# LEWES BPW WWTP Biweekly InSight Report

## Date: 3/23/2022

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## System Equipment

4 × ZW trains, each train consists of 4 - 500D cassettes, 120 modules x 370 sq. ft. per train (surface area 44,400 sq. ft. per train)
Replacement membranes installed Q1 2020 on trains UF3 and UF4

## Cleaning Strategy

Recovery cleaning - 2 NaOCl @ 2000 ppm dose/1000 ppm soak per year, 1 Citric acid @ 2000 ppm per year
Maintenance cleaning - 1 NaOCl per week @ 200 ppm, 1 Citric acid per week @ 2000 ppm

## KPI Dashboard – Avg values through reporting period

Legend:
- Action Required (red)
- Caution (yellow)
- No Limits (gray)
- Normal (green)



FluxBeforeBP gfd — UF1: 11.58, UF2: 12.22, UF3: 11.69, UF4: 11.14

PermeateTurbidityAfterBP NTU — UF2: 0.16

TCPermeabilityBeforeBP gfd/psi — UF1: 6.85, UF2: 10.32, UF3: 13.06, UF4: 13.62

TMPBeforeBP psi — UF1: 1.90, UF2: 1.36, UF3: 1.02, UF4: 0.93
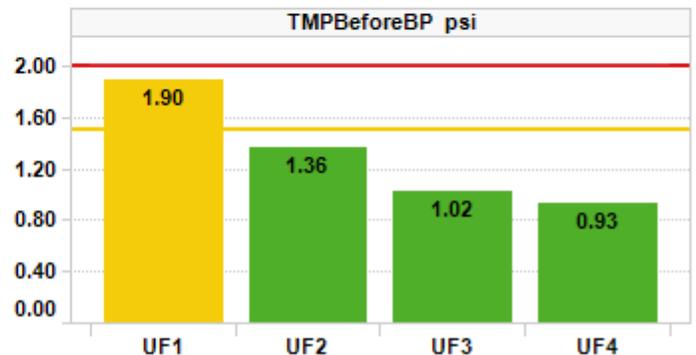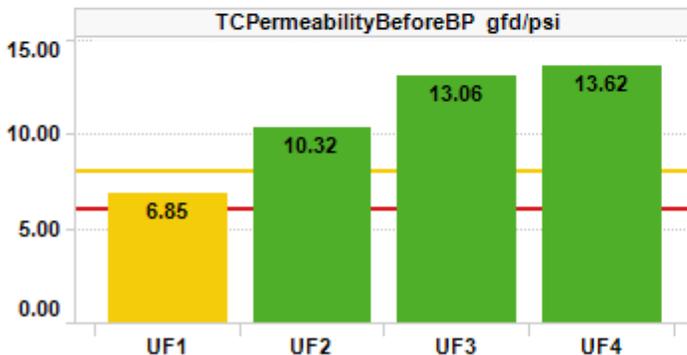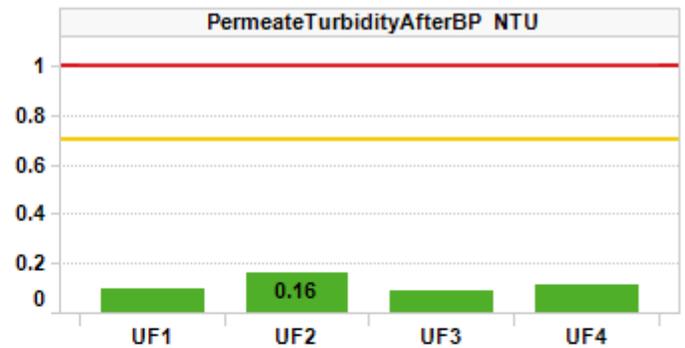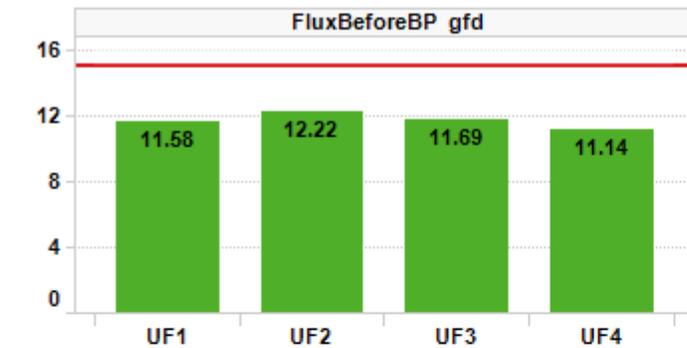
## Plant Summary

Trains UF1,2,3,4 are operating well overall. Permeability remains >8.0 gfd/psi on trains UF2,3,4 while UF1 averaged 6.9 gfd/psi. There is a slight fouling trend on UF1 which is being managed with hypo MCs.

- Daily permeate production averaged 0.76 MGD. UF2 and UF3 produced <10% of daily permeate except on Mar 12, 17, and 18. Permeate temperature averaged 60°F (+1°F). All online trains are in Backpulse with constant LEAP Hi aeration. Flux averages ranged 11.1 – 12.2 across all trains

- Permeate turbidity ABP averages ranged from 0.09 – 0.16 NTU

- TMP BBP averaged 1.9, 1.4, 1.0, and 0.9 psi on UF1,2,3,4

- TC permeability BBP averages were >8 gfd/psi on trains UF2,3,4. TCP on UF1,2,3,4 averaged 6.9, 10.3, 13.1, and 13.6 gfd/psi overall. The plot below displays daily median averages
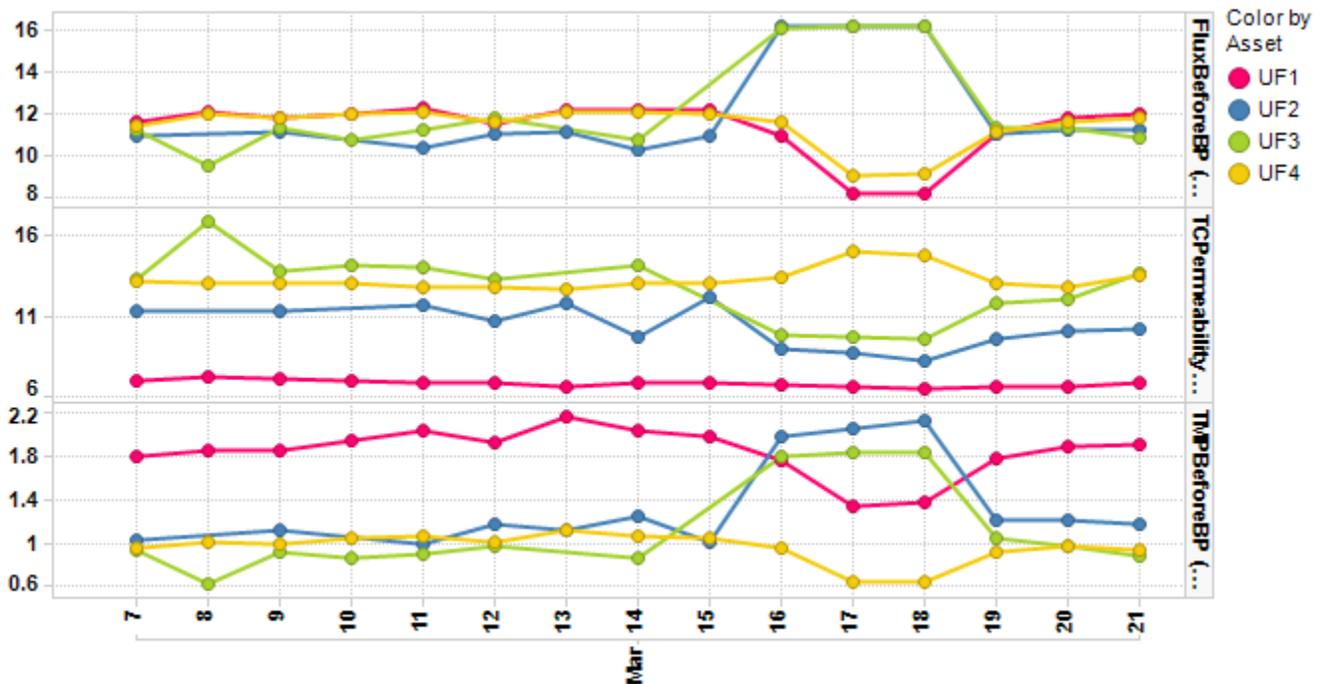


**Table 1.** Record of maintenance cleans (MCs) run.

| Train | UF1 | UF2 | UF3 | UF4 |
|---|---|---|---|---|
| # of Hypochlorite MCs | 2 | 2 | 2 | 2 |
| # of Citric Acid MCs | 2 | 1 | 2 | 2 |

- Aerobic dissolved oxygen averaged 1.06 ppm in tank 1 and 1.97 ppm in tank 2. The pre-anoxic zone's DO averages were 0.66 ppm in tank 1, and 1.05 ppm in tank 2 which is slightly high for nitrification

**TC Permeability Trends By Train**

UF4 gfd/psi

Legend:
- TCPermeabilityAfterBP
- TCPermeabilityBeforeBP
- TCPermeabilityDuringBP
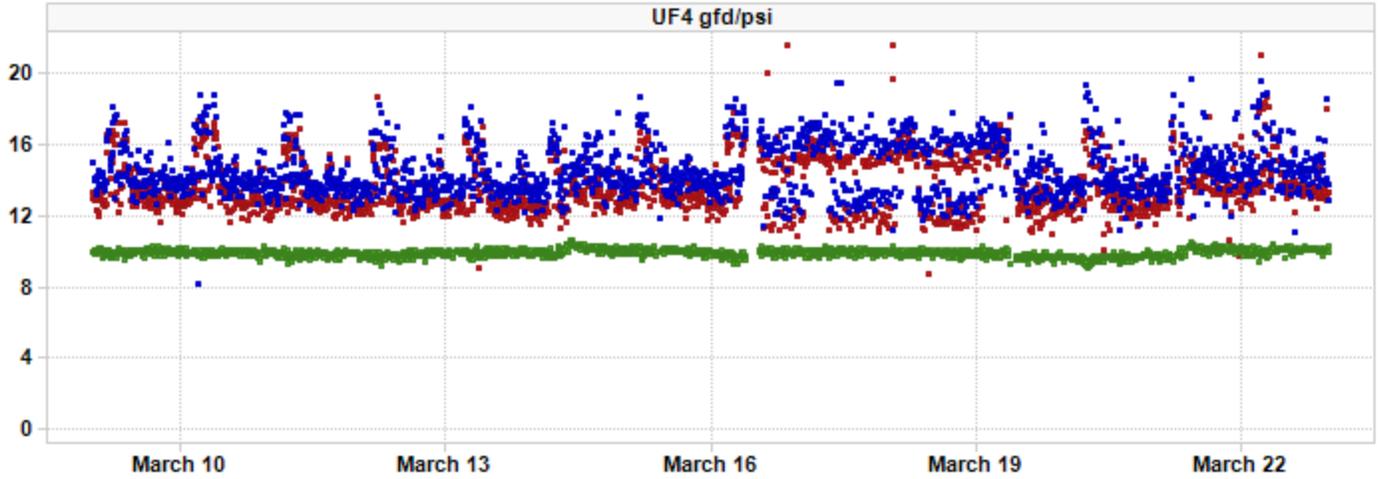
## Bioreactor Dissolved Oxygen



Legend:
- AerobicZoneTank1DissolvedOxygen (mg/L)
- AerobicZoneTank2DissolvedOxygen (mg/L)
- PreAnoxicZone1TankDissolvedOxygen (mg/L)
- PreAnoxicZone2TankDissolvedOxygen (mg/L)
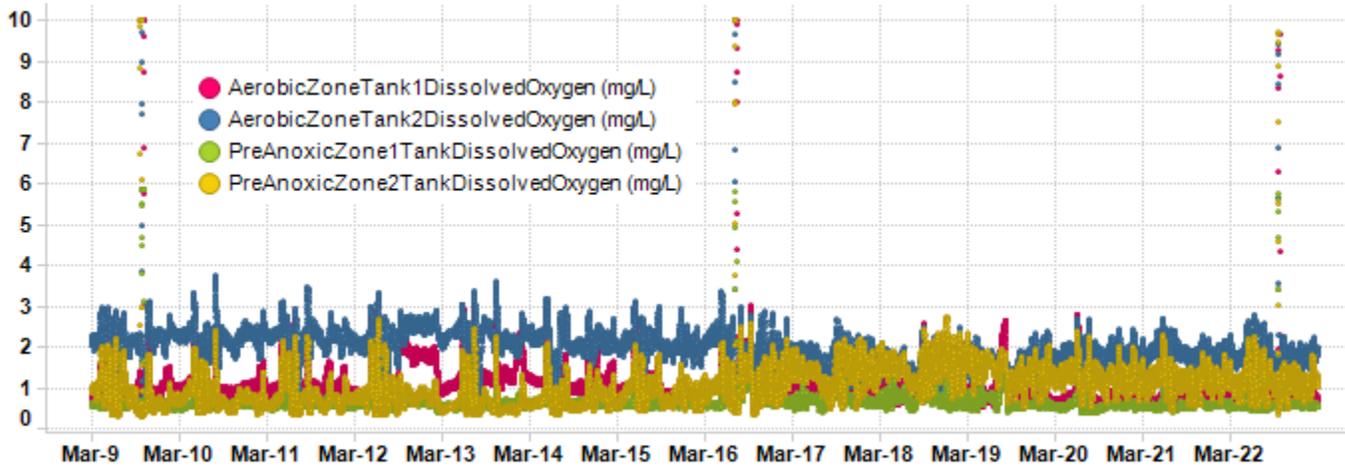
## Daily median average values below



Legend:
- AerobicZoneTank1DissolvedOxygen (mg/L)
- AerobicZoneTank2DissolvedOxygen (mg/L)
- PreAnoxicZone1TankDissolvedOxygen (mg/L)
- PreAnoxicZone2TankDissolvedOxygen (mg/L)
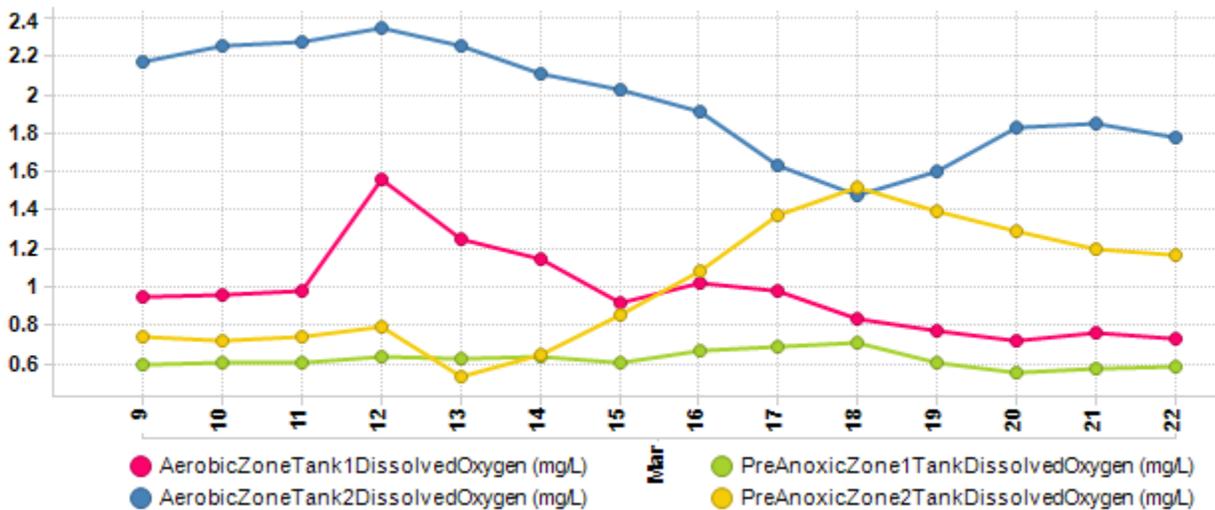
**Permeate Turbidity Trend**
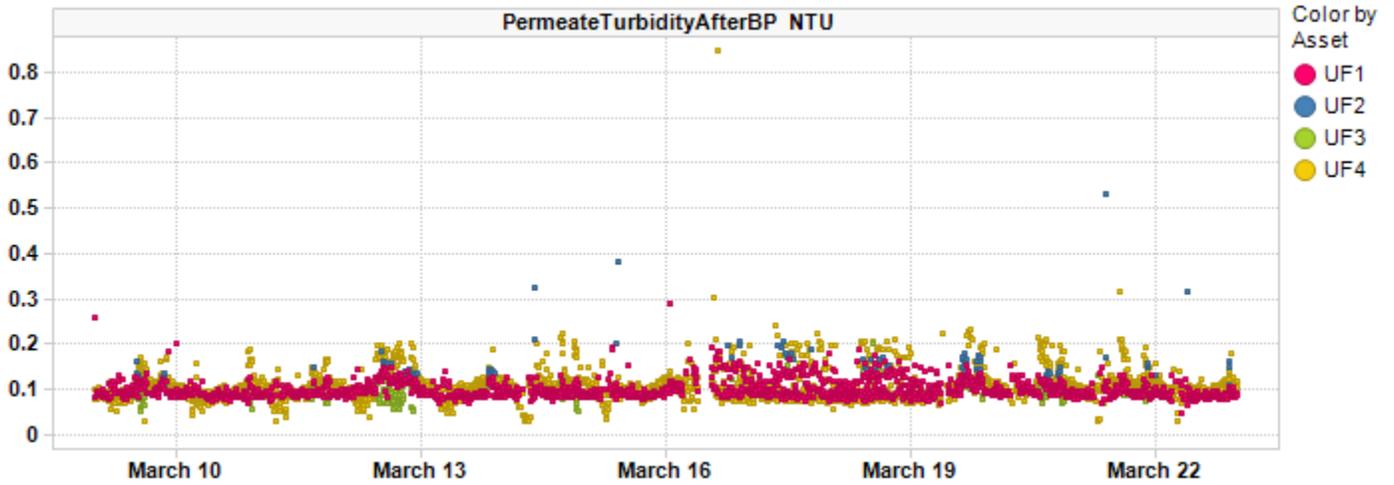


