

# PUMP STATION 196

MAR 22		PS 196	
		METER READING	24 HOUR FLOW
TUE	1	6694860	0.207906
WED	2	6902766	0.205928
THU	3	7108694	0.230087
FRI	4	7338781	0.239582
SAT	5	7578363	0.249496
SUN	6	7827859	0.248066
MON	7	8075925	0.244396
TUE	8	8320321	0.237352
WED	9	8557673	0.251914
THU	10	8809587	0.237344
FRI	11	9046931	0.238936
SAT	12	9285867	0.271669
SUN	13	9557536	0.248745
MON	14	9806281	0.242529
TUE	15	10048810	0.231510
WED	16	10280320	0.240780
THU	17	10521100	0.246530
FRI	18	10767630	0.248040
SAT	19	11015670	0.261320
SUN	20	11276990	0.260540
MON	21	11537530	0.251310
TUE	22	11788840	0.303268
WED	23	12092108	0.099072
THU	24	12191180	0.127900
FRI	25	12319080	0.117740
SAT	26	12436820	0.123020
SUN	27	12559840	0.127840
MON	28	12687680	0.120030
TUE	29	12807710	0.118300
WED	30	12926010	0.116280
THU	31	13042290	0.120560
TOTAL COUNT AVERAGE		13162850	6.467990
MINIMUM			0.099072
MAXIMUM			0.303268

flow back to WolfeNeck

at 10:30am

W

W

W

W

W

W

W

Wolfe Neck total flow

31 1,070,742 gals.

Lewes total flow

5,397,248 gals.



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (include Facility Name/Location if different):

NAME: Howard Seymour Water Reclamation Plant  
 ADDRESS: 116 American Legion Road, Lewes, DE 19958 US  
 FACILITY: Howard Seymour Water Reclamation Plant  
 LOCATION: 116 American Legion Road, Lewes, DE 19958 US

DE0021512  
 PERMIT NUMBER

001  
 DISCHARGE NUMBER

REPORT DESIGNATOR: A  
 DATA ENTRY COMPLETE: 3/28/2022  
 REPORT SUBMITTED BY: richardblack  
 STATUS OF SUBMISSION: Submitted for Signature

MONITORING PERIOD

FROM: 2022 02 01 TO: 2022 02 28

#	PARAMETER	NDI	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX.	FREQUENCY OF ANALYSIS	SAMPLE TYPE
			AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
1/1	Flow		0.695	0.796	Mil Gal/Day				0	99/99	RCOTOT
	Gross Effluent (50050)	-	No Limit   Monitoring Req'd	No Limit   Monitoring Req'd	Mil Gal/Day	No Monitoring Required	No Monitoring Required	No Monitoring Required	-	99/99	RCOTOT
1/2	Dissolved oxygen (DO)				--	5.77	8.94		0	99/99	Imersion
	Gross Effluent (00300)	-	No Monitoring Required	No Monitoring Required	--	No Limit   Monitoring Req'd	No Limit   Monitoring Req'd	No Limit   Monitoring Req'd	-	99/99	Imersion
1/3	pH				--	7	8.3		0	01/01	Grab
	Gross Effluent (00400)	-	No Monitoring Required	No Monitoring Required	--	6	9		-	01/01	Grab
1/4	Enterococcus				--		<1		0	01/07	Grab
	Gross Effluent (31639)	-	No Monitoring Required	No Monitoring Required	--	No Monitoring Required	104		-	01/07	Grab
1/5	BOD5		<15	20	lbs/Day		3.5		0	01/07	Composite 24
	Gross Effluent (00310)	-	188	288	lbs/Day	No Monitoring Required	23		-	01/07	Composite 24
1/6	BOD5				--		169		0	01/30	Composite 24
	Raw Sewage (00310)	-	No Monitoring Required	No Monitoring Required	--	No Monitoring Required	No Limit   Monitoring Req'd	No Limit   Monitoring Req'd	-	01/30	Composite 24
1/7	TSS		<5	<10	lbs/Day		<2		0	01/07	Composite 24
	Gross Effluent (00530)	-	188	288	lbs/Day	No Monitoring Required	23		-	01/07	Composite 24

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

*Richard Black*

TYPED OR PRINTED

(ATTACH DIGITAL SIGNATURE RECEIPT FROM CROMERR)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE

302-261794

DATE

2022 3 28  
 YEAR MO DAY

NDI (No Data Indicator) Reasons: 8 - No Sample (Other); 9 - No Sample (Monitoring Not Required this Monitoring Period); B - Not Detected; C - No Sample (No Discharge)

DNREC DISCHARGE MONITORING REPORT - DMR1 (EPA FORM 3320-1 (Rev. 10-96) USED AS TEMPLATE), 2016.

3/28/2022 4:16 PM

PAGE 1 OF 2

PRINTED:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (include Facility Name/Location if different):  
Howard Seymour Water Reclamation Plant  
116 American Legion Road, Lewes, DE 19958 US

NAME: Howard Seymour Water Reclamation Plant  
ADDRESS: 116 American Legion Road, Lewes, DE 19958 US  
FACILITY: Howard Seymour Water Reclamation Plant  
LOCATION: 116 American Legion Road, Lewes, DE 19958 US

PERMIT NUMBER: DE0021512  
MONITORING PERIOD: FROM 2022 02 01 TO 2022 02 28

DISCHARGE NUMBER: 001  
REPORT DESIGNATOR: A  
DATA ENTRY COMPLETE: 3/28/2022  
REPORT SUBMITTED BY: richardblack  
STATUS OF SUBMISSION: Submitted for Signature



#	PARAMETER	NDI	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX.	FREQUENCY OF ANALYSIS	SAMPLE TYPE
			AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
2/1	TSS	SAMPLE MEASUREMENT			--		104	mg/l	0	01/30	Composite 24
	Raw Sewage (00530)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	No Monitoring Required	No Limit   Monitoring Req'd	mg/l	--	01/30	Composite 24
2/2	Total Nitrogen	SAMPLE MEASUREMENT	32.8	32.8	lbs/Day	No Monitoring Required	5.52	mg/l	0	01/30	Composite 24
	Gross Effluent (00600)	PERMIT REQUIREMENT	100	No Limit   Monitoring Req'd	lbs/Day	No Monitoring Required	8	mg/l	--	01/30	Composite 24
2/3	Phosphorus, Total	SAMPLE MEASUREMENT	0.7	0.7	lbs/Day	No Monitoring Required	0.12	mg/l	0	01/30	Composite 24
	Gross Effluent (00665)	PERMIT REQUIREMENT	25	No Limit   Monitoring Req'd	lbs/Day	No Monitoring Required	2	mg/l	--	01/30	Composite 24

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

*(This area contains faint, illegible text, likely bleed-through from the reverse side of the page.)*

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: *Richard Black*

TYPED OR PRINTED

[ATTACH DIGITAL SIGNATURE RECEIPT FROM CROMERR]

TELEPHONE: 302-260-1794

DATE: 3/28/2022

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

# Submission Receipt

Copy of Record: 73739 Confirmation ID: r202232873739

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Site: Howard Seymour Water Reclamation  
Plant

Site ID: DE0021512

Submission: Discharge Monitoring Report for DE0021512 Howard Seymour  
Water Reclamation Plant Outfall: 001, February, 2022

File Name: 20222-3297-60749445

File Type: .pdf

Report: DMR

Status: Signed

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Hash of Data Document:

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Data Entry Completed: 3/28/2022  
4:16 PM

By: Richard Plack (richardplack)

E-Mail of Submitter: Richard.Plack@Inframark.com

From: 172.31.25.193

Signed: 3/28/2022 4:19 PM

By: Richard Plack (richardplack)

E-Mail of Signator: Richard.Plack@Inframark.com

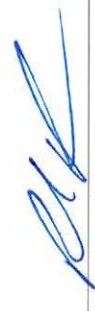
From: 172.31.25.193

Token Used When Signed: xmPDhxXeCKRpVDF9vH8gZjxxfxvIGHxssM7yUXoQ+wY=

# LEWES WWTF NUTRIENT OFFSET REPORT    2022

Month	Days	Average Monthly Flow	Monthly Average TN	Total Monthly TN Discharged	TN Based 16.9 lbs Manure Offset Required	Monthly Average TP	Total Monthly TP Discharged	TP Based 285 lbs Manure Offset Required	Max Manure Equivalent	Poultry Manure Relocated	Poultry Manure Offset Balance
		MGD	mg/L	lbs	Tons	mg/L	lbs	Tons	Tons	Tons	Tons
Carry Over											540.16
January	31	0.7485	3.37	652.15	5.51	0.09	17.42	2.48	5.51	-	5.51
February	28	0.6951	5.52	896.01	7.57	0.12	19.48	2.78	7.57	-	7.57
March	31	-	-	-	-	-	-	-	-	-	-
April	30	-	-	-	-	-	-	-	-	-	-
May	31	-	-	-	-	-	-	-	-	-	-
June	30	-	-	-	-	-	-	-	-	-	-
July	31	-	-	-	-	-	-	-	-	-	-
August	31	-	-	-	-	-	-	-	-	-	-
September	30	-	-	-	-	-	-	-	-	-	-
October	31	-	-	-	-	-	-	-	-	-	-
November	30	-	-	-	-	-	-	-	-	-	-
December	31	-	-	-	-	-	-	-	-	-	-
Year Balance											527.08

Comments:



Authorized Signatory

3/28/22

Date

# Monthly Operations Report: February 2022

Site: LEWES WWTP

FINAL EFFLUENT OUTFALL 001																
DATE	DAY	Flow		BOD		TSS		Enteroc. col/100ml	Total P		Total N		Nitrite + Nitrate		TKN	
		MGD	lbs	mg/L	lbs	mg/L	lbs		mg/L	lbs	mg/L	lbs	mg/L	lbs	mg/L	lbs
1	Tue.	0.712	<14	<0.5	<3	<1.0	0.1	0.71	5.5	32.78	0.6	4	3.7	22	1.8	11
2	Wed.	0.734														
3	Thu.	0.796														
4	Fri.	0.742														
5	Sat.	0.385														
6	Sun.	0.736														
7	Mon.	0.619														
8	Tue.	0.598														
9	Wed.	0.596	<2.4	<2.0	<10	<1.0										
10	Thu.	0.630														
11	Fri.	0.540														
12	Sat.	0.770														
13	Sun.	0.738														
14	Mon.	0.754														
15	Tue.	0.747	<2.4	<0.5	<3	<1.0										
16	Wed.	0.721														
17	Thu.	0.738														
18	Fri.	0.764														
19	Sat.	0.747														
20	Sun.	0.730														
21	Mon.	0.727														
22	Tue.	0.697	3.5	20	<3	<1.0										
23	Wed.	0.702														
24	Thu.	0.711														
25	Fri.	0.673														
26	Sat.	0.713														
27	Sun.	0.728														
28	Mon.	0.714														
TOTAL		19.4620														
AVERAGE		0.6951	<2.68	<0.88	<4.73	1.0	0.12	0.71	5.52	32.78	0.62	3.68	3.69	21.91	1.83	10.87
MAXIMUM		0.7960	3.50	20.30	<2.00	<1.00	0.12	0.71	5.52	32.78	0.62	3.68	3.69	21.91	1.83	10.87
MINIMUM		0.3850	<2.40	<0.50	<2.90	<1.00	0.12	0.71	5.52	32.78	0.62	3.68	3.69	21.91	1.83	10.87
Removal (%)		98.4		99.2												

INFLUENT							
DATE	DAY	Flow		BOD		TSS	
		MGD	lbs	mg/L	lbs	mg/L	lbs
1	Tue.			169.0		104.0	
2	Wed.						
3	Thu.						
4	Fri.						
5	Sat.						
6	Sun.						
7	Mon.						
8	Tue.						
9	Wed.						
10	Thu.						
11	Fri.						
12	Sat.						
13	Sun.						
14	Mon.						
15	Tue.						
16	Wed.						
17	Thu.						
18	Fri.						
19	Sat.						
20	Sun.						
21	Mon.						
22	Tue.						
23	Wed.						
24	Thu.						
25	Fri.						
26	Sat.						
27	Sun.						
28	Mon.						
TOTAL							
AVERAGE				169		104	
MAXIMUM				169		104	
MINIMUM				169		104	
Removal (%)							



# LEWES BPW WWTP Biweekly InSight Report

Date: 5/4/2022

From: Erin Horocholyn - Suez Water Technologies & Solutions  
To: Austin Calaman BPW, Inframark  
cc: Matt Stapleford - Suez Water Technologies & Solutions

## 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

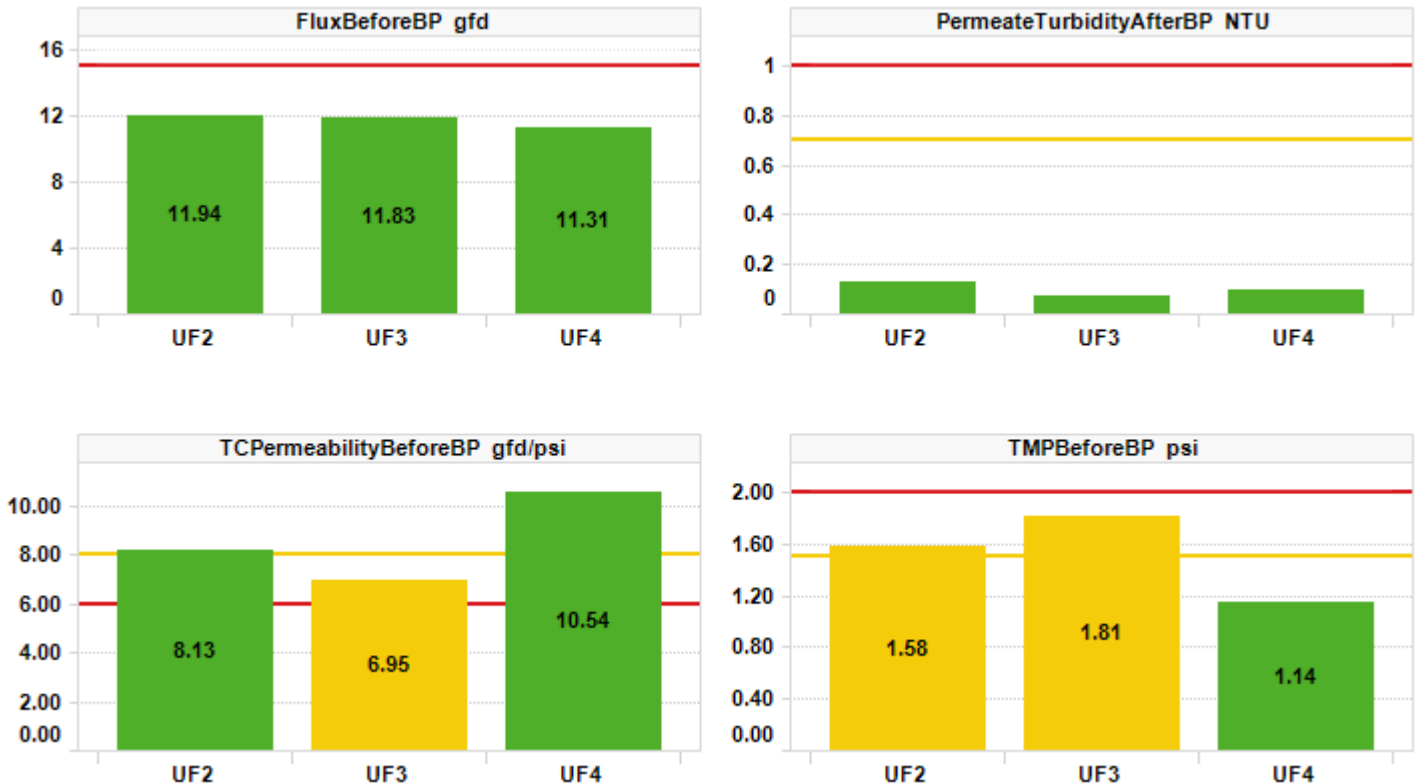
## Cleaning Strategy

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

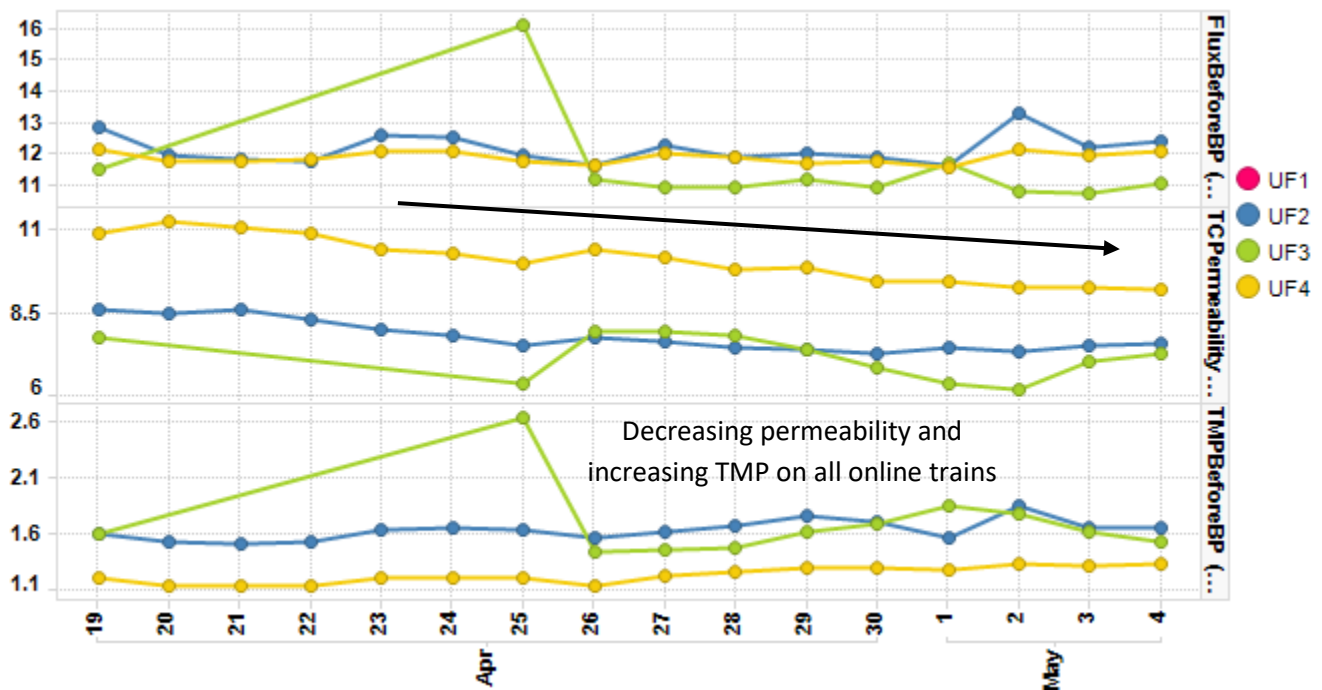
- Action Required
- Caution
- No Limits
- Normal



