

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)



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
 MONITORING PERIOD
 FROM 2022 10 01 TO 2022 10 31

REPORT DESIGNATOR: A
 DATA ENTRY COMPLETE: 11/17/2022
 REPORT SUBMITTED BY: mwolgemuth
 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	UNITS			
1/1	Flow	SAMPLE MEASUREMENT	0.85	1.289	Mil Gal/Day				--	0	99/99	RCOTOT
	Gross Effluent (50050)	PERMIT REQUIREMENT	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)	SAMPLE MEASUREMENT			--	4.5		7.32	mg/l	0	99/99	Imersion
	Gross Effluent (00300)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	No Limit Monitoring Req'd	No Monitoring Required	No Limit Monitoring Req'd	mg/l	--	99/99	Imersion
1/3	pH	SAMPLE MEASUREMENT			--	7		7.5	Std pH Units	0	01/01	Grab
	Gross Effluent (00400)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	6	No Monitoring Required	9	Std pH Units	--	01/01	Grab
1/4	Enterococcus	SAMPLE MEASUREMENT			--		<1	<1	CFU/100 ML	0	01/07	Grab
	Gross Effluent (31639)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	No Monitoring Required	10	104	CFU/100 ML	--	01/07	Grab
1/5	BOD5	SAMPLE MEASUREMENT	<19	<26	lbs/Day		<2.4	<2.4	mg/l	0	01/07	Composite 24
	Gross Effluent (00310)	PERMIT REQUIREMENT	188	288	lbs/Day	No Monitoring Required	15	23	mg/l	--	01/07	Composite 24
1/6	BOD5	SAMPLE MEASUREMENT			--		188	188	mg/l	0	01/30	Composite 24
	Raw Sewage (00310)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	No Monitoring Required	No Limit Monitoring Req'd	No Limit Monitoring Req'd	mg/l	--	01/30	Composite 24
1/7	TSS	SAMPLE MEASUREMENT	<10	23	lbs/Day		<1.3	3.2	mg/l	0	01/07	Composite 24
	Gross Effluent (00530)	PERMIT REQUIREMENT	188	288	lbs/Day	No Monitoring Required	15	23	mg/l	--	01/07	Composite 24

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

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER TYPED OR PRINTED	I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED, BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION. THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.	[ATTACH DIGITAL SIGNATURE RECEIPT FROM CROMERR]	TELEPHONE	DATE
		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		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)

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			AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS	
2/1	TSS	SAMPLE MEASUREMENT			--		247	247	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		69.6	69.6	lbs/Day		6.48	6.48	mg/l	0	01/30	Composite 24
	Gross Effluent (00600)	PERMIT REQUIREMENT	-	100	No Limit Monitoring Req'd	lbs/Day	No Monitoring Required	8	No Limit Monitoring Req'd	mg/l	--	01/30	Composite 24
2/3	Phosphorus, Total	SAMPLE MEASUREMENT		0.9	0.9	lbs/Day		0.08	0.08	mg/l	0	01/30	Composite 24
	Gross Effluent (00665)	PERMIT REQUIREMENT	-	25	No Limit Monitoring Req'd	lbs/Day	No Monitoring Required	2	No Limit Monitoring Req'd	mg/l	--	01/30	Composite 24

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TYPED OR PRINTED						

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)

Monthly Operations Report: October 2022

Site: LEWES WWTP

FINAL EFFLUENT OUTFALL 001																	
DATE	DAY	Flow	BOD		TSS		Enteroc.	Total P		Total N		Ammonia as N		Nitrite + Nitrate		TKN	
		MGD	mg/L	lbs	mg/L	lbs	col/100m	mg/L	lbs	mg/L	lbs	mg/L	lbs	mg/L	lbs	mg/L	lbs
1	Sat.	1.025															
2	Sun.	0.942															
3	Mon.	0.918															
4	Tue.	1.289	<2.4	<26	0.9	10		0.1	0.86	6.5	69.64	<0.1	<1	5.9	64	0.6	6
5	Wed.	0.957					<1.0										
6	Thu.	0.783															
7	Fri.	0.804															
8	Sat.	0.747															
9	Sun.	0.656															
10	Mon.	0.595															
11	Tue.	0.845	<2.4	<17	3.2	23											
12	Wed.	0.895					<1.0										
13	Thu.	0.869															
14	Fri.	1.112															
15	Sat.	0.722															
16	Sun.	0.831															
17	Mon.	0.867															
18	Tue.	0.822	<2.4	<17	<0.5	<3											
19	Wed.	0.854					<1.0										
20	Thu.	0.840															
21	Fri.	0.827															
22	Sat.	0.844															
23	Sun.	0.895															
24	Mon.	0.859															
25	Tue.	0.831	<2.4	<17	<0.5	<4											
26	Wed.	0.816					<1.0										
27	Thu.	0.880															
28	Fri.	0.753															
29	Sat.	0.758															
30	Sun.	0.763															
31	Mon.	0.746															
TOTAL		26.3434															
AVERAGE		0.8498	<2.40	<18.95	<1.28	<9.80	1.0	0.08	0.86	6.48	69.64	<0.05	<0.54	5.92	63.62	0.56	6.02
MAXIMUM		1.2886	<2.40	<25.80	3.20	22.60	<1.00	0.08	0.86	6.48	69.64	<0.05	<0.54	5.92	63.62	0.56	6.02
MINIMUM		0.5947	<2.40	<16.50	<0.50	<3.40	<1.00	0.08	0.86	6.48	69.64	<0.05	<0.54	5.92	63.62	0.56	6.02
Removal (%)			98.7		99.5												

INFLUENT						
DATE	DAY	Flow	BOD		TSS	
		MGD	mg/L	lbs	mg/L	lbs
1	Sat.	1.022				
2	Sun.	1.043				
3	Mon.	0.878				
4	Tue.	1.211				
5	Wed.	1.022	188.0	1602	247.0	2105
6	Thu.	0.810				
7	Fri.	0.732				
8	Sat.	0.693				
9	Sun.	0.637				
10	Mon.	0.611				
11	Tue.	0.813				
12	Wed.	0.888				
13	Thu.	0.854				
14	Fri.	0.883				
15	Sat.	0.882				
16	Sun.	0.873				
17	Mon.	0.865				
18	Tue.	0.826				
19	Wed.	0.819				
20	Thu.	0.817				
21	Fri.	0.825				
22	Sat.	0.835				
23	Sun.	0.862				
24	Mon.	0.891				
25	Tue.	0.828				
26	Wed.	0.823				
27	Thu.	0.821				
28	Fri.	0.789				
29	Sat.	0.682				
30	Sun.	0.748				
31	Mon.	0.708				
TOTAL		25.9910				
AVERAGE		0.84	188	1,602	247	2,105
MAXIMUM		1.21	188	1,602	247	2,105
MINIMUM		0.61	188	1,602	247	2,105
Removal (%)						

LEWES WWTF

NUTRIENT OFFSET REPORT 2021-2022

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											549.22
November	30	0.5932	2.44	362.14	3.06	0.12	17.81	2.54	3.06	-	546.16
December	31	0.7563	3.63	709.79	6.00	<0.05	9.78	1.39	6.00	-	540.16
January	31	0.7485	3.37	652.15	5.51	0.09	17.42	2.48	5.51	-	534.65
February	28	0.6951	5.52	896.01	7.57	0.12	19.48	2.78	7.57	-	527.08
March	31	0.6898	3.63	647.38	5.47	0.05	8.92	1.27	5.47	-	521.61
April	30	0.7412	5.05	936.51	7.91	0.14	25.96	3.70	7.91	-	513.70
May	31	0.7789	7.47	1,504.28	12.71	0.26	52.36	7.46	12.71	-	500.99
June	30	0.8116	3.38	686.35	5.80	0.75	152.30	21.56	21.56	-	479.43
July	31	0.7926	5.20	1,065.58	9.00	1.01	206.97	29.49	29.49	-	449.94
August	31	0.7753	4.24	849.89	7.18	0.54	108.24	15.42	15.42	-	434.52
September	30	0.8703	3.79	825.27	6.97	0.12	26.13	3.72	6.97	-	427.55
October	31	0.8498	6.48	1,423.70	12.03	0.08	17.58	2.50	12.03	-	415.52
Year Balance											415.52

Comments:

Authorized Signatory

Date

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			AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
1/1	Flow	SAMPLE MEASUREMENT	0.87	0.951	Mil Gal/Day				--	0	99/99	RCOTOT
	Gross Effluent (50050)	PERMIT REQUIREMENT	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)	SAMPLE MEASUREMENT			--	4.24		5.87	mg/l	0	99/99	Imersion
	Gross Effluent (00300)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	No Limit Monitoring Req'd	No Monitoring Required	No Limit Monitoring Req'd	mg/l	--	99/99	Imersion
1/3	pH	SAMPLE MEASUREMENT			--	7		7.3	Std pH Units	0	01/01	Grab
	Gross Effluent (00400)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	6	No Monitoring Required	9	Std pH Units	--	01/01	Grab
1/4	Enterococcus	SAMPLE MEASUREMENT			--		<1	<1	CFU/100 ML	0	01/07	Grab
	Gross Effluent (31639)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	No Monitoring Required	10	104	CFU/100 ML	--	01/07	Grab
1/5	BOD5	SAMPLE MEASUREMENT	<18	<18	lbs/Day		<2.4	<2.4	mg/l	0	01/07	Composite 24
	Gross Effluent (00310)	PERMIT REQUIREMENT	188	288	lbs/Day	No Monitoring Required	15	23	mg/l	--	01/07	Composite 24
1/6	BOD5	SAMPLE MEASUREMENT			--		136	136	mg/l	0	01/30	Composite 24
	Raw Sewage (00310)	PERMIT REQUIREMENT	No Monitoring Required	No Monitoring Required	--	No Monitoring Required	No Limit Monitoring Req'd	No Limit Monitoring Req'd	mg/l	--	01/30	Composite 24
1/7	TSS	SAMPLE MEASUREMENT	<6	14	lbs/Day		<0.9	2	mg/l	0	01/07	Composite 24
	Gross Effluent (00530)	PERMIT REQUIREMENT	188	288	lbs/Day	No Monitoring Required	15	23	mg/l	--	01/07	Composite 24

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			AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS	
2/1	TSS	SAMPLE MEASUREMENT			--		73.3	73.3	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		25.6	25.6	lbs/Day		3.79	3.79	mg/l	0	01/30	Composite 24
	Gross Effluent (00600)	PERMIT REQUIREMENT	-	100	No Limit Monitoring Req'd	lbs/Day	No Monitoring Required	8	No Limit Monitoring Req'd	mg/l	--	01/30	Composite 24
2/3	Phosphorus, Total	SAMPLE MEASUREMENT		0.8	0.8	lbs/Day		0.12	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	No Limit Monitoring Req'd	mg/l	--	01/30	Composite 24

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Monthly Operations Report: September 2022

Site: LEWES WWTP

FINAL EFFLUENT OUTFALL 001																	
DATE	DAY	Flow	BOD		TSS		Enteroc.	Total P		Total N		Ammonia as N		Nitrite + Nitrate		TKN	
		MGD	mg/L	lbs	mg/L	lbs	col/100m	mg/L	lbs	mg/L	lbs	mg/L	lbs	mg/L	lbs	mg/L	lbs
1	Thu.	0.676															
2	Fri.	0.753															
3	Sat.	0.818															
4	Sun.	0.792															
5	Mon.	0.777															
6	Tue.	0.810	<2.4	<16	2.0	14		0.1	0.81	3.8	25.61	0.1	1	3.0	20	0.8	6
7	Wed.	0.784					<1.0										
8	Thu.	0.785															
9	Fri.	0.900															
10	Sat.	0.940															
11	Sun.	0.911															
12	Mon.	0.935															
13	Tue.	0.916															
14	Wed.	0.912	<2.4	<18	<0.5	<4											
15	Thu.	0.908					<1.0										
16	Fri.	0.891															
17	Sat.	0.909															
18	Sun.	0.931															
19	Mon.	0.885															
20	Tue.	0.900	<2.4	<18	<0.5	<4											
21	Wed.	0.870					<1.0										
22	Thu.	0.897															
23	Fri.	0.951															
24	Sat.	0.816															
25	Sun.	0.914															
26	Mon.	0.930															
27	Tue.	0.883	<2.4	<18	0.6	4											
28	Wed.	0.926					<1.0										
29	Thu.	0.870															
30	Fri.	0.920															
TOTAL		26.1092															
AVERAGE		0.8703	<2.40	<17.53	<0.90	<6.38	1.0	0.12	0.81	3.79	25.61	0.13	0.88	2.95	19.93	0.84	5.68
MAXIMUM		0.9508	<2.40	<18.20	2.00	13.50	<1.00	0.12	0.81	3.79	25.61	0.13	0.88	2.95	19.93	0.84	5.68
MINIMUM		0.6755	<2.40	<16.20	<0.50	<3.80	<1.00	0.12	0.81	3.79	25.61	0.13	0.88	2.95	19.93	0.84	5.68
Removal (%)			98.2		98.8												

INFLUENT						
DATE	DAY	Flow	BOD		TSS	
		MGD	mg/L	lbs	mg/L	lbs
1	Thu.	0.623				
2	Fri.	0.722				
3	Sat.	0.785				
4	Sun.	0.788				
5	Mon.	0.750				
6	Tue.	0.774	136.0	878	73.3	473
7	Wed.	0.764				
8	Thu.	0.769				
9	Fri.	0.868				
10	Sat.	0.927				
11	Sun.	0.944				
12	Mon.	0.883				
13	Tue.	0.940				
14	Wed.	0.925				
15	Thu.	0.871				
16	Fri.	0.939				
17	Sat.	0.918				
18	Sun.	0.905				
19	Mon.	0.874				
20	Tue.	0.894				
21	Wed.	0.846				
22	Thu.	0.871				
23	Fri.	0.871				
24	Sat.	0.871				
25	Sun.	0.916				
26	Mon.	0.913				
27	Tue.	0.896				
28	Wed.	0.938				
29	Thu.	0.859				
30	Fri.	0.775				
TOTAL		25.6190				
AVERAGE		0.85	136	878	73	473
MAXIMUM		0.94	136	878	73	473
MINIMUM		0.62	136	878	73	473
Removal (%)						

LEWES WWTF

NUTRIENT OFFSET REPORT 2021-2022

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											554.14
October	31	0.7129	3.16	582.43	4.92	<0.05	9.22	1.31	4.92	-	549.22
November	30	0.5932	2.44	362.14	3.06	0.12	17.81	2.54	3.06	-	546.16
December	31	0.7563	3.63	709.79	6.00	<0.05	9.78	1.39	6.00	-	540.16
January	31	0.7485	3.37	652.15	5.51	0.09	17.42	2.48	5.51	-	534.65
February	28	0.6951	5.52	896.01	7.57	0.12	19.48	2.78	7.57	-	527.08
March	31	0.6898	3.63	647.38	5.47	0.05	8.92	1.27	5.47	-	521.61
April	30	0.7412	5.05	936.51	7.91	0.14	25.96	3.70	7.91	-	513.70
May	31	0.7789	7.47	1,504.28	12.71	0.26	52.36	7.46	12.71	-	500.99
June	30	0.8116	3.38	686.35	5.80	0.75	152.30	21.56	21.56	-	479.43
July	31	0.7926	5.20	1,065.58	9.00	1.01	206.97	29.49	29.49	-	449.94
August	31	0.7753	4.24	849.89	7.18	0.54	108.24	15.42	15.42	-	434.52
September	30	0.8703	3.79	825.27	6.97	0.12	26.13	3.72	6.97	-	427.55
Year Balance											427.55

Comments:

Authorized Signatory

Date

PUMP STATION 196

Oct-22		PS 196	
		METER READING	24 HOUR FLOW
SAT	1	52424120	0.496940
SUN	2	52921060	0.060310
MON	3	52981370	0.152930
TUE	4	53134300	0.197280
WED	5	53331580	0.054330
THU	6	53385910	
FRI	7	53385910	
SAT	8	53385910	
SUN	9	53385910	
MON	10	53385910	
TUE	11	53385910	0.296490
WED	12	53682400	0.372330
THU	13	54054730	0.366890
FRI	14	54421620	0.372240
SAT	15	54793860	0.374920
SUN	16	55168780	0.381790
MON	17	55550570	0.376010
TUE	18	55926580	0.370940
WED	19	56297520	0.365590
THU	20	56663110	0.356650
FRI	21	57019760	0.367630
SAT	22	57387390	0.371930
SUN	23	57759320	0.397010
MON	24	58156330	0.384950
TUE	25	58541280	0.369310
WED	26	58910590	0.365090
THU	27	59275680	0.369920
FRI	28	59645600	0.293510
SAT	29	59939110	0.245930
SUN	30	60185040	0.291410
MON	31	60476450	0.274810
TOTAL		60751260	8.327140
COUNT			26
AVERAGE			0.320275
MINIMUM			0.054330
MAXIMUM			0.496940

back to Wolfeneck
10/2 at 7:00 pm

back to Lewes
10/11 at 10:15am

total gallons back to
Wolfeneck 464,850

total gallons going to
Lewes 7,862,290



Lewes BPW WWTP Biweekly InSight Report

Date: 11/2/2022

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)

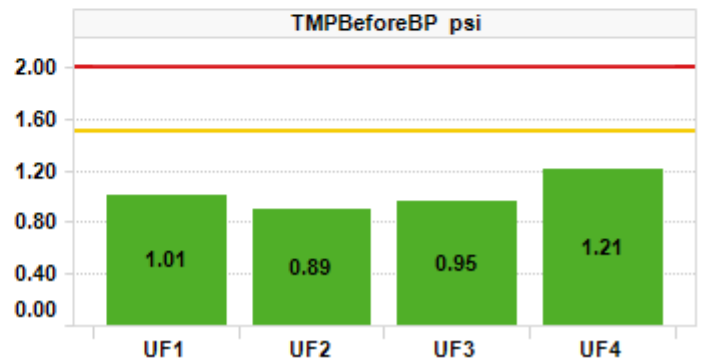
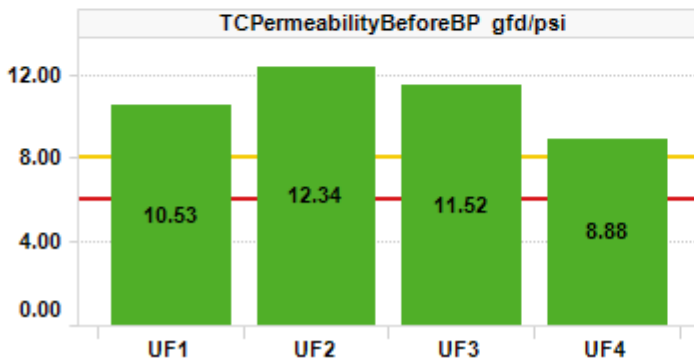
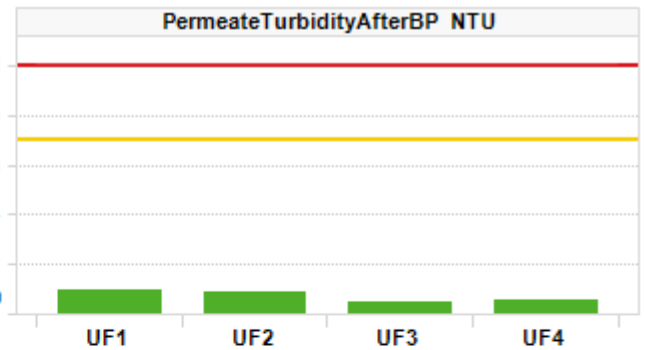
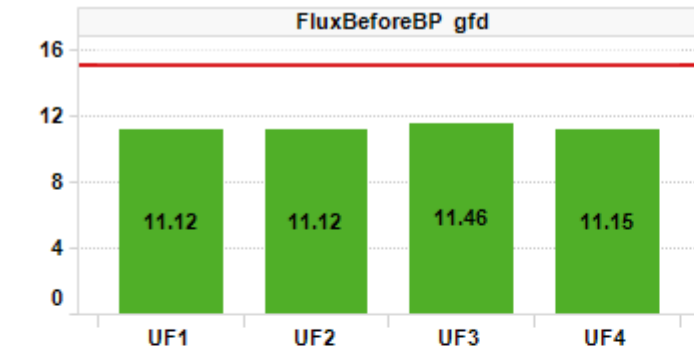
Replacement membranes installed Q1 2020 on trains UF3 and UF4

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

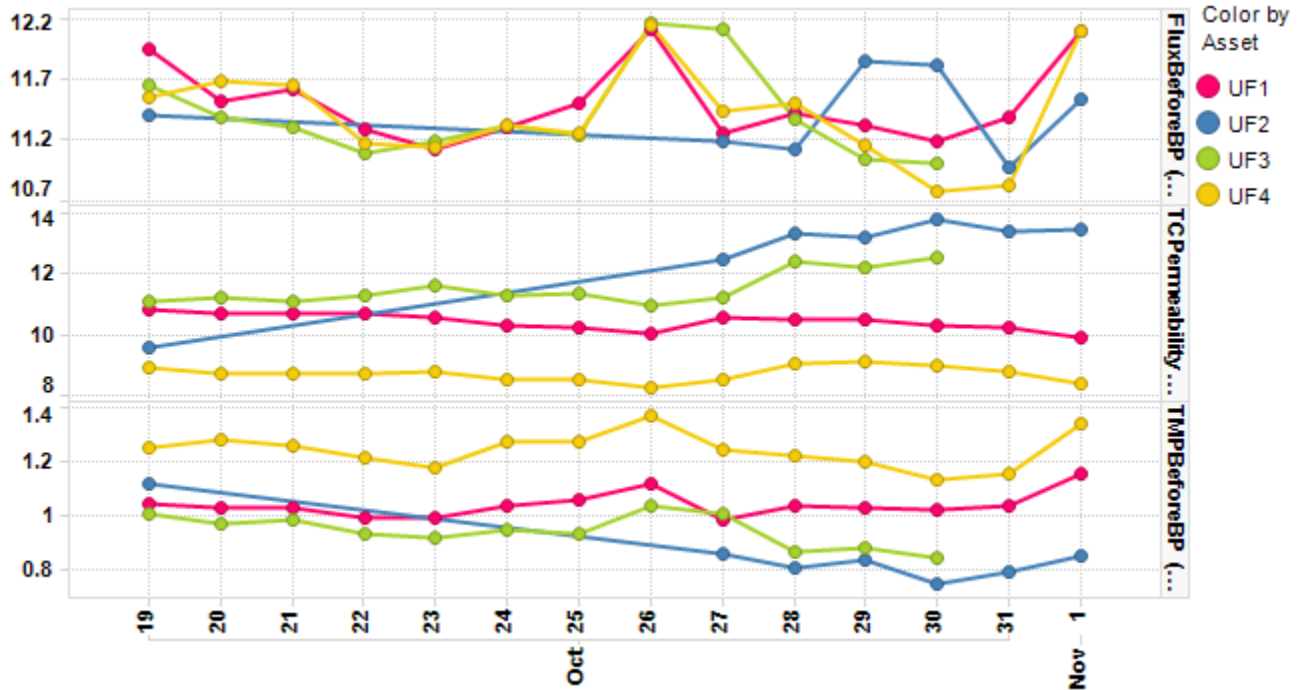
KPI Dashboard – Avg values through reporting period

■ Action Required
■ Caution
■ No Limits
■ Normal



Plant Summary

- TC permeability was ≥ 8 gfd/psi on all trains. After their respective recovery cleans (RCs), trains 1,2,3,4 averaged 10.5, 13.2, 15.7, and 13.41 gfd/psi
- TMP averaged 1.0 psi on train 1, 0.81 psi on train 2 after its RC, 0.95 psi on train 3 before its RC, and 1.21 psi on train 4 before its RC. Trains 3 and 4 averaged 0.69 and 0.82 psi after their respective RCs
- Permeate turbidity averages ranged from 0.05 – 0.10 NTU



- Recovery cleans were run with elongated soak time and restored significant performance on all trains

Table 1. Results of recovery cleans (RCs). TCP = temperature corrected (TC) permeability before backpulse.

Train	Date	Pre-clean TCP (gfd/psi)	Post-Clean TCP (gfd/psi)	Restored TCP (gfd/psi)	Chemical Used	Clean Time (hours)
UF1	Oct 17	6.34	10.97	+ 4.63	Hypo then citric	24 / 24
UF3	Oct 19	9.69	13.04	+ 3.35	Hypo then citric	72 / 72
UF2	Oct 31	12.54	16.53	+ 3.99	Hypo then citric	24 / 24
UF4	Nov 7	8.62	13.44	+ 4.82	Hypo then citric	24 / 24

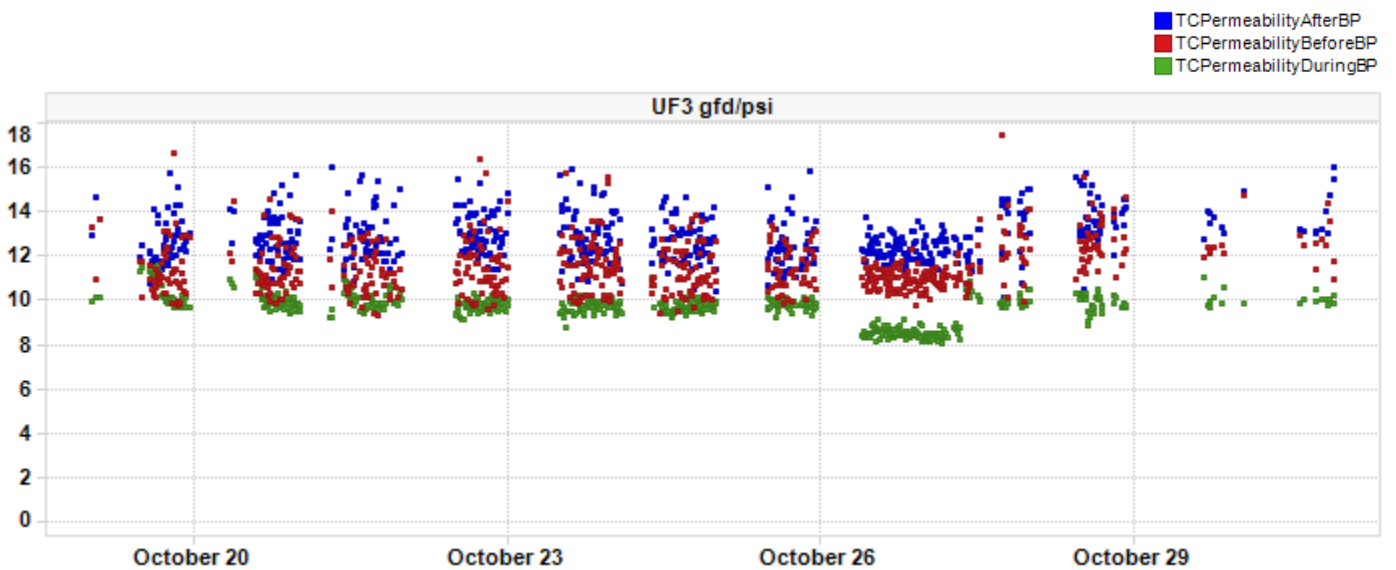
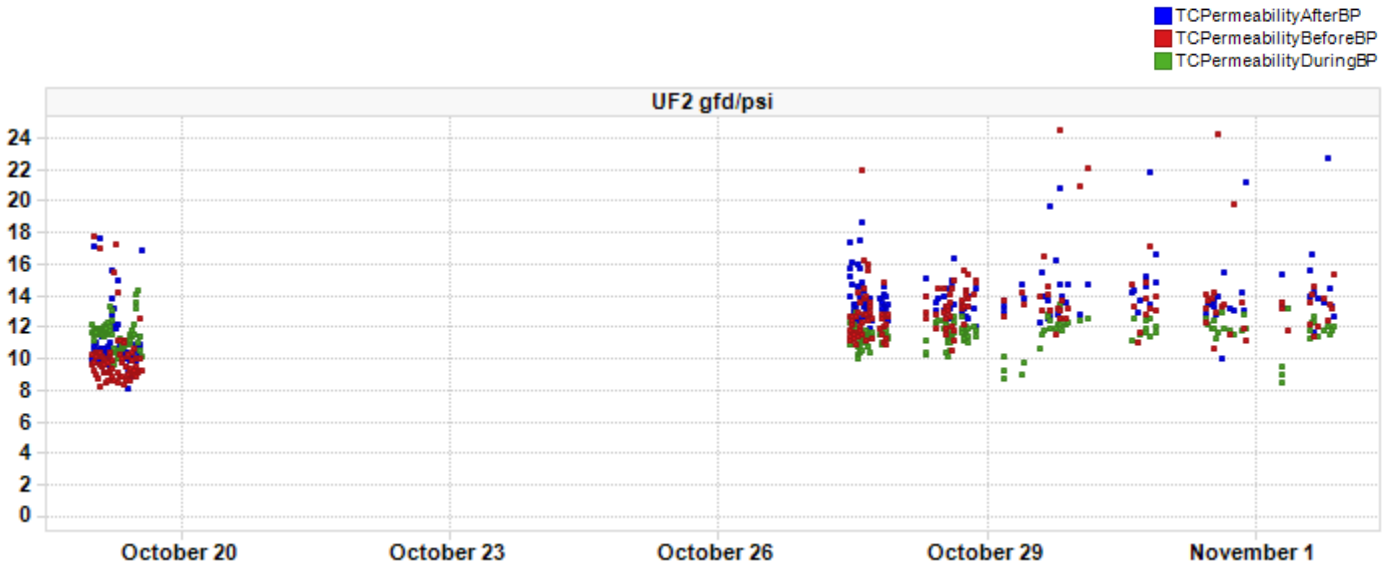
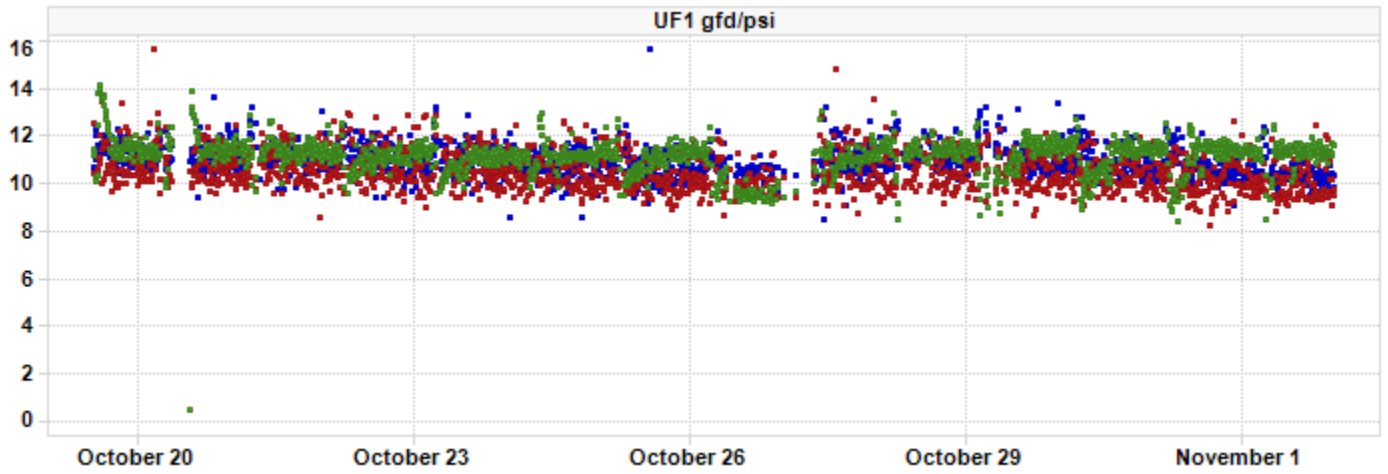
- Daily permeate production averaged 0.82 MGD. Permeate temperature averaged 72°F (+0°F). All trains are in Backpulse with LEAP Hi aeration. Flux averages ranged 11.1 – 11.5 gfd

Table 2. Record of maintenance cleans (MCs) run.

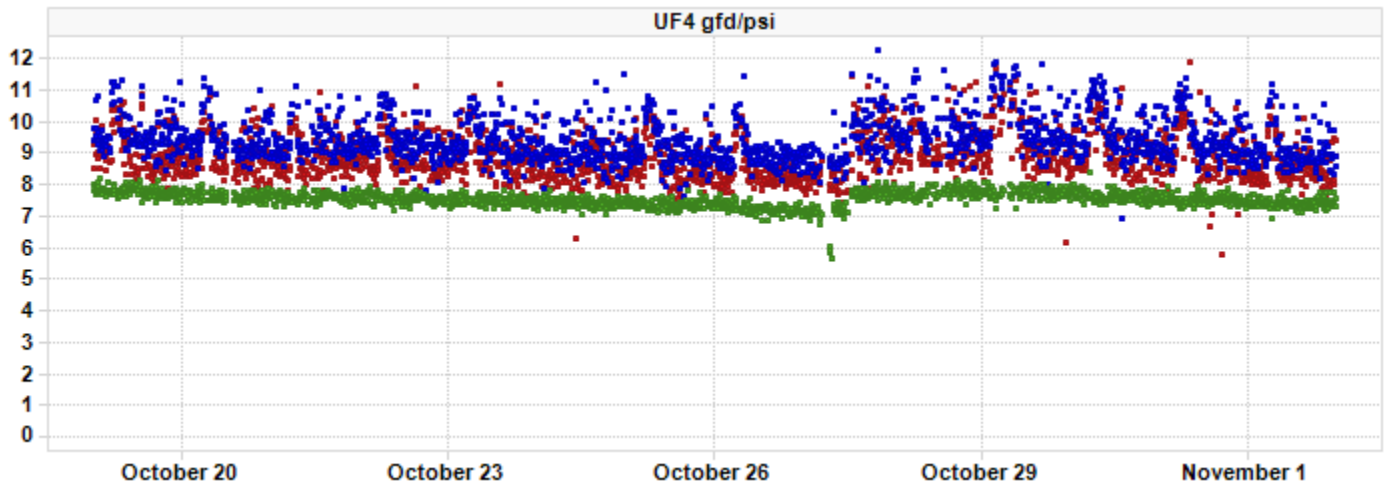
Train	UF1	UF2	UF3	UF4
# of Hypochlorite MCs	1	0	1	1
# of Citric Acid MCs	2	1	2	2