**Before BPTMP Trend**
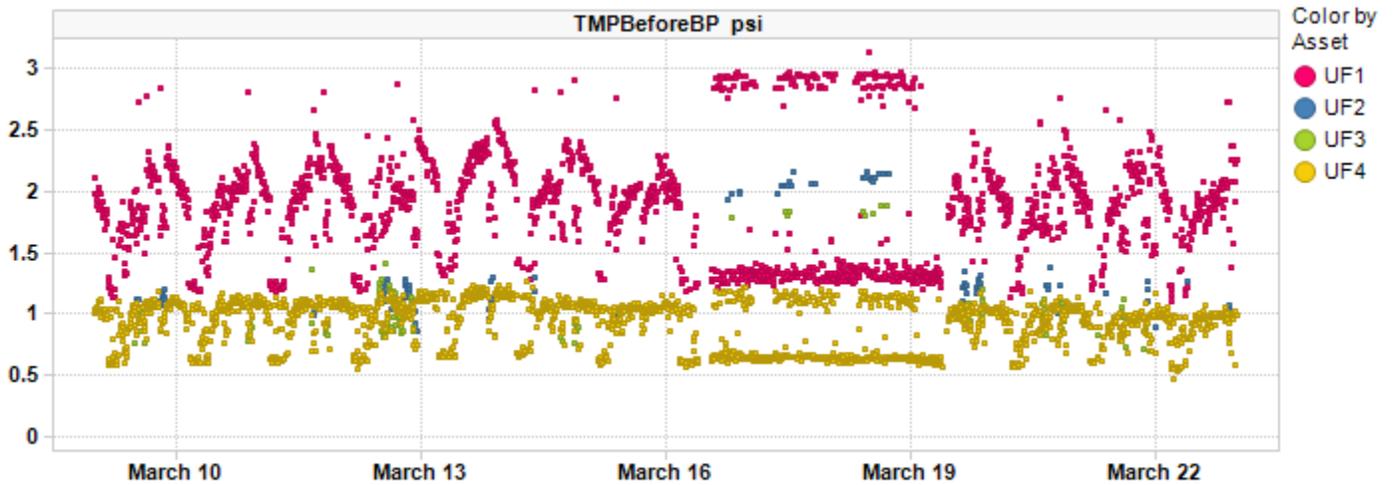


**Before BP Flux Trend**
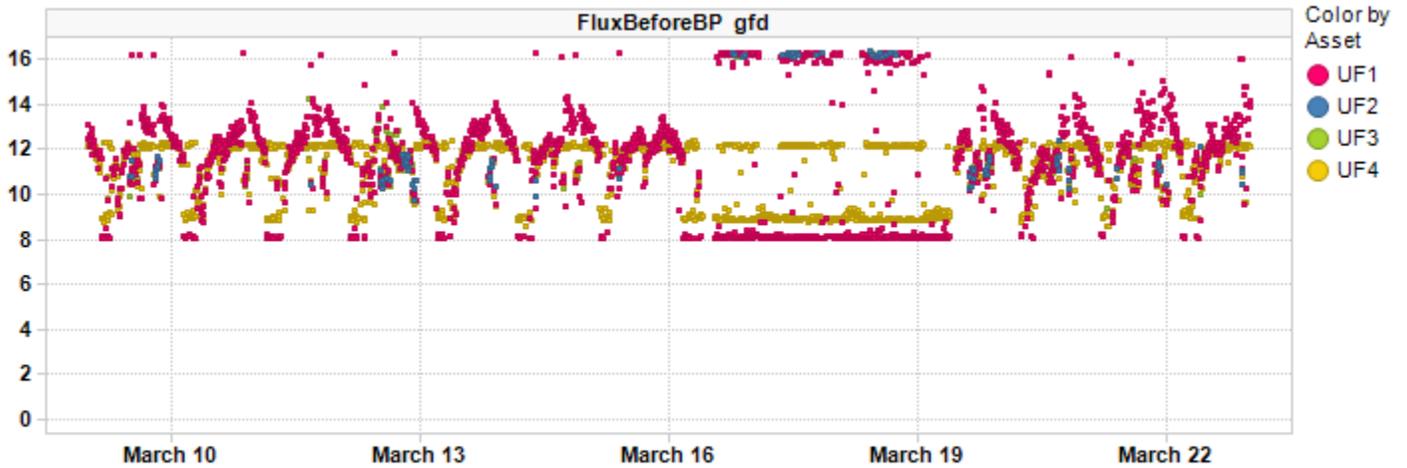
## Daily Permeate Flow
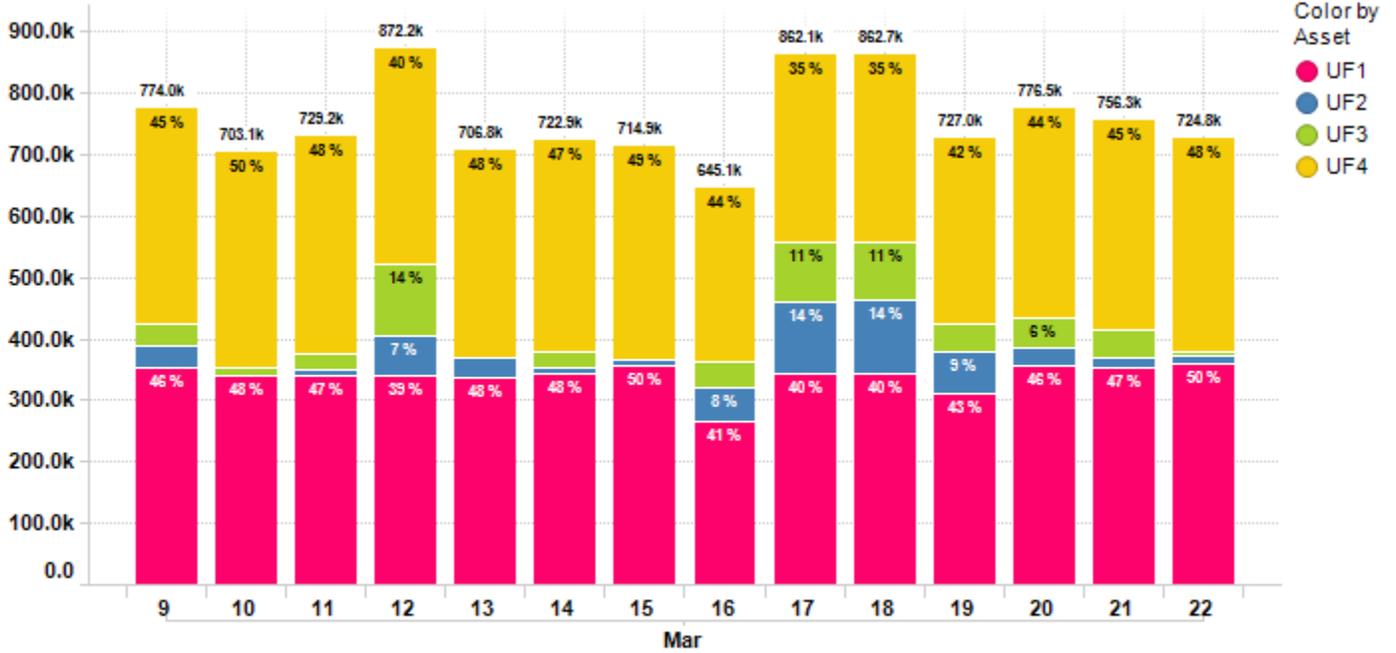


Average Daily permeate flow from 3/9/2022 to 3/22/2022 is 755.5k gal with a maximum daily flow of 872.2k gal.

## Asset Summary

| KPI Parameters | Value/Change | UF1 | UF2 | UF3 | UF4 |
|---|---|---|---|---|---|
| FluxBeforeBP gfd | Value | 11.58 | 12.22 | 11.69 | 11.14 |
| | Change | 1.37 % | 7.72 % | 6.16 % | -1.54 % |
| FluxDuringBP gfd | Value | 18.65 | 18.46 | 15.61 | 18.73 |
| | Change | 0.03 % | 0.22 % | -13.77 % | 0.02 % |
| PermeateTurbidityAfterBP NTU | Value | 0.10 | 0.16 | 0.09 | 0.11 |
| | Change | 7.21 % | -2.28 % | 2.83 % | 15.31 % |
| TCPermeabilityBeforeBP gfd/psi | Value | 6.85 | 10.32 | 13.06 | 13.62 |
| | Change | -4.72 % | -8.22 % | -9.63 % | 2.33 % |
| TMPBeforeBP psi | Value | 1.90 | 1.36 | 1.02 | 0.93 |
| | Change | 4.12 % | 15.36 % | 14.98 % | -5.42 % |
| TotalPermeateFlowDaily gal | Value | 339.35k | 40.84k | 42.98k | 332.38k |
| | Change | 5.34 % | 56.83 % | 51.02 % | -3.52 % |

## Plant Summary

| KPI Parameters | Value/Change | UF Plant |
|---|---|---|
| PermeateTemperature °F | Value | 60.37 |
| | Change | 2.49 % |
| TotalPermeateFlowDaily gal | Value | 828.82k |
| | Change | 7.23 % |

Contract Expiry Date : **08/11/2021**

For InSight technical assistance please email insight.src@suez.com or please call technical support at 1 866 271 5425 or 905 469 7723 and follow the prompts, if you require after hours assistance please contact the 24/7 Emergency number provided in your plant documentation. This email is a summary of issues identified during a manual review of InSight data from the time period above. This review is an analysis of data that is logged by InSight and identifies key plant performance issues determined from this data. This data review was not focused on minor data issues but on identifying possible existing and/or upcoming critical operational issues.

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