## Plant Summary

No maintenance cleans were run in the last six weeks and is resulting in fouling on the membranes. Maintenance cleans should be regularly scheduled on all trains with at least 1 hypochlorite and 1 citric acid clean per week. Dissolved oxygen was low in Aerobic Tank 1 (<1 mg/L) and high in Pre-Anoxic Zone Tank 2 (>1 mg/L). Aeration should be adjusted for both, but especially in the aerobic zone to prevent biomass die-off

- Daily permeate production averaged 0.74 MGD. UF3 produced <10% of daily permeate. Permeate temperature averaged 65°F (+2°F). All online trains are in Backpulse with constant LEAP Hi aeration. Flux averages ranged 11.3 – 11.9 across trains. UF1 went offline on April 2
- No maintenance cleans were run in the last six weeks, resulting in fouling on the membranes. MCs should be regularly scheduled for 1 hypochlorite and 1 citric acid clean per train, per week
- Permeate turbidity ABP averages ranged from 0.08 – 0.13 NTU
- TMP BBP averaged 1.6, 1.8, and 1.1 psi on UF2,3,4. TMP has increased on all online trains from the lack of maintenance cleans
- TC permeability BBP averages were >8 gfd/psi on UF2 and UF4. TCP on UF2,3,4 averaged 8.1, 7.0, and 10.5 gfd/psi. The plot below displays daily median averages



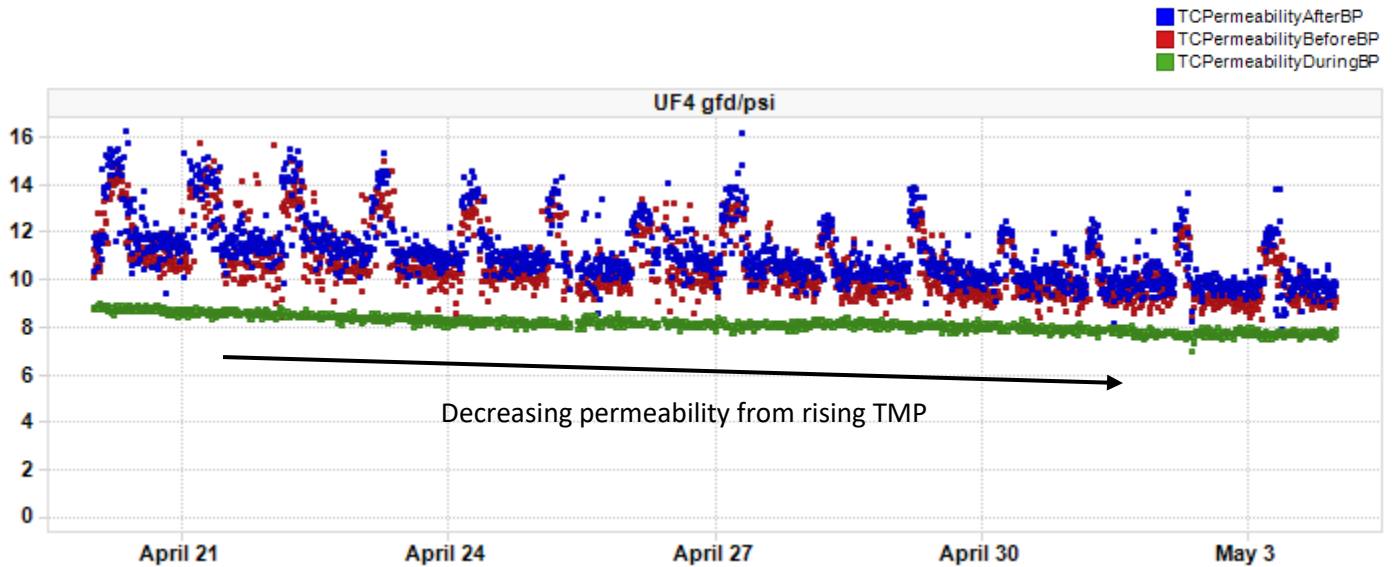
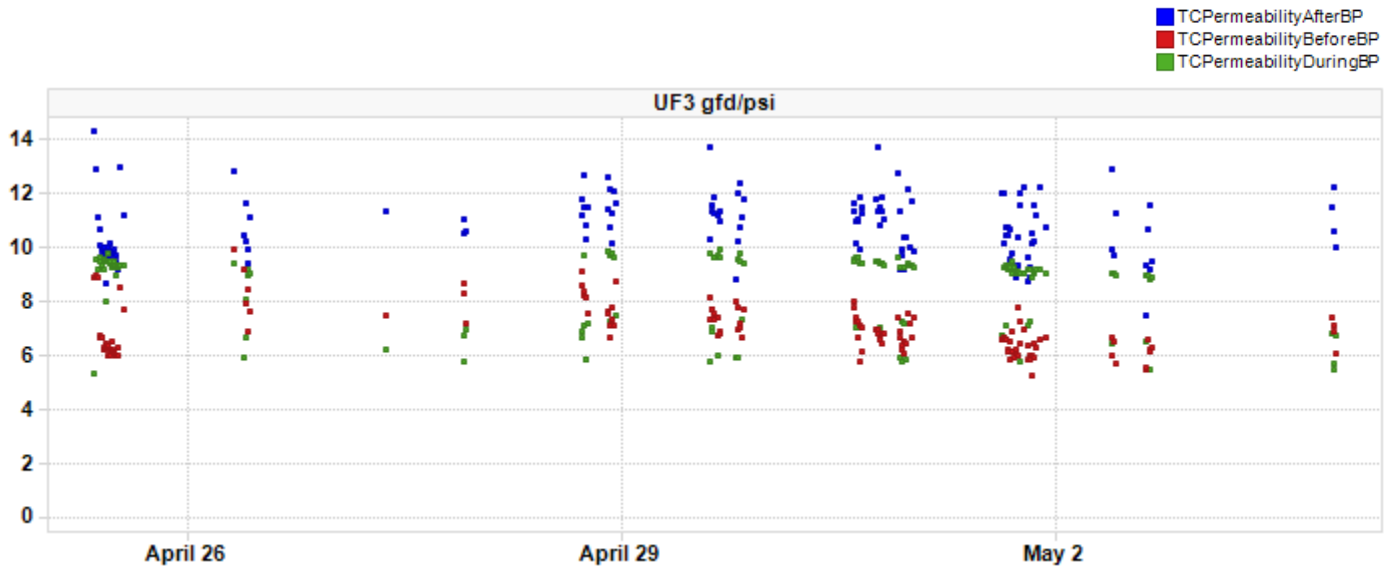
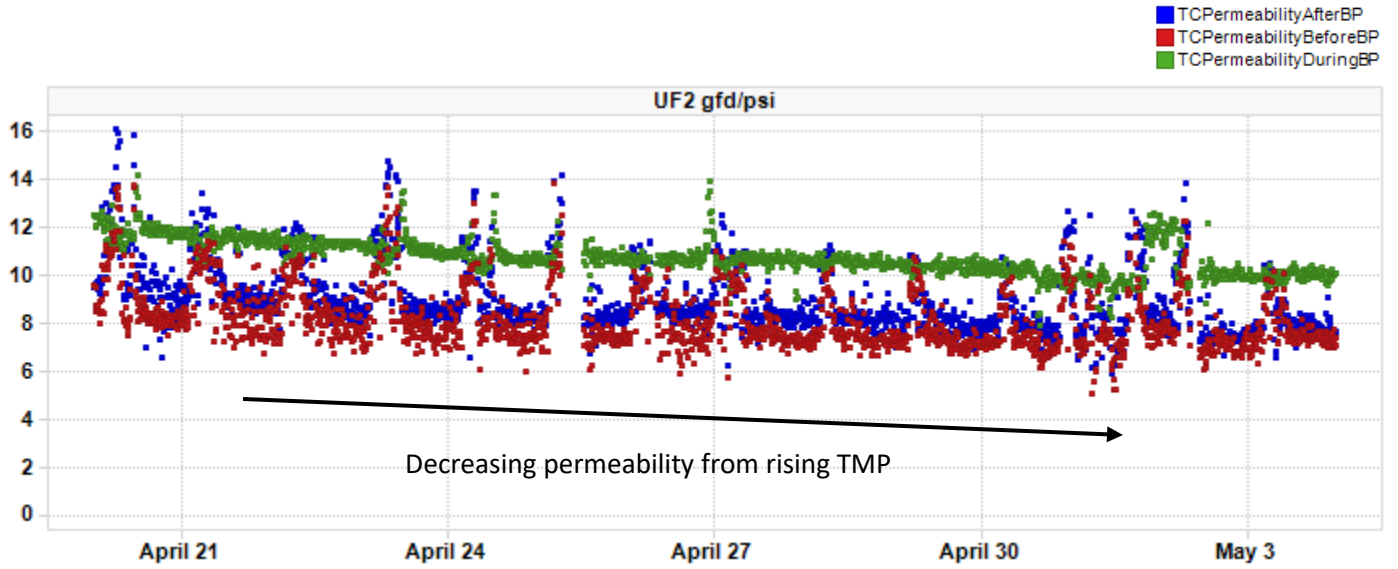
**Table 1.** Record of maintenance cleans (MCs) run.