TC Permeability Trends By Train

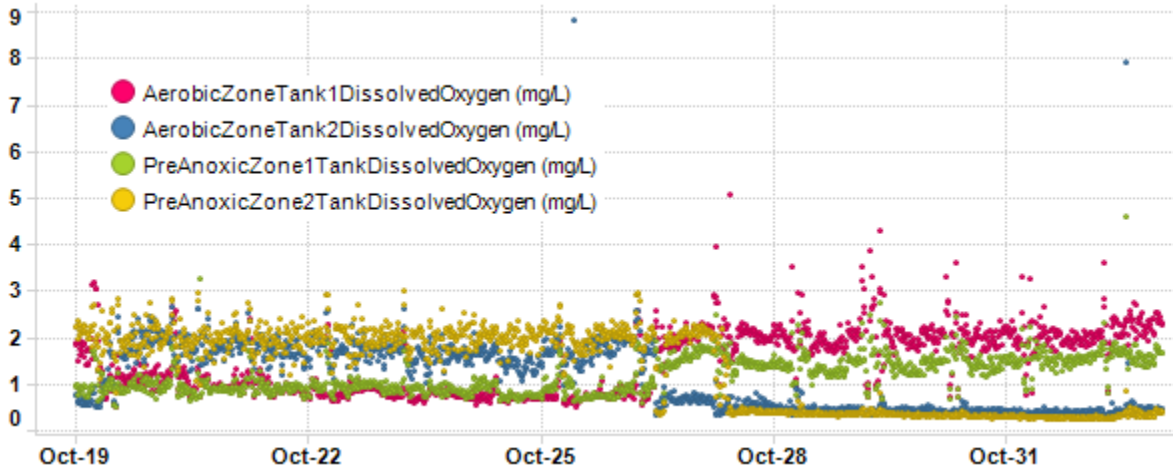
- TCPermeabilityAfterBP
- TCPermeabilityBeforeBP
- TCPermeabilityDuringBP



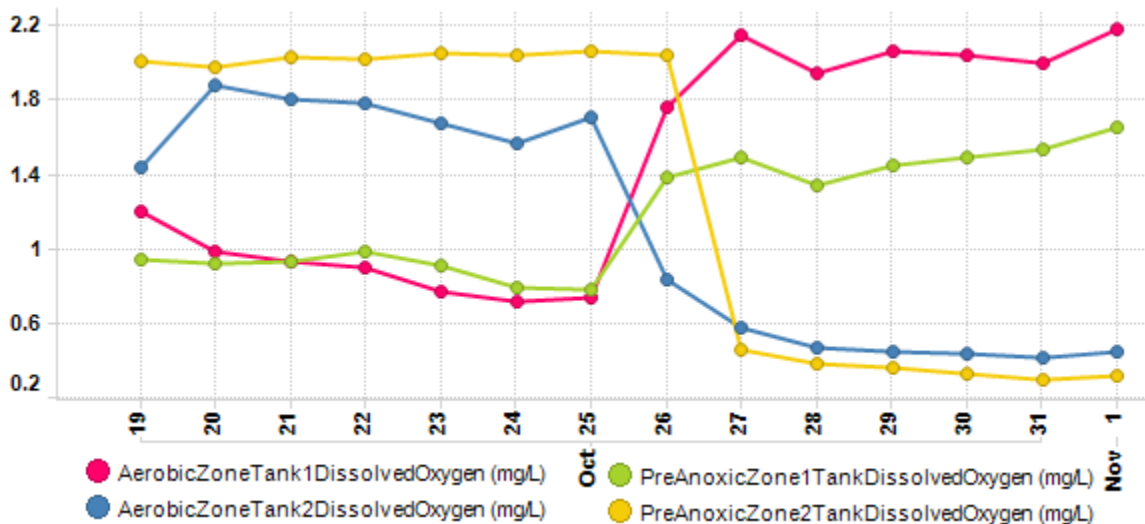
■ TcPermeabilityAfterBP
■ TcPermeabilityBeforeBP
■ TcPermeabilityDuringBP



