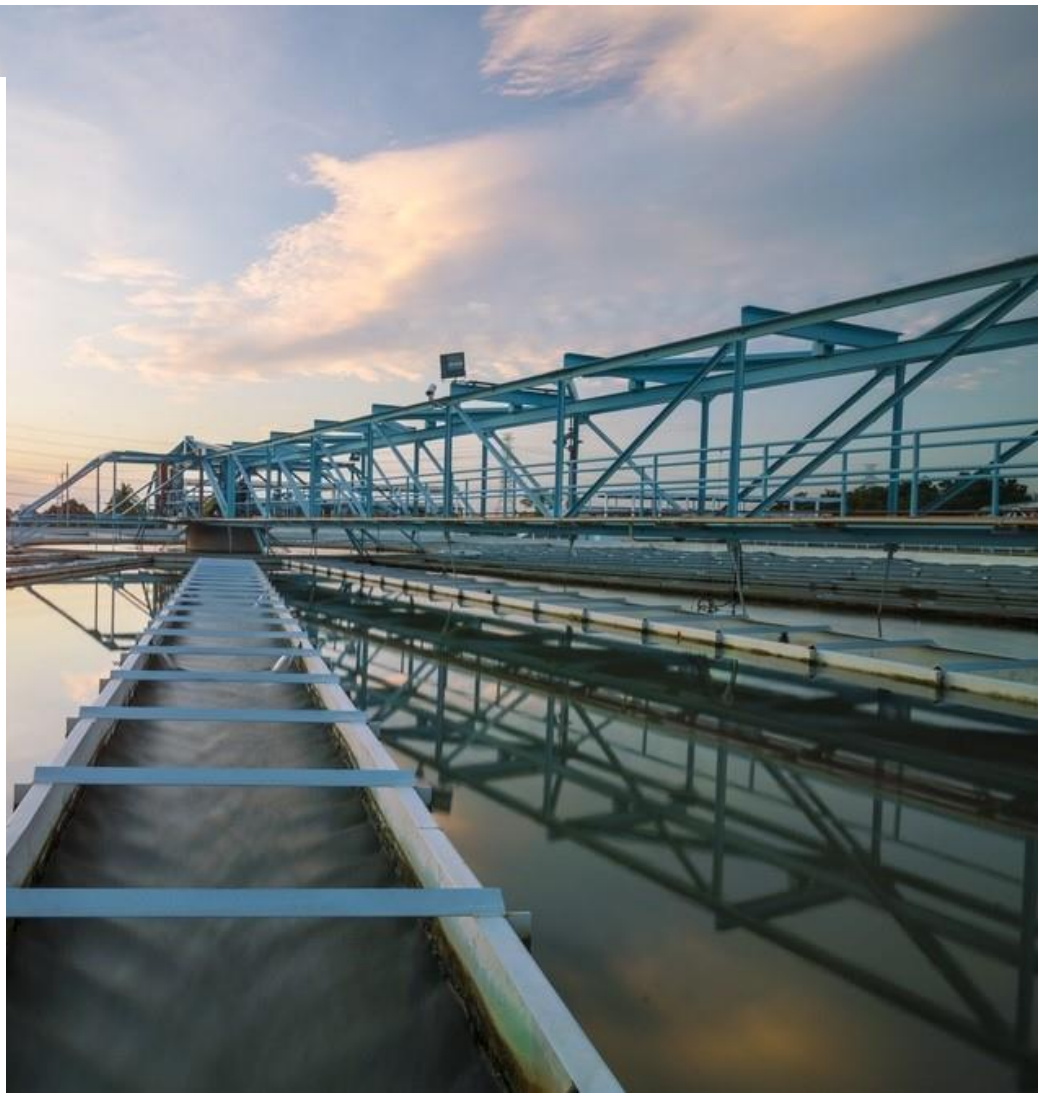
UTILITY REPORT



FEBRUARY 2025

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:

- Oakland entry point well went down. KGCSA Maintenance and the contracted well drilling company are working to replace the well pump.
- Bacteriological samples were collected and passed.
- Continuing to backwash green sand filters.
- Effectively dosing sodium hypochlorite to maintain disinfection.
- IES replaced the sodium hypochlorite injection quill along with the chemical metering pump to maintain safe drinking water quality.

Canterbury Subdivision – PWSID 6099085

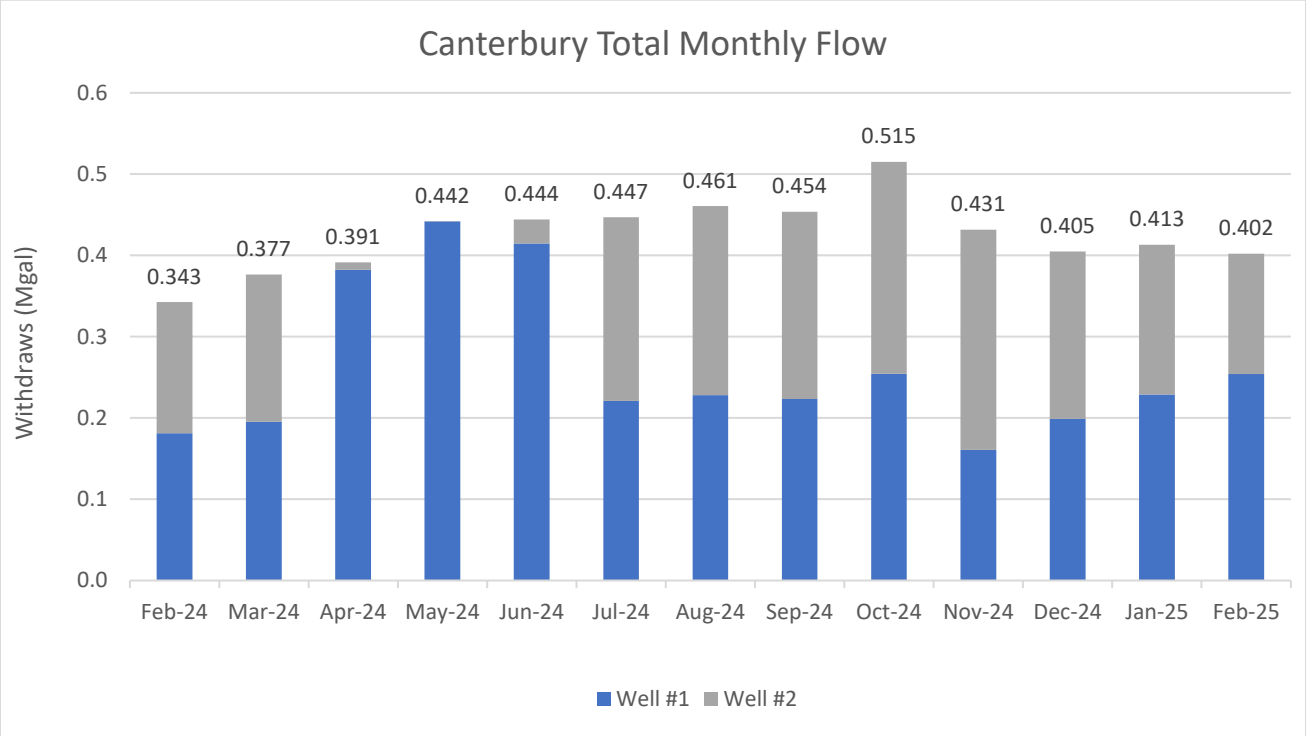
Water Quality:

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
020	12343 Kent Rd	2/24/2025	Absent

System Production:



Circle – PWSID 6099100

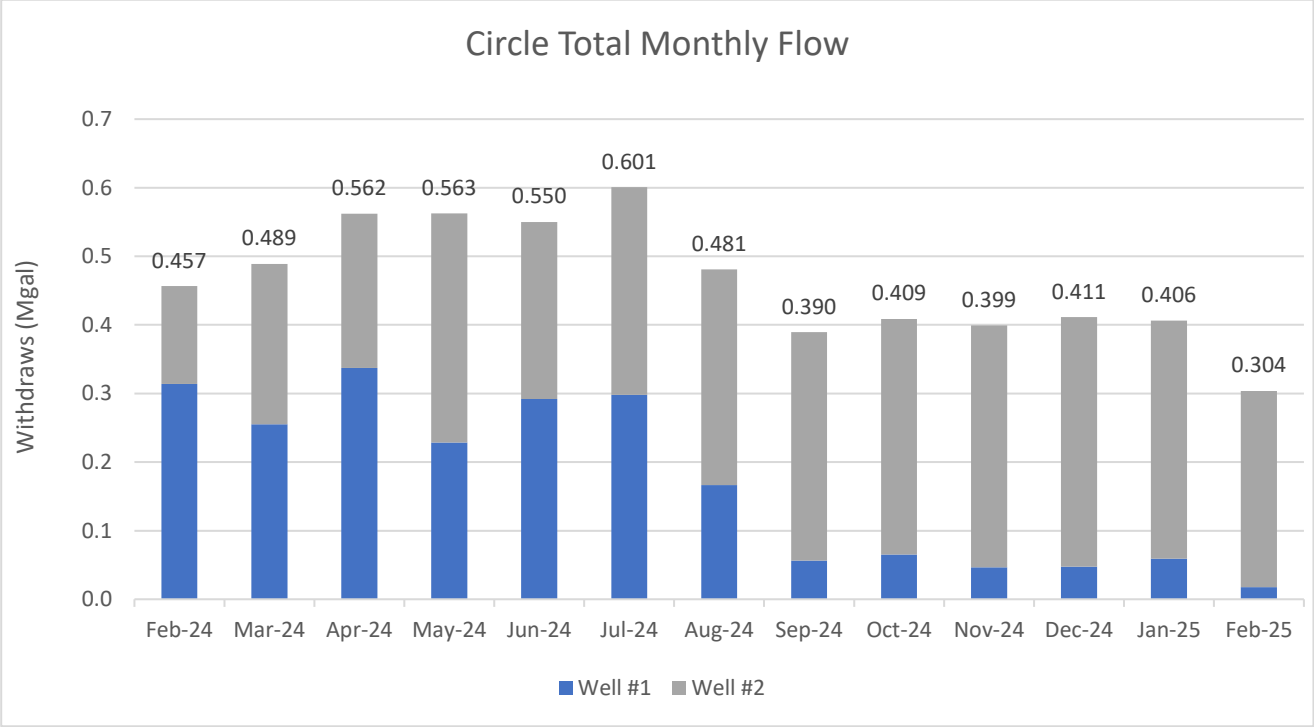
Water Quality:

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	2/25/2025	Absent

System Production:



KGC Courthouse – PWSID 6099050

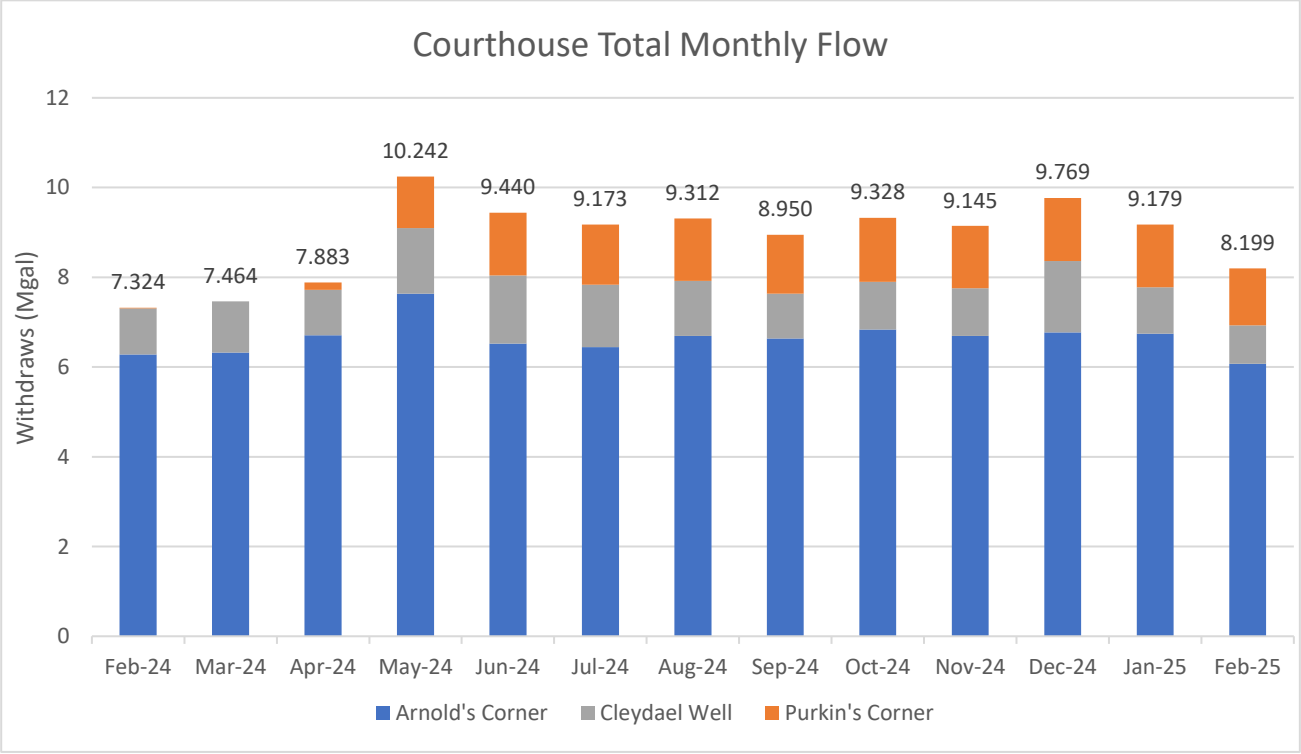
Water Quality:

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	2/20/2025	Absent
013	8095 Washington Dr.	2/24/2025	Absent
09	7323 Jackson Dr.	2/24/2025	Absent
07	12128 Cleydael Blvd.	2/24/2025	Absent
06	12156 Ward Rd.	2/24/2025	Absent

System Production:



Dahlgren – PWSID 6099295

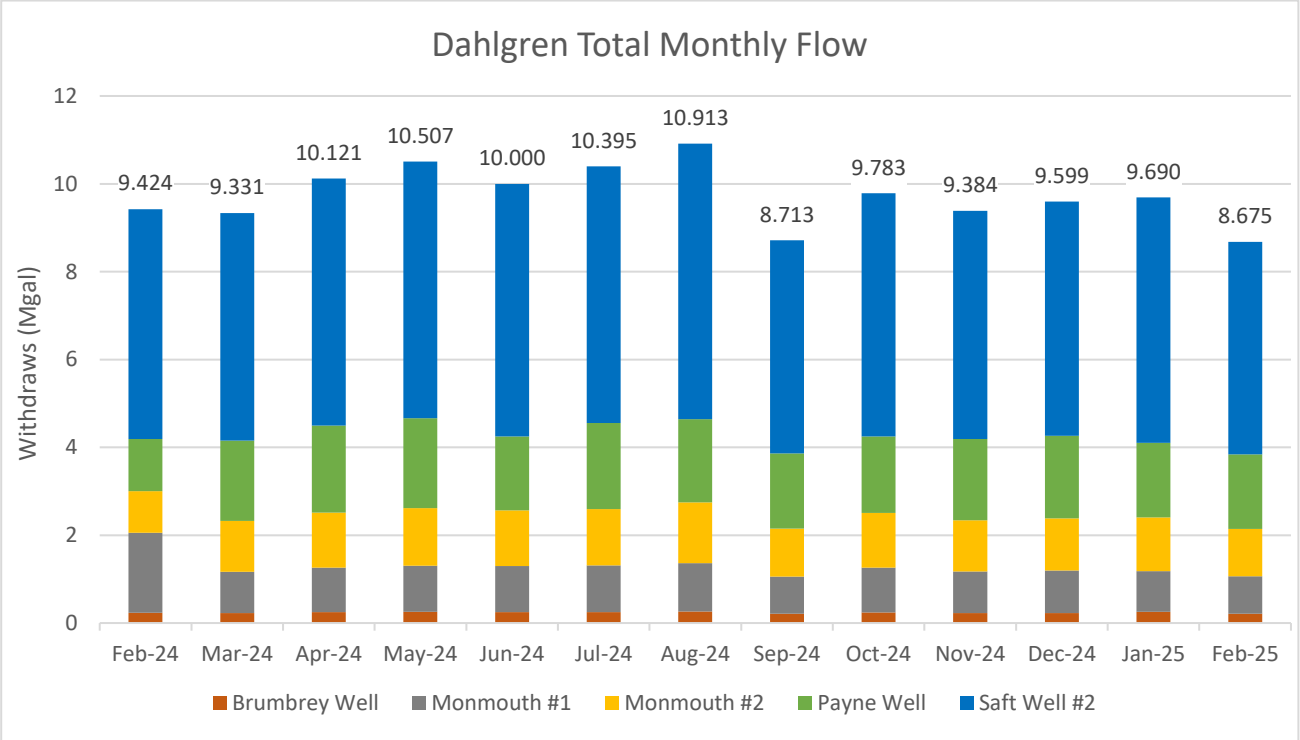
Water Quality:

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
01	15375 Dahlgren Rd.	2/20/2025	Absent
08U	4471 James Madison Pkwy	2/25/2025	Absent
03	5394 Gordon Dr.	2/25/2025	Absent

System Production:



Fairview Beach – PWSID 6099250

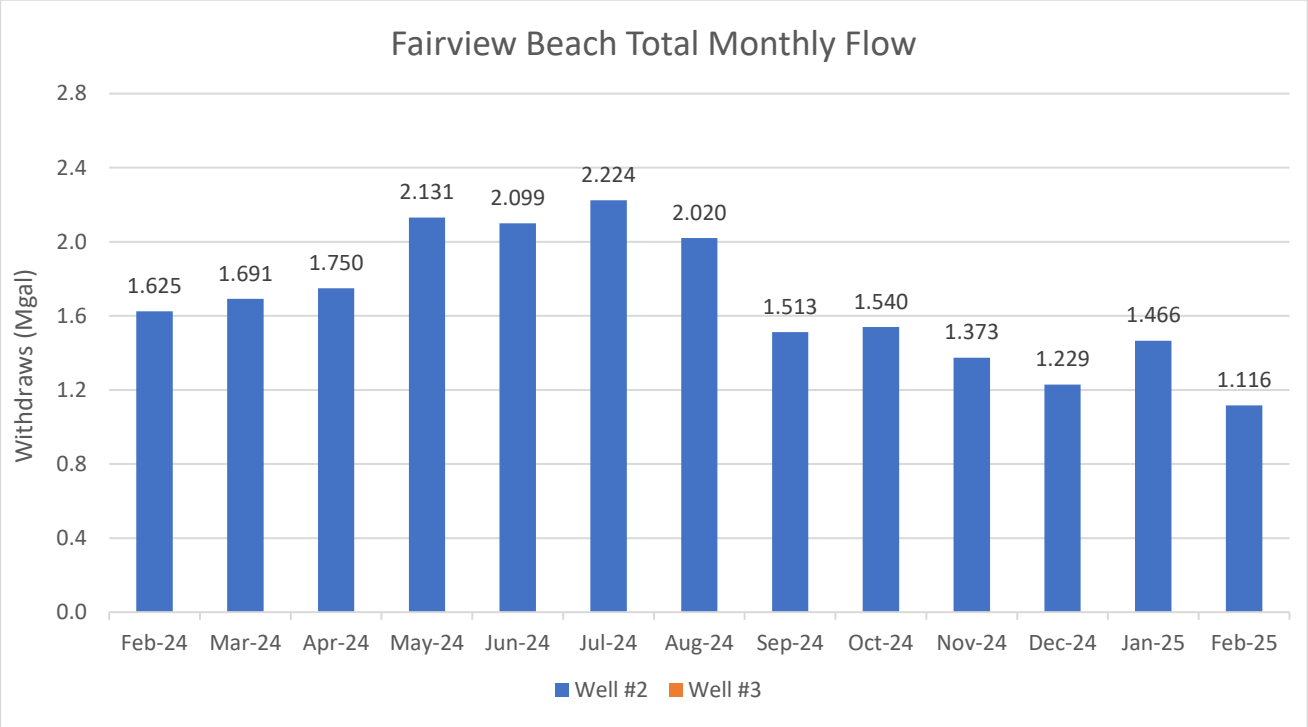
Water Quality:

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
04	6072 Riverview Dr.	2/20/2025	Absent

System Production:



Hopyard Farm – PWSID 6099283

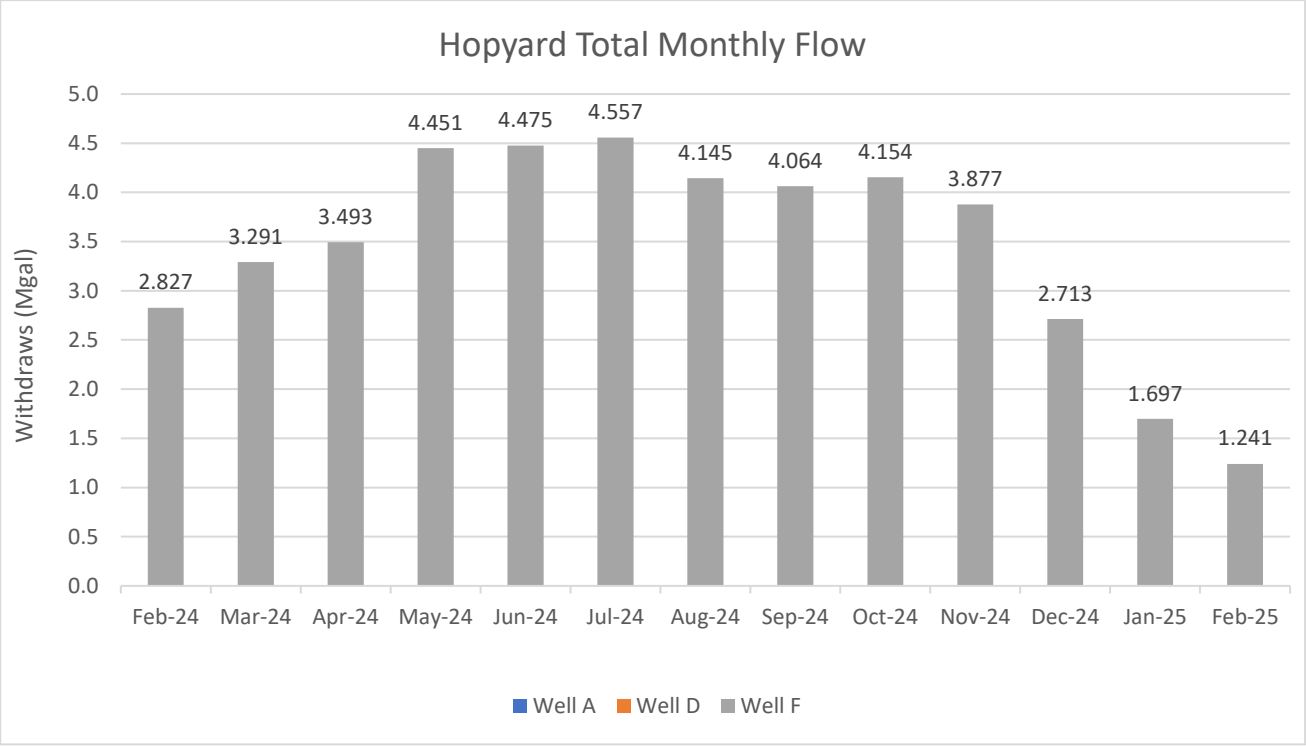
Water Quality:

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
01U	5968 Parsons Ln.	2/20/2025	Absent
050	5217 Spinnaker Ln.	2/20/2025	Absent

System Production:



KGC School Board Office – PWSID 6099296

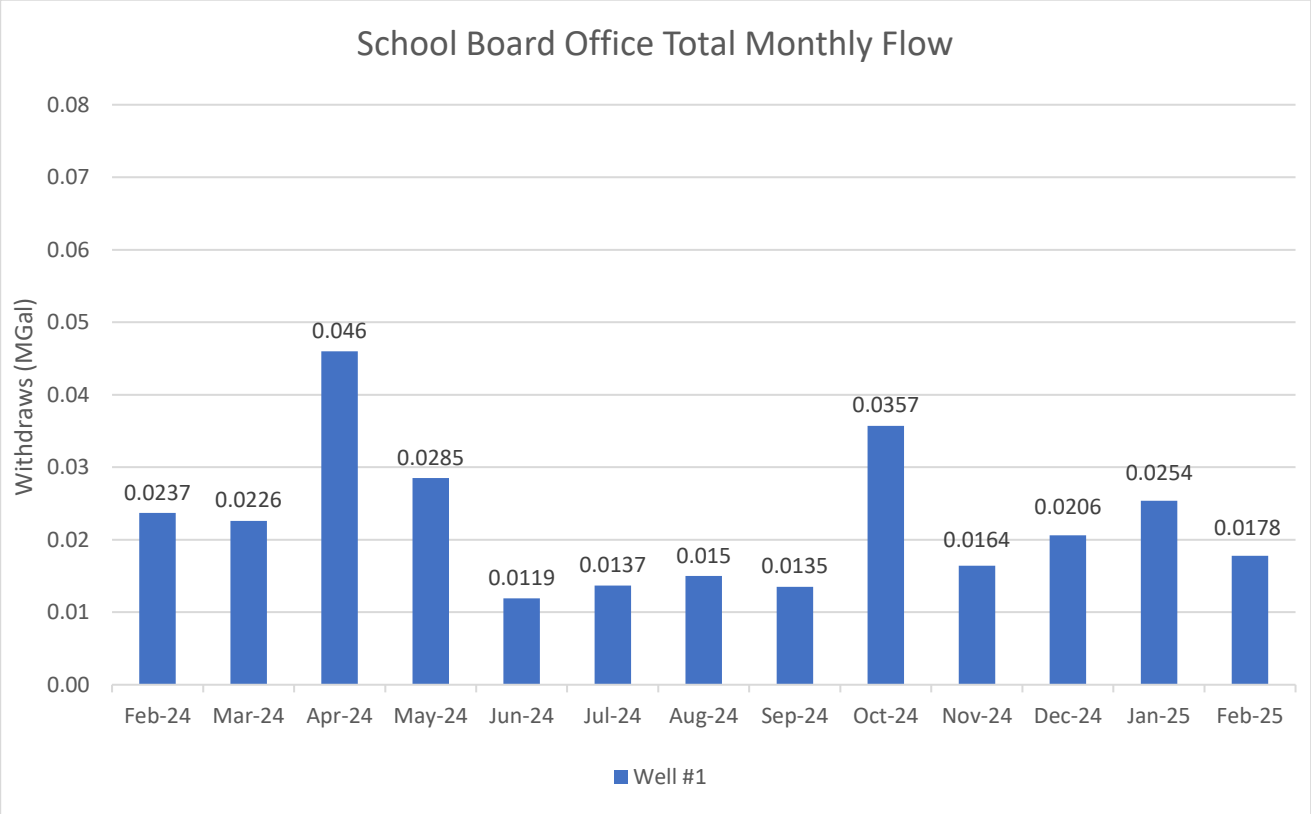
Water Quality:

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	2/24/2025	Absent

System Production:



Ninde’s Store – PWSID 6099300

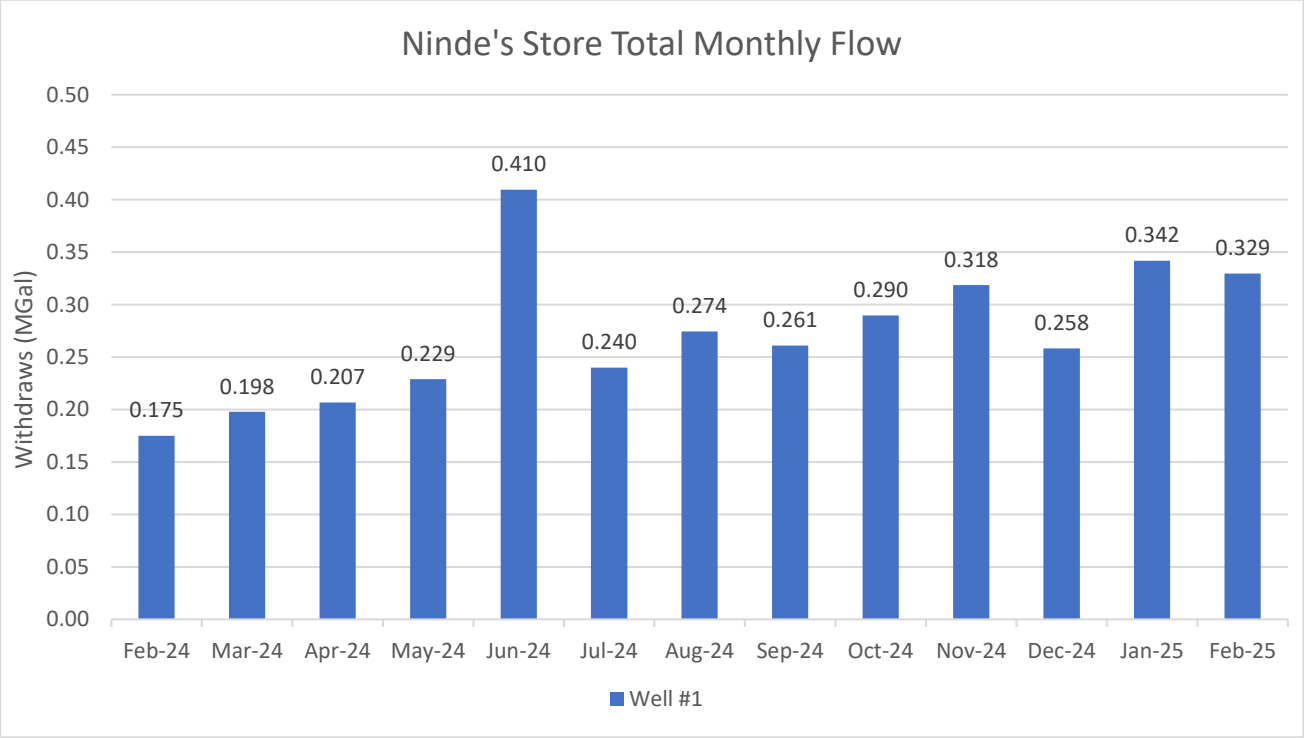
Water Quality:

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
020	16156 Ridge Rd.	2/24/2025	Absent

System Production:



Oakland Park – PWSID 6099350

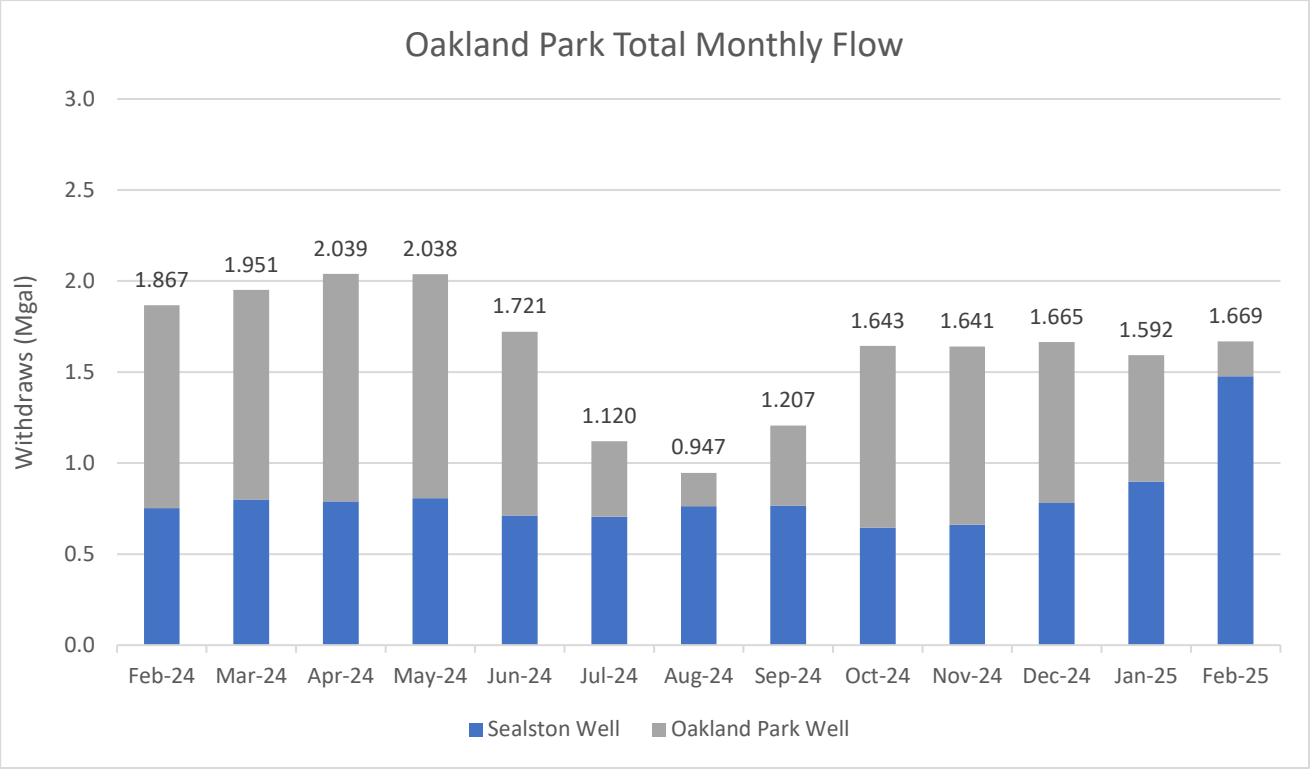
Water Quality:

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 Ct.	2/20/2025	Absent
03	9121 Covington St.	2/20/2025	Absent

System Production:



St. Paul's/Owens – PWSID 6099550

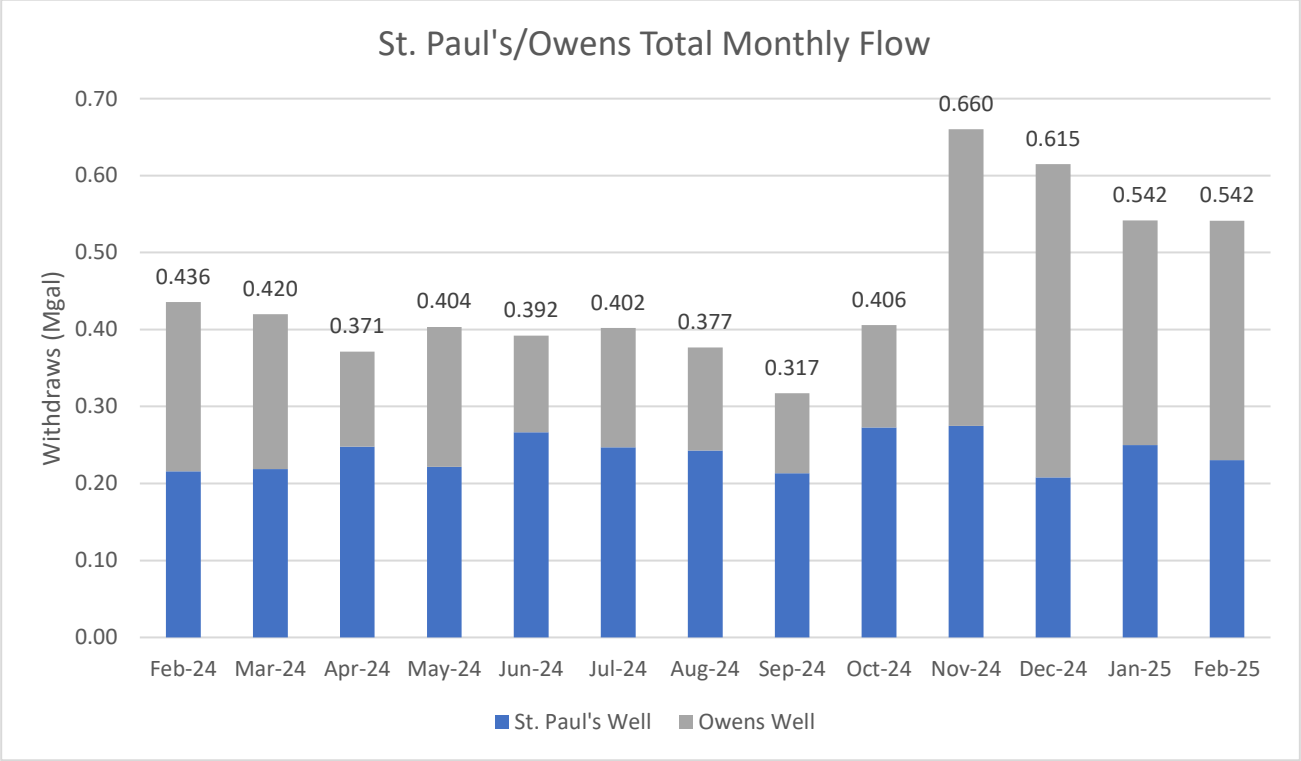
Water Quality:

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	2/24/2025	Absent

System Production:



WASTEWATER

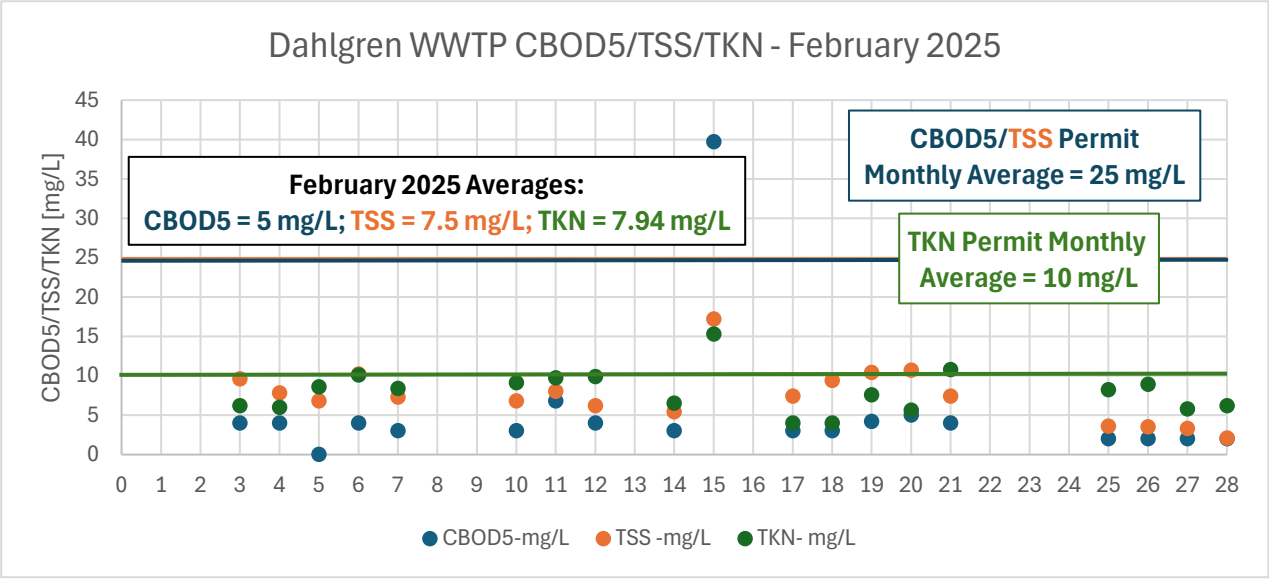
Dahlgren WWTP

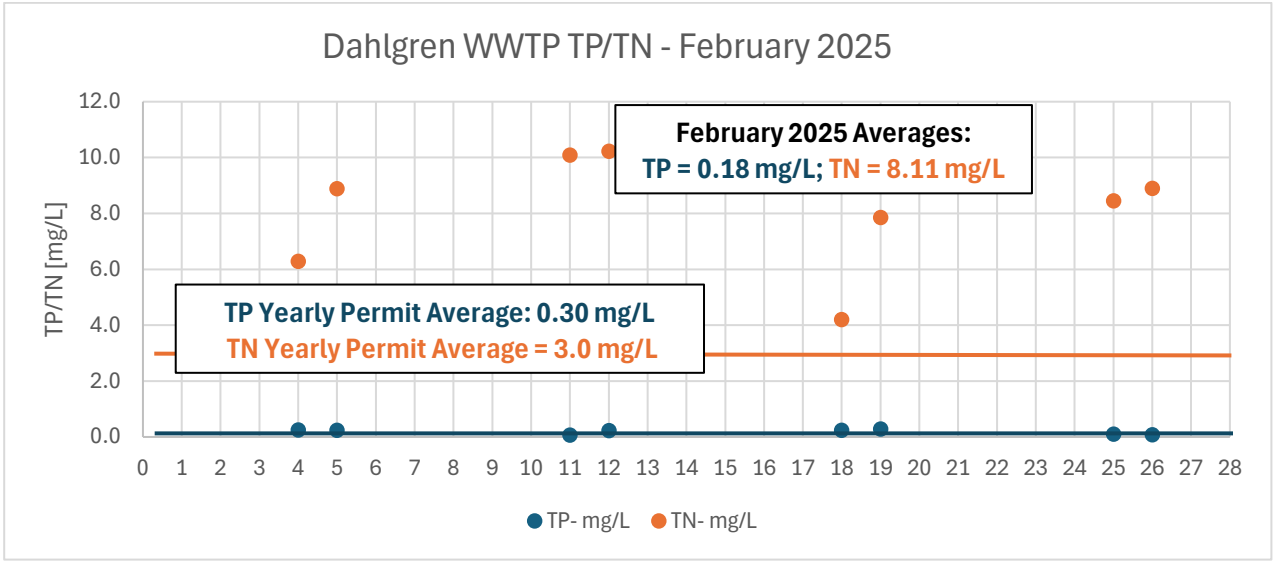
Effluent Quality:
The wastewater treatment facility maintained compliance with all permit-required sampling.

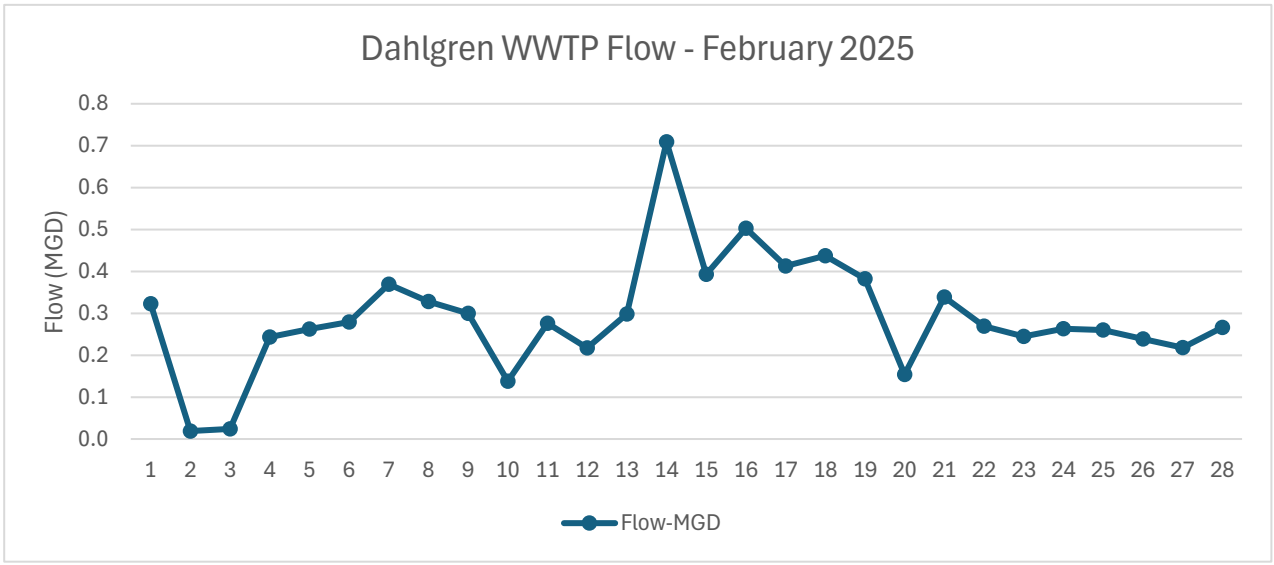
Wastewater Treatment:
The Dahlgren WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.292 MGD for a total monthly discharge of 8.166 MG.

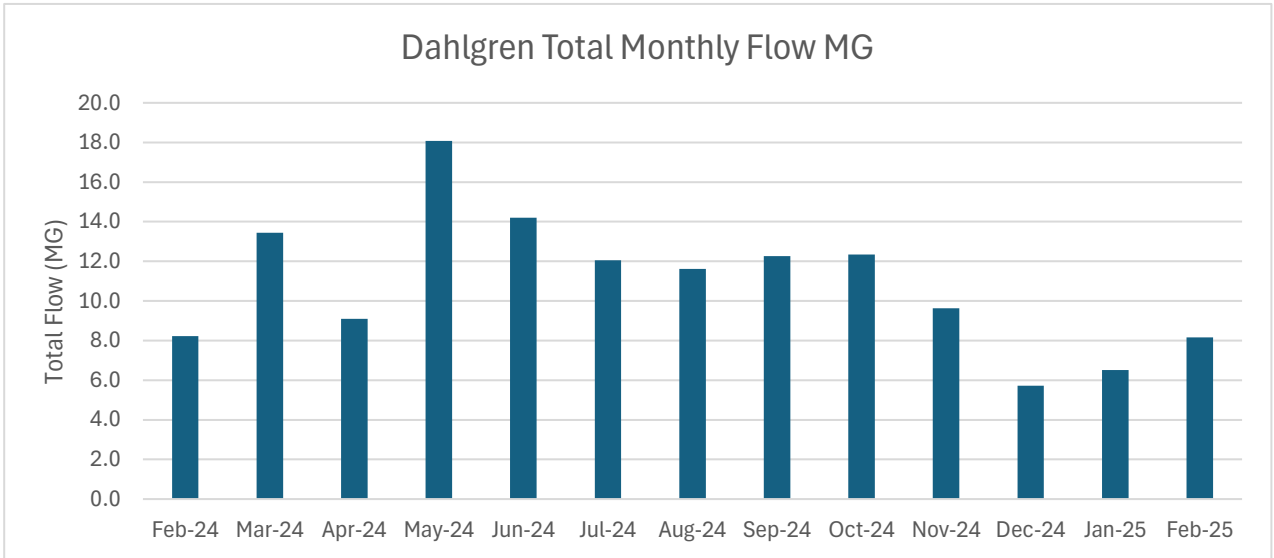
Operational Notes:
- The septic truck that is temporarily being utilized as a storage tank for BioCarb leaked multiple times. Maintenance stopped the leak to the best of their ability.
- Reuse water pumps froze and had to be thawed due to the ambient air temperature.
- KGCSA Maintenance removed an old sludge transfer pump for the belt filter press in the press building. A new sludge transfer pump is in the process of being installed.
- KGCSA Maintenance replaced the sludge conveyor belt for the belt filter sludge press.
- IES took note of the isolation valve for Digestor #3. KGCSA Maintenance broke ground to inspect the valve and plans to replace it.
- KGCSA Maintenance has needed to derag the influent pumps several times due to the mechanical screen still being repaired; influent flow continues to flow through the primitive bar screen.

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




Dahlgren WWTP TP/TN - February 2025
TP/TN [mg/L]
February 2025 Averages:
TP = 0.18 mg/L; TN = 8.11 mg/L
TP Yearly Permit Average: 0.30 mg/L
TN Yearly Permit Average = 3.0 mg/L
TP- mg/L
TN- mg/L


Dahlgren WWTP Flow - February 2025
Flow (MGD)
Flow-MGD


Dahlgren Total Monthly Flow MG
Total Flow (MG)
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25

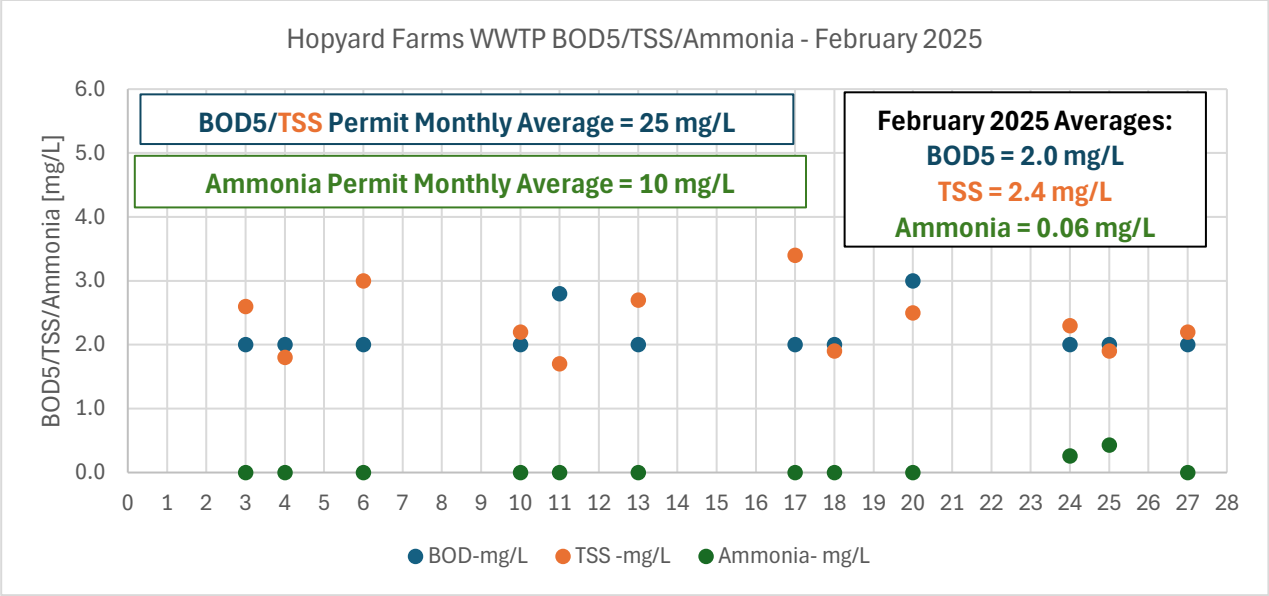
Hopyard Farms WWTP

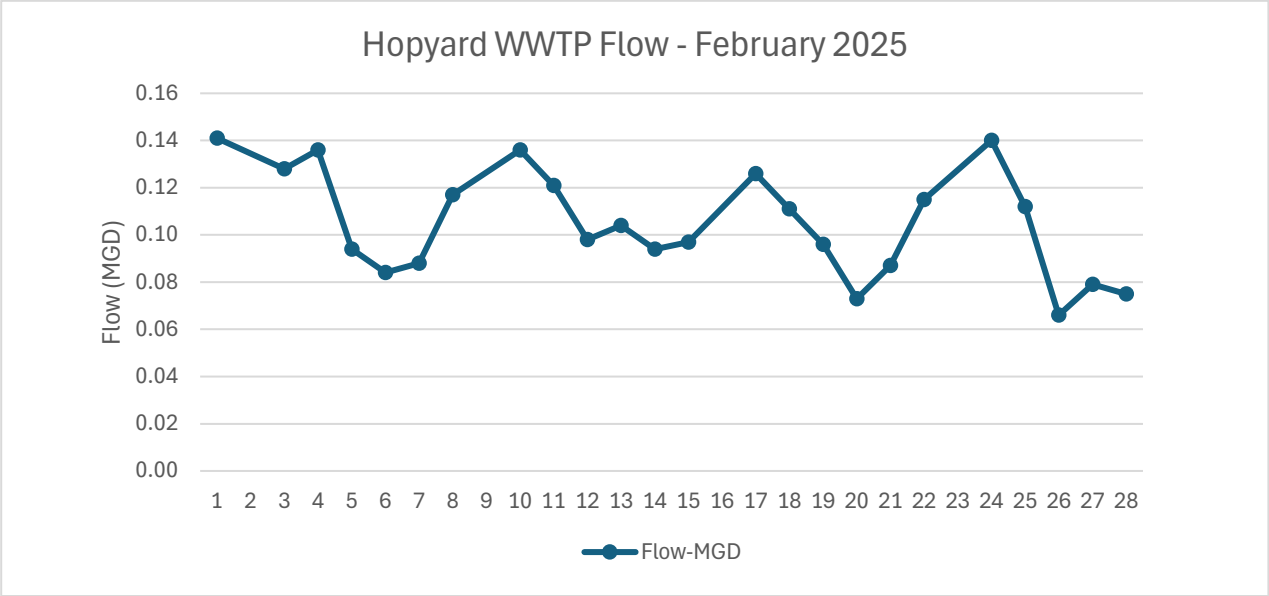
Effluent Quality:
The wastewater treatment facility maintained compliance with all permit-required sampling.

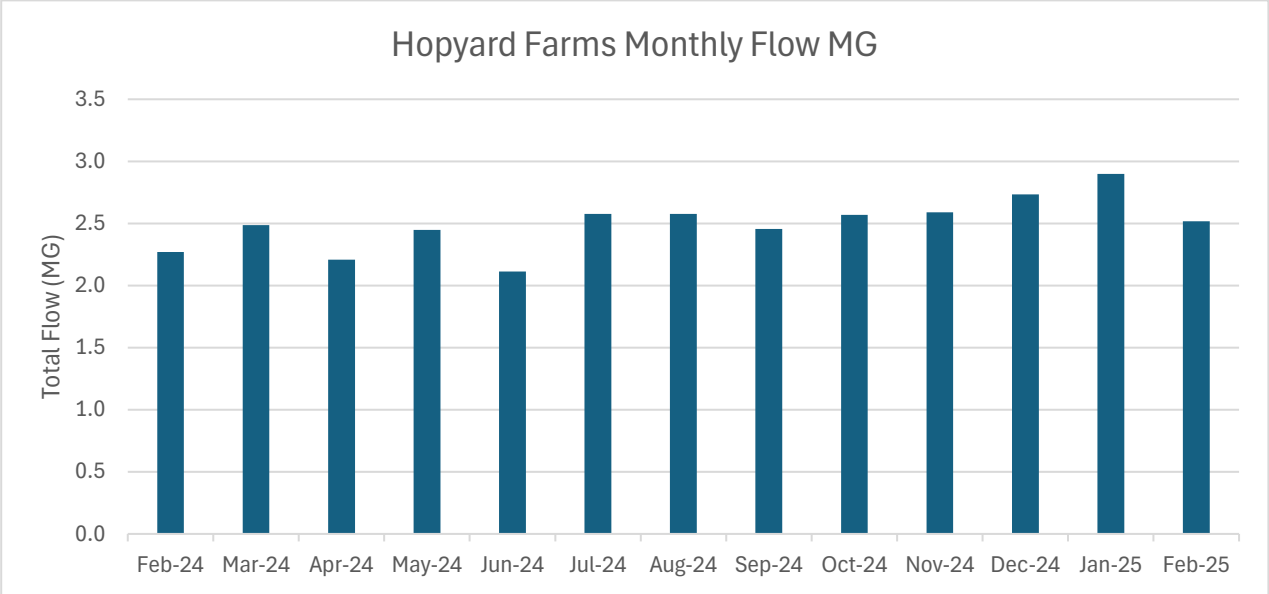
Wastewater Treatment:
The Hopyard Farms WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.105 MGD for a total monthly discharge of 2.518 MG (24 days with flow).

Operational Notes:
- KGCSA Maintenance replaced the float switch for the mechanical screen at the headworks channel.

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




Hopyard WWTP Flow - February 2025
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
Flow-MGD


Hopyard Farms Monthly Flow MG
Total Flow (MG)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Feb-24 Mar-24 Apr-24 May-24 Jun-24 Jul-24 Aug-24 Sep-24 Oct-24 Nov-24 Dec-24 Jan-25 Feb-25

Purkins Corner WWTP

Effluent Quality:

The wastewater treatment facility maintained compliance with all permit-required sampling. TSS exceedances were noted as explained below.

Wastewater Treatment:

The Purkins Corner WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.055 MGD for a total monthly discharge of 1.537 MG.

Operational Notes:

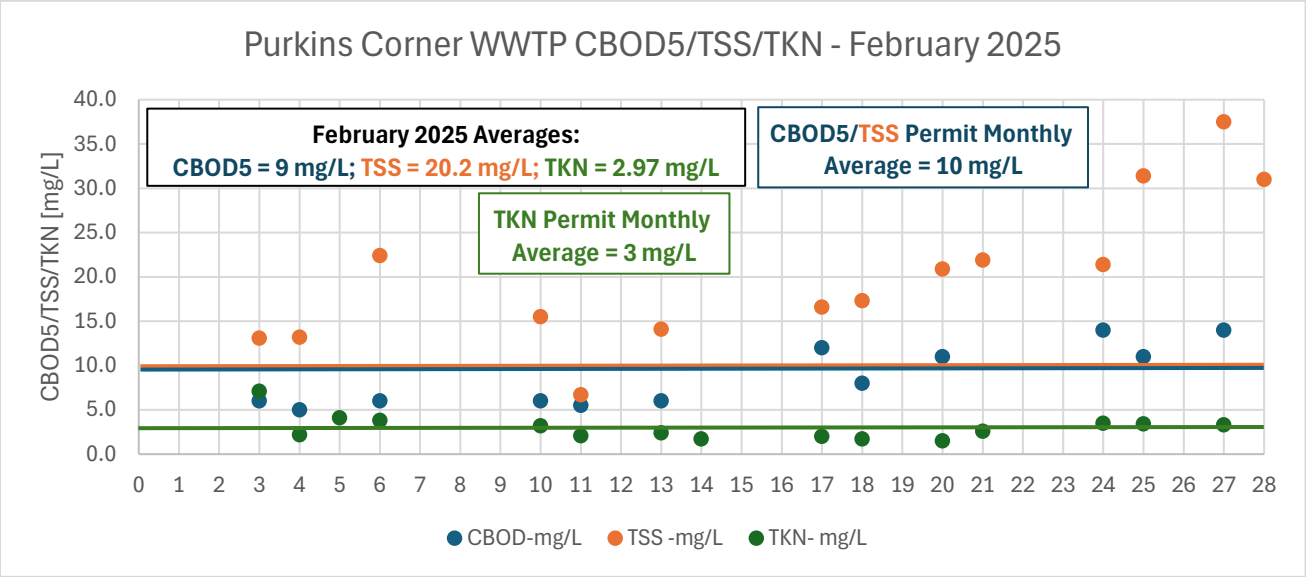
- Mechanical screen failed due to a faulty wire, which had shorted the control panel, causing a small overflow. KGCSA Maintenance returned the screen to service by the end of the day.
- IES operational team has been having difficulty achieving adequate aeration for the aeration basins due to missing and/or damaged diffusers and air valves.
- IES had to reseed Plant B due to the microbiome being impacted by an incoming water quality issue.

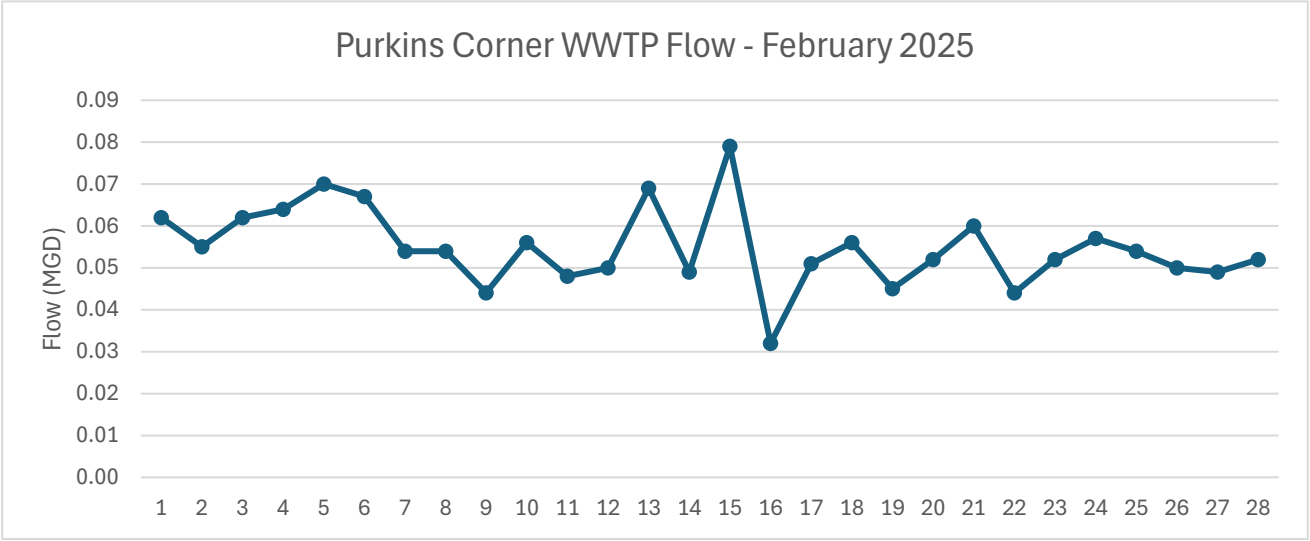
Exceedance Details:

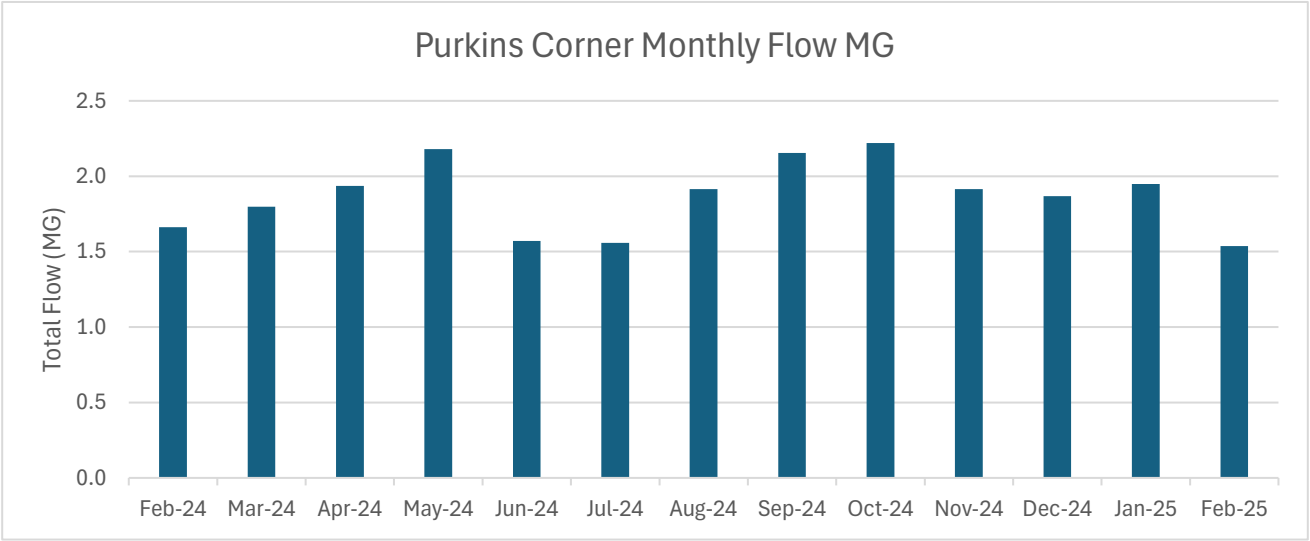
- Exceedance: During the February monitoring period, TSS exceeded the weekly maximum permit limit of 15 mg/L with 16.2 mg/L and 19.2 mg/L. Additionally, the monthly average for TSS was 20.2 mg/L, exceeding the permit limit of 10 mg/L. After discussion with operations, it was determined that the elevated TSS concentrations were related to continued colloidal solids being produced within the process of plant A and B. IES operations is continuing to investigate the cause of colloidal solids being produced and has also rescheduled an inspection of the cloth disc filters by a manufacturer representative due to inclement weather postponing the original inspection. The manufacturer representative is tentatively scheduled for 3/18/2025 and at that time can provide suggestions for repairs or more effective treatment.

Data Trending:

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


Purkins Corner WWTP CBOD5/TSS/TKN - February 2025
February 2025 Averages:
CBOD5 = 9 mg/L; TSS = 20.2 mg/L; TKN = 2.97 mg/L
CBOD5/TSS Permit Monthly Average = 10 mg/L
TKN Permit Monthly Average = 3 mg/L
CBOD5/TSS/TKN [mg/L]
CBOD-mg/L
TSS -mg/L
TKN- mg/L


Purkins Corner WWTP Flow - February 2025
Flow (MGD)


Purkins Corner Monthly Flow MG
Total Flow (MG)
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25

Oakland Park WWTP

Effluent Quality:

The wastewater treatment facility maintained compliance with all permit-required sampling. TKN, E. coli, and CBOD5 exceedances were noted as explained below.

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 1.404 MG.

Operational Notes:

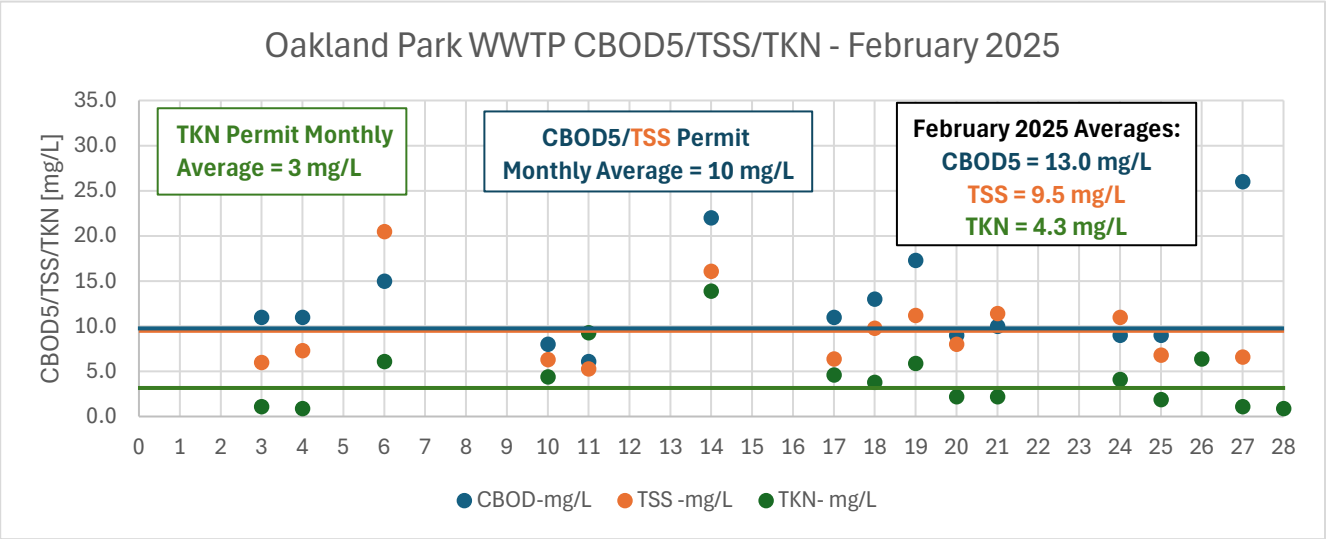
- BioCarb transfer pipe was repaired by maintenance to keep chemical flowing.
- Plant A was taken offline due to filamentous bloom that increased the risk of discharging solids.
- Additional loads were hauled from Oakland EQ basin due to inclement weather from rain, inflow, and infiltration.
- EQ basin welding is nearly completed; only a few more hours are needed to finish the job.
- DEQ recon site inspection.
- One out of two sand filters for Plant B were reinstated at Oakland. The other side still needs to be cleaned out and media replaced by maintenance. No further material should be needed.

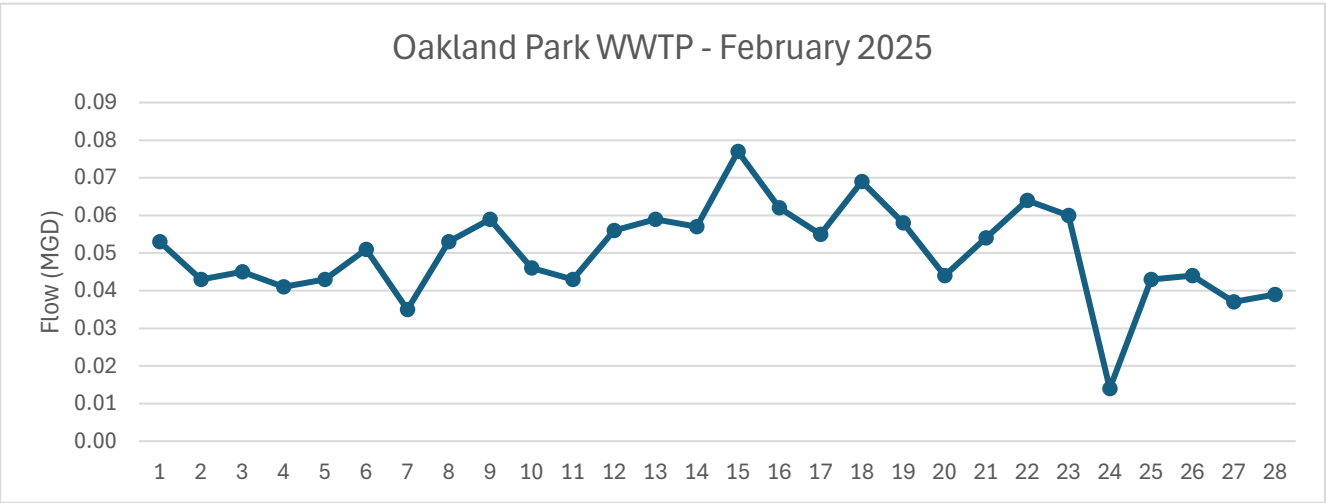
Exceedance Details:

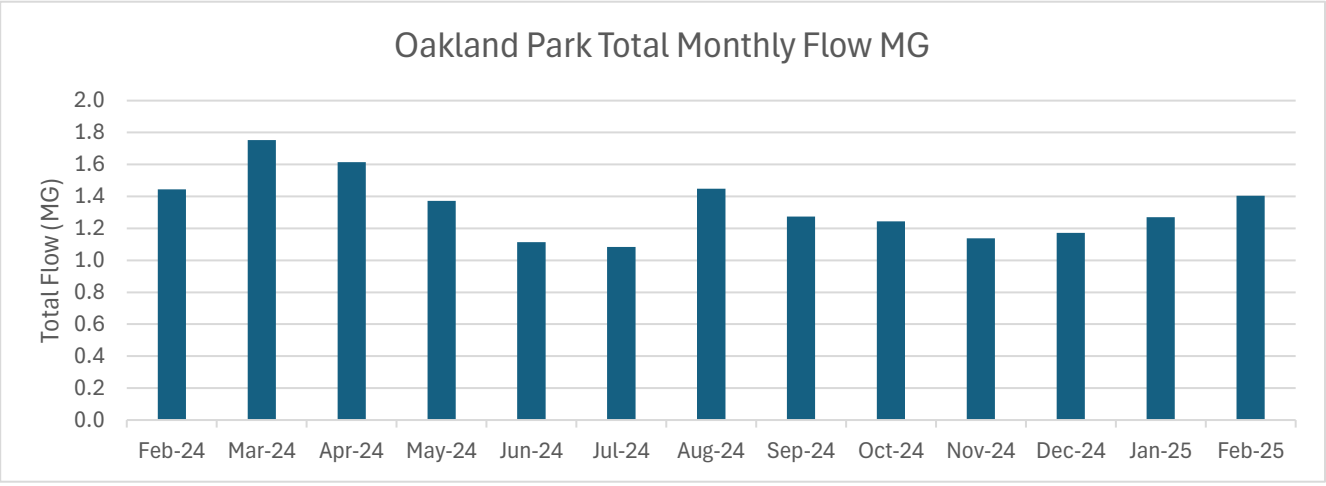
- During the February monitoring period:
  - The weekly TKN concentration exceeded the permit limit of 4.5 mg/L with at 9.20 mg/L.
  - The monthly TKN concentration exceeded the permit limit of 3.0 mg/L with 4.30 mg/L.
  - The E. coli samples collected on February 18th and 19th had results of > 2419.6 n/CML, these two elevated E. coli results brought the geometric mean to >25 n/CML.
  - The monthly CBOD5 concentration exceeded the permit limit of 10 mg/L with 13 mg/L.
- After discussion with operations, the following were determined to be the cause of exceedances at the facility:
  - The weekly and monthly TKN exceedances were caused by a BioCarb chemical line blockage on February 12th that was corrected expeditiously. On the following day, February 13th, there was a large amount of I&I from inclement weather that caused increased flow to the plant. Additionally, there have been several instances of a black influent entering the EQ basin from the collection system.
  - The E. Coli exceedances were caused by the sand filter for plant B being offline.
  - The elevated CBOD5 concentrations are also attributed to the black influent entering the plant from the collection system.
- Remedy:
  - For TKN and CBOD5: IES took immediate action and had a septic hauler pump and haul as much of the contents to the Dahlgren WWTP and discharged into the digester.
  - For the E. coli: The B plant sand filter has been rehabbed and placed back in service and the turbidity in Plant B has cleared up.

Data Trending:

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







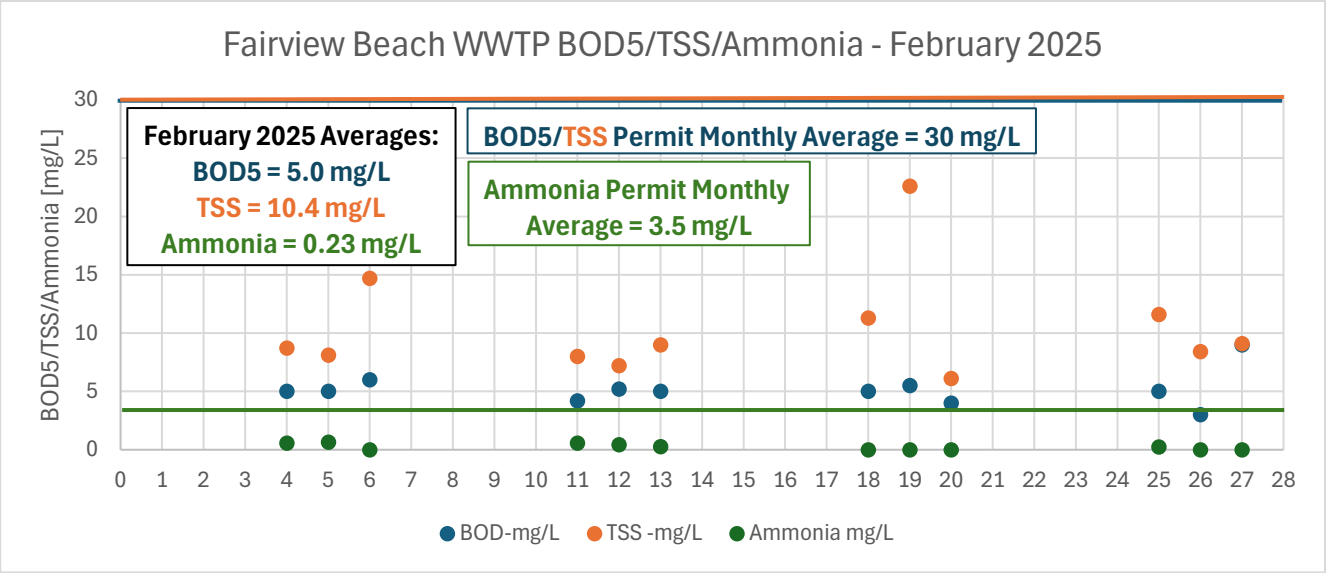
Fairview Beach WWTP

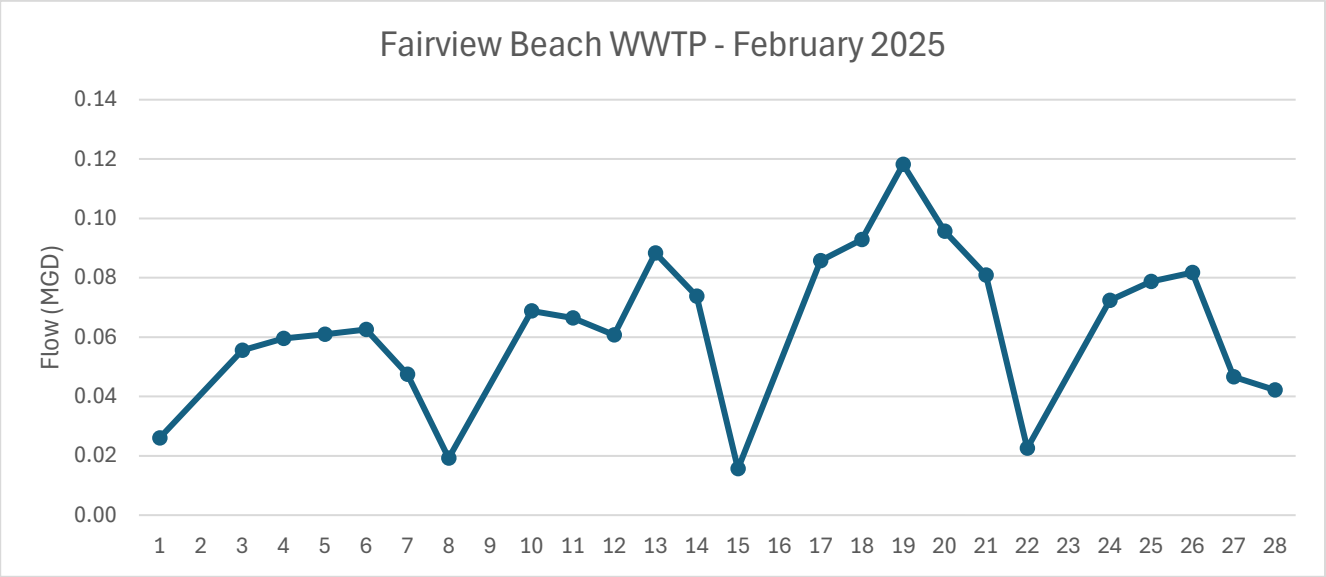
Effluent Quality:
The wastewater treatment facility and maintained compliance with all permit-required sampling.

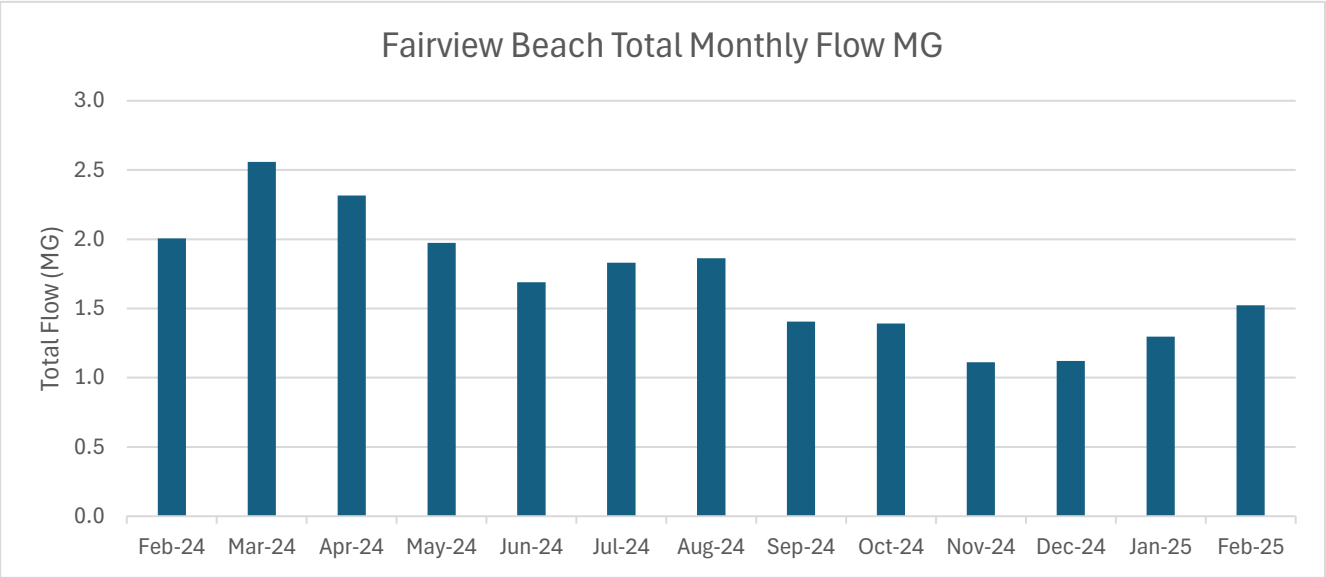
Wastewater Treatment:
The Fairview Beach WWTP met the sewer service area's sanitation demand with an average daily discharge of 0.063 MGD for a total monthly discharge of 1.523 MG (24 days with flow).

Operational Notes:
- IES is continuing to meet permit limits and minimizing pump run times.

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 2025
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


Fairview Beach Total Monthly Flow MG
Total Flow (MG)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Feb-24 Mar-24 Apr-24 May-24 Jun-24 Jul-24 Aug-24 Sep-24 Oct-24 Nov-24 Dec-24 Jan-25 Feb-25

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