Train	UF1	UF2	UF3	UF4
# of Hypochlorite MCs	0	0	0	0
# of Citric Acid MCs	0	0	0	0

- Aerobic dissolved oxygen averaged 0.76 ppm in tank 1 and 1.67 ppm in tank 2. Tank 1’s aerobic DO is low and less than 1 ppm; aeration should be increase in this tank and zone. The pre-anoxic zone’s DO averages were 0.63 ppm in tank 1, and 1.12 ppm in tank 2. Tank 2’s pre-anoxic zone DO is high for nitrification and should be closer to 0.5 ppm

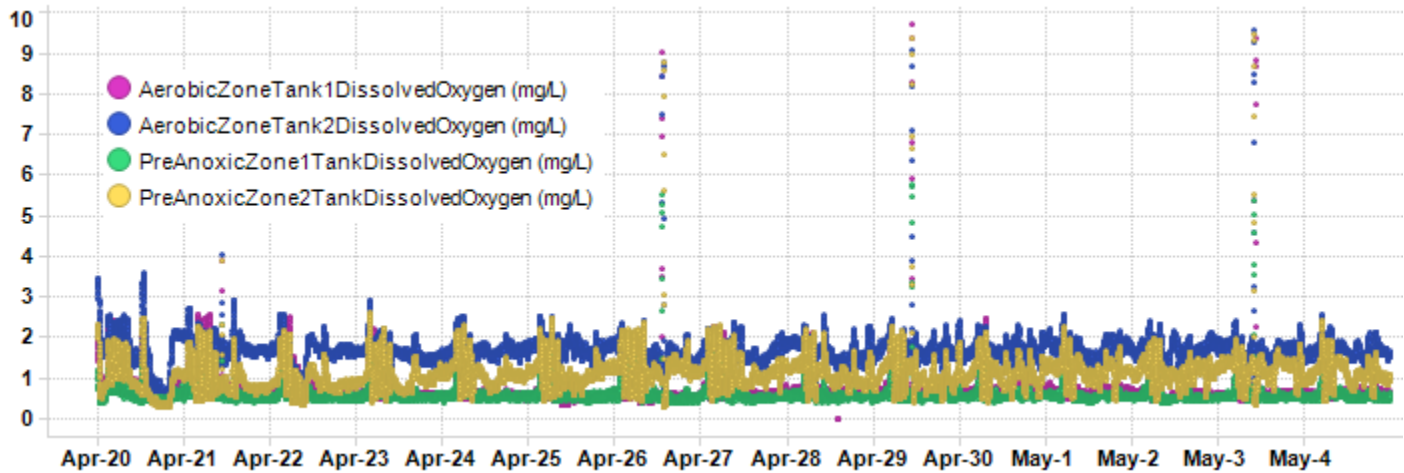


**TC Permeability Trends By Train**

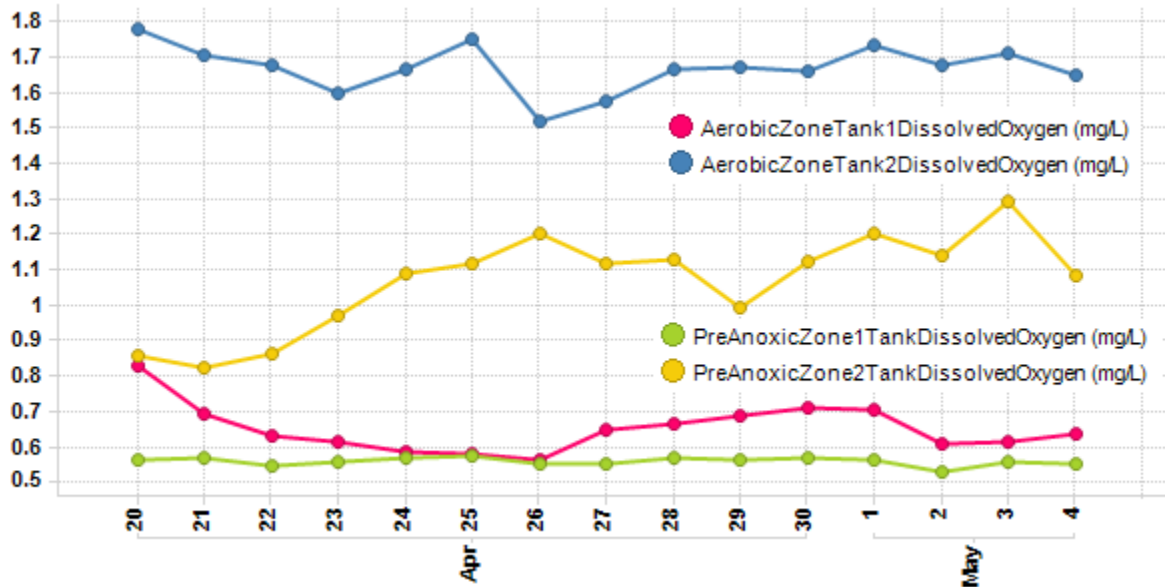




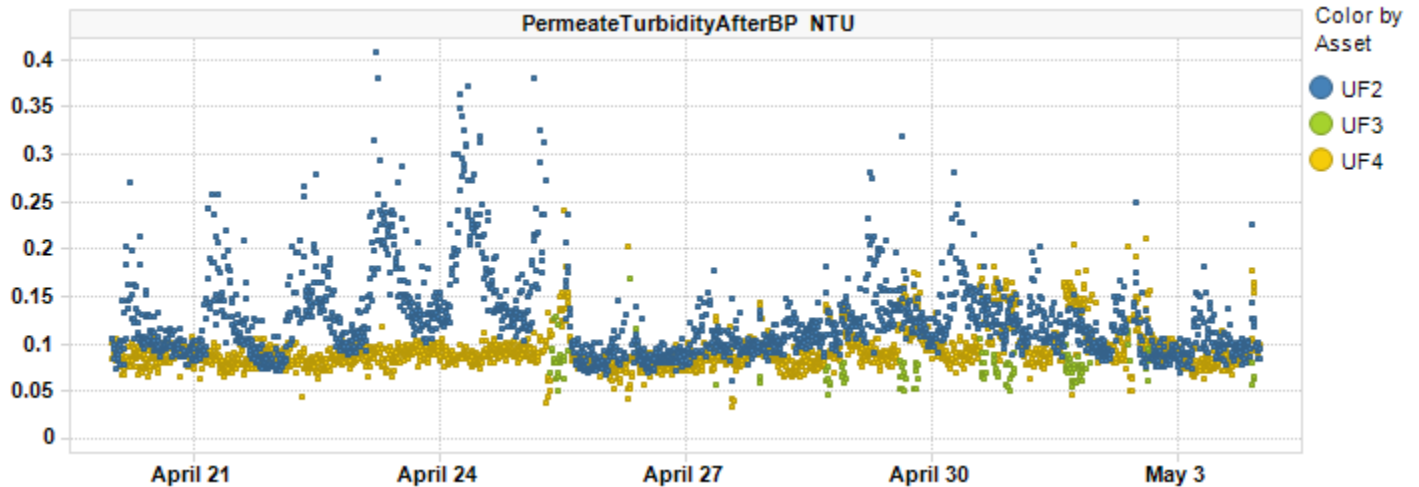
### Bioreactor Dissolved Oxygen



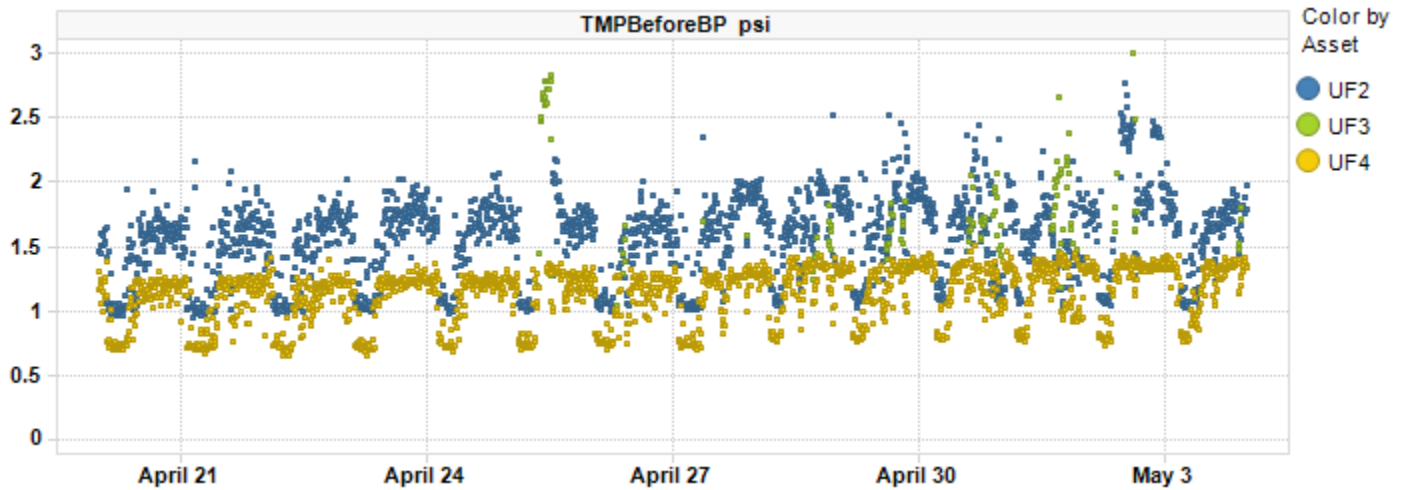
### Daily median average values below



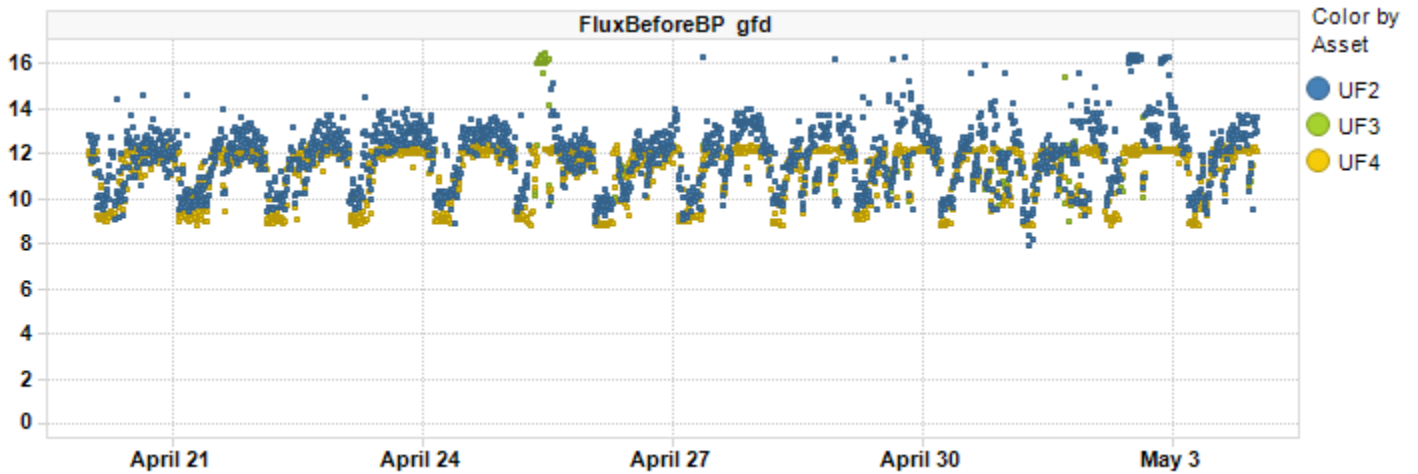
### Permeate Turbidity Trend



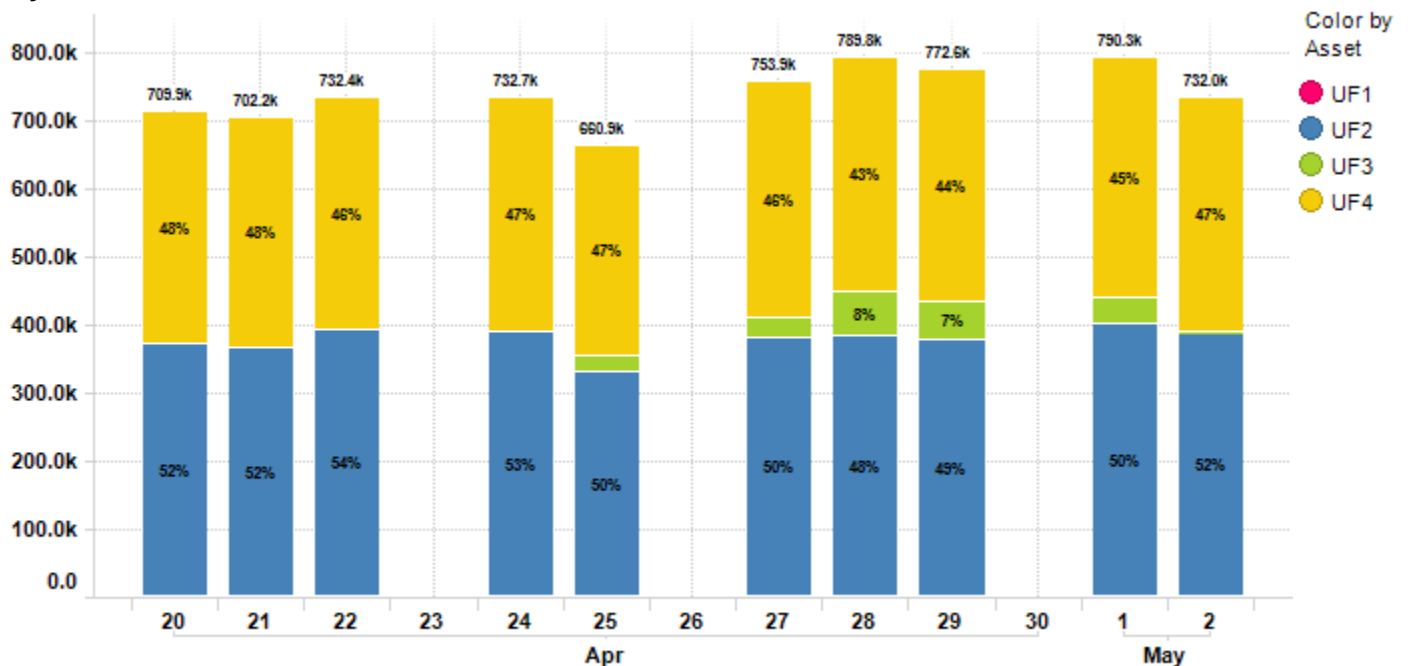
**Before BPTMP Trend**



**Before BP Flux Trend**



**Daily Permeate Flow**



Average Daily permeate flow from 4/20/2022 to 5/3/2022 is 737.7k gal with a maximum daily flow of 790.3k gal.



### Asset Summary

KPI Parameters	Value/Ch...	UF1	UF2	UF3	UF4
FluxBeforeBP gfd	Value		11.94	11.83	11.31
	Change		0.97%	0.50%	0.94%
FluxDuringBP gfd	Value		18.49	16.38	18.73
	Change		-0.75%	-6.45%	0.00%
PermeateTurbidityAfterBP NTU	Value		0.13	0.08	0.09
	Change		4.56%	7.94%	-11.9...
TCPermeabilityBeforeBP gfd/psi	Value		8.13	6.95	10.54
	Change		-13.3...	-33.1...	-15.8...
TMPBeforeBP psi	Value		1.58	1.81	1.14
	Change		10.80%	22.66%	12.46%
TotalPermeateFlowDaily gal	Value	0.00	376.5...	26.76k	339.7...
	Change	0.00%	1.88%	-327....	3.07%

### Plant Summary

KPI Parameters	Value/Change	UF Plant
PermeateTemperature °F	Value	64.85
	Change	2.51%
TotalPermeateFlowDaily gal	Value	804.63k
	Change	-8.91%

Contract Expiry Date : 08/11/2021

For InSight technical assistance please email [insight.src@suez.com](mailto: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.

This review was prepared by SUEZ Water Technologies & Solutions solely to assist water treatment plant owners and/or operators in analyzing and optimizing plant performance and is not intended to be used or relied upon for regulatory compliance or any other purpose. The content of this review is based in whole or in part on operation data obtained from the plant using InSight software. SUEZ Water Technologies & Solutions makes no representations or warranties as to the accuracy of the plant data utilized in the preparation of this review. SUEZ Water Technologies & Solutions accepts no liability for consequences or actions taken in whole or in part by any person on the basis of this review or its contents



# LEWES BPW WWTP Biweekly InSight Report

**Date:** 4/20/2022

From: Erin Horocholyn - Suez Water Technologies & Solutions  
To: Austin Calaman BPW, Inframark  
cc: Matt Stapleford - Suez Water Technologies & Solutions

## 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

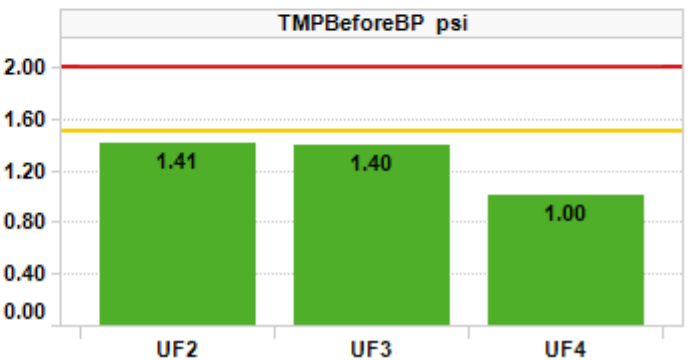
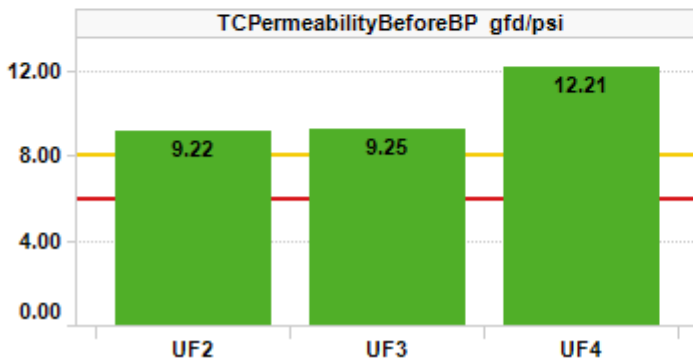
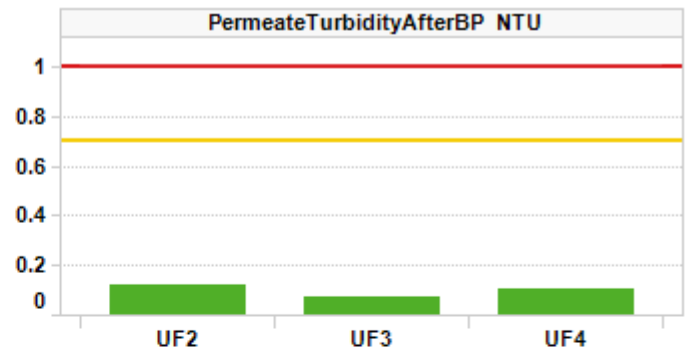
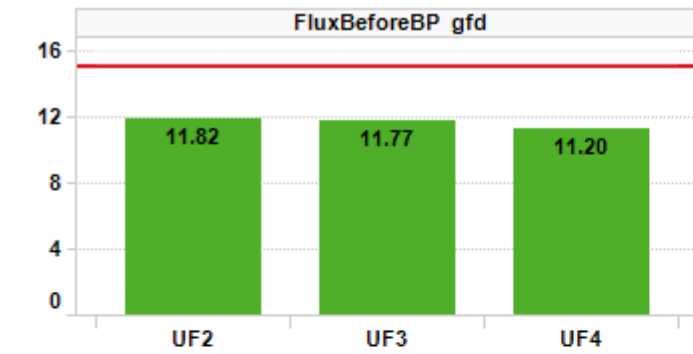
## Cleaning Strategy