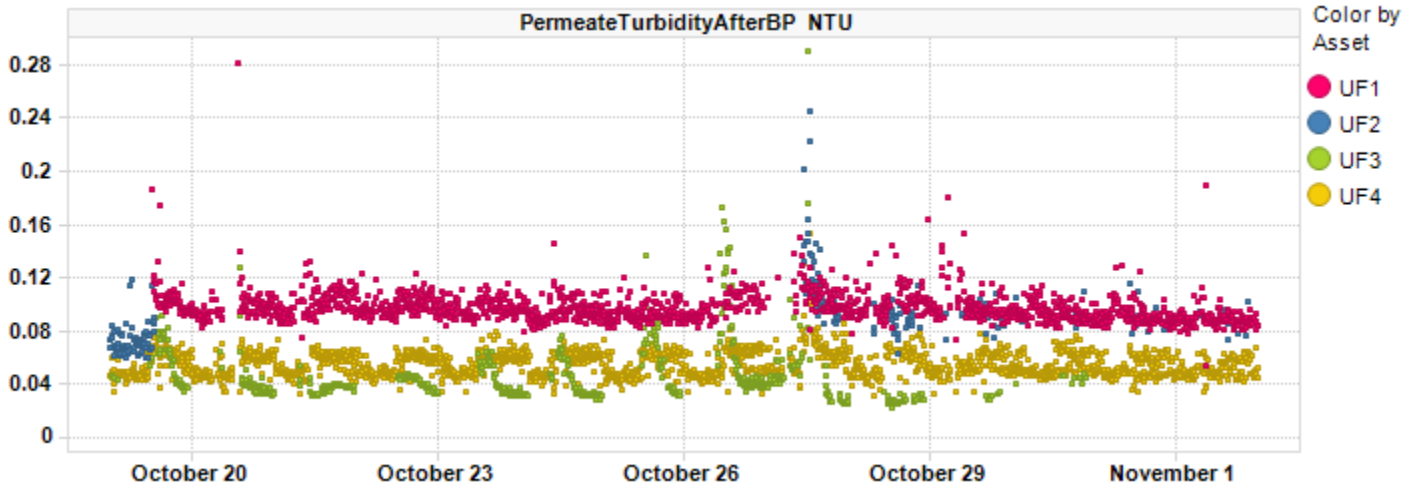
Bioreactor Dissolved Oxygen



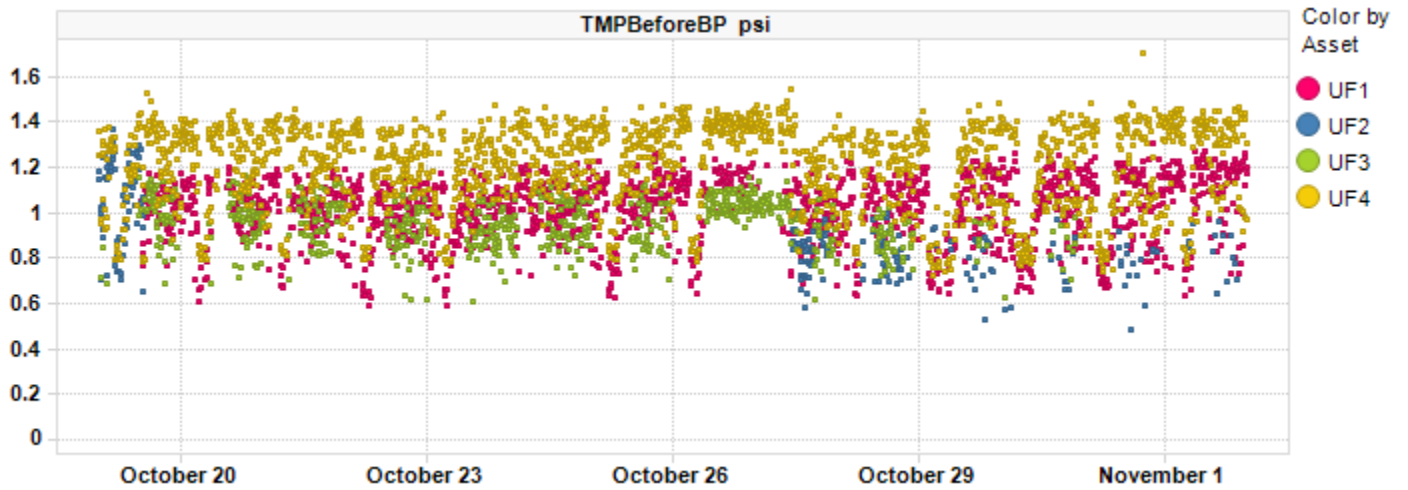
Daily median average values below



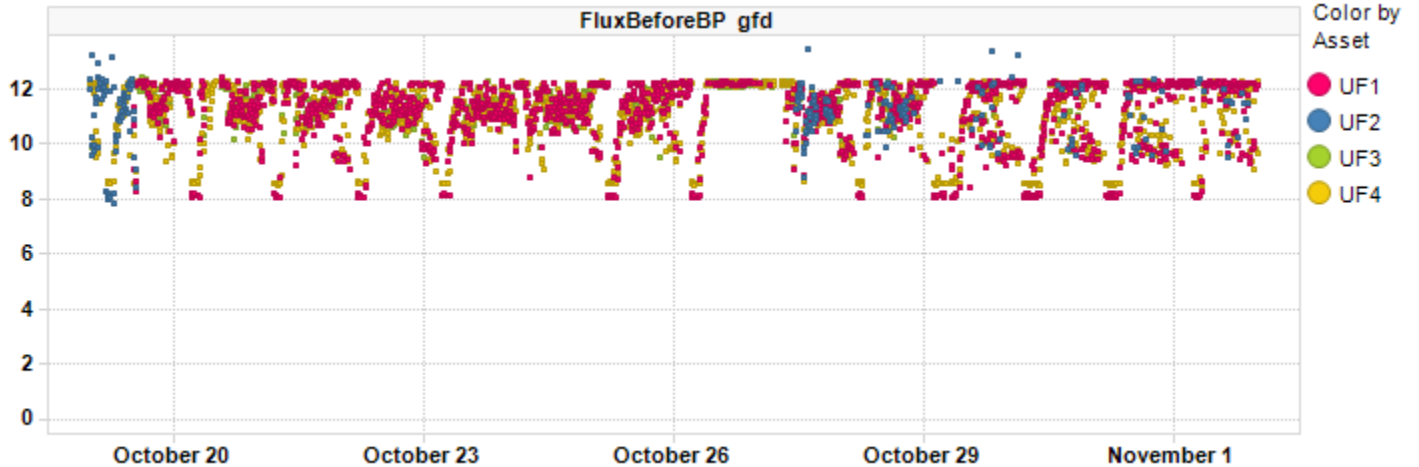
Permeate Turbidity Trend



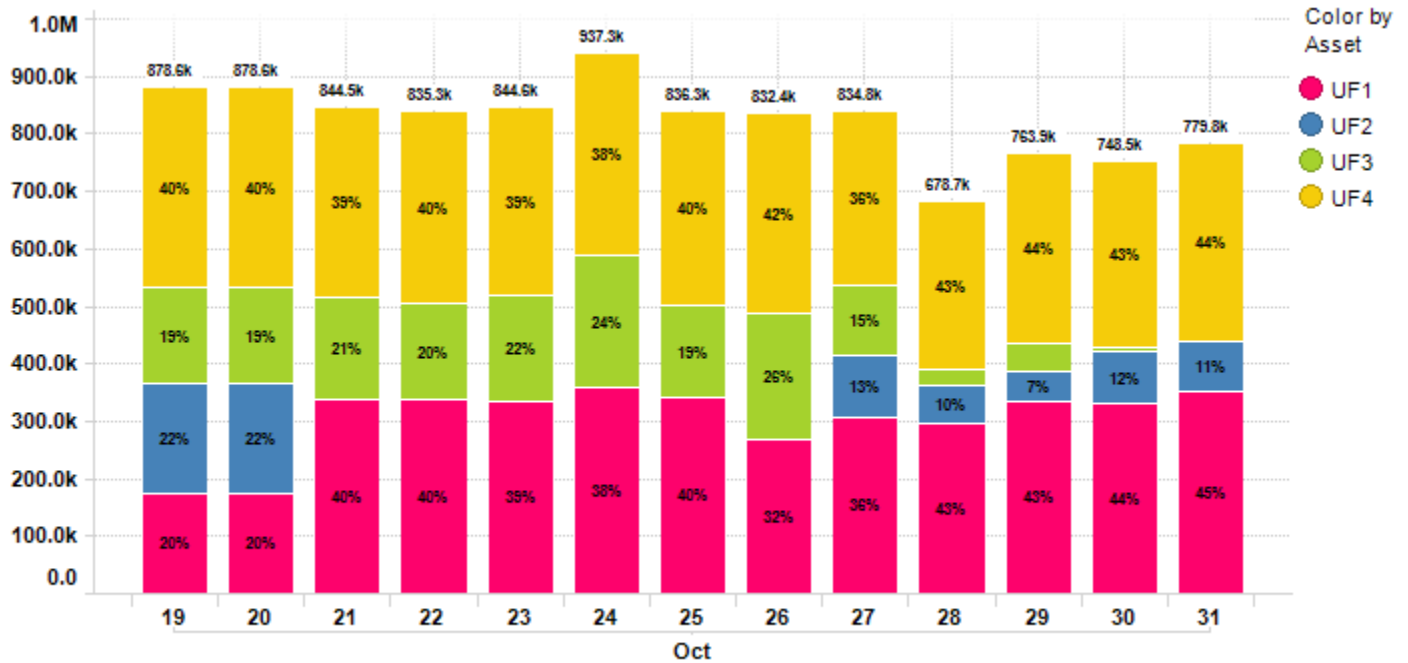
Before BPTMP Trend



Before BP Flux Trend



Daily Permeate Flow



Average Daily permeate flow from 10/19/2022 to 11/1/2022 is 817.9k gal with a maximum daily flow of 937.3k gal.

Asset Summary

KPI Parameters	Value/Ch...	UF1	UF2	UF3	UF4
FluxBeforeBP gfd	Value	11.12	11.12	11.46	11.15
	Change	-0.07%	-3.48%	1.34%	-0.86%
FluxDuringBP gfd	Value	18.78	18.38	18.38	18.78
	Change	0.64%	0.07%	-0.30%	0.18%
PermeateTurbidityAfterBP NTU	Value	0.10	0.09	0.05	0.06
	Change	14.60%	17.51%	-202...	10.16%
TCPPermeabilityBeforeBP gfd/psi	Value	10.53	12.34	11.52	8.88
	Change	38.42%	15.83%	10.43%	-12.2...
TMPBeforeBP psi	Value	1.01	0.89	0.95	1.21
	Change	-61.0...	-19.4...	-10.6...	11.05%
TotalPermeateFlowDaily gal	Value	300.4...	60.53k	129.1...	332.5...
	Change	10.51%	-145...	-0.90%	10.88%

Plant Summary

KPI Parameters	Value/Change	UF Plant
PermeateTemperature °F	Value	71.66
	Change	-0.79%
TotalPermeateFlowDaily gal	Value	912.85k
	Change	-1.84%



Contract Expiry Date: 08/11/2022

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.

This review was prepared by Veolia 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. Veolia Water Technologies & Solutions makes no representations or warranties as to the accuracy of the plant data utilized in the preparation of this review. Veolia 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: 11/16/2022

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

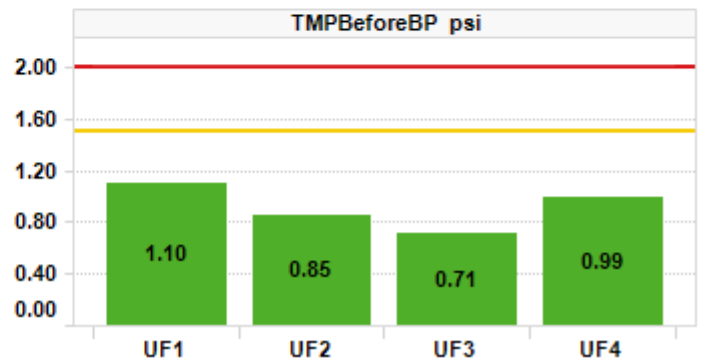
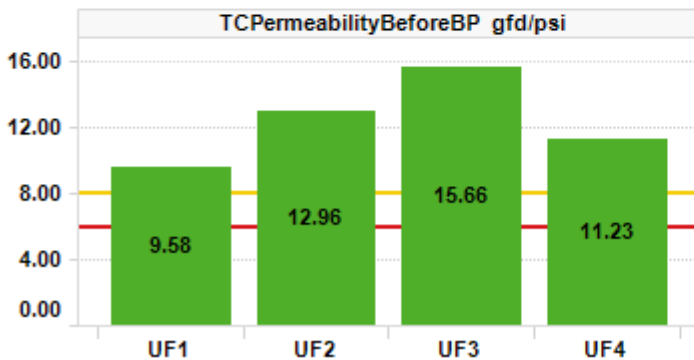
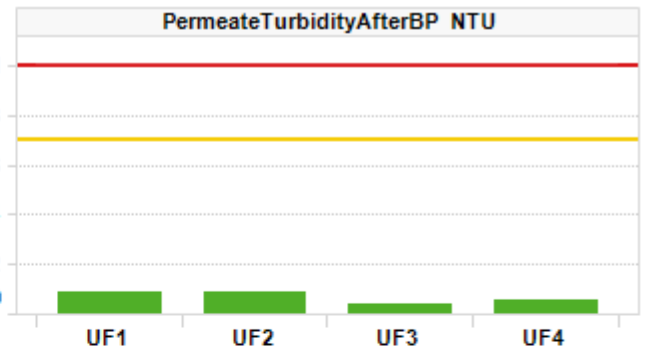
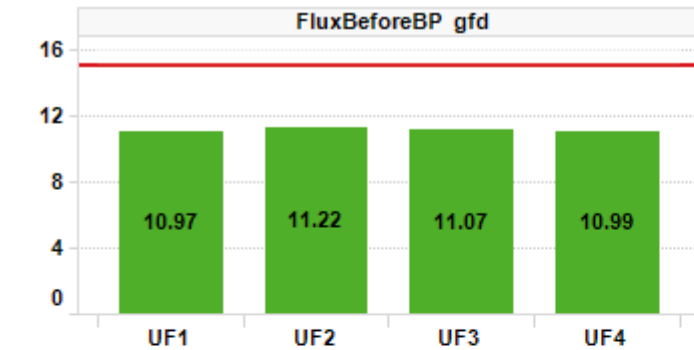
Replacement membranes installed Q1 2020 on trains UF3 and UF4

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

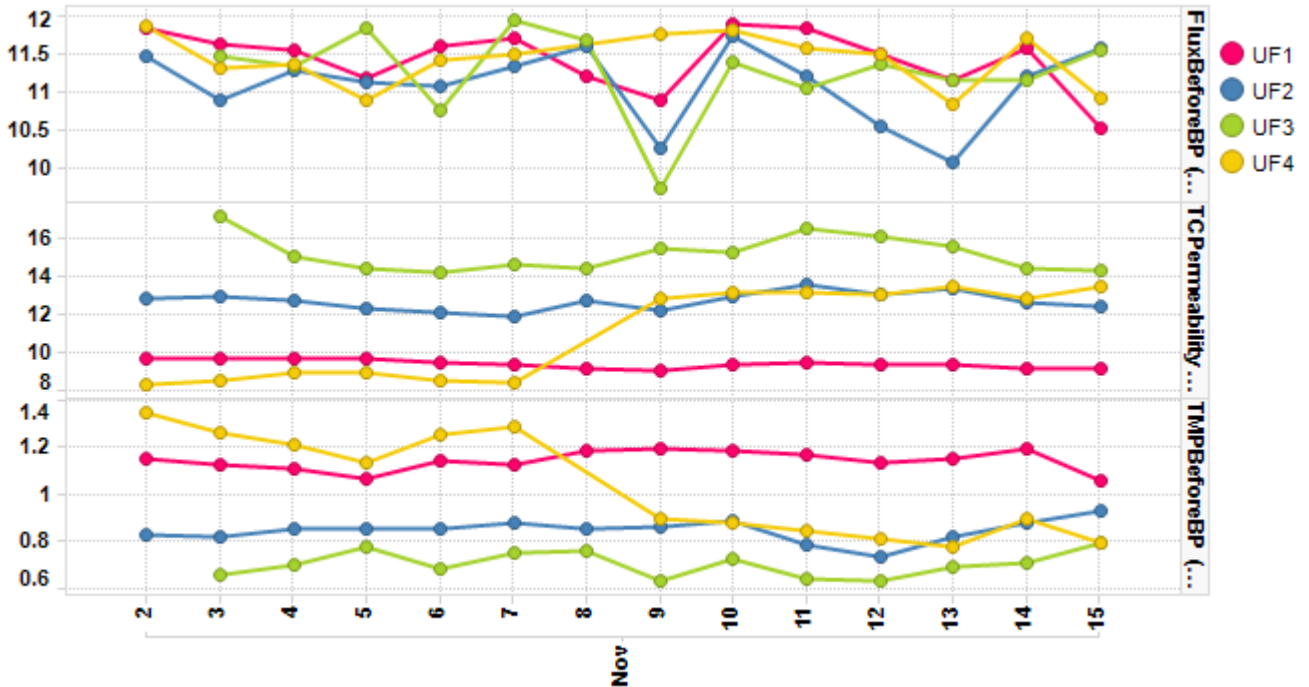
KPI Dashboard – Avg values through reporting period

■ Action Required
■ Caution
■ No Limits
■ Normal



Plant Summary

- TC permeability was ≥ 8 gfd/psi on all trains, averaging 9.6, 13.0, and 15.7, and 11.2 gfd/psi on trains 1,2,3. TMP averaged 1.1, 0.9, and 0.7 psi on trains 1,2,3. Train 4's TCP averaged 13.5 gfd/psi and TMP averaged 0.80 psi after its recovery clean (RC). All trains have steady performance following RCs, maintaining their gains from the cleans



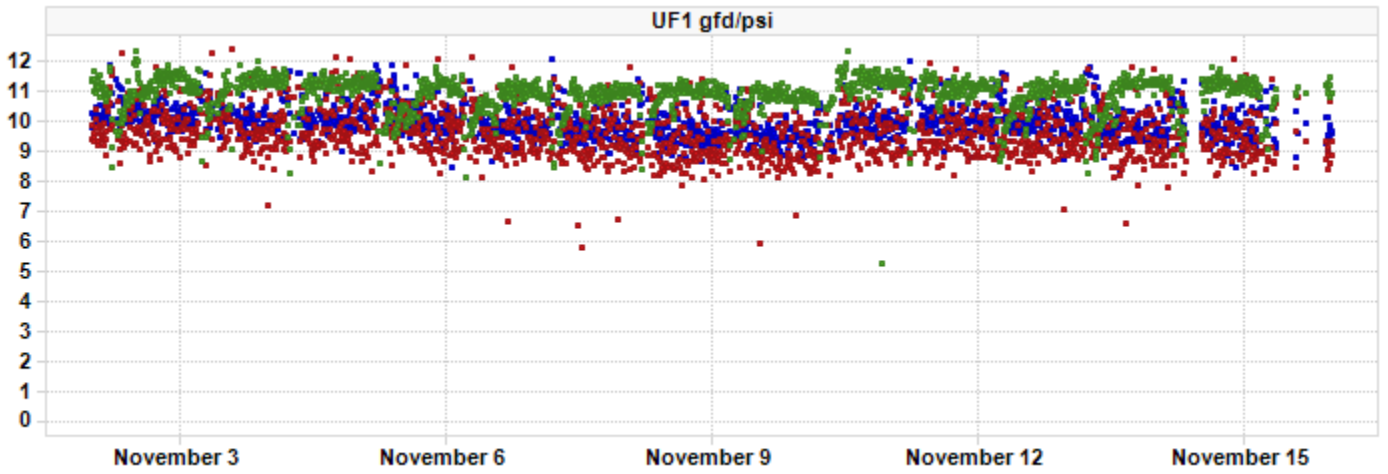
- Permeate turbidity averages ranged 0.04 – 0.09 NTU with steady trends on all trains during production
- Daily permeate production averaged 0.75 MGD. Permeate temperature averaged 71°F (-1°F). All trains are in Backpulse with LEAP Hi aeration. Flux averages ranged 11.0 – 11.2 gfd

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

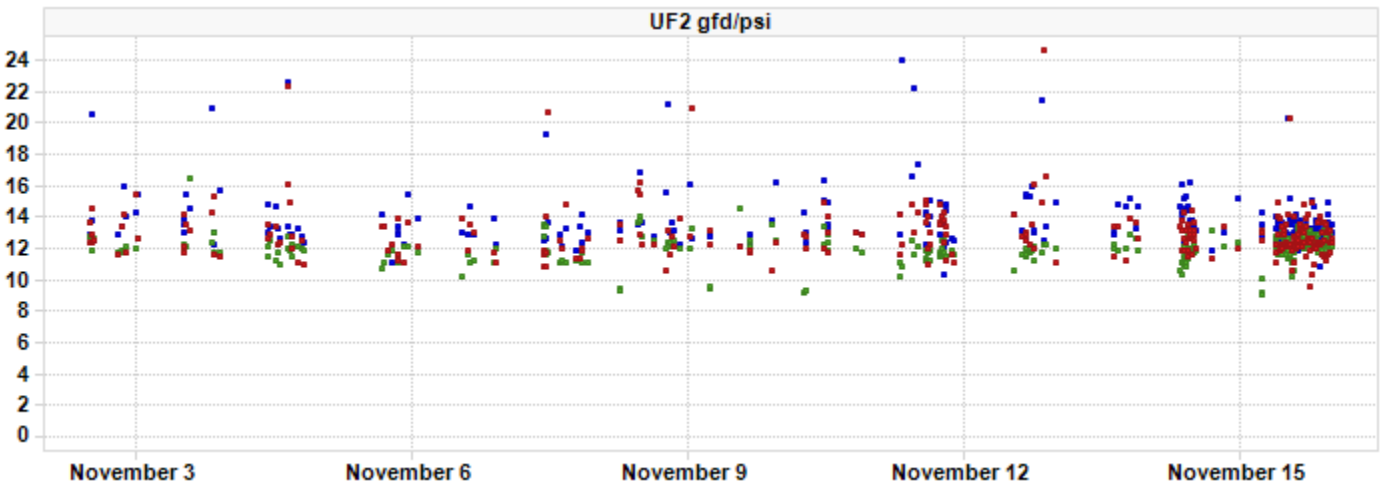
Train	UF1	UF2	UF3	UF4
# of Hypochlorite MCs	1	1	1	2
# of Citric Acid MCs	2	2	2	2

TC Permeability Trends By Train

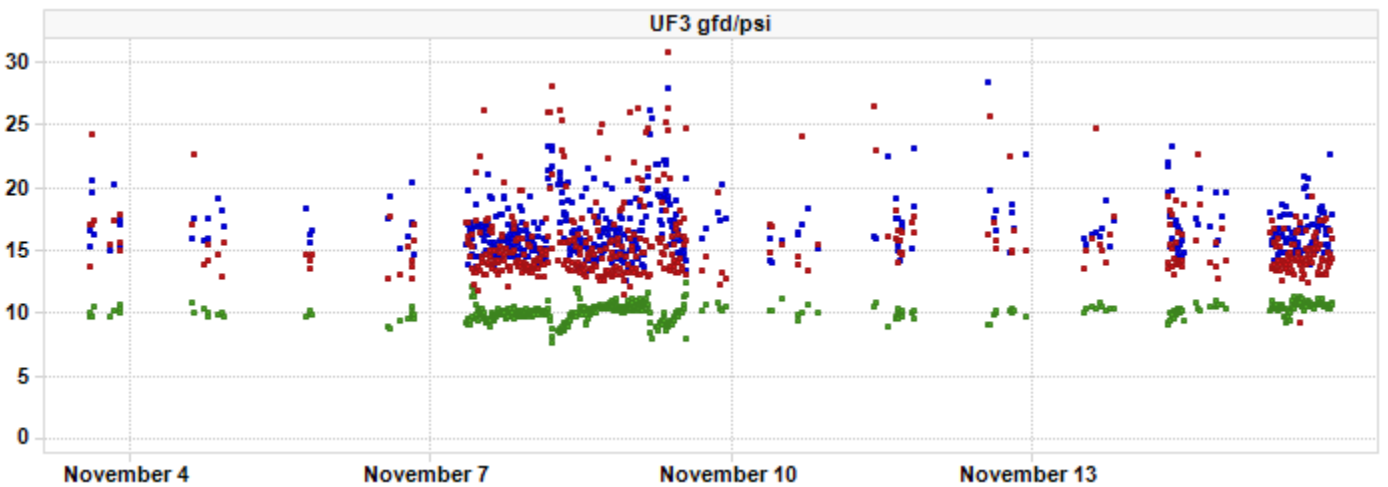
- TCPermeabilityAfterBP
- TCPermeabilityBeforeBP
- TCPermeabilityDuringBP



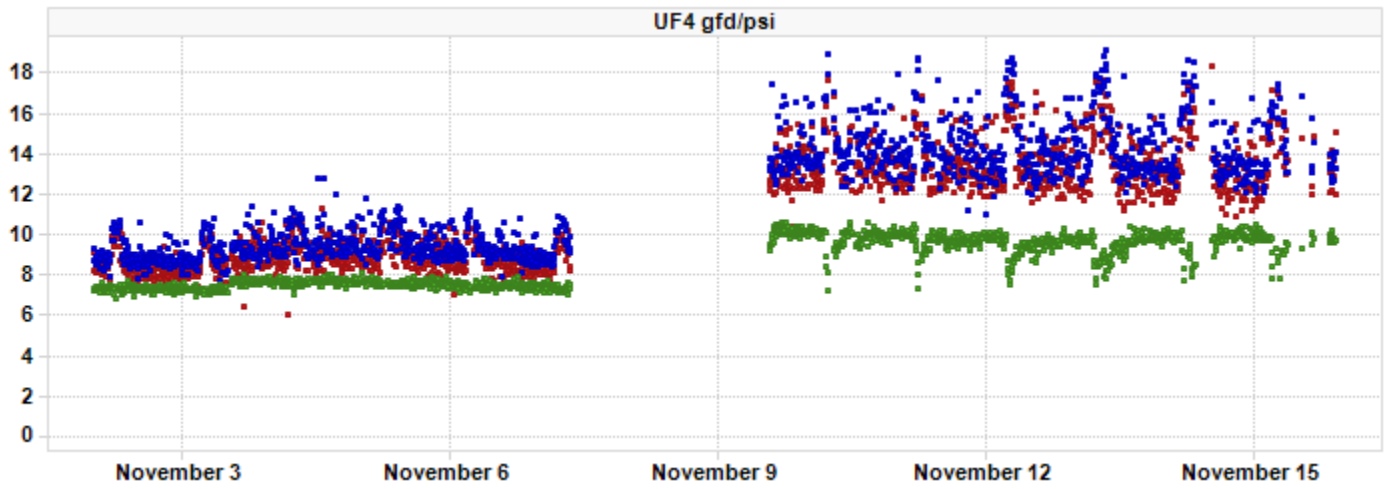
- TCPermeabilityAfterBP
- TCPermeabilityBeforeBP
- TCPermeabilityDuringBP



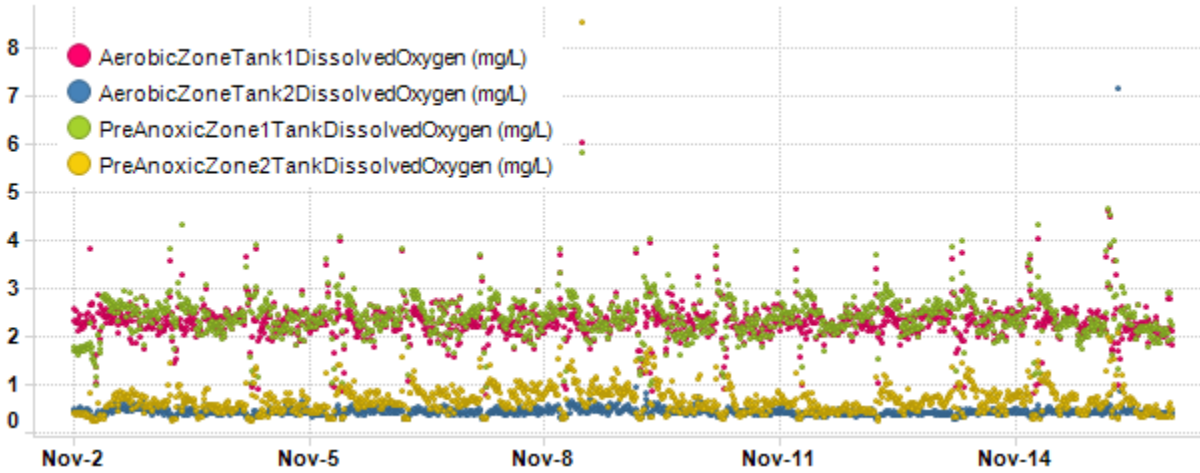
- TCPermeabilityAfterBP
- TCPermeabilityBeforeBP
- TCPermeabilityDuringBP



