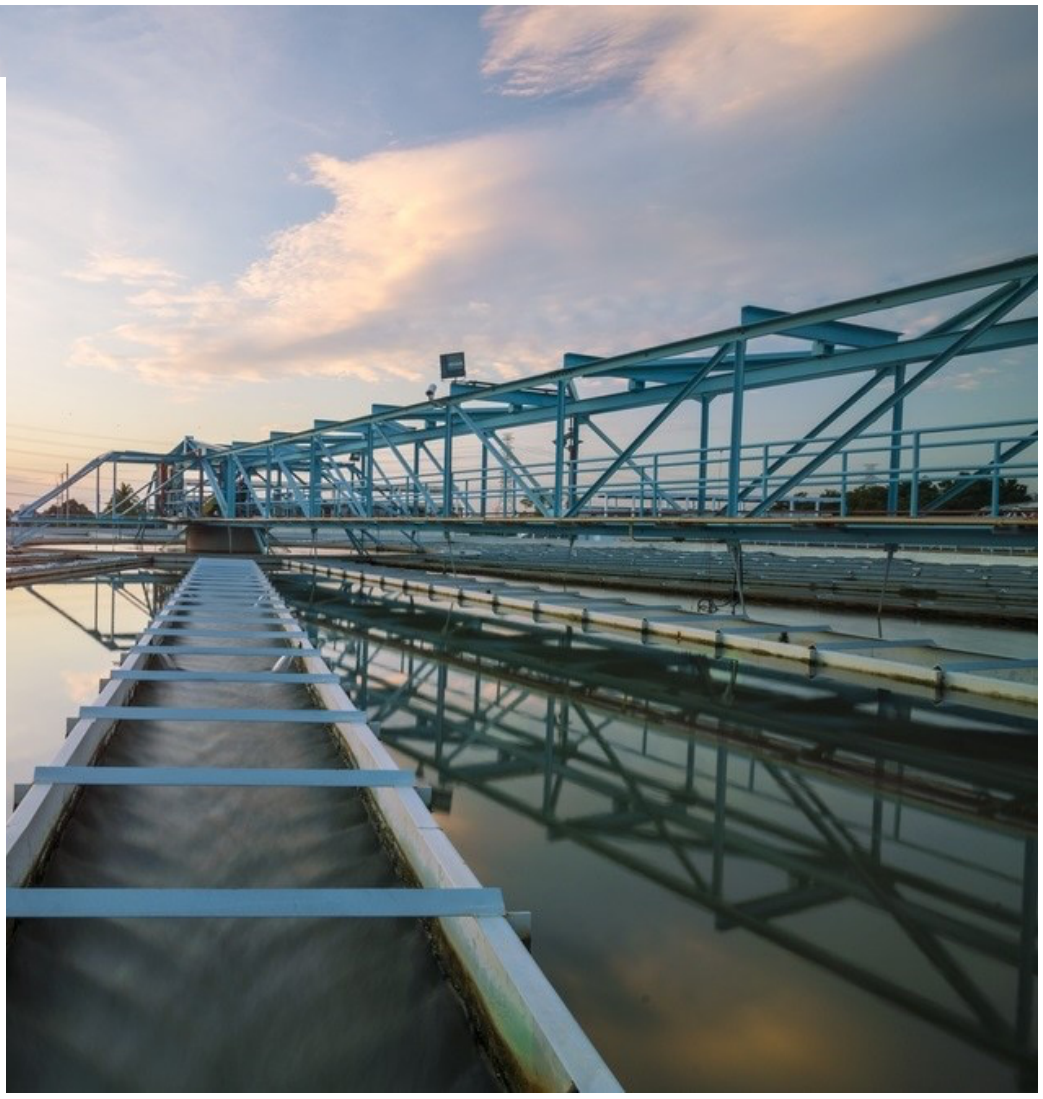
UTILITY REPORT



FEBRUARY 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:

- Monmouth tower has been put back in service and the required Presence Absence samples were collected and all passed. The tower is back online.
- Annual well MPN samples have been collected and all have passed.
- Continuing to backwash greensand filters to maximize iron and manganese capture and keep water use/loss down.
- Missions units have been installed for well F at Hopyard water system.
- Continuing to effectively dose sodium hypochlorite to well sites as required.
- PLC at Hopyard needs a signal wire to allow communication to prevent inhibition of backwash operations.

Canterbury Subdivision – PWSID 6099085

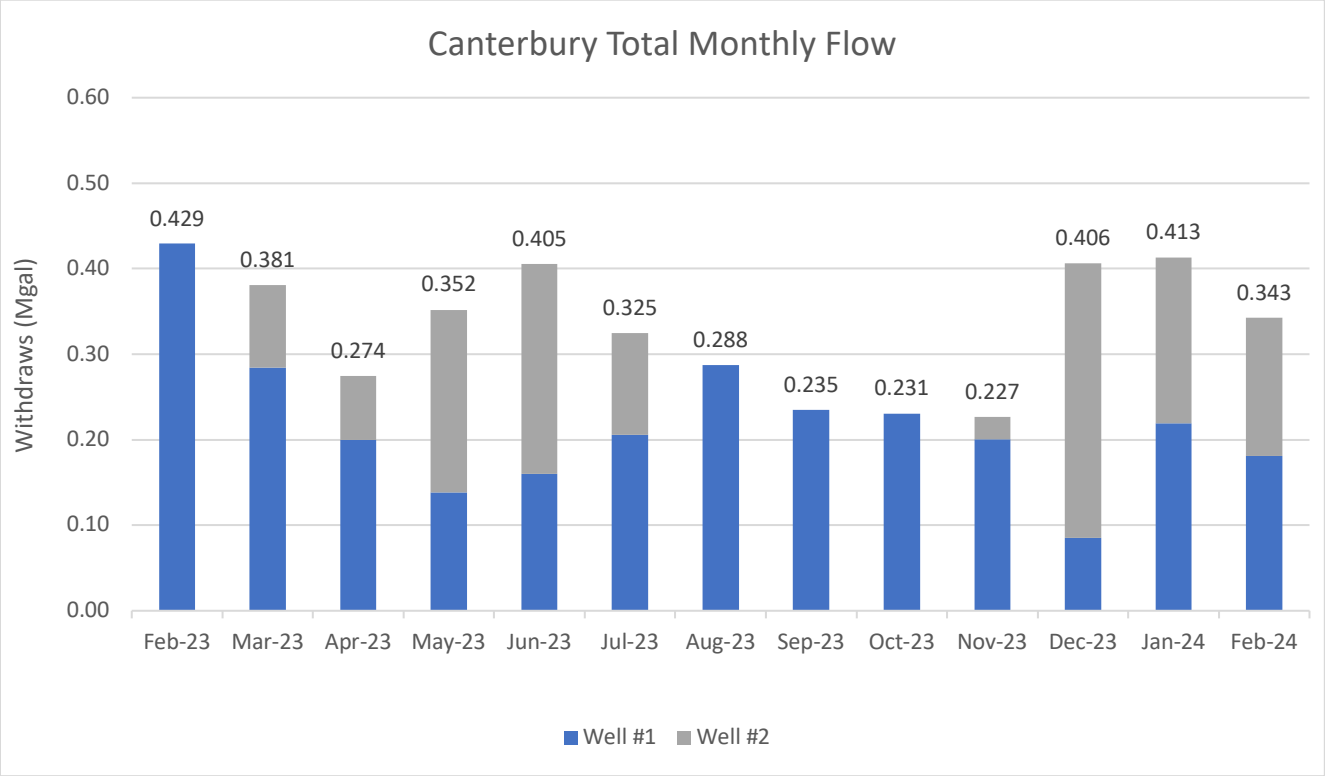
Water Quality:

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.	2/6/2024	Absent

System Production:



Circle – PWSID 6099100

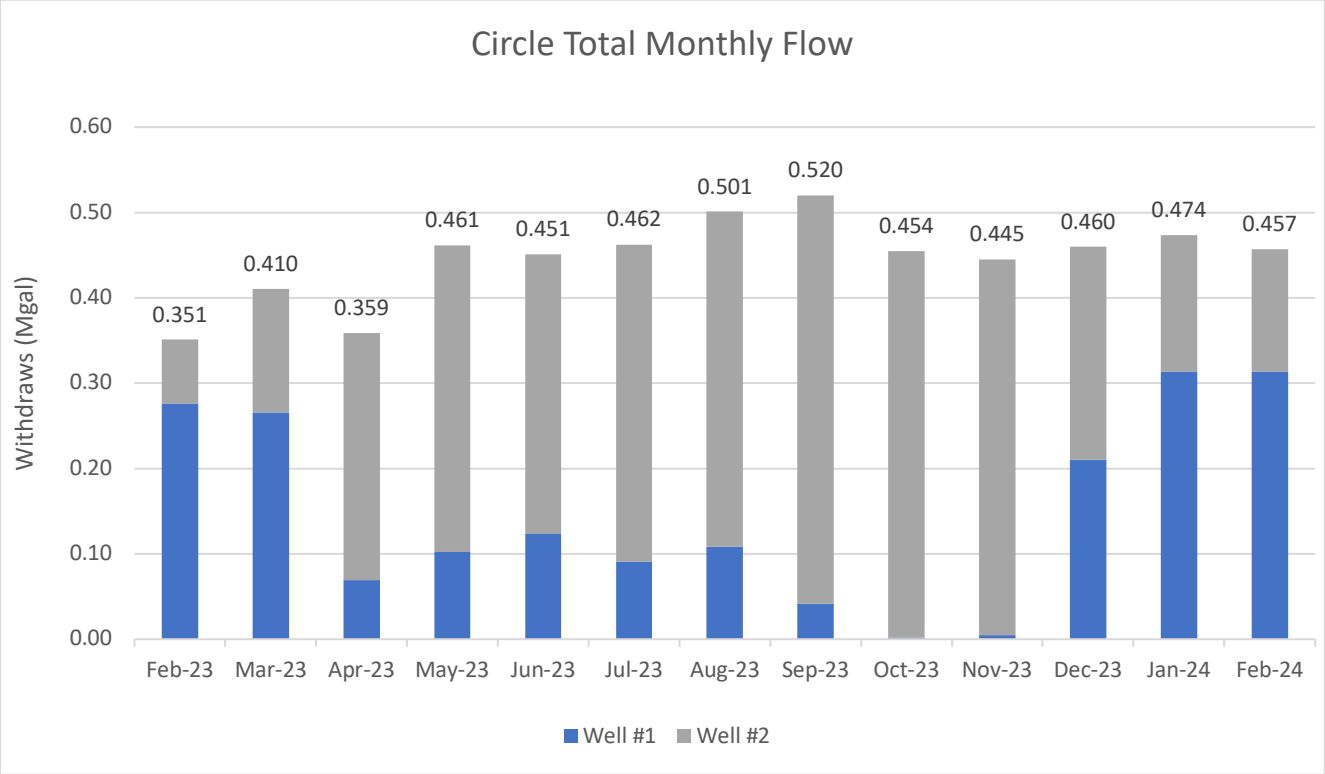
Water Quality:

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.	2/6/2024	Absent

System Production:



KGC Courthouse – PWSID 6099050

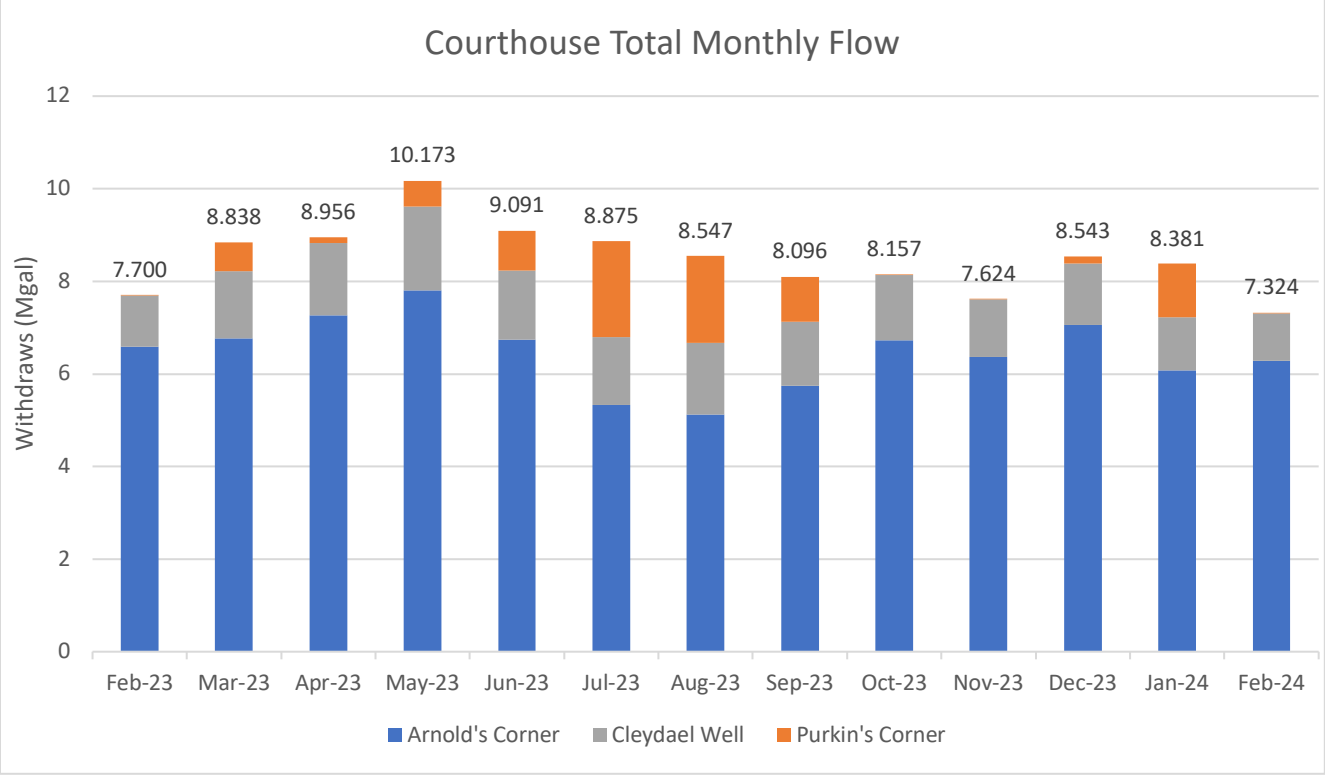
Water Quality:

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.	2/6/2024	Absent
08	12382 Richard's Ride	2/6/2024	Absent
09	7323 Jackson Dr.	2/6/2024	Absent
05	10111 King's Hwy	2/12/2024	Absent
04D	8206 Eden Dr	2/20/2024	Absent

System Production:



Dahlgren – PWSID 6099295

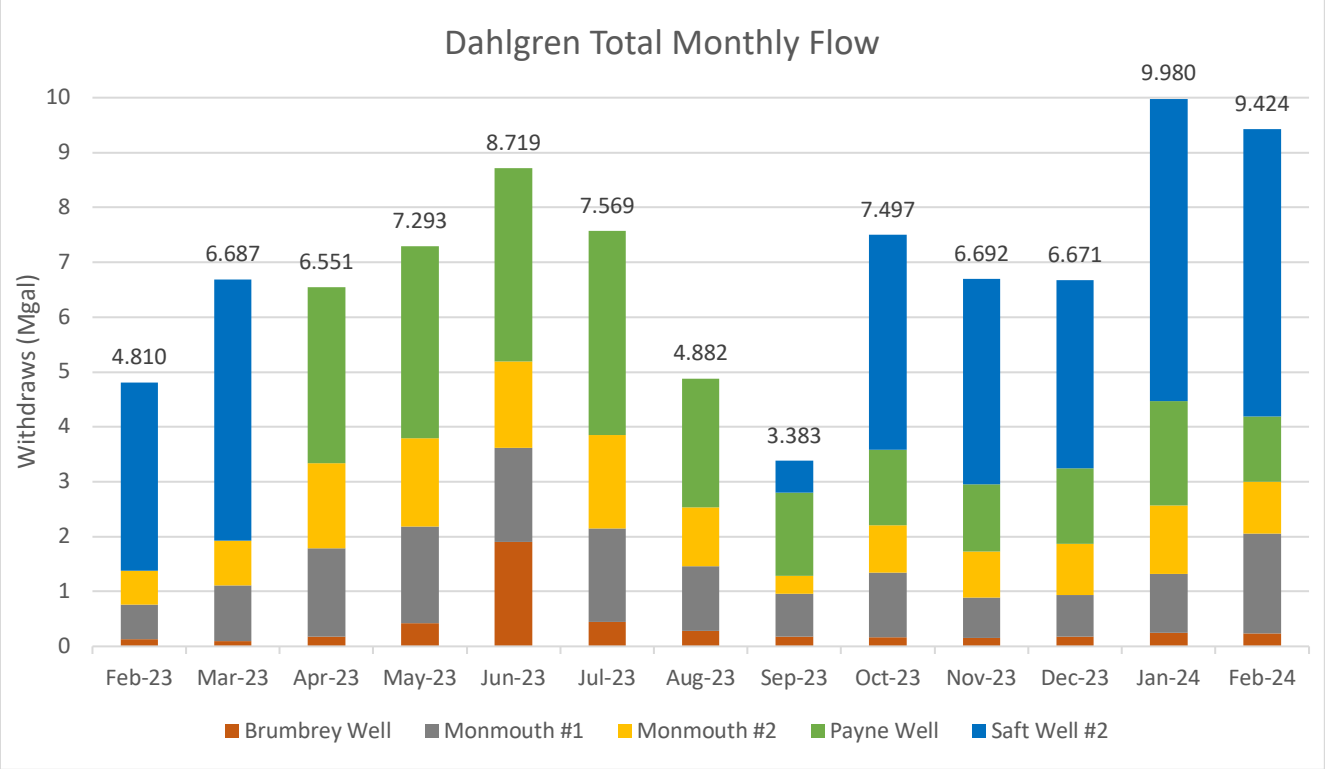
Water Quality:

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
	Monmouth Tower	2/8/2024	Absent
	Monmouth Tower	2/9/2024	Absent
05	5479 Payne Dr.	2/12/2024	Absent
06	4417 Danube Dr.	2/12/2024	Absent
07	4378 Savannah St.	2/12/2024	Absent

System Production:



Fairview Beach – PWSID 6099250

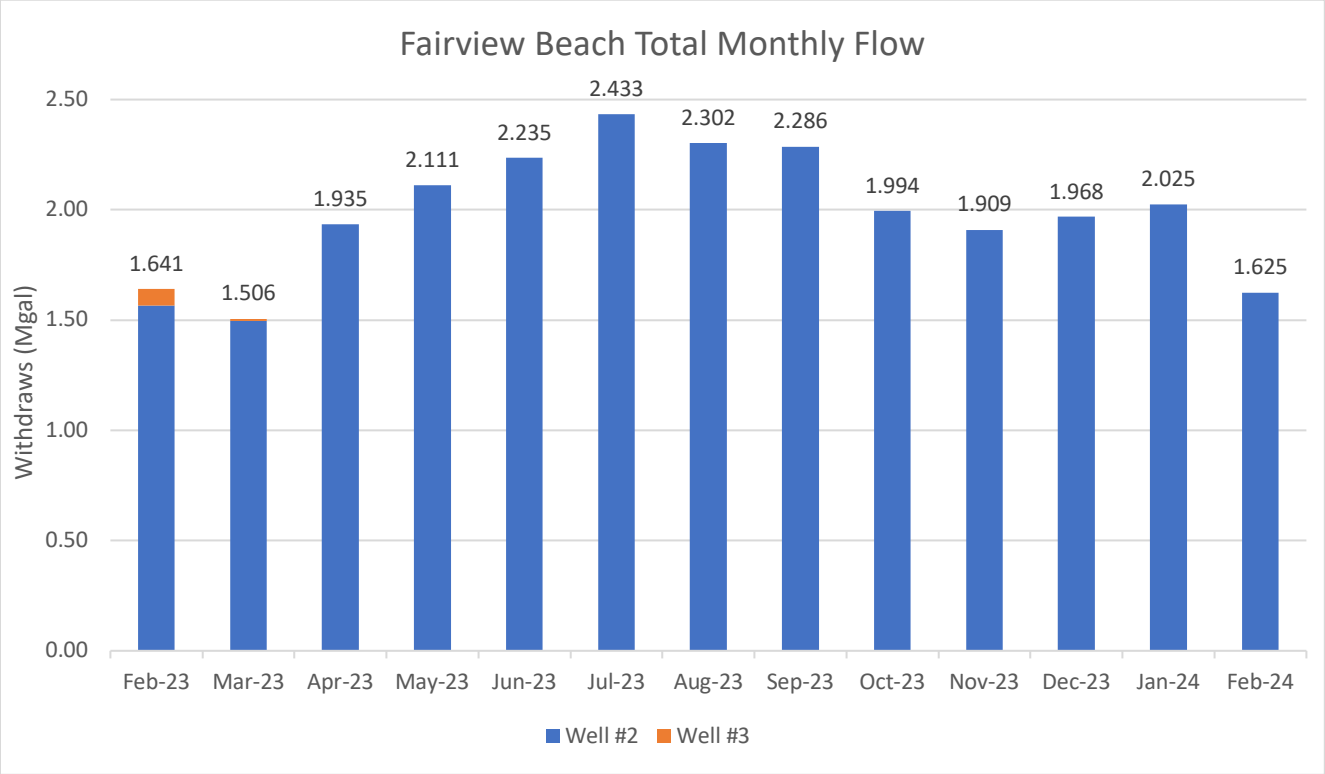
Water Quality:

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
010U	5411 Pavillion Dr.	2/27/2024	Absent

System Production:



Hopyard Farm – PWSID 6099283

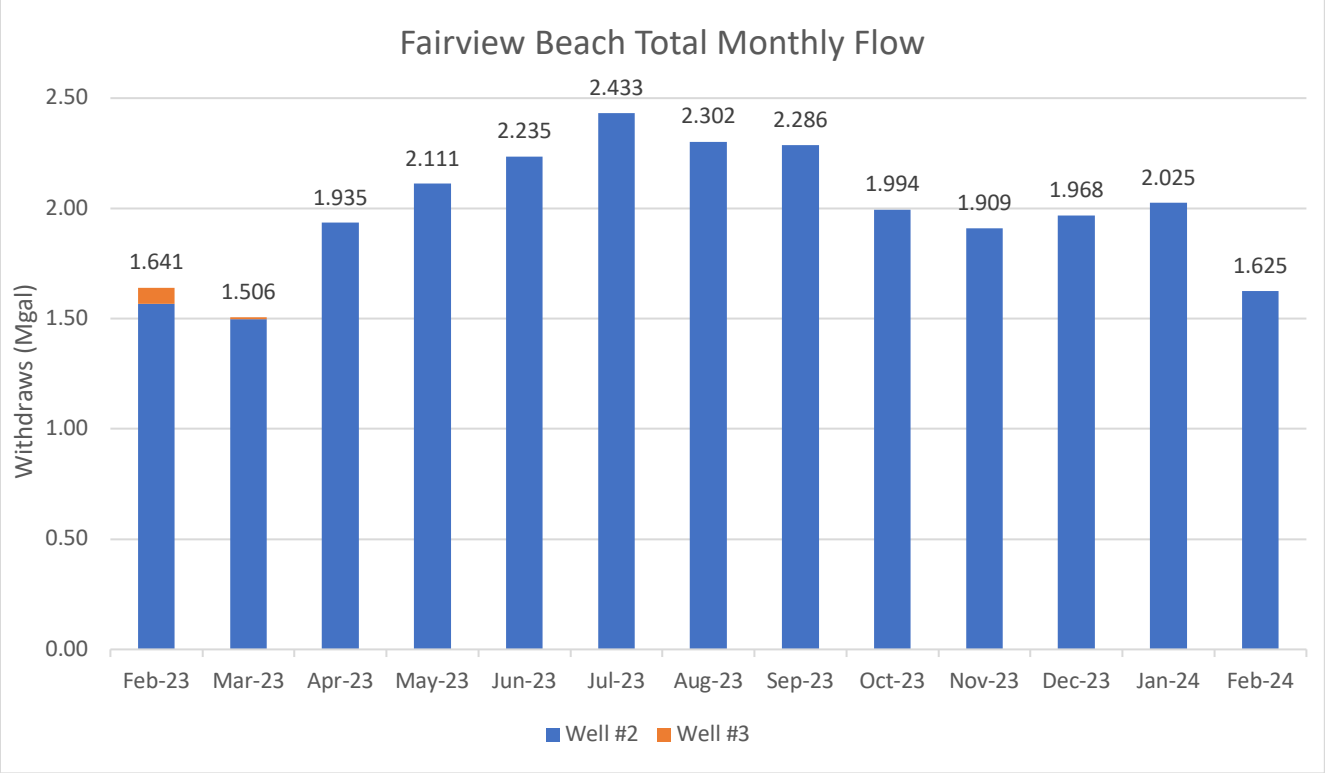
Water Quality:

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
	Well A	2/8/2024	MPN <1
	Well F	2/8/2024	MPN <1
	Well D	2/9/2024	MPN <1
030	6190 McCarthy Dr.	2/13/2024	Absent
060	5270 Longbow Rd.	2/13/2024	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	9100 St. Anthony's Road – Old Art Room #10	2/6/2024	Absent

System Production:

- Total well yield for February – 23,700 gallons

Ninde's Store – PWSID 6099300

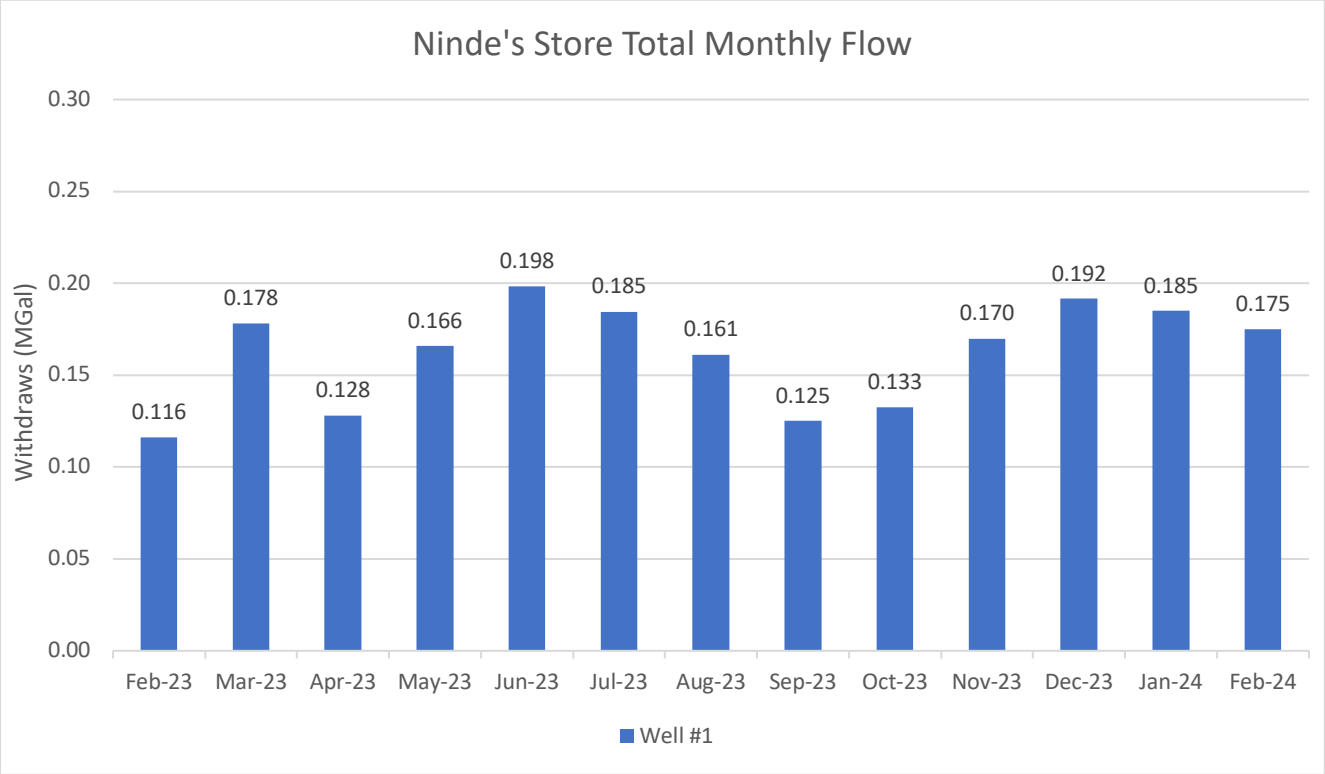
Water Quality:

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
03D	16501 Ridge Rd.	2/6/2024	Absent

System Production:



Oakland Park – PWSID 6099350

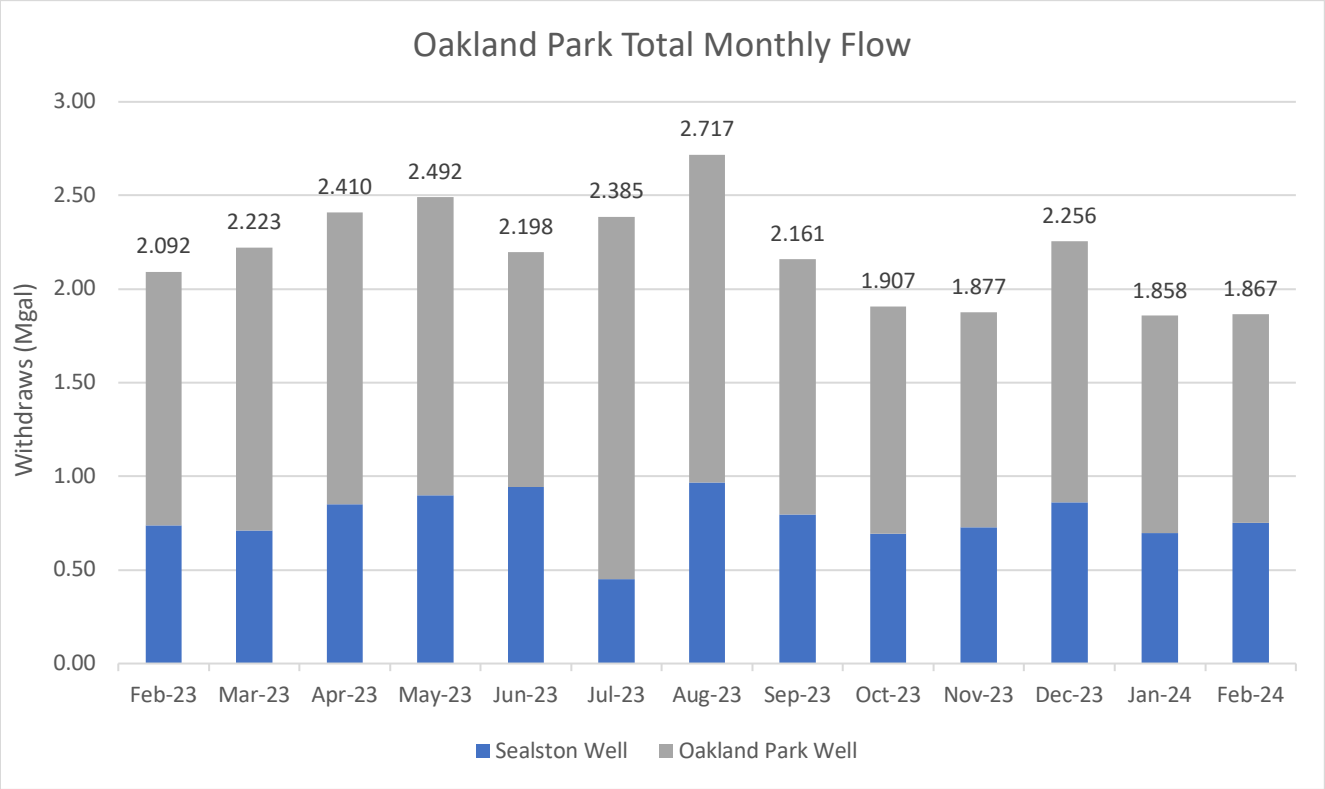
Water Quality:

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	2/20/2024	Absent
05	10157 Fletcher's Chapel	2/20/2024	Absent

System Production:



St. Paul's/Owens – PWSID 6099550

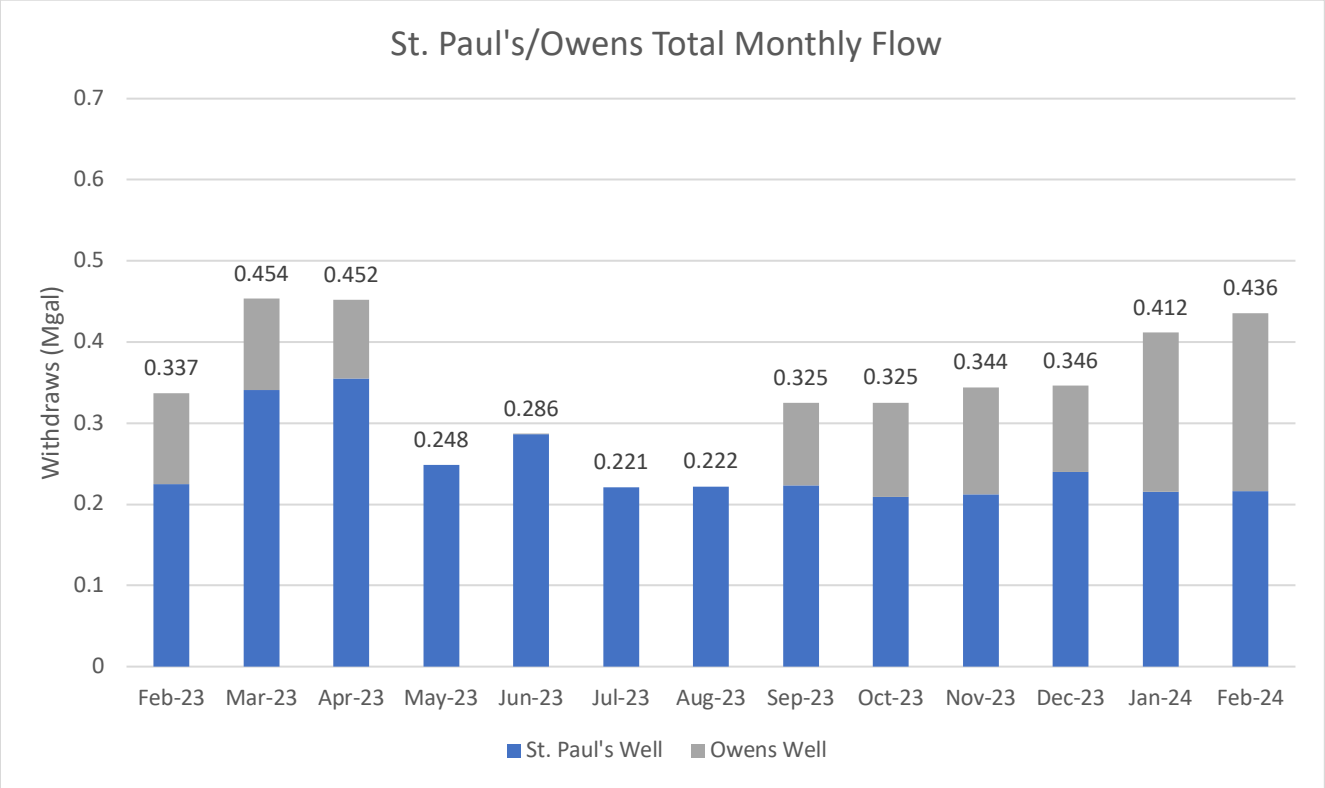
Water Quality:

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
03D	5099 Rose Ave	2/20/2024	Absent

System Production:



WASTEWATER

Items Affecting All WWTP's:

- Brenn Tag completed Jar Testing of Coagulants that are better suited than Aluminum Sulfate.
- Ordered cold weather bugs and grease bugs for all wastewater plants and have begun inoculating all wastewater plants to augment the microbiome to be better suited to treat high FOG which exists at all plants.
- King George Service Authority hosted a meeting centered around chemical issues; Brenn Tag was in attendance as well as Inboden. Brenn Tag ordered the appropriate pump to have the ability to successfully offload Glycerol.
- Reducing biomass at all facilities to prepare for warmer weather, which facilitates more activity with the microorganisms.
- Water temperatures are starting to climb which should help the microbiomes to thrive and breakdown wastes more effectively.

Dahlgren WWTP

Effluent Quality:

The wastewater treatment facility maintained compliance with all permit-required sampling except fecal coliforms on 2/8-9. Work completed on the ditch weir at the center of the oxidation ditch on 2/7 upset plant operations causing turbidity in the clarifiers as the plant came back into balance.

Wastewater Treatment:

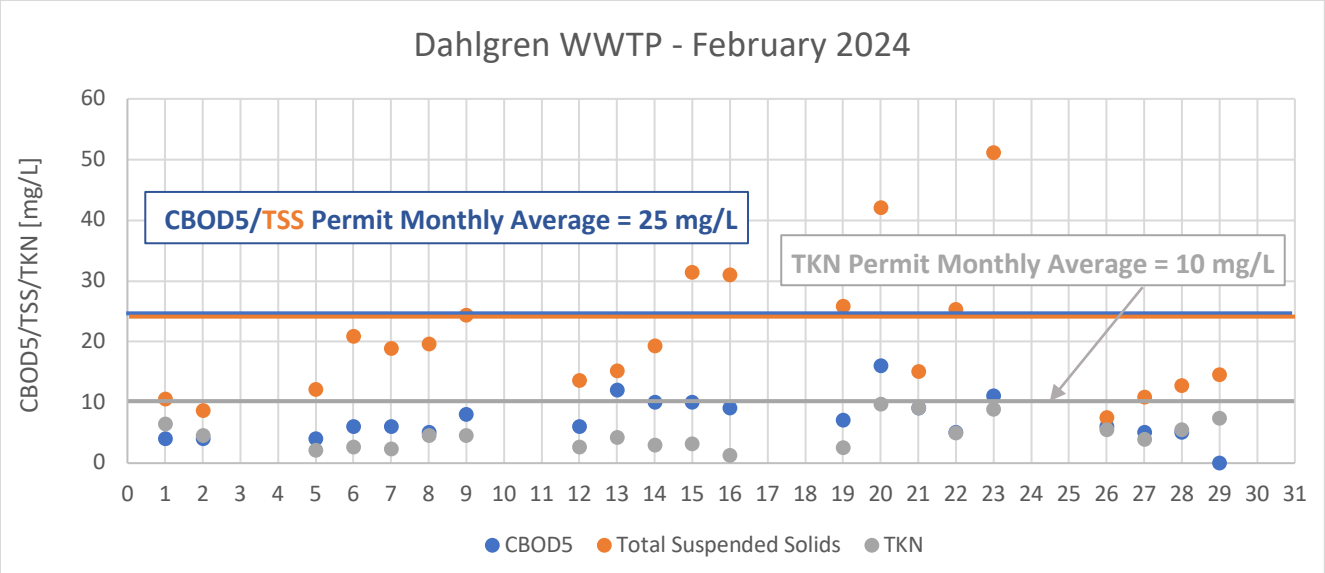
The Dahlgren WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.284 MGD for a total monthly discharge of 8.222 MG.

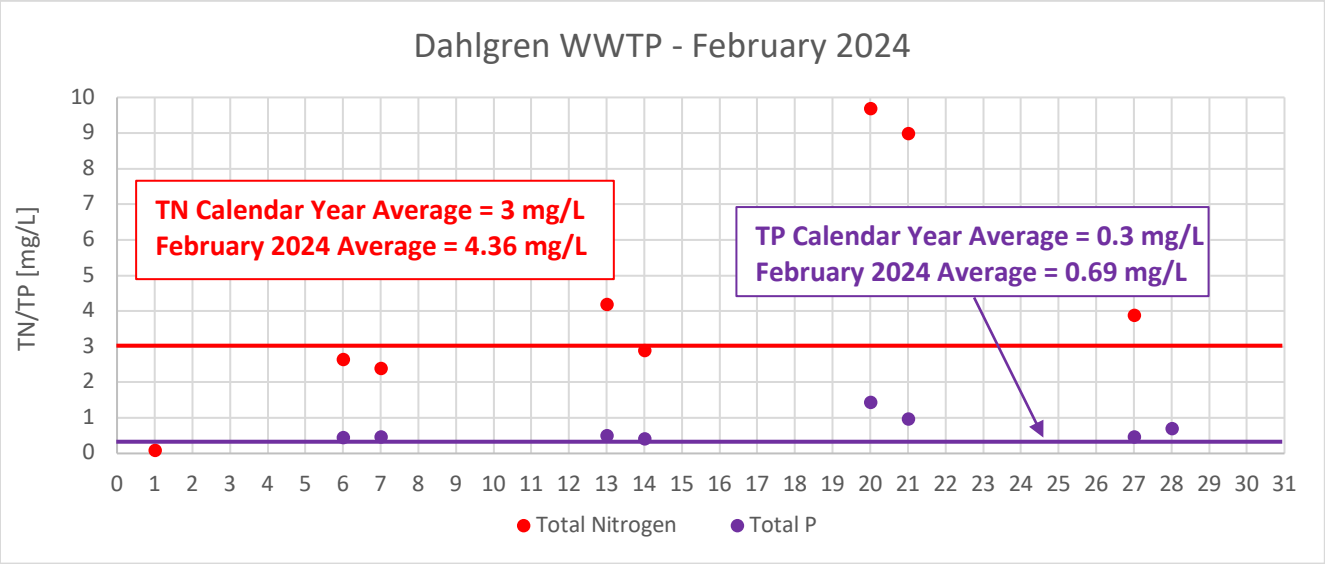
Operational Notes:

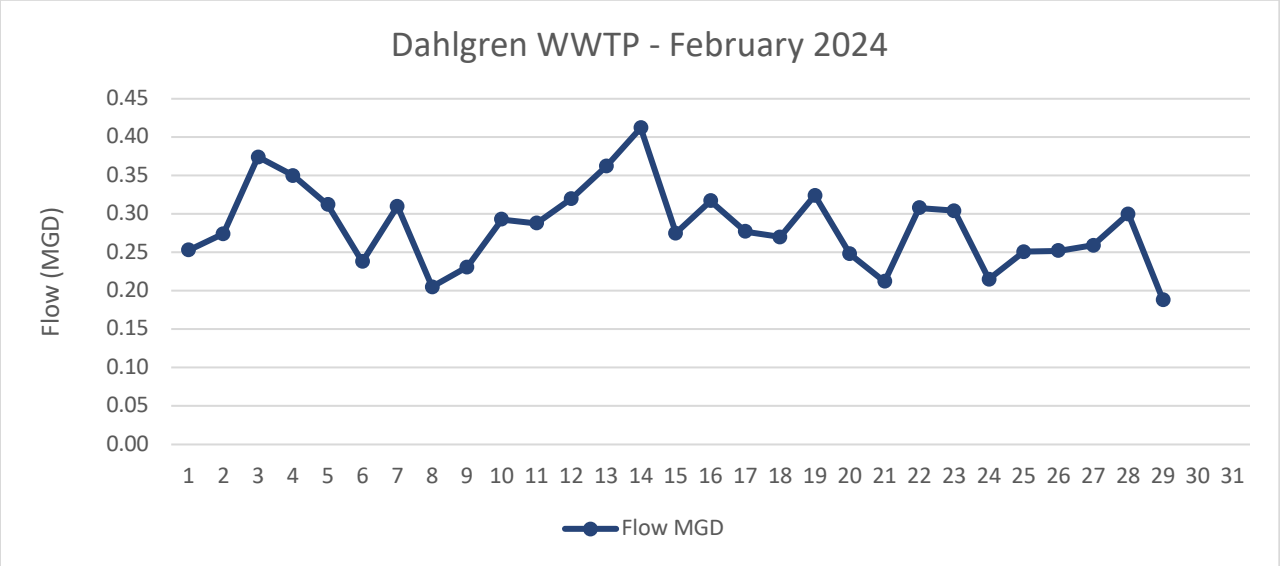
- The weir in the center of the oxidation ditch failed; IES notified KGCSA Maintenance. The flow to the plant had to be stopped for a few hours for KGCSA to make the repairs. Doing this work upset the plant, but it needed to be done to get the water level in the ditches back to normal operating levels.
- During a regularly scheduled cleaning of the UV system, IES operations team discovered a ball of roots just before the UV system.
- Maryland Biochemical made a site visit to perform a micro-examination to further understand the characteristics of the microbiology and the effects of grease entering the plant.

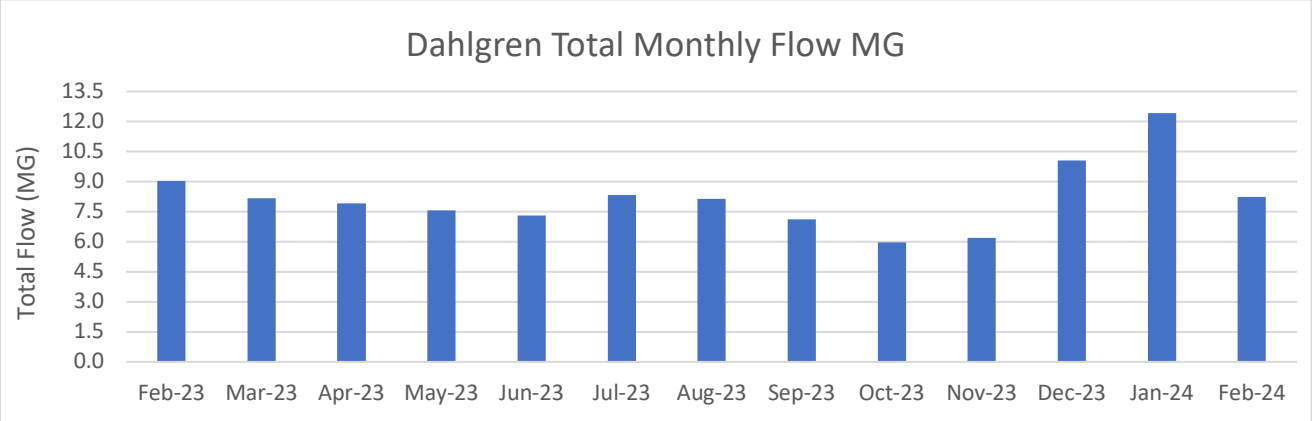
Data Trending:

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




Dahlgren WWTP - February 2024
TN/TP [mg/L]
TN Calendar Year Average = 3 mg/L
February 2024 Average = 4.36 mg/L
TP Calendar Year Average = 0.3 mg/L
February 2024 Average = 0.69 mg/L
Total Nitrogen
Total P


Dahlgren WWTP - February 2024
Flow (MGD)
Flow MGD


Dahlgren Total Monthly Flow MG
Total Flow (MG)
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24

Hopyard Farms WWTP

Effluent Quality:

The wastewater treatment facility maintained compliance with all permit-required sampling except for dissolved zinc (sample was not filtered). Resampling has occurred and analysis is pending.

Wastewater Treatment:

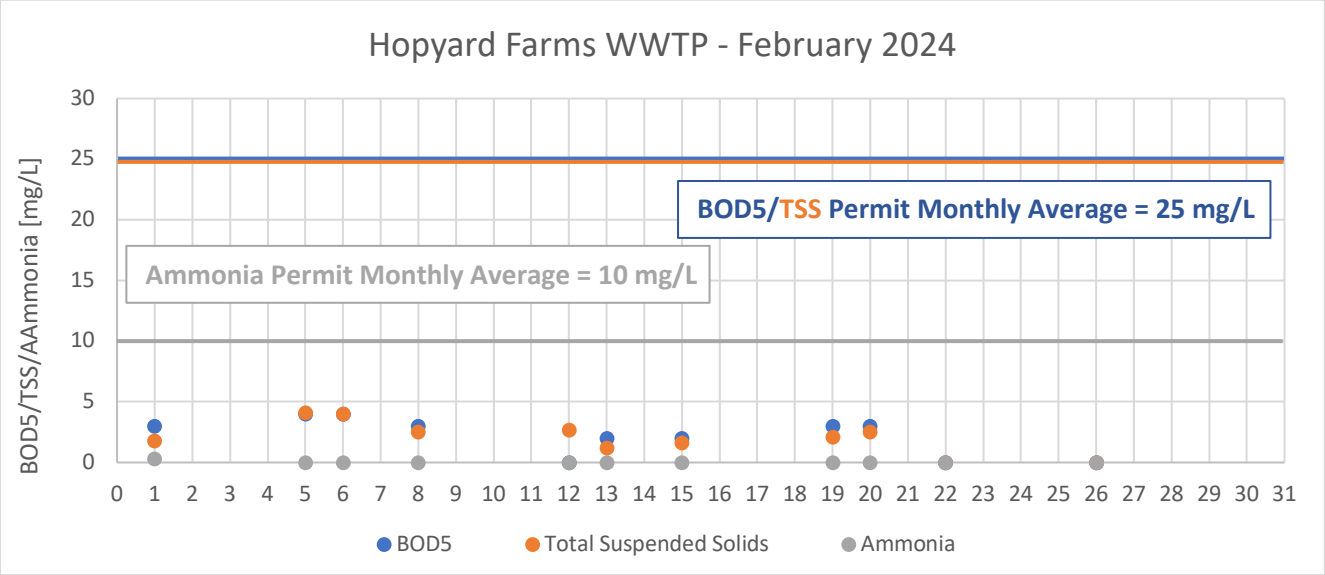
The Hopyard Farms WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.078 MGD for a total monthly discharge of 2.270 MG.

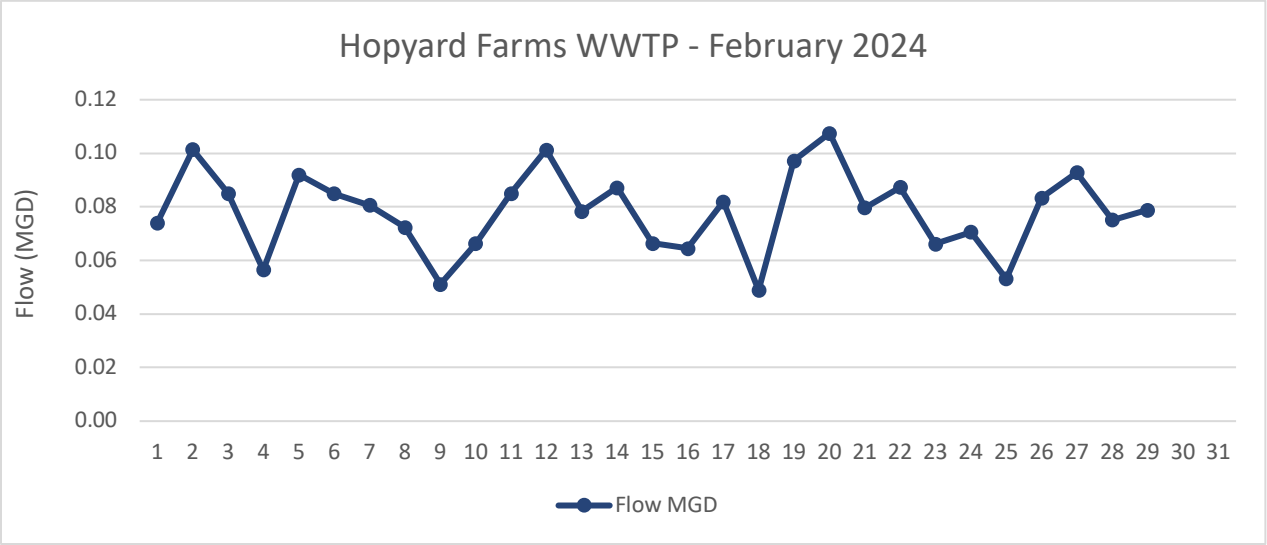
Operational Notes:

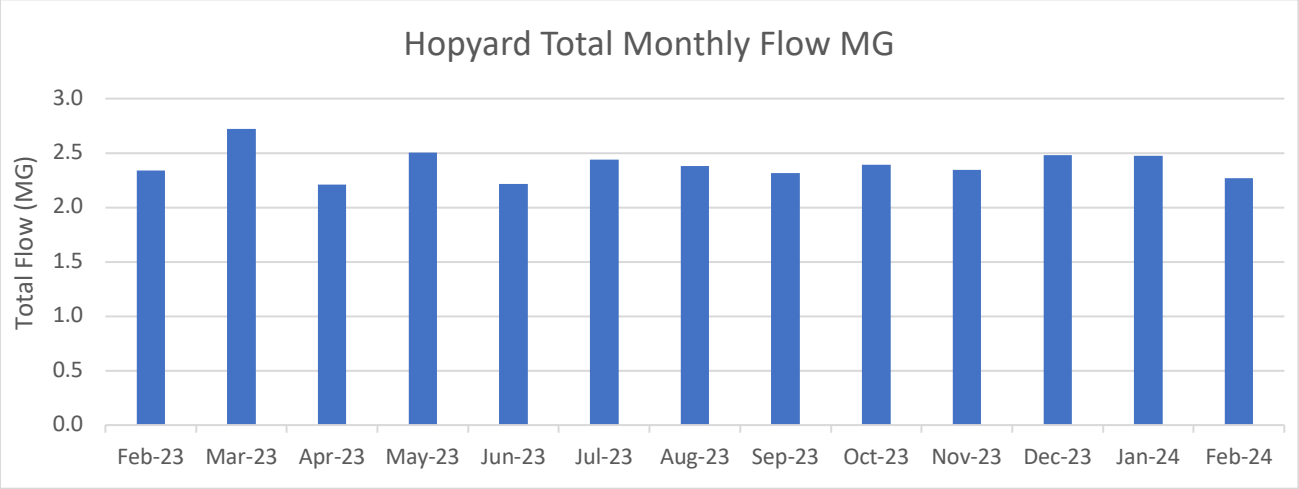
- SBR 1 decant valve is damaged from freezing temperatures and needs to be replaced; KGCSA Maintenance has ordered the parts.
- DEQ performed a technical inspection.
- KGCSA worked with Aqua Aerobics to fix the program to allow for automatic wasting.

Data Trending:

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




Hopyard Farms WWTP - February 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


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

Purkins Corner WWTP

Effluent Quality:

The wastewater treatment facility maintained compliance with permit-required sampling except for TKN. Inundation of FOG (fats/oils/grease) to the plant will be treated utilizing bioaugmentation to restore TKN removal.

Wastewater Treatment:

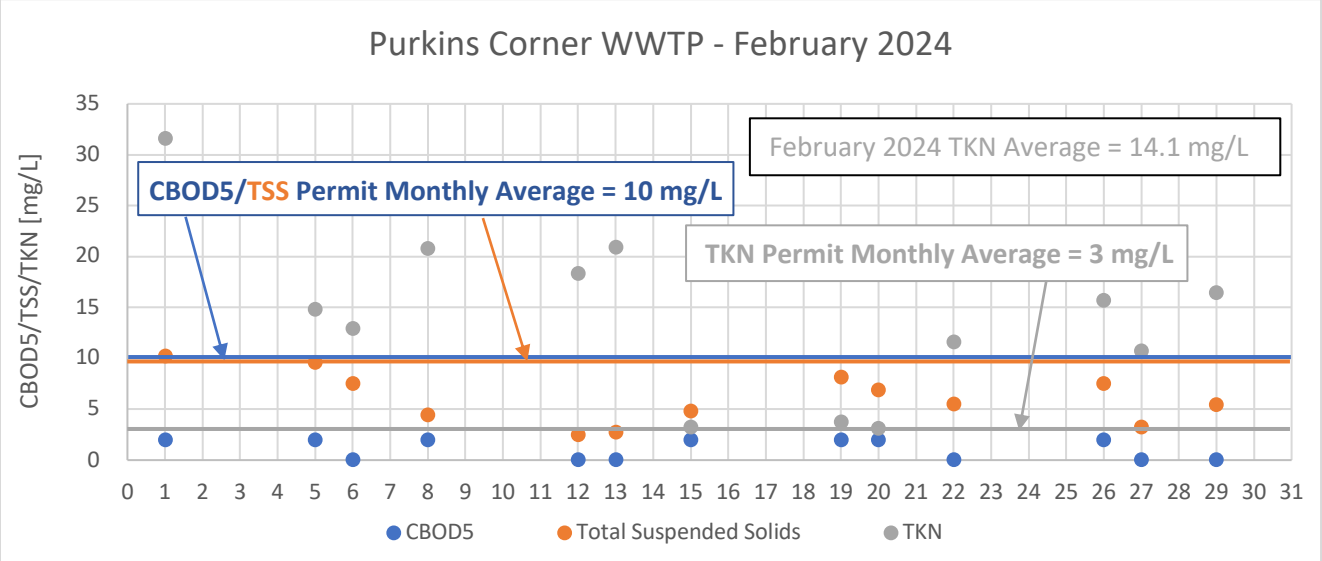
The Purkins Corner WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.057 MGD for a total monthly discharge of 1.663 MG.

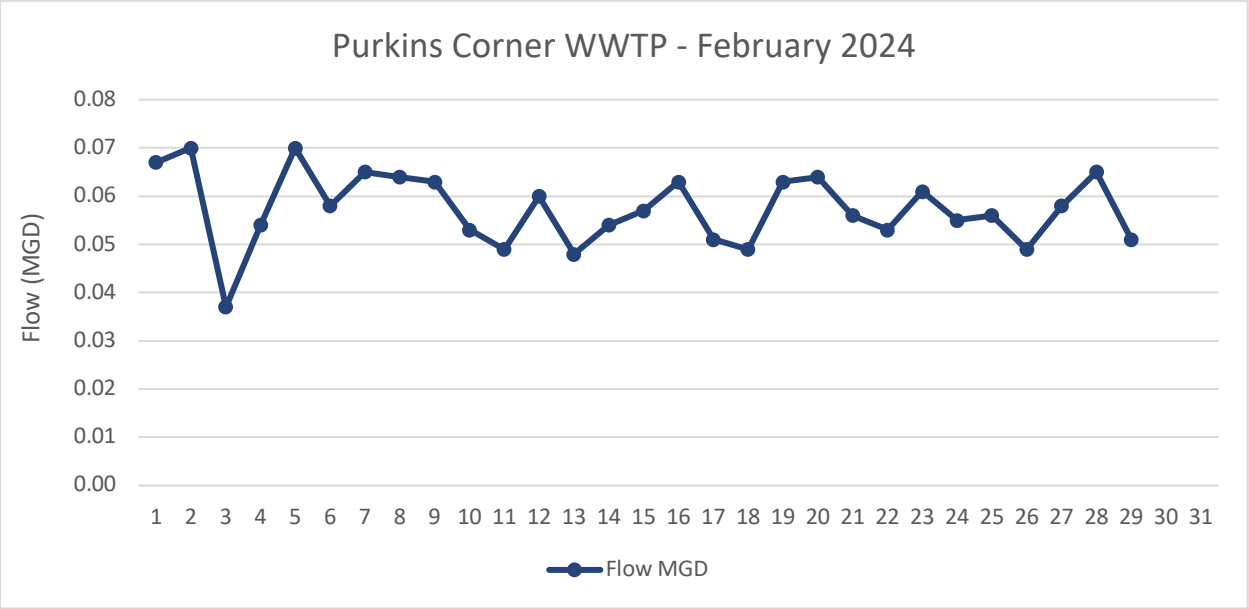
Operational Notes:

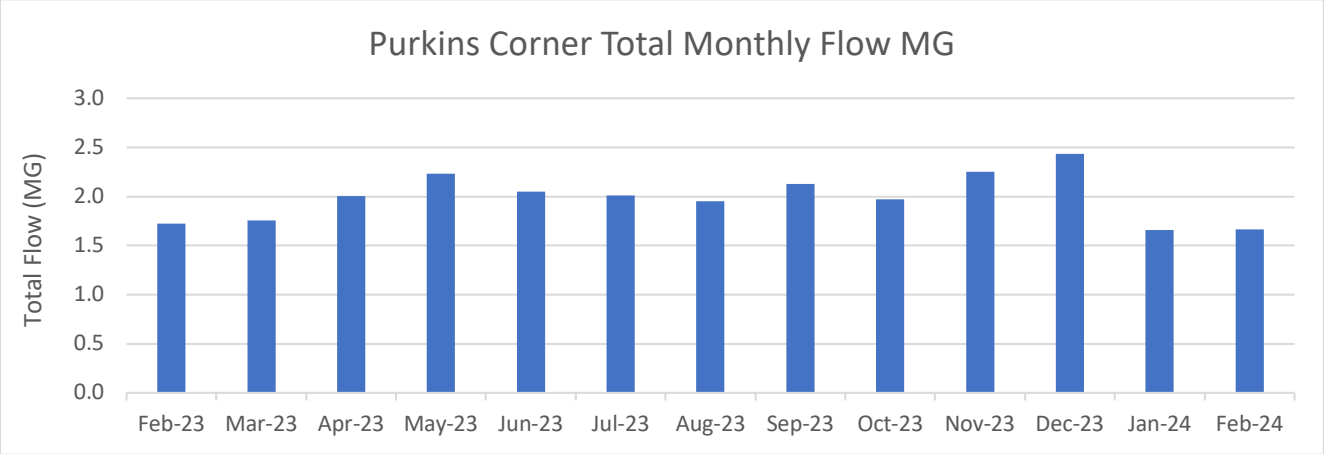
- KGCSA hosted a meeting centered around chemical issues; Brenn Tag was in attendance as well as Inboden. Brenn Tag ordered the appropriate pump to have the ability to successfully offload glycerol.
- Stocking nitrifiers to help address the higher FOG loadings entering the plant from the collections system which is negatively impacting treatment.
- Inboden is continuing to work with Maryland Biochemical & KGCSA to acquire the appropriate bioaugmentation for the wastewater plant and collections system. Maryland Biochemical made a site visit to perform a micro exam.
- DEQ performed a recon inspection.
- Efforts in augmenting biology has been noticed through micro exams, healthier and fuller life has been noted by IES staff.

Data Trending:

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




Purkins Corner WWTP - February 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


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

Oakland Park WWTP

Effluent Quality:

The wastewater treatment facility maintained compliance with all permit-required sampling except for TKN. A mechanical failure of the glycerol dosing pump on February 6th caused overfeeding of carbon that upset the nitrification process for approximately two weeks.

Wastewater Treatment:

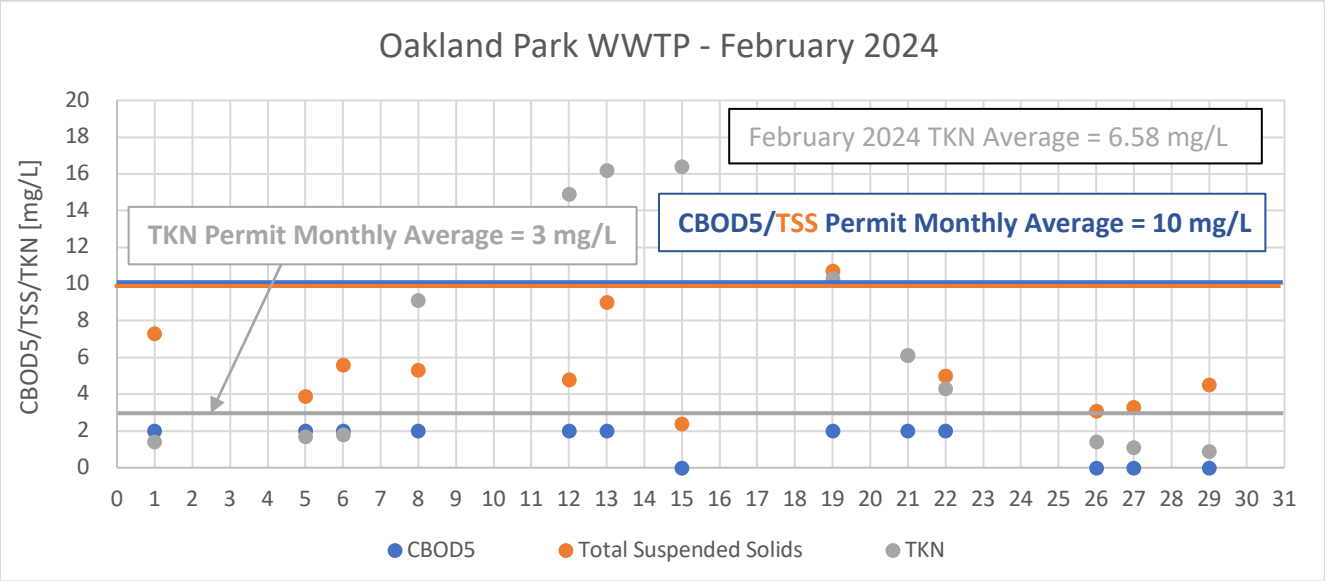
The Oakland Park WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.050 MGD for a total monthly discharge of 1.446 MG.

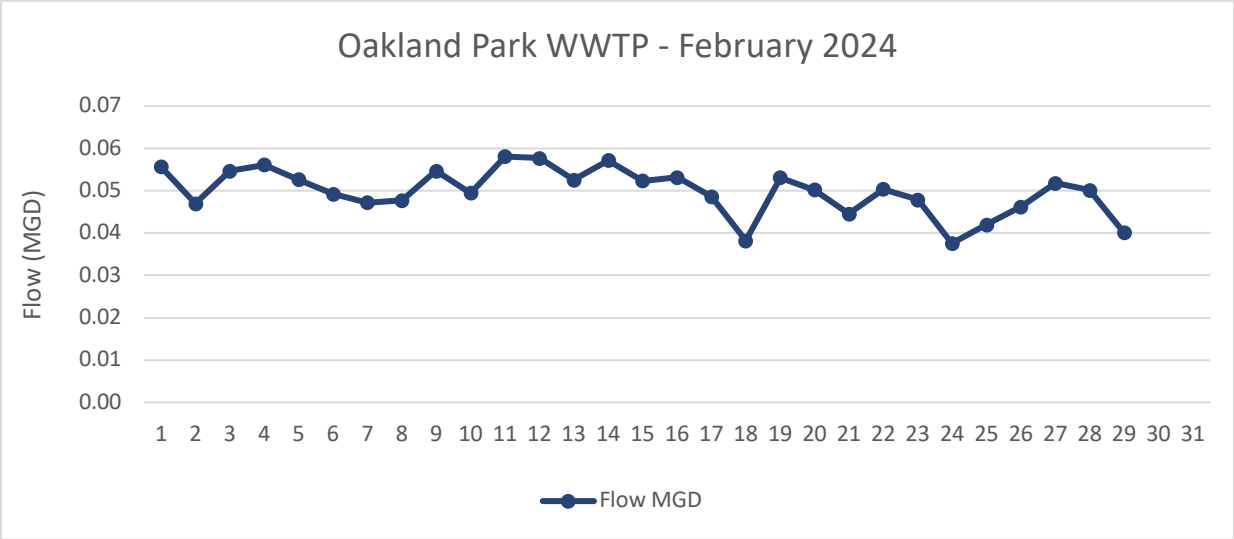
Operational Notes:

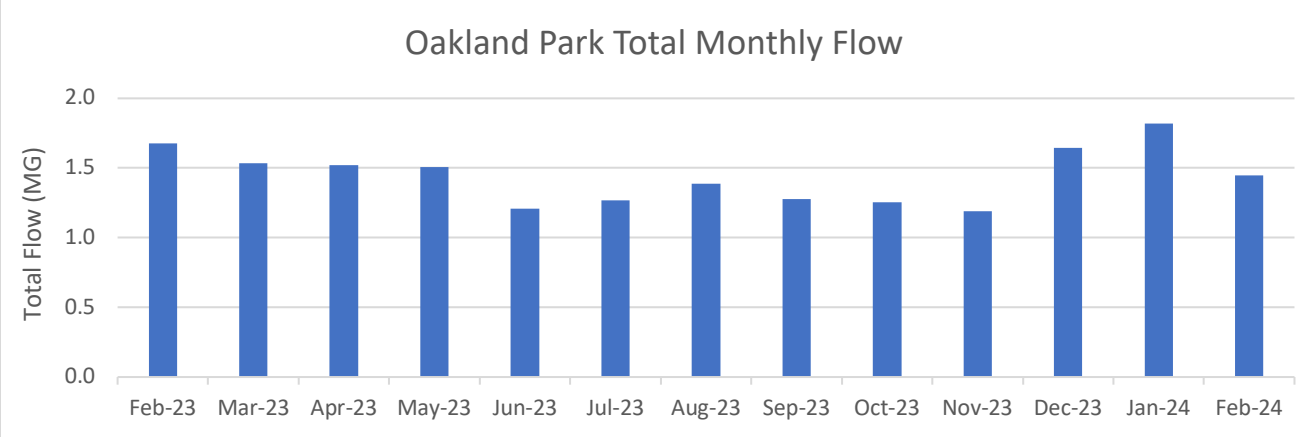
- Support for the sand filters is hard to find as these specific models have not been installed for the past 10 years; have reached out to manufacturer, but communicating with Alfa Laval has been a challenge.

Data Trending:

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




Oakland Park WWTP - February 2024
Flow (MGD)
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
Total Flow (MG)
2.0
1.5
1.0
0.5
0.0
Feb-23 Mar-23 Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24

Fairview Beach WWTP

Effluent Quality:

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

Wastewater Treatment:

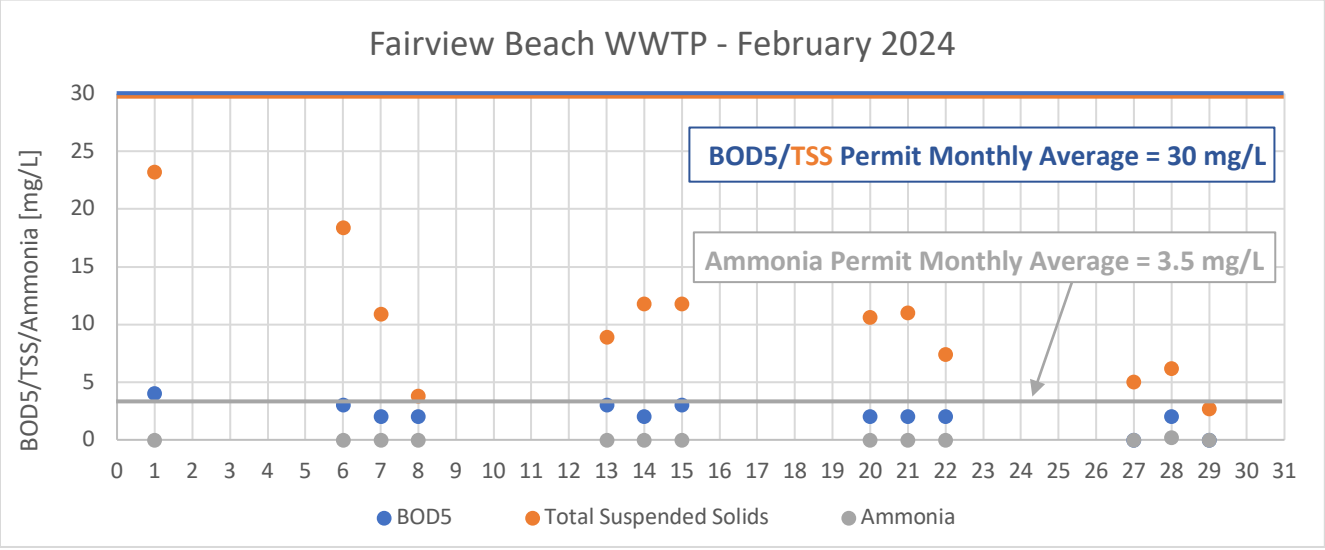
The Fairview Beach WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.080 MGD for a total monthly discharge of 2.005 MG.

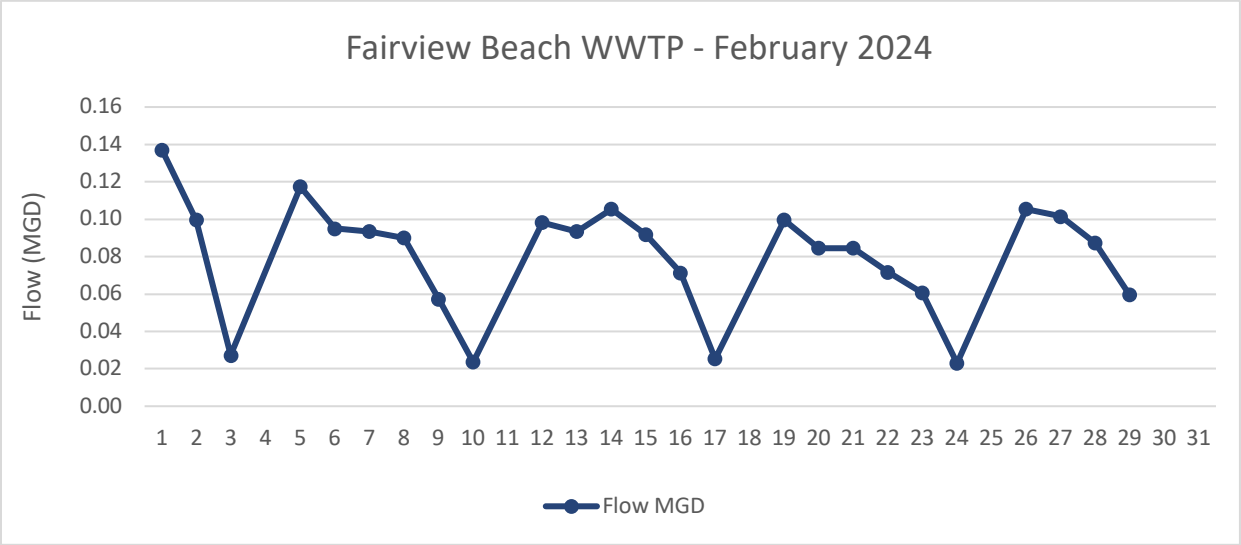
Operational Notes:

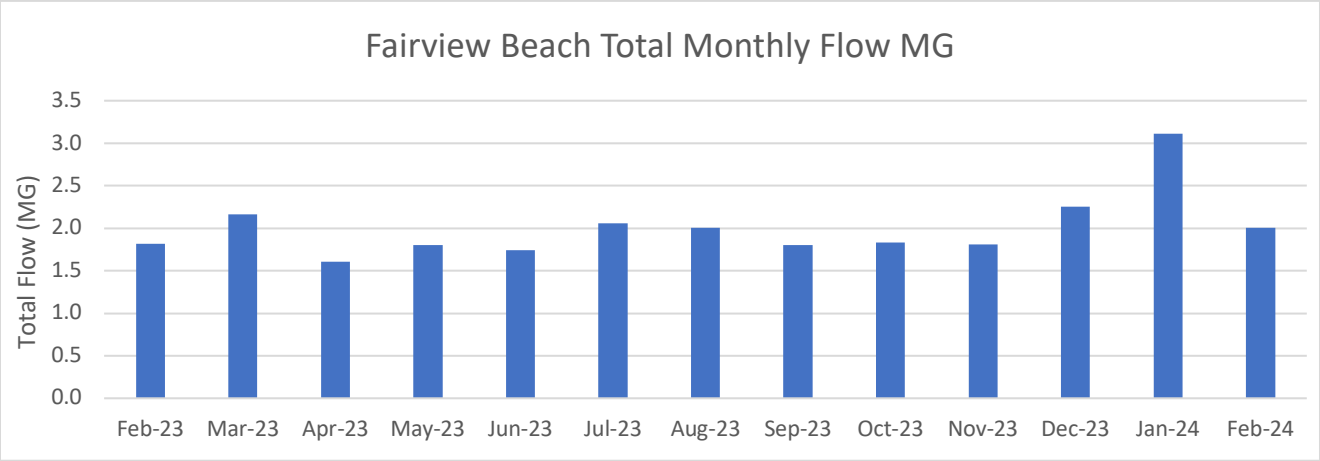
- DEQ performed a technical inspection.
- Working with KGCSA to use a larger tank to facilitate storage of more coagulant.

Data Trending:

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




Fairview Beach WWTP - February 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


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
Feb-23 Mar-23 Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24