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

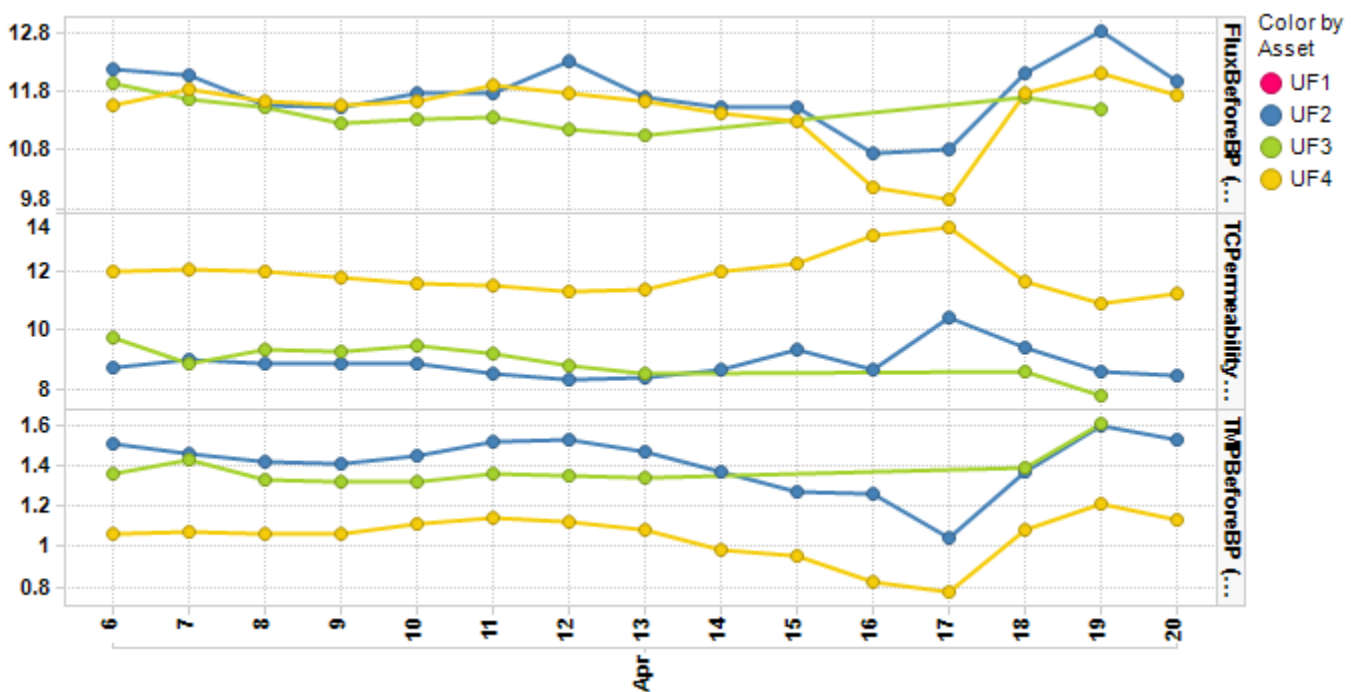
■ Action Required  
■ Caution  
■ No Limits  
■ Normal



## Plant Summary

Trains UF2,3,4 are operating well overall in terms of KPIs. Permeability remains >8.0 gfd/psi on trains UF2,3,4. No maintenance cleans were run in the last four weeks.

- Daily permeate production averaged 0.80 MGD. UF3 produced <20% of daily permeate between except on April 6. Permeate temperature averaged 63°F (+2°F). All online trains are in Backpulse with constant LEAP Hi aeration. Flux averages ranged 11.2 – 11.8 across trains. UF1 went offline on April 2
- No maintenance cleans were run in this report’s 2-week period or the last report period
- Permeate turbidity ABP averages ranged from 0.07 – 0.12 NTU
- TMP BBP averaged 1.4, 1.4, and 1.0 psi on UF2,3,4. TMP trends are correlated with changes in flux
- TC permeability BBP averages were >8 gfd/psi on trains UF2,3,4. TCP on UF2,3,4 averaged 9.2, 9.3, and 12.2 gfd/psi overall. The plot below displays daily median averages

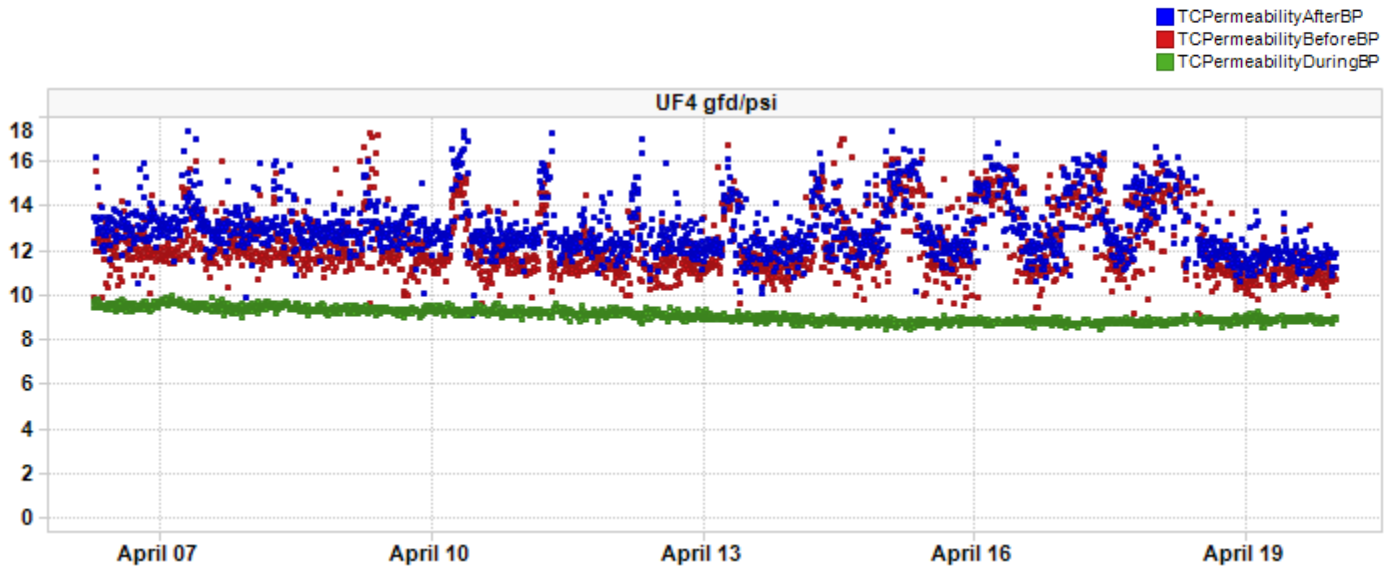
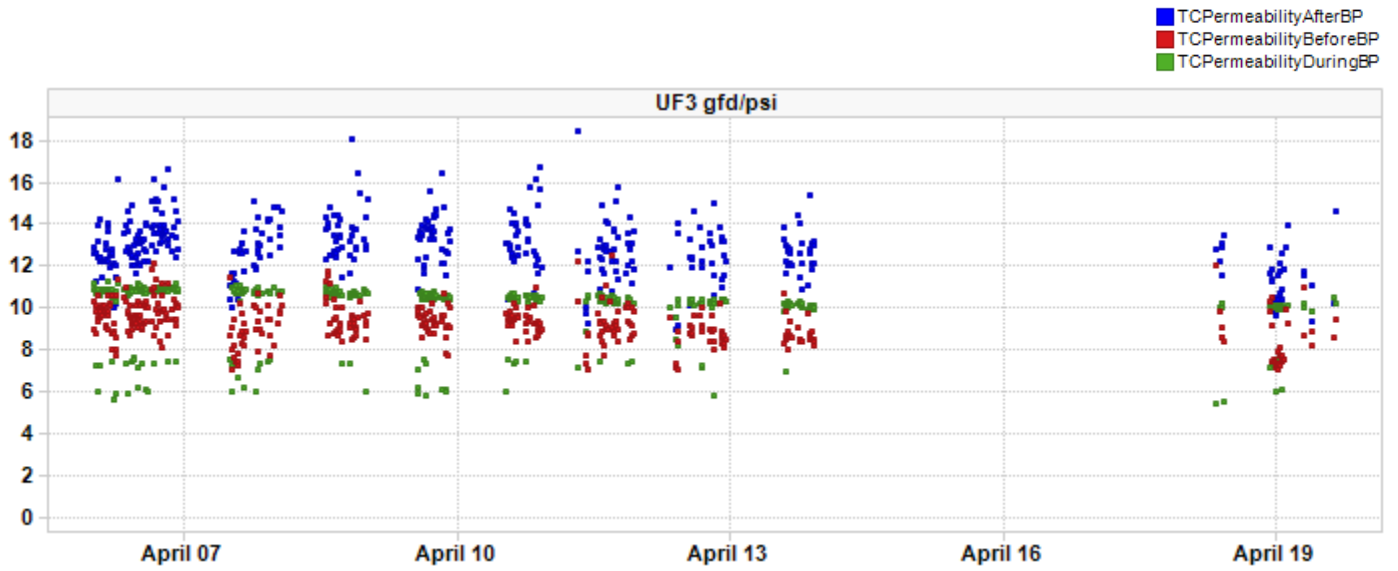
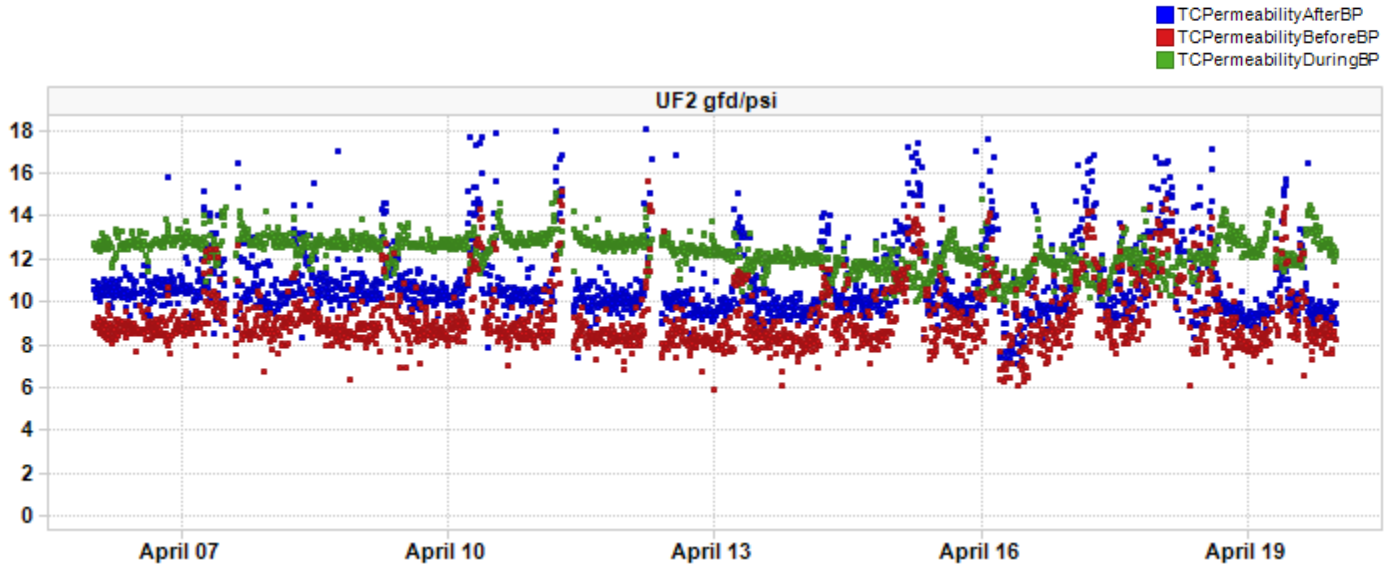


**Table 1.** Record of maintenance cleans (MCs) run.

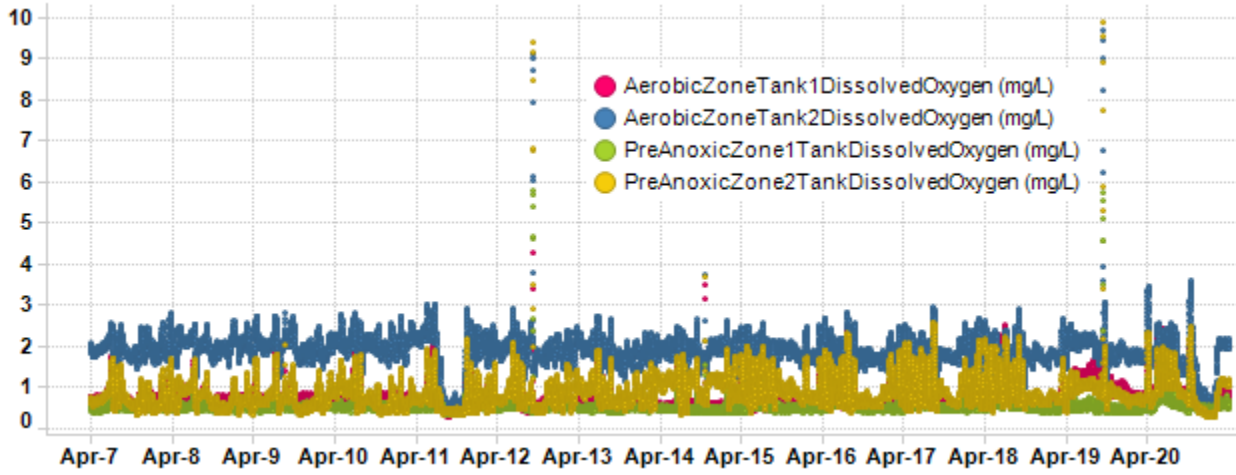
Train	UF1	UF2	UF3	UF4
# of Hypochlorite MCs	0	0	0	0
# of Citric Acid MCs	0	0	0	0

- Aerobic dissolved oxygen averaged 0.79 ppm in tank 1 (down from 1.14 ppm last report) and 1.88 ppm in tank 2. The pre-anoxic zone’s DO averages were 0.57 ppm in tank 1, and 0.89 ppm in tank 2, both lower than the last report, and are good levels for nitrification

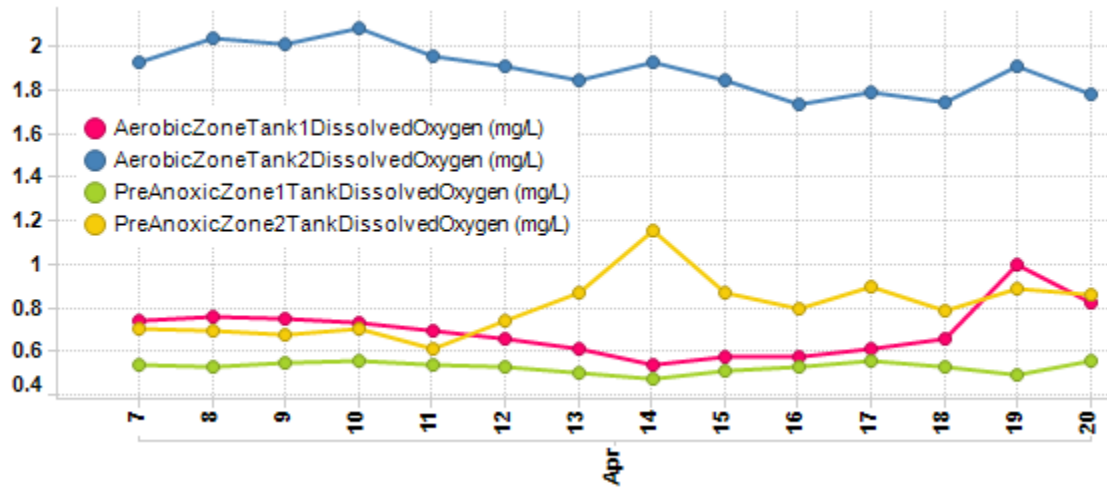
### TC Permeability Trends By Train



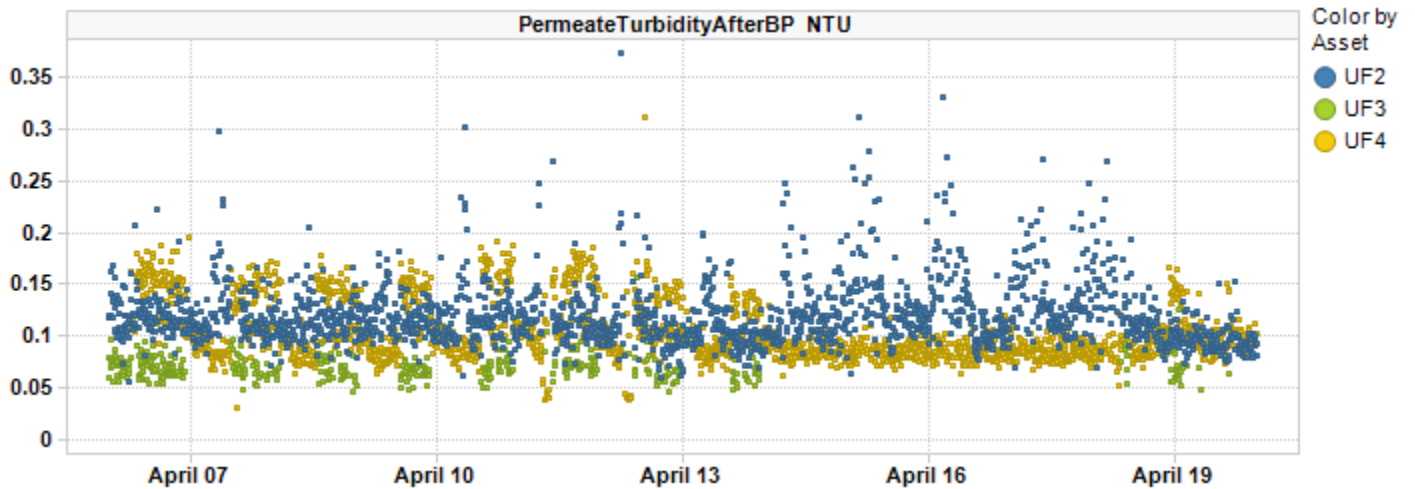
### Bioreactor Dissolved Oxygen



### Daily median average values below

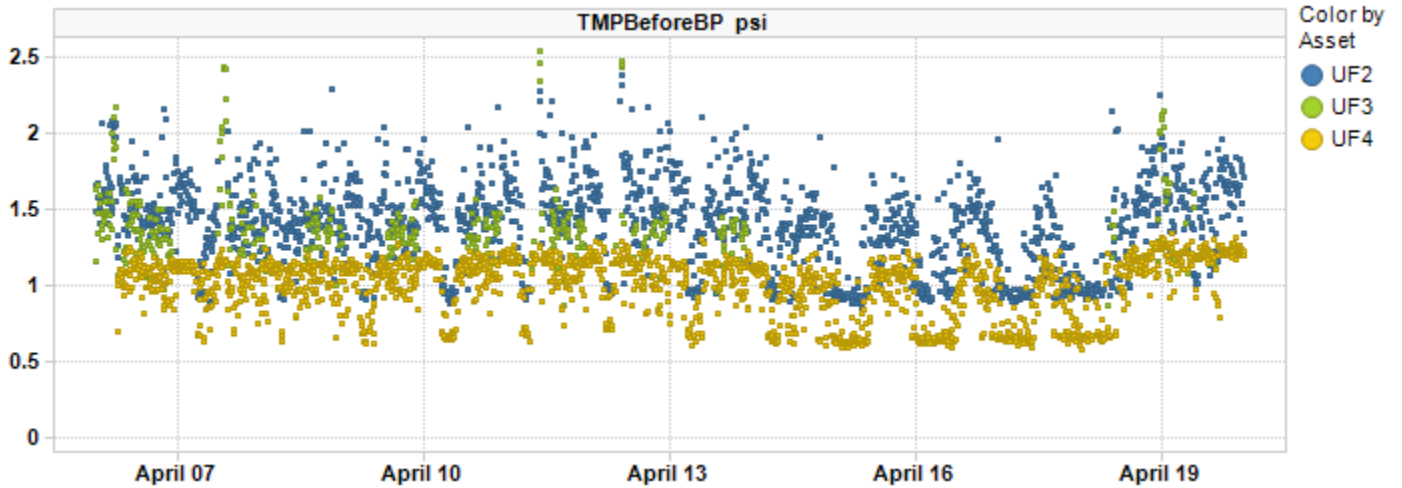


### Permeate Turbidity Trend

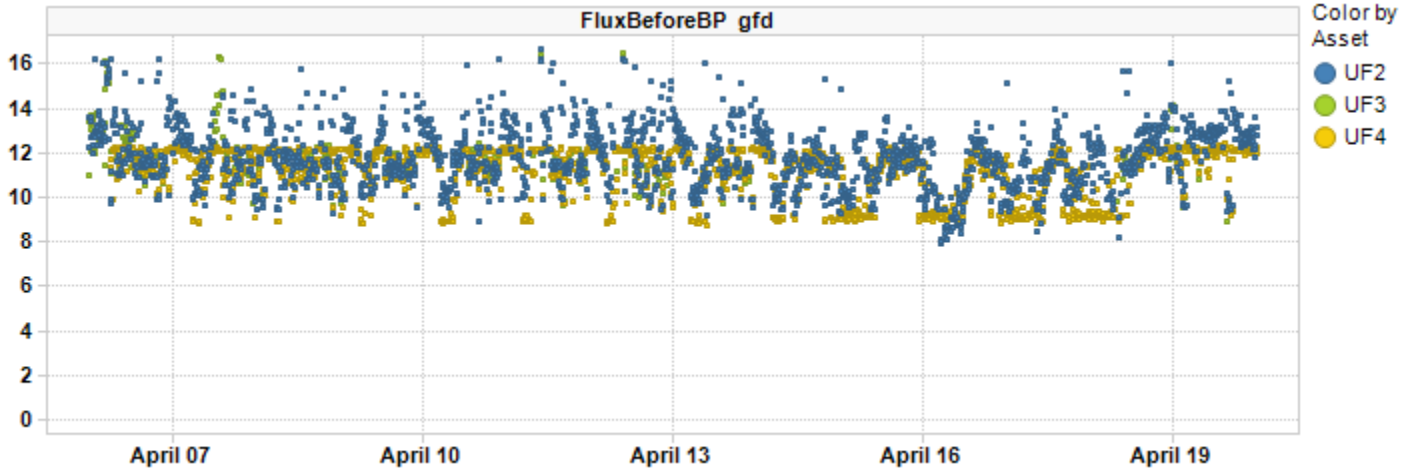




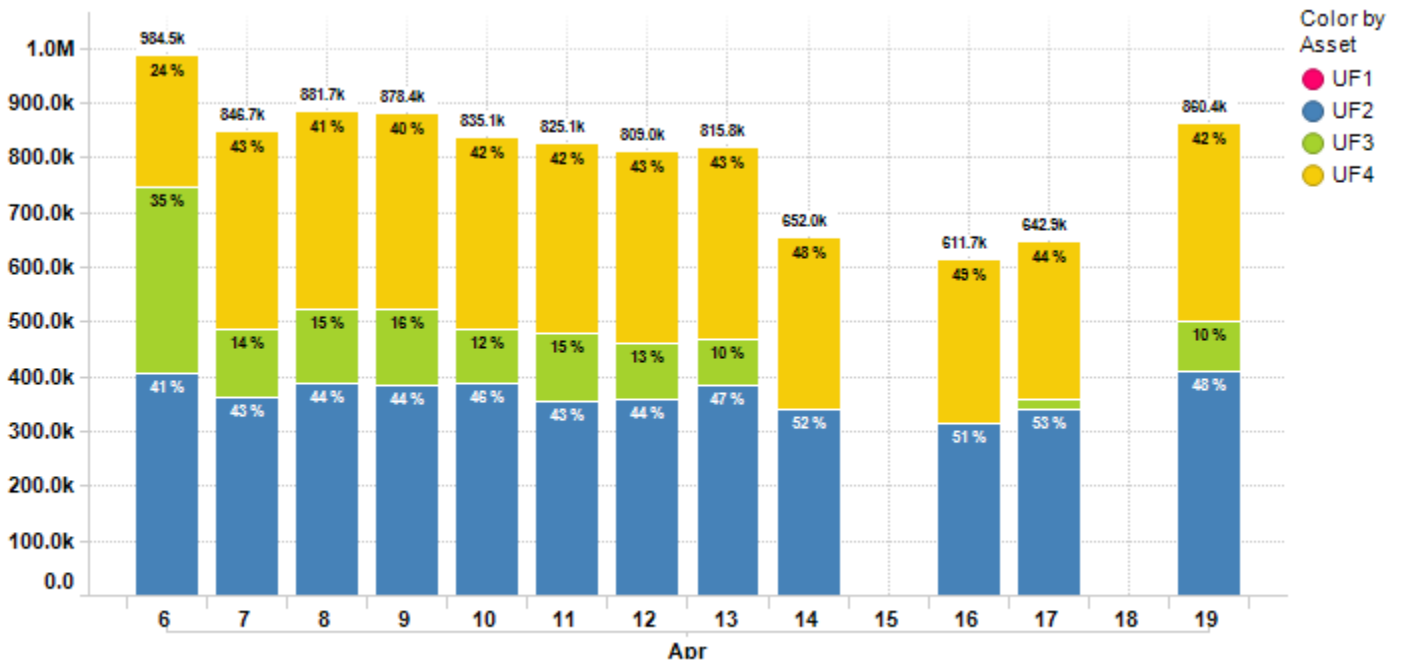
**Before BPTMP Trend**



**Before BP Flux Trend**



**Daily Permeate Flow**



Average Daily permeate flow from 4/6/2022 to 4/19/2022 is 803.6k gal with a maximum daily flow of 984.5k gal.



### Asset Summary

KPI Parameters	Value/Change	UF1	UF2	UF3	UF4
FluxBeforeBP gfd	Value		11.82	11.77	11.20
	Change		-2.33 %	-1.60 %	4.02 %
FluxDuringBP gfd	Value		18.63	17.44	18.73
	Change		1.12 %	2.62 %	-0.04 %
PermeateTurbidityAfterBP NTU	Value		0.12	0.07	0.10
	Change		-18.14 %	-42.36 %	13.20 %
TCPermeabilityBeforeBP gfd/psi	Value		9.22	9.25	12.21
	Change		-8.17 %	-17.72 %	-17.23 %
TMPBeforeBP psi	Value		1.41	1.40	1.00
	Change		3.10 %	12.08 %	14.83 %
TotalPermeateFlowDaily gal	Value	0.00	369.47k	114.39k	329.29k
	Change	0.00 %	62.74 %	64.90 %	7.78 %

### Plant Summary

KPI Parameters	Value/Change	UF Plant
PermeateTemperature °F	Value	63.22
	Change	3.60 %
TotalPermeateFlowDaily gal	Value	876.34k
	Change	24.84 %

Contract Expiry Date : 08/11/2021

For InSight technical assistance please email [insight.src@suez.com](mailto: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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