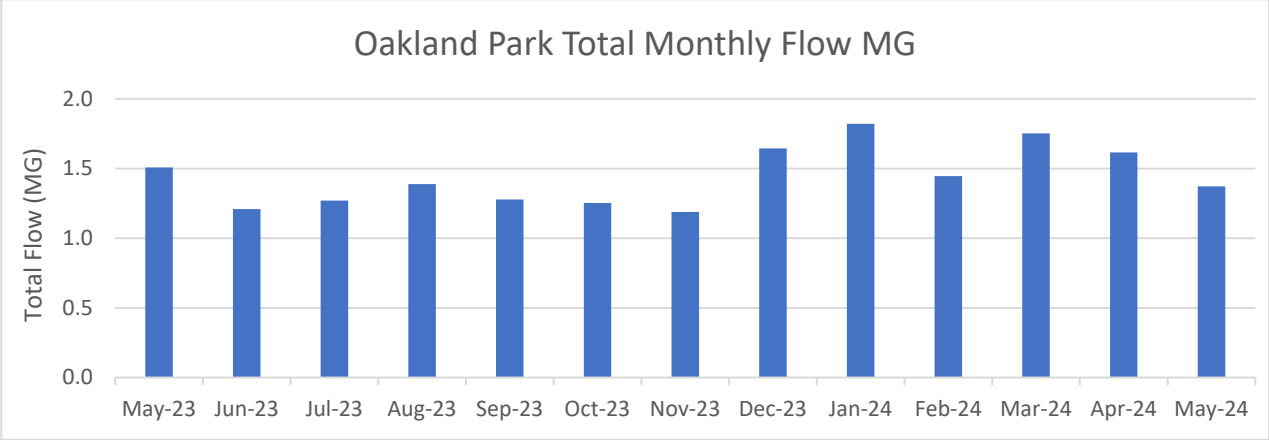
- IES staff found that the pump for B plant was not responsive to controls and alerted King George Maintenance who then pulled and replaced the pump.
- The generator was found to be inoperable. King George Maintenance temporarily installed a portable generator.

Data Trending:

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




Oakland Park WWTP - May 2024
Flow (MGD)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Flow MGD


Oakland Park Total Monthly Flow MG
Total Flow (MG)
2.0
1.5
1.0
0.5
0.0
May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24 Apr-24 May-24

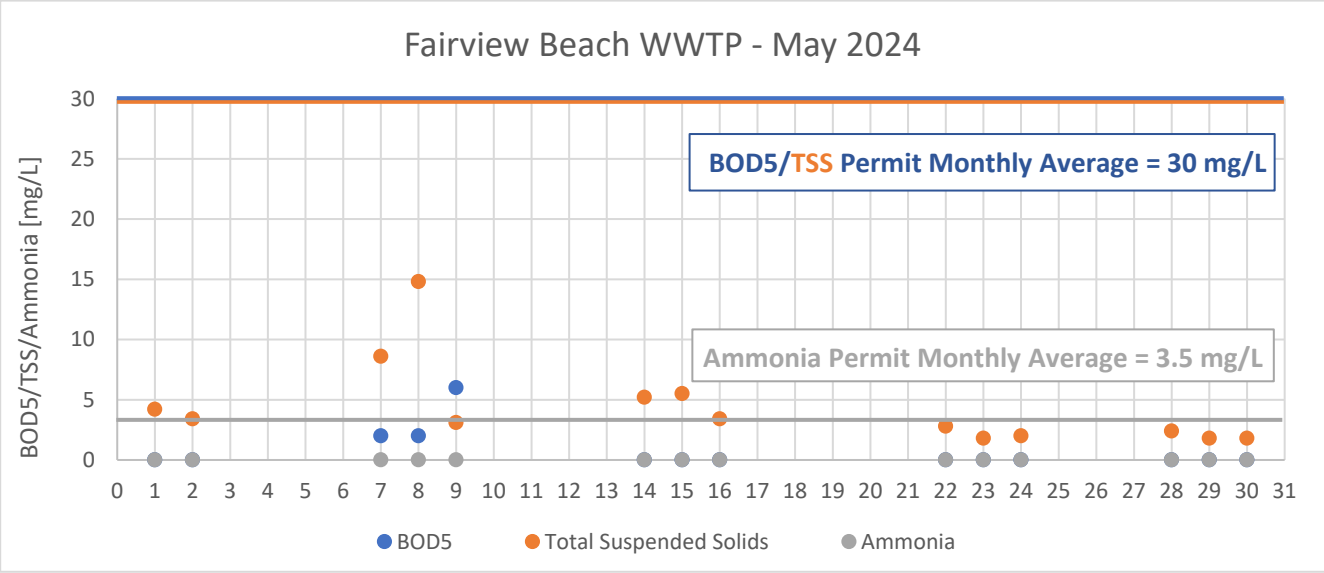
Fairview Beach WWTP

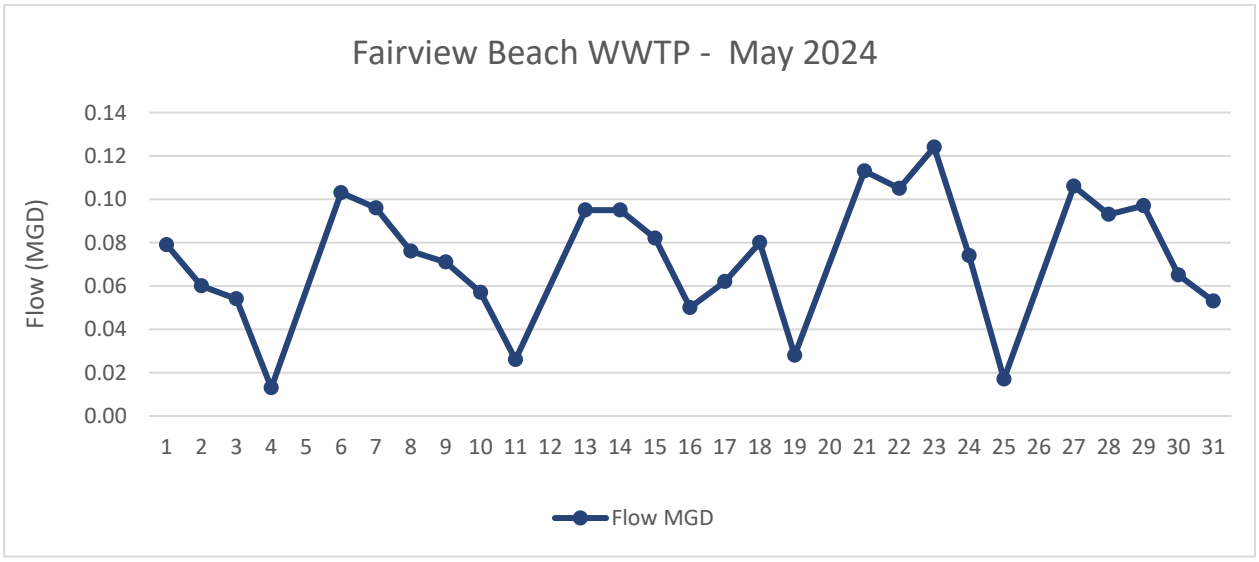
Effluent Quality:
The wastewater treatment facility and maintained compliance with all permit-required sampling.

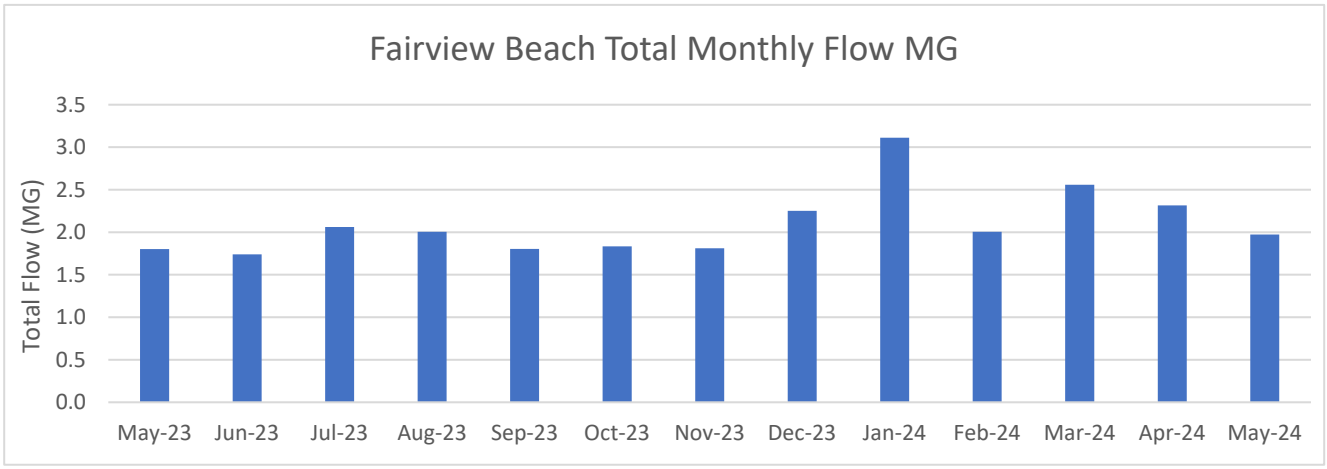
Wastewater Treatment:
The Fairview Beach WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.073 MGD for a total monthly discharge of 1.973 MG (27 days with flow).

Operational Notes:
- IES staff found that the sludge transfer pump at the digester was unresponsive. King George Maintenance repaired the mounting bracket by welding it back together.

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




Fairview Beach WWTP - May 2024
Flow (MGD)
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Flow MGD


Fairview Beach Total Monthly Flow MG
Total Flow (MG)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24 Apr-24 May-24

Term	Definition
Bacteria	E.coli and/or Total Coliform
BOD5	5-day Biochemical Oxygen Demand
CBOD	Carbonaceous Biochemical Oxygen Demand
cfu	colony forming unit
CIP	Capital Improvement Plan or Cast/Cleaned-in-Place
Cl	Chloride Ion
Cl2	Chlorine
CMF	Continuous Membrane Filtration
D.O.	Dissolved Oxygen
FR	Final Read
F/M ratio	Food to Micro-organism ratio
FOG	Fats, Oil, and Grease
GST	Ground Storage Tank
HWTP	Harmony Water Treatment Plant
I&I	Infiltration and Inflow
Inorganic Nitrogen	Nitrate + nitrite
LS	Lift Station
mg/L	milligrams per liter
MGD	million gallons per day
mL	Milliliters
MLSS	Mixed Liquor Suspended Solids
MLVSS	Mixed Liquor Volatile Suspended Solids
MPN	Most Probable Number - bacteriological well sample
MW	Monitoring Well
N/N	Nitrate/ Nitrite
Organic Nitrogen	TKN
P/A	Presence/ Absence - bacteriological samples for drinking water
PFAS	polyfluoroalkyl substances
PLC	Programmable Logic Controller
POE	Point of Entry
RAS	Return Activated Sludge
SCADA	Supervisory Control And Data Acquisition
STEP	Septic Tank Effluent Pump
TKN	Total Kjeldahl Nitrogen
TN	Total Nitrogen
TP	Total Phosphorous
TR-6	Copper sequestering chemical
TSS	Total Suspended Solids
UV	Ultraviolet Light
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant