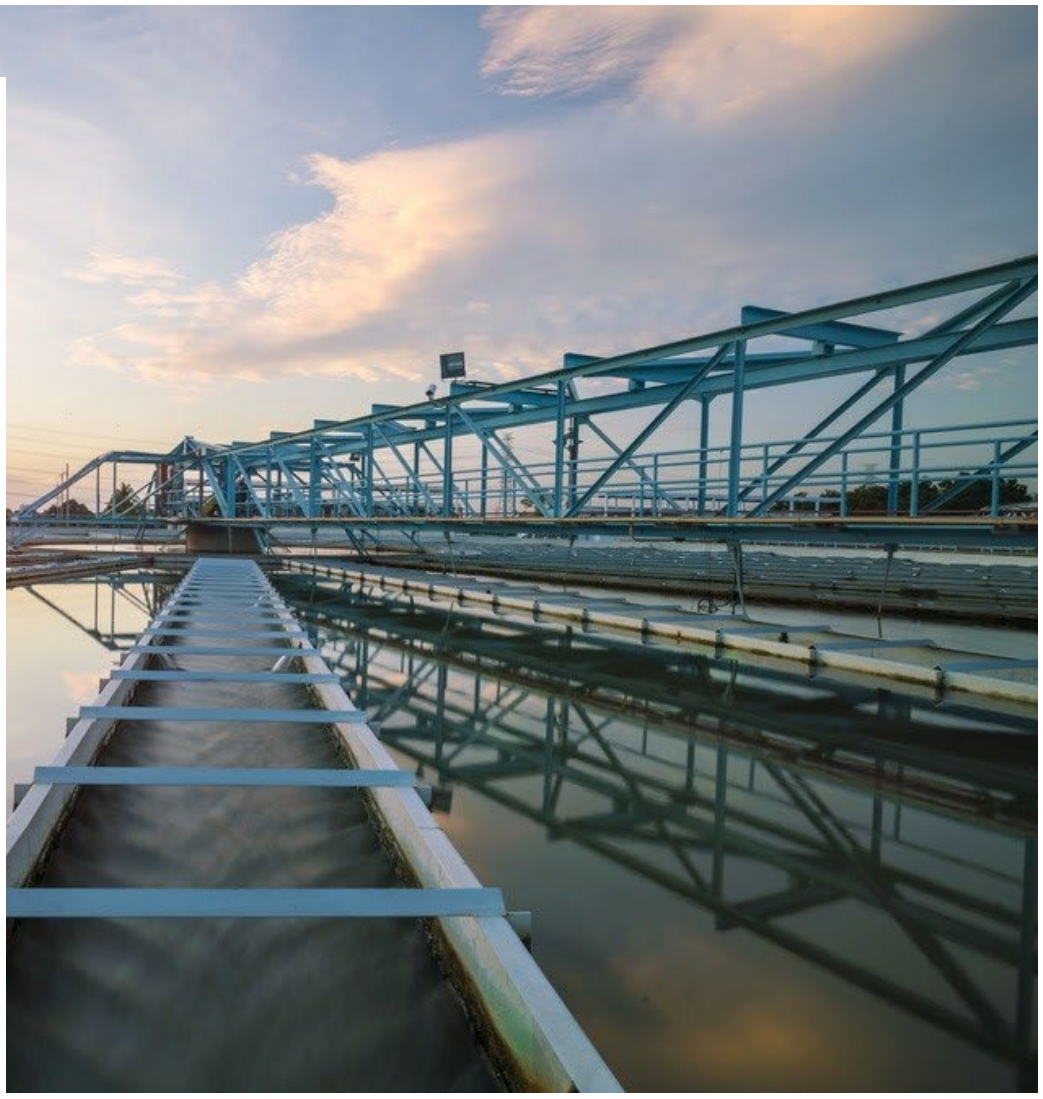
UTILITY REPORT



MARCH 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:

- The hydropneumatic tank compressor at Hopyard Farms failed and had to be replaced. Mercoid switch also had to be replaced at the same location.
- Annual well MPN samples have been collected and all have passed.
- Continuing to backwash all systems to conserve as much water as possible.
- Lead and Copper sample kits were distributed to 21 addresses; nine have been collected to date.
- Quarterly samples for January through March have been collected.
- King George Maintenance worked on replacing valves at Hopyard water system.
- King George Maintenance repaired heaters at several well houses.
- Received a complaint of a high chlorine residual; inspected and was well within parameters.

Canterbury Subdivision – PWSID 6099085

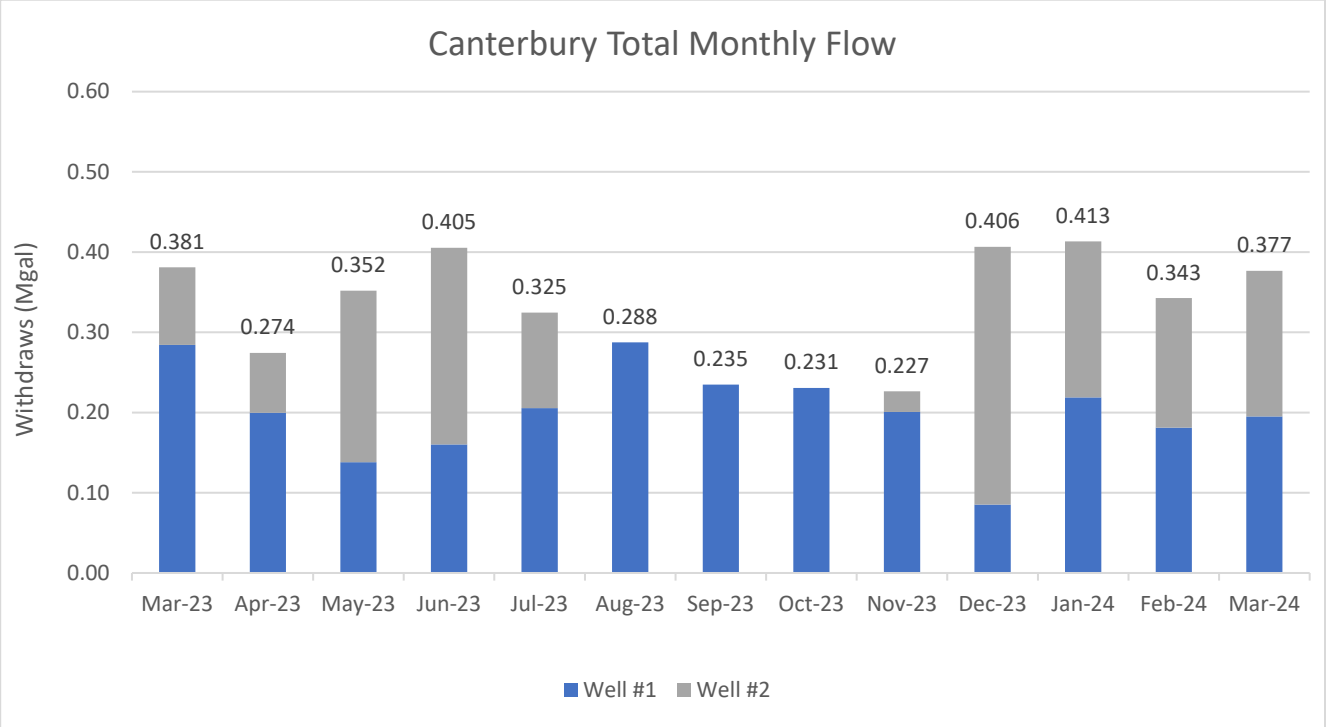
Water Quality:

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
010	12466 Kent Rd.	3/21/2024	Absent

System Production:



Circle – PWSID 6099100

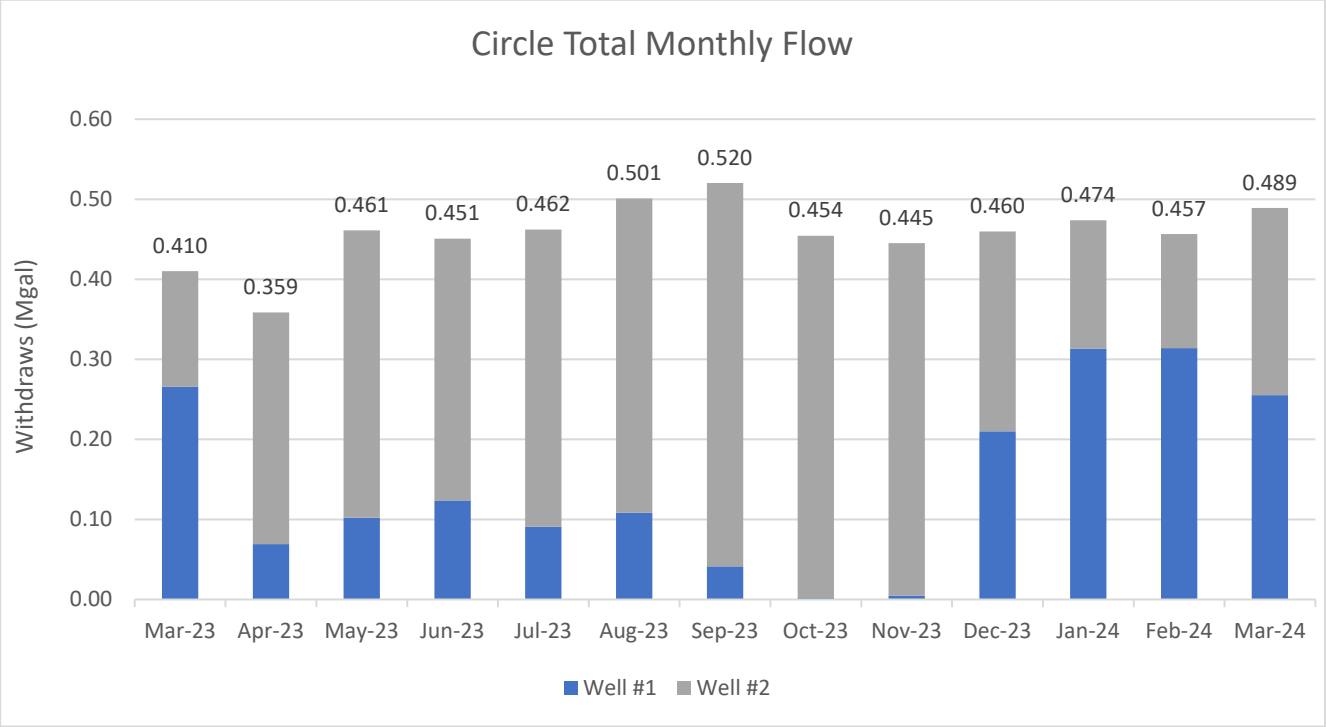
Water Quality:

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
030	11052 Vernon Woods Rd.	3/14/2024	Absent

System Production:



KGC Courthouse – PWSID 6099050

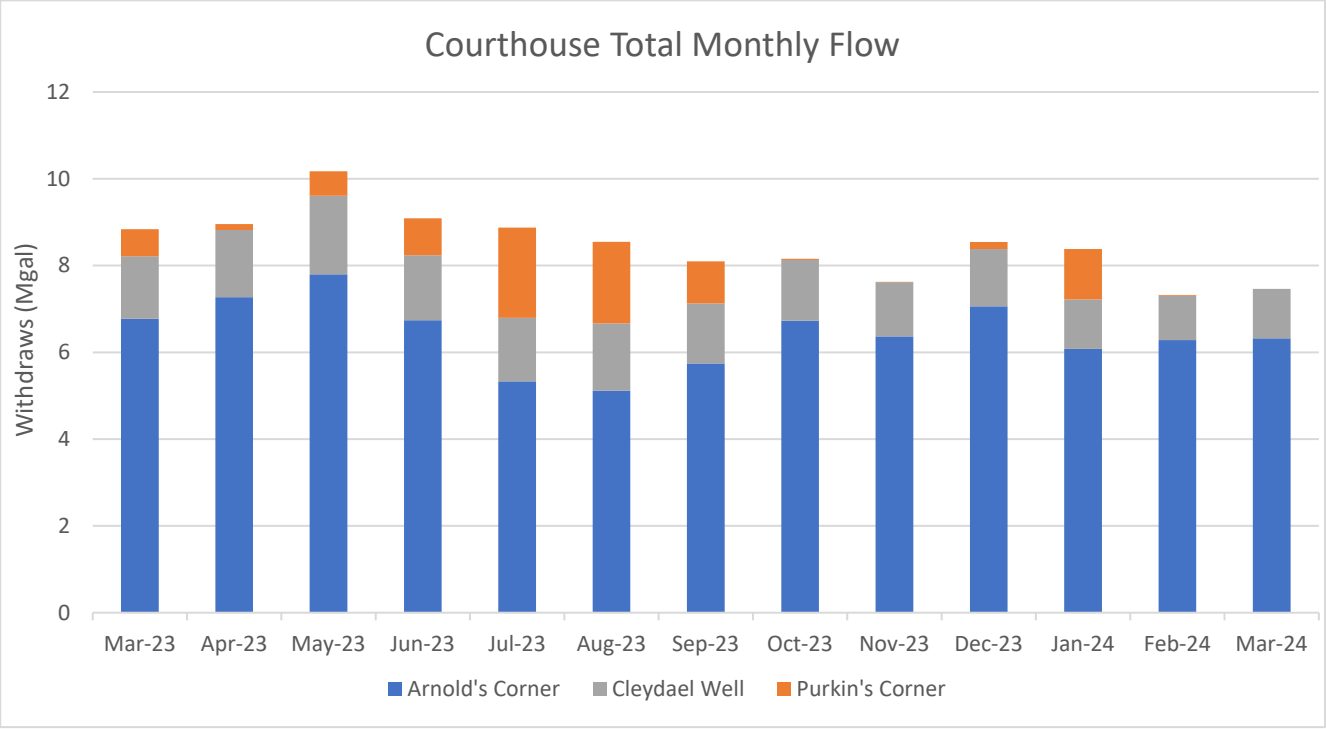
Water Quality:

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
012	9333 Inaugural	3/19/2024	Absent
014	9290 Dahlgren Rd.	3/19/2024	Absent
06	12156 Ward Rd.	3/19/2024	Absent
011	8352 Kennedy Dr.	3/21/2024	Absent
015	9207 King's Hwy.	3/21/2024	Absent

System Production:



Dahlgren – PWSID 6099295

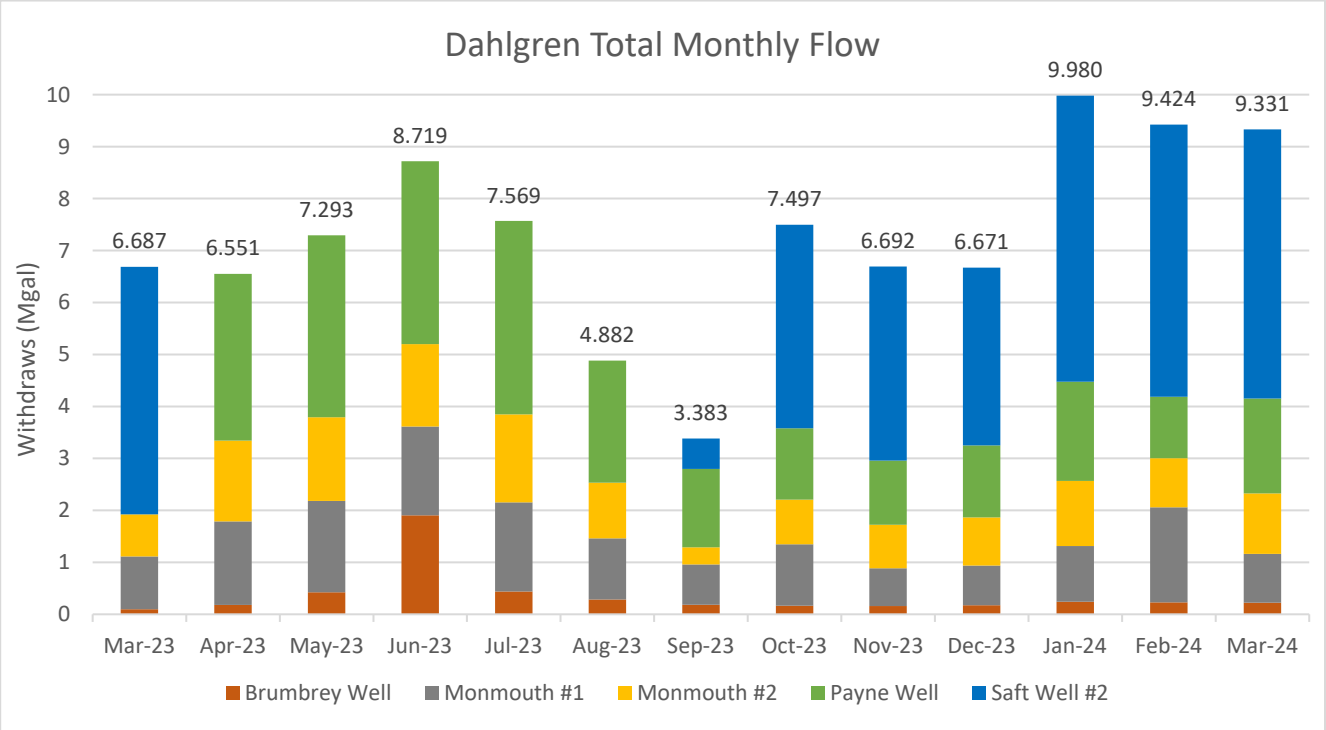
Water Quality:

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
02	5134 Mallard's Landing Dr.	3/21/2024	Absent
08U	4471 James Madison Pkwy.	3/21/2024	Absent
09	17014 Village Ln.	3/21/2024	Absent

System Production:



Fairview Beach – PWSID 6099250

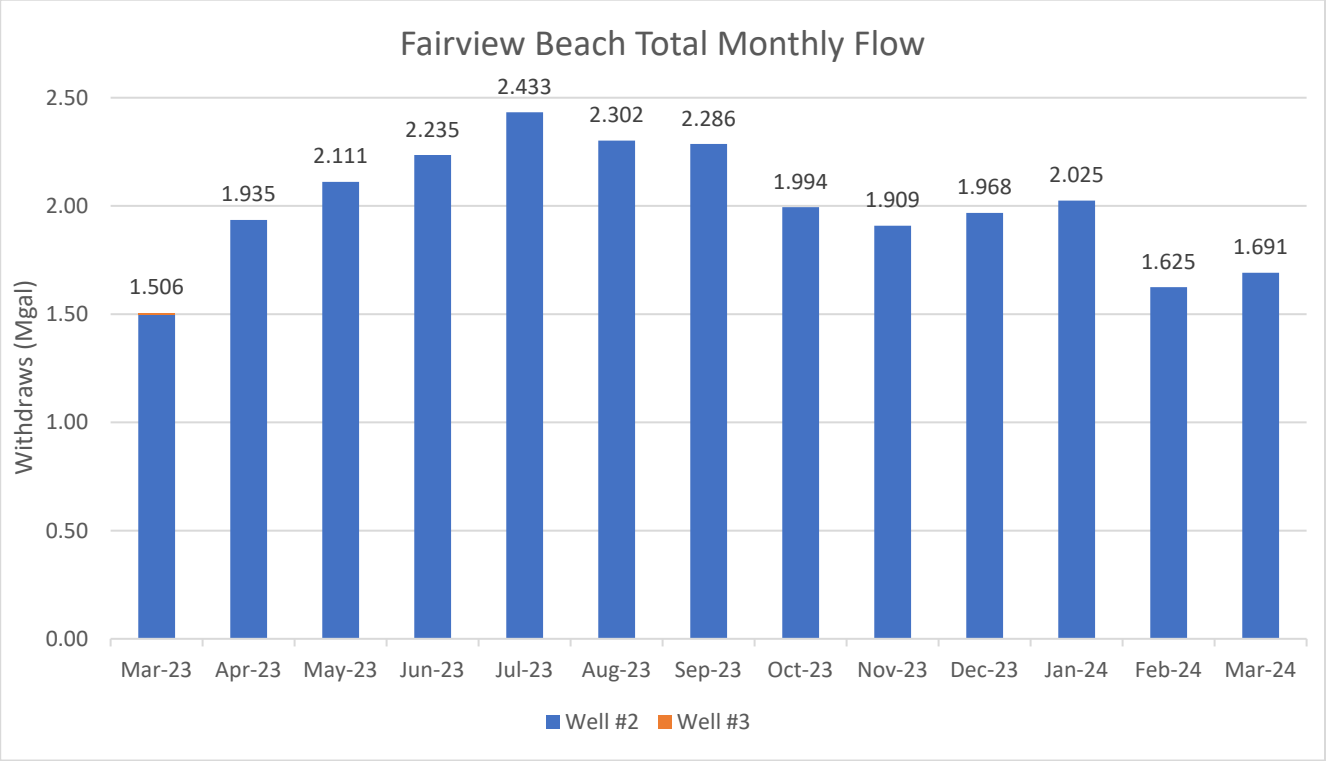
Water Quality:

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
020	6092 Sixth St.	3/14/2024	Absent

System Production:



Hopyard Farm – PWSID 6099283

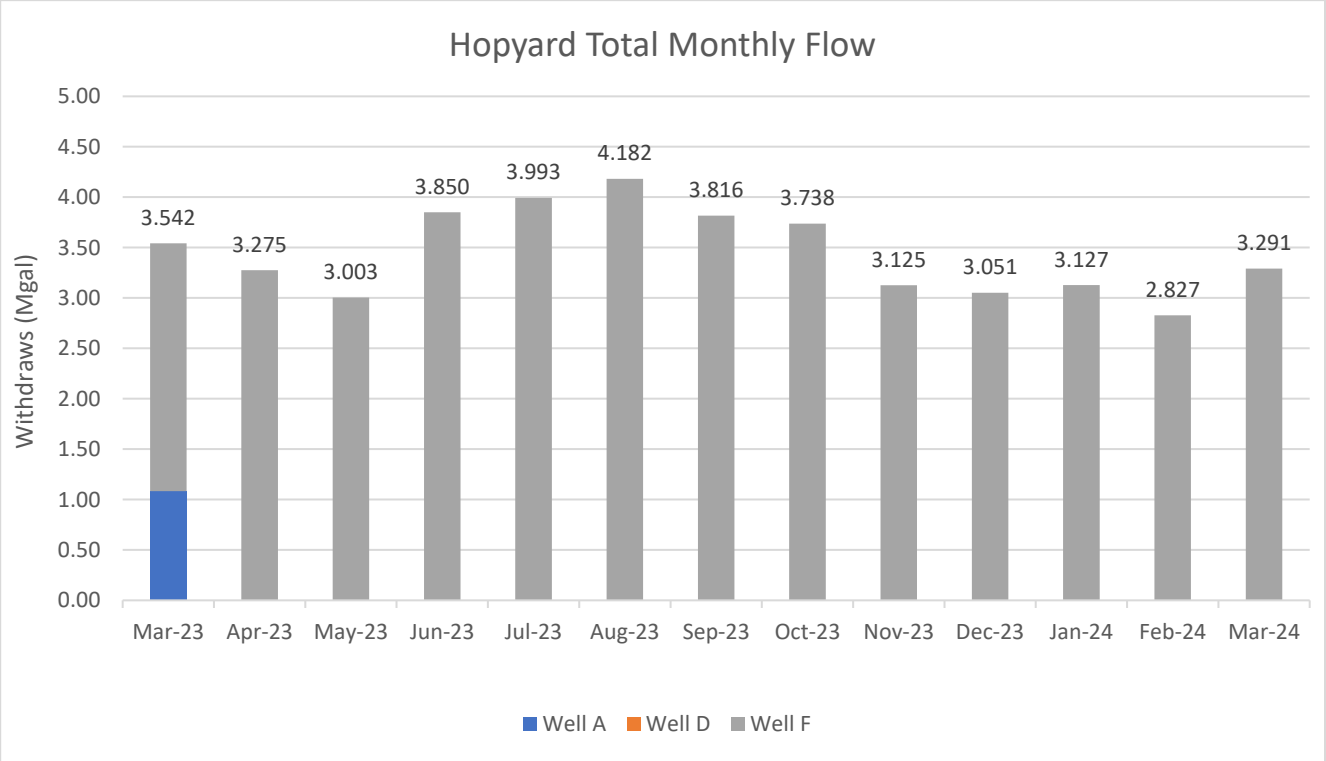
Water Quality:

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
02D	6124 Hawser Rd.	3/14/2024	Absent
050	5217 Spinnaker Ln.	3/14/2024	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
010	9100 St. Anthony's Rd. – Human Resources Office	3/19/2024	Absent

System Production:

- Total well yield for March – 22,600 gallons

Ninde's Store – PWSID 6099300

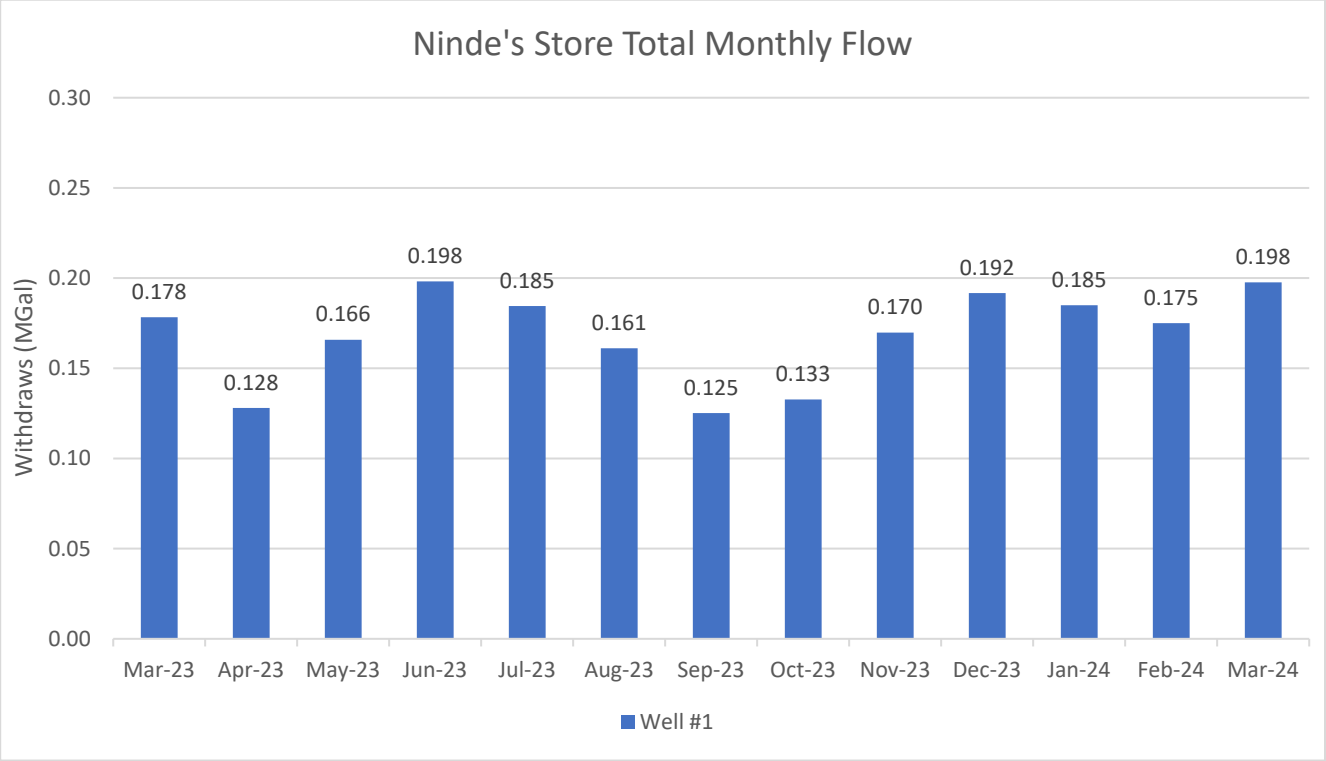
Water Quality:

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
01D	16219 Ridge Rd.	3/14/2024	Absent

System Production:



Oakland Park – PWSID 6099350

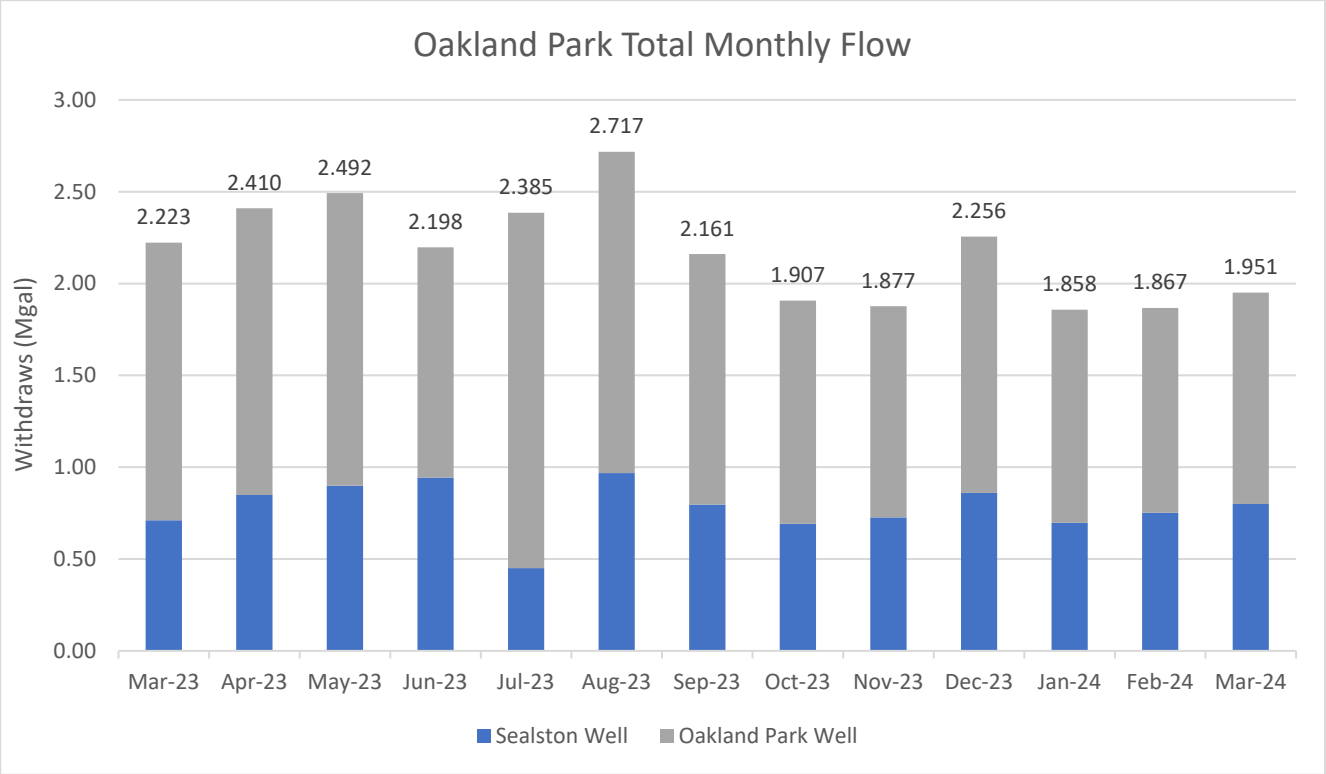
Water Quality:

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
04	1139 French Court	3/14/2024	Absent
06	8895 Mullen Rd.	3/14/2024	Absent

System Production:



St. Paul's/Owens – PWSID 6099550

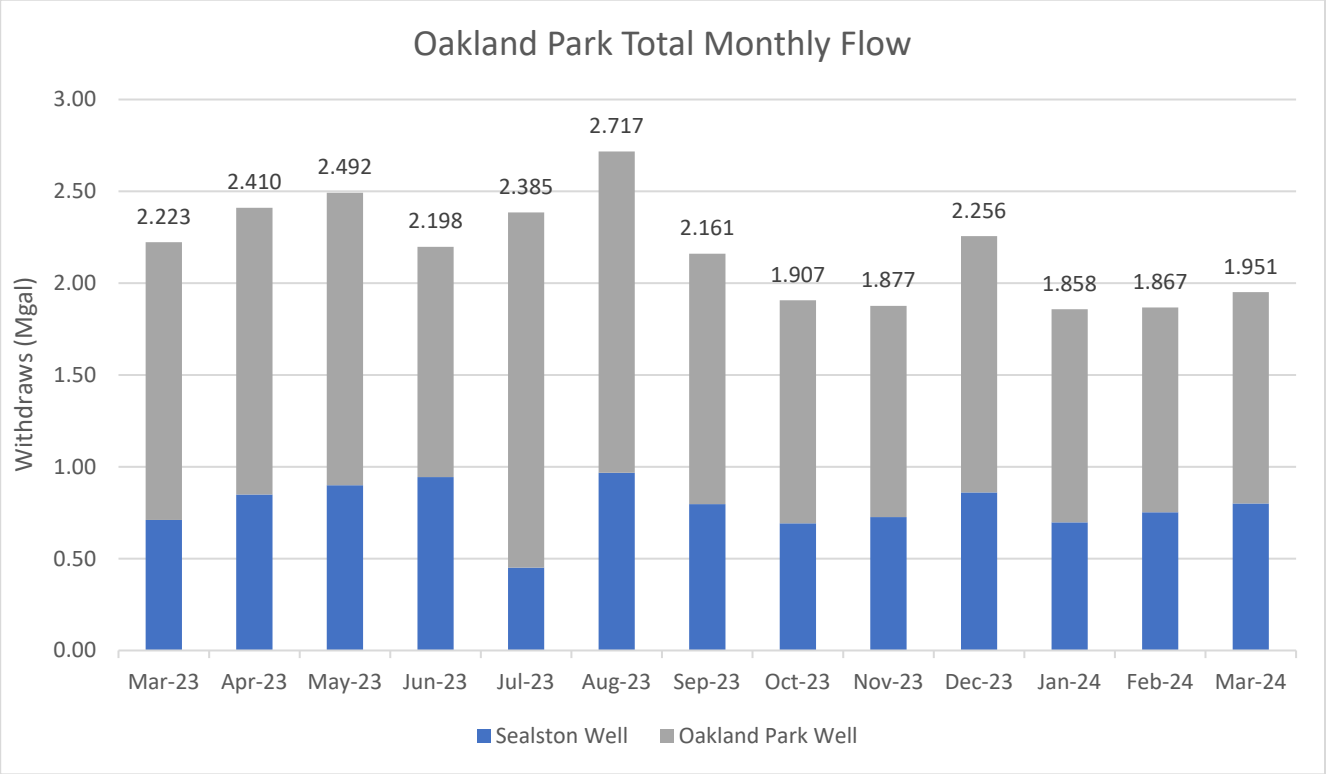
Water Quality:

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
020	5268 Thompson Hill Rd.	3/19/2024	Absent

System Production:



WASTEWATER

Items Affecting All WWTP's:

- Continuing to add bioaugmentation to help with FOG treatment and to build a healthier environment for the microbiology.
- Effluent flow meter calibrations were performed.
- IES staff performed routine maintenance on blowers and pumps, including inspection and replacement of oil, belts, and filters.
- There was a widespread power outage that affected all wastewater plants. The transfer switch and generators engaged as needed.

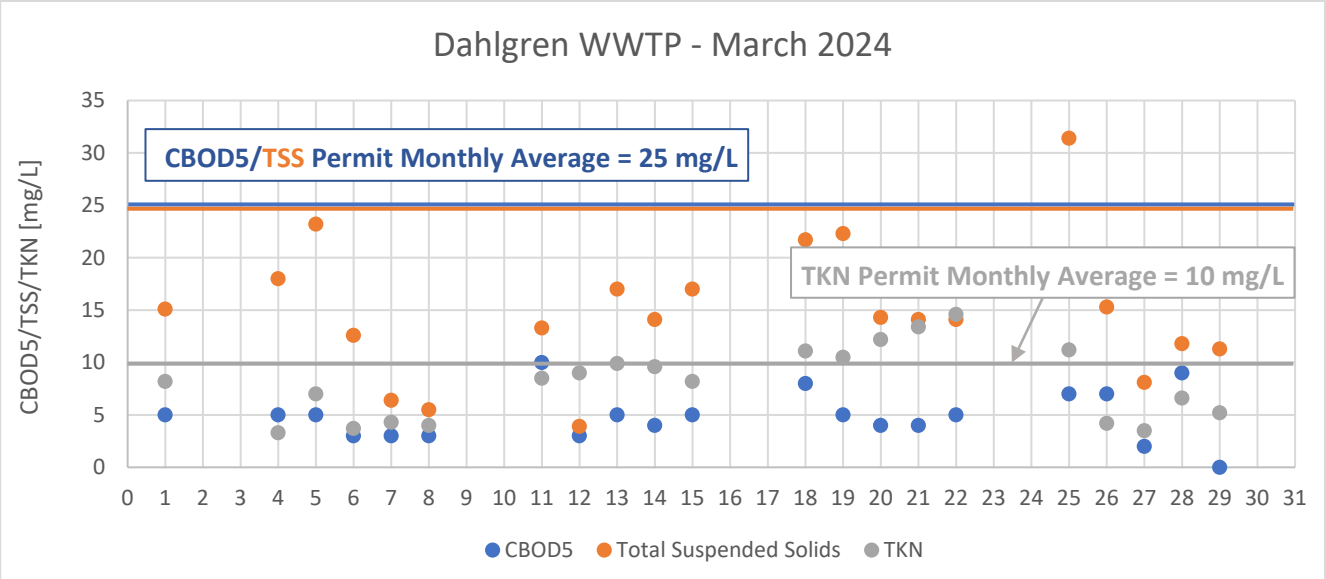
Dahlgren WWTP

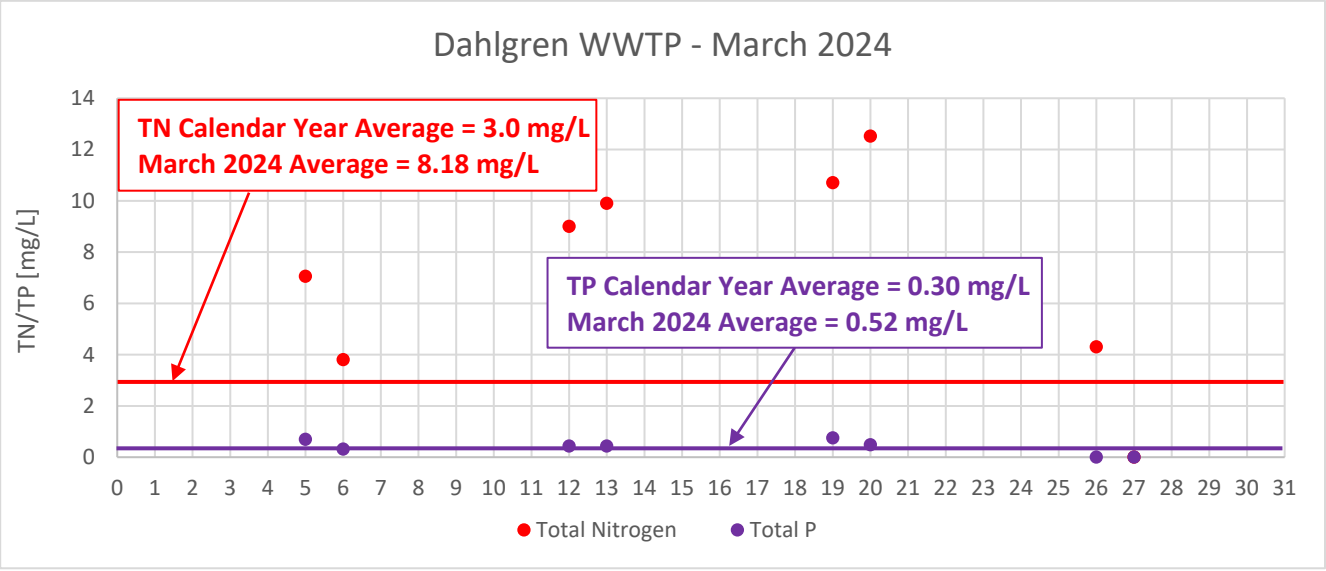
Effluent Quality:
The wastewater treatment facility maintained compliance with all permit-required sampling.

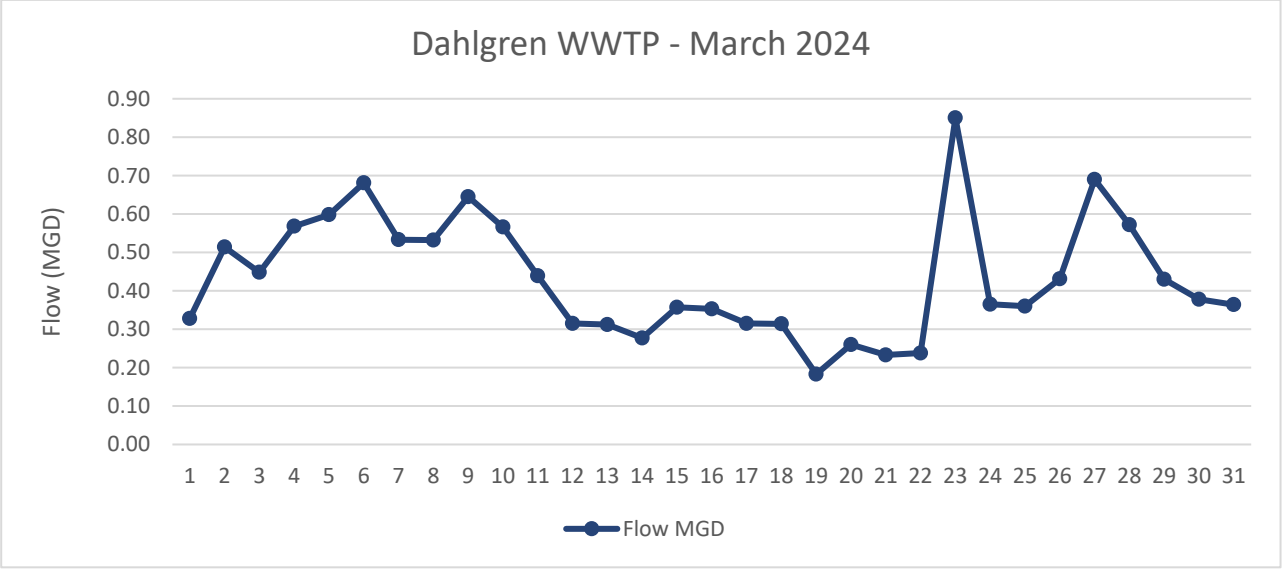
Wastewater Treatment:
The Dahlgren WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.434 MGD for a total monthly discharge of 13.449 MG.

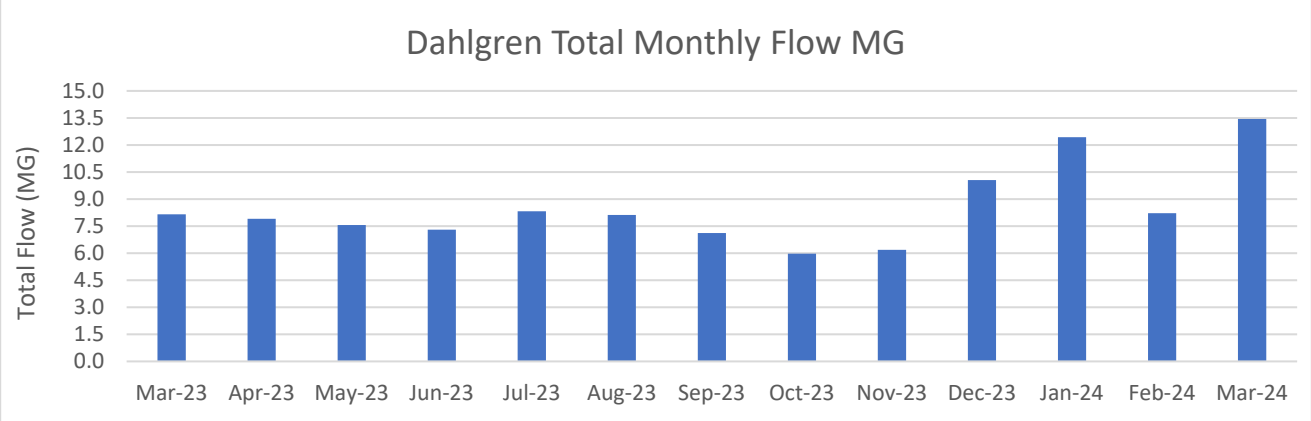
Operational Notes:
- Rotors 2 and 4 both experienced catastrophic failure. King George Maintenance made the necessary repairs. Those repairs allow for smoother, more balanced operations and we can now run the rotors at full speed.
- King George Maintenance pulled a mixer from ditch 3 and sent it off to be rebuilt.
- The conveyor system for the belt press had a bearing failure. King George Maintenance replaced the bearing.
- The sludge filter belt press was down for 2 days due to a roller breaking. King George Maintenance had the necessary repairs made.

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




Dahlgren WWTP - March 2024
TN Calendar Year Average = 3.0 mg/L
March 2024 Average = 8.18 mg/L
TP Calendar Year Average = 0.30 mg/L
March 2024 Average = 0.52 mg/L
TN/TP [mg/L]
Total Nitrogen
Total P


Dahlgren WWTP - March 2024
Flow (MGD)
Flow MGD


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

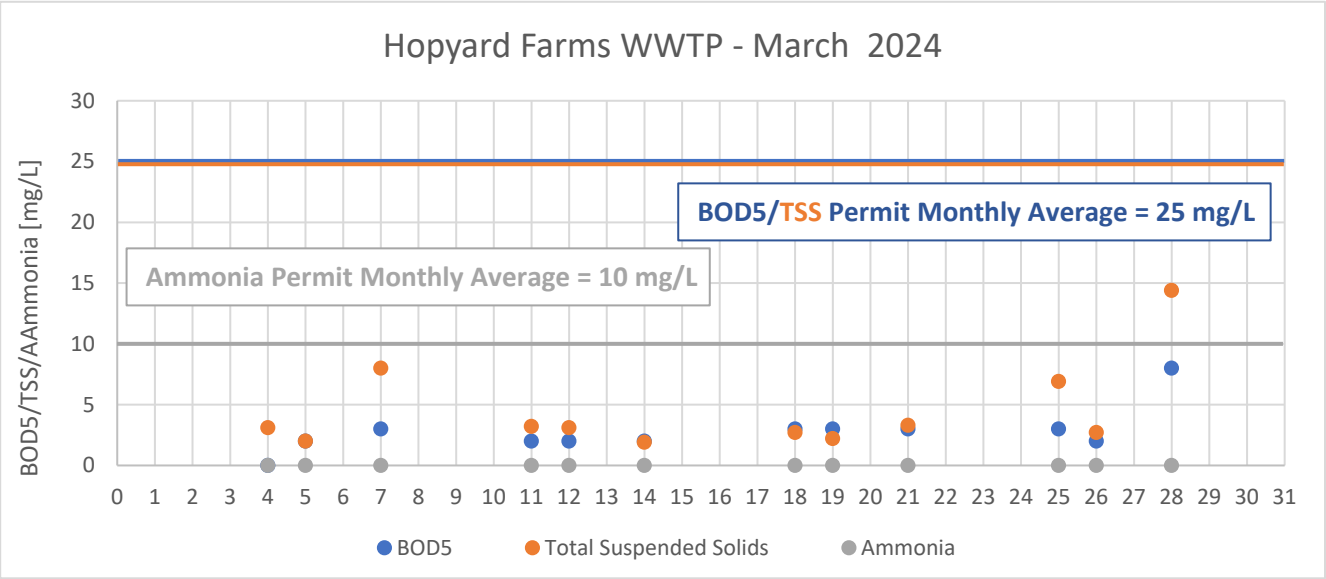
Hopyard Farms WWTP

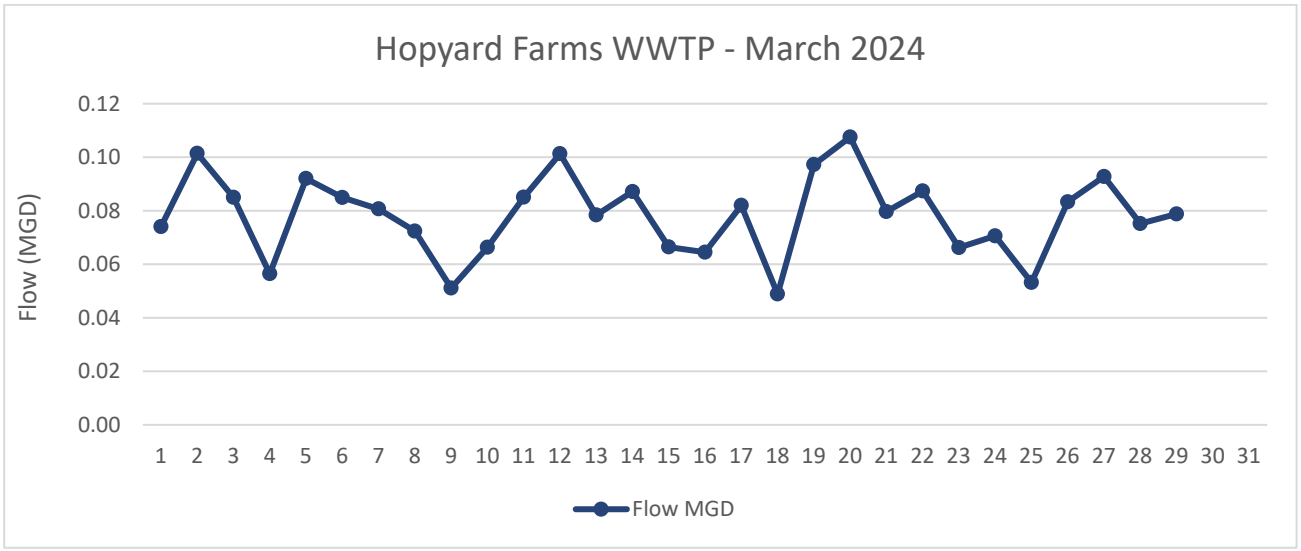
Effluent Quality:
The wastewater treatment facility maintained compliance with all permit-required sampling.

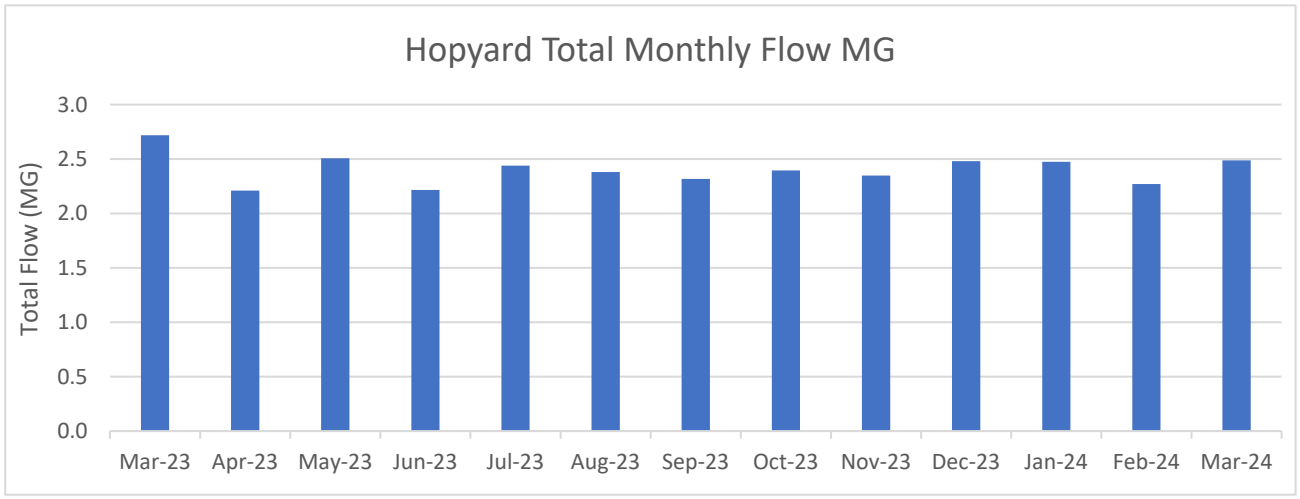
Wastewater Treatment:
The Hopyard Farms WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.080 MGD for a total monthly discharge of 2.487 MG.

Operational Notes:
- The decant valve that was damaged and not operating correctly has been replaced by King George Maintenance and works well.
- RK&K made a site visit to go over future projects and equipment needed for the successful handling of Purkins flow being diverted to Hopyard. IES gave input to help ensure successful operations.

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




Hopyard Farms WWTP - March 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
Mar-23 Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-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 are being treated utilizing bioaugmentation to restore TKN removal. Treatment is improving.

Wastewater Treatment:

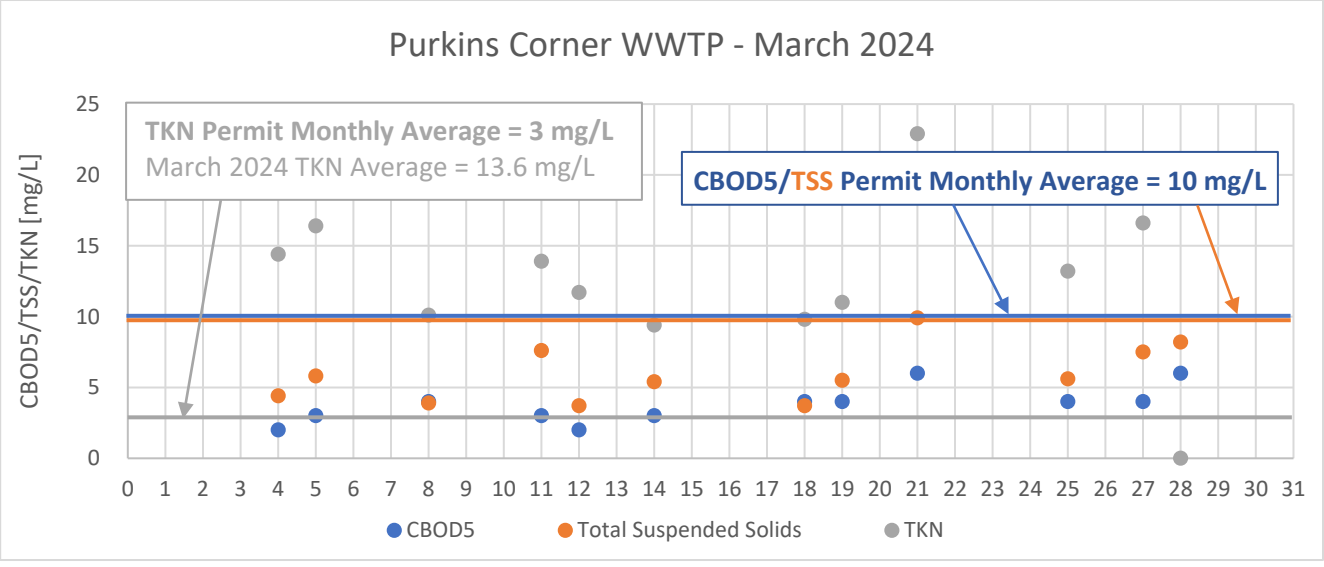
The Purkins Corner WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.058 MGD for a total monthly discharge of 1.779 MG.

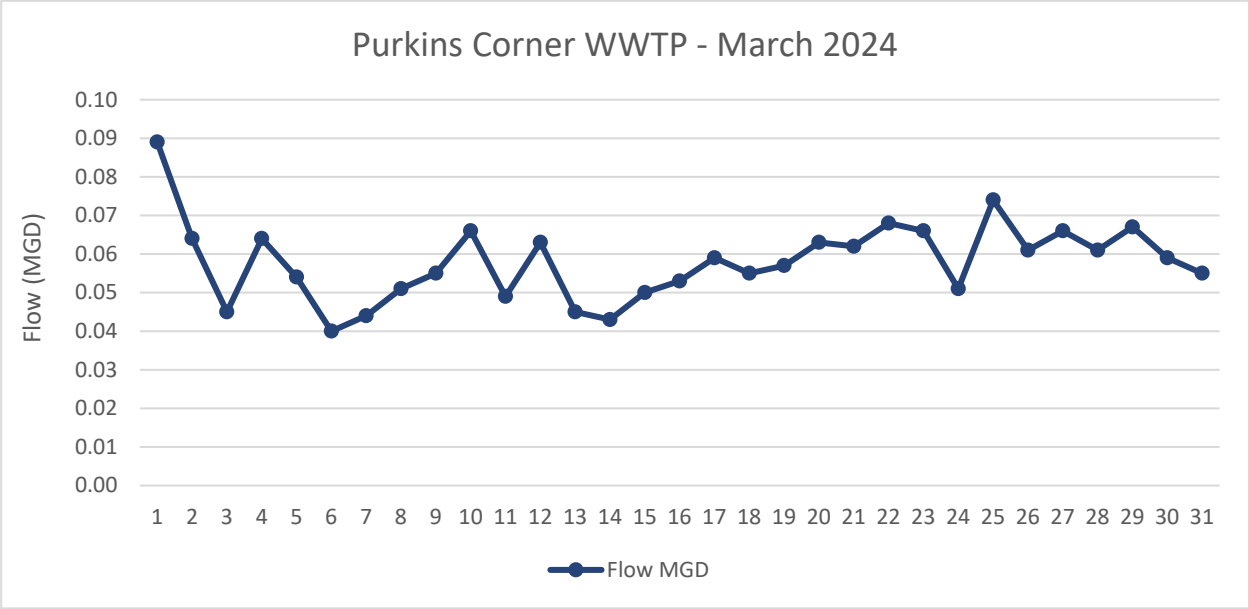
Operational Notes:

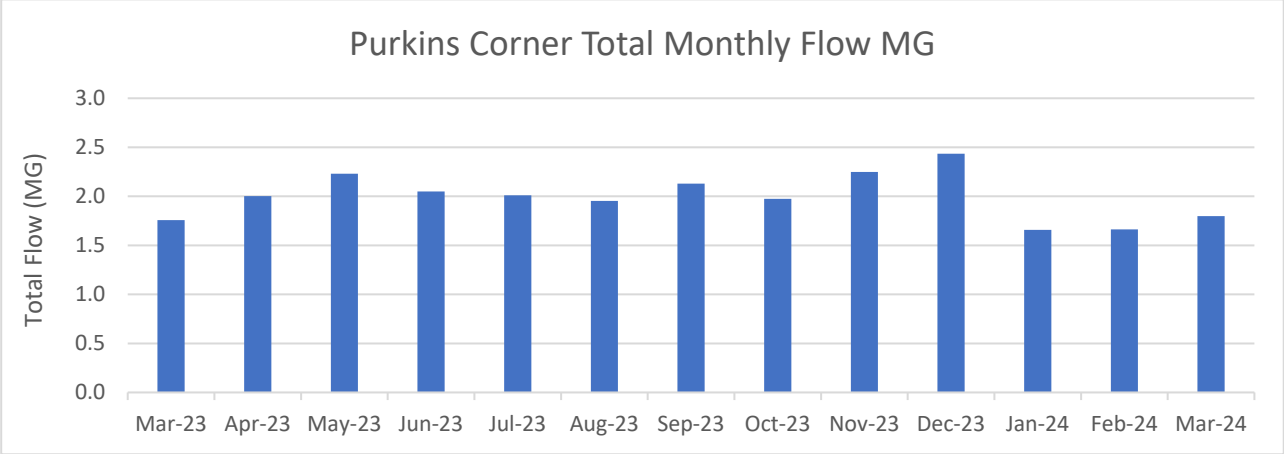
- The grinder and auger failed at Purkins due to a failed PLC. King George Maintenance bypassed the PLC to allow for continuous operation.
- Experienced high organic loading which had to be pumped and hauled all night from Purkins to Dahlgren.
- Disc filter faulted out and did not allow operation of backwash and sludge waste. King George Maintenance checked the equipment and judged the condition of the equipment to be safe.
- King George Maintenance ordered and began adding bioaugmentation from Maryland Biochemical to the sewer lift stations.

Data Trending:

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




Purkins Corner WWTP - March 2024
Flow (MGD)
0.10
0.09
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
Mar-23 Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24

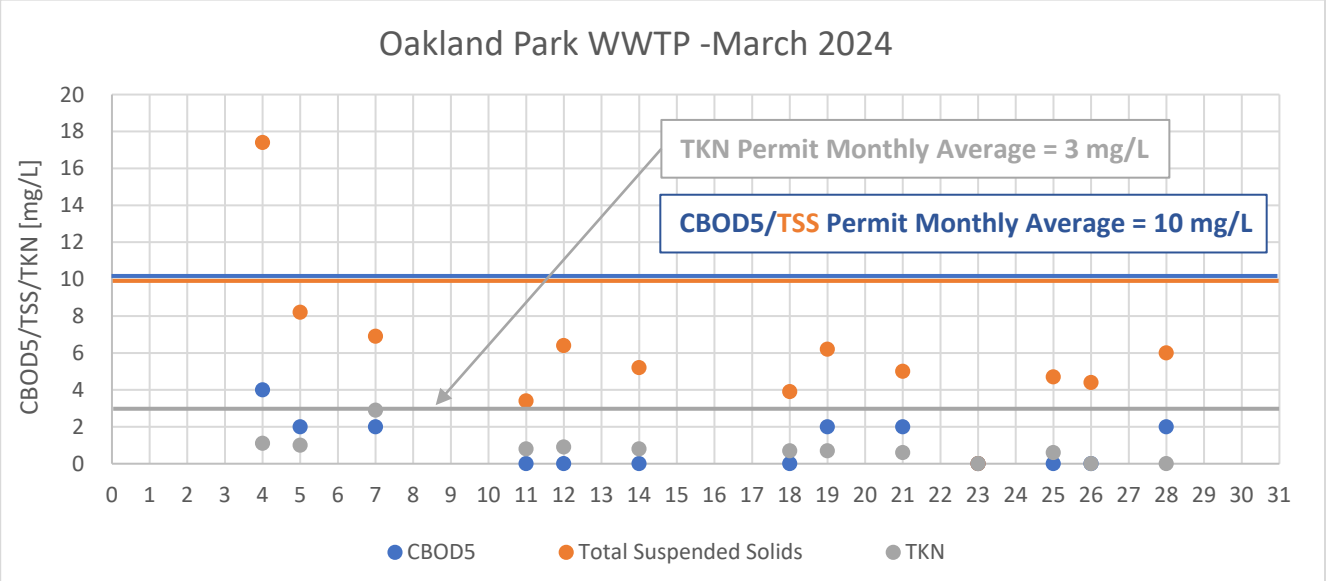
Oakland Park WWTP

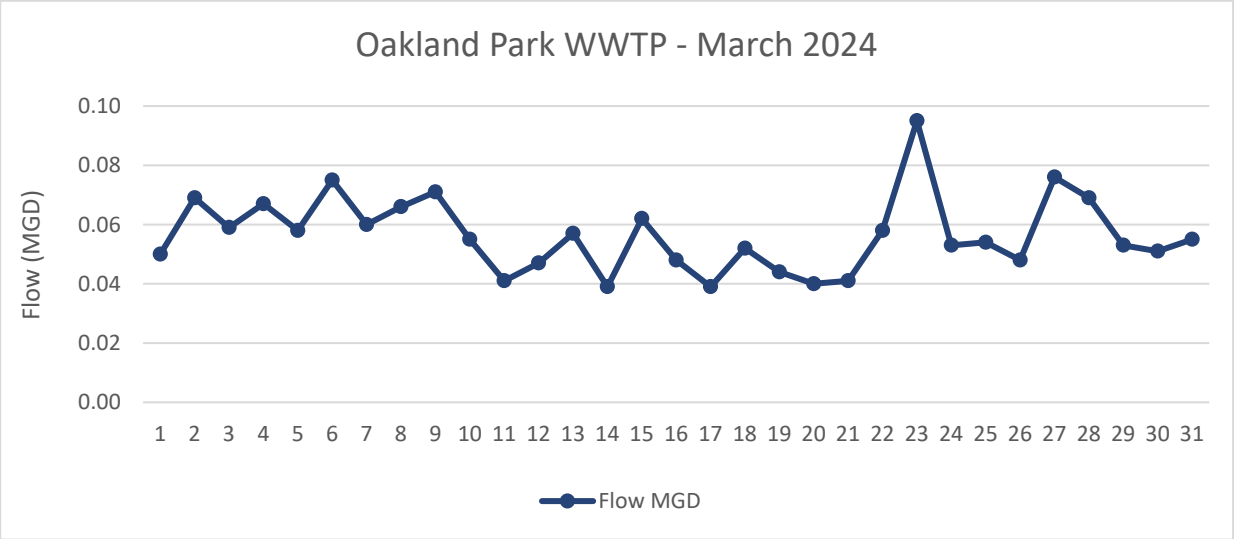
Effluent Quality:
The wastewater treatment facility maintained compliance with all permit-required sampling.

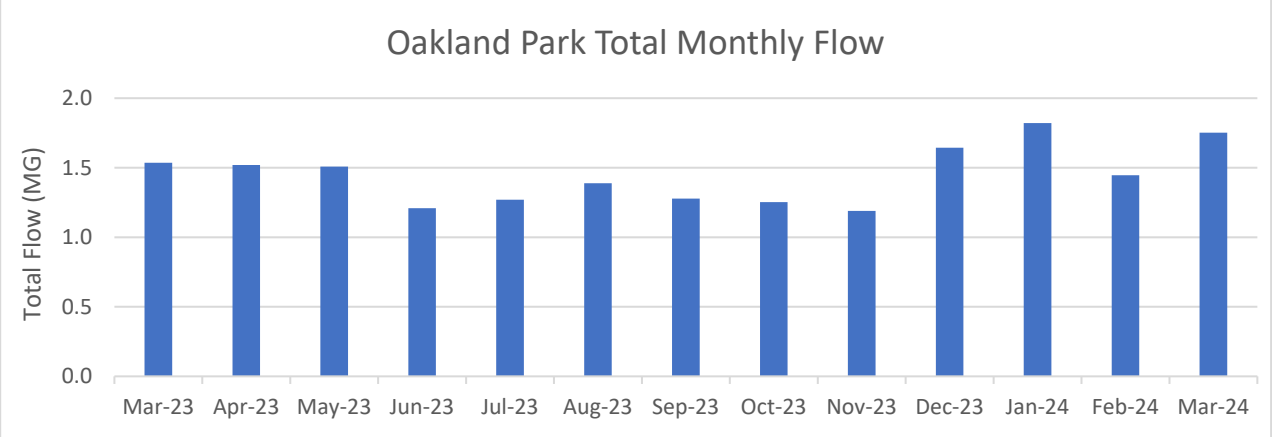
Wastewater Treatment:
The Oakland Park WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.057 MGD for a total monthly discharge of 1.752 MG.

Operational Notes:
- IES is reaching out to Alfa Laval regarding the repair and/or replacement of components of the sand filter.
- King George Maintenance switched the chemical feed to allow for a larger barrel and greater storage capacity of Coag 1850.

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




Oakland Park WWTP - March 2024
Flow (MGD)
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


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

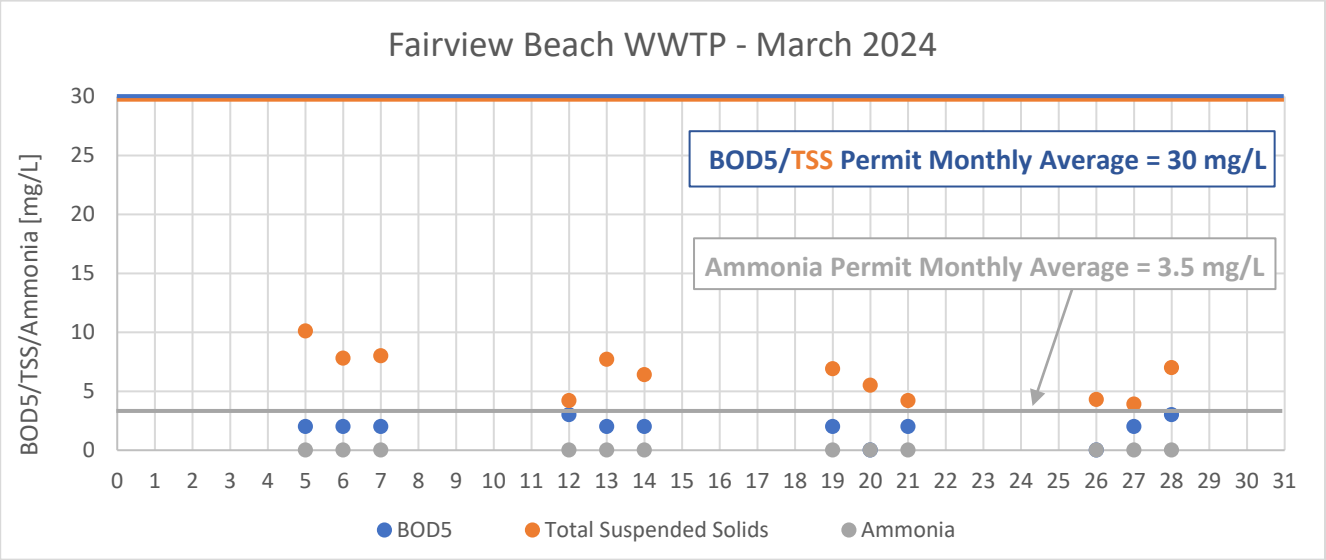
Fairview Beach WWTP

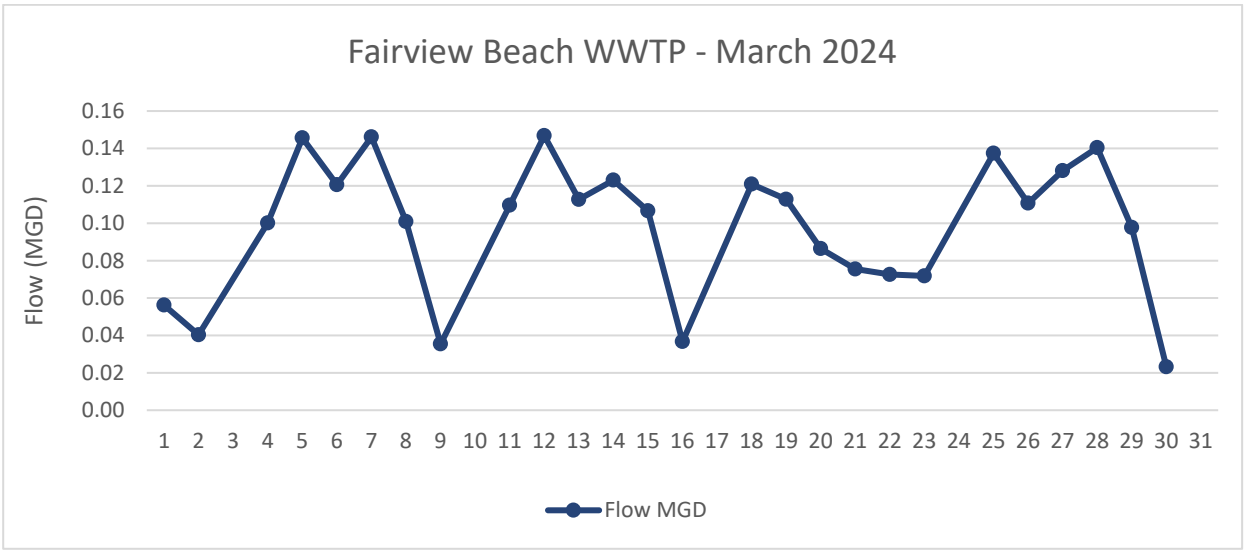
Effluent Quality:
The wastewater treatment facility and maintained compliance with all permit-required sampling.

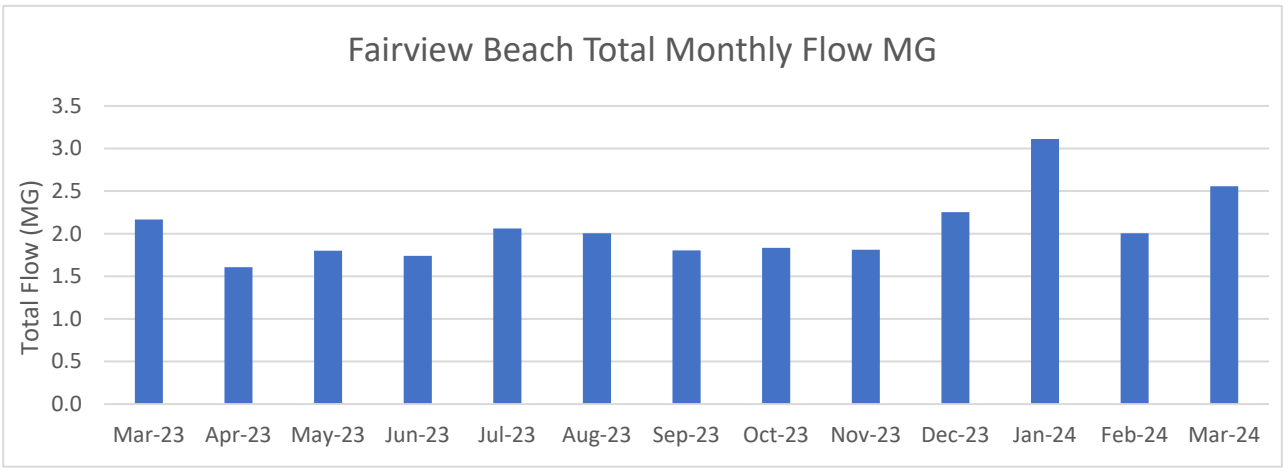
Wastewater Treatment:
The Fairview Beach WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.098 MGD for a total monthly discharge of 2.558 MG (26 days with flow).

Operational Notes:
- King George Maintenance switched the chemical feed to allow for a larger barrel and greater storage capacity of Coag 1850.

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




Fairview Beach WWTP - March 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
Mar-23 Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24

Glossary

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
F/M ratio	Food to Microorganism 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 for wastewater
TSS	Total Suspended Solids
UV	Ultraviolet Light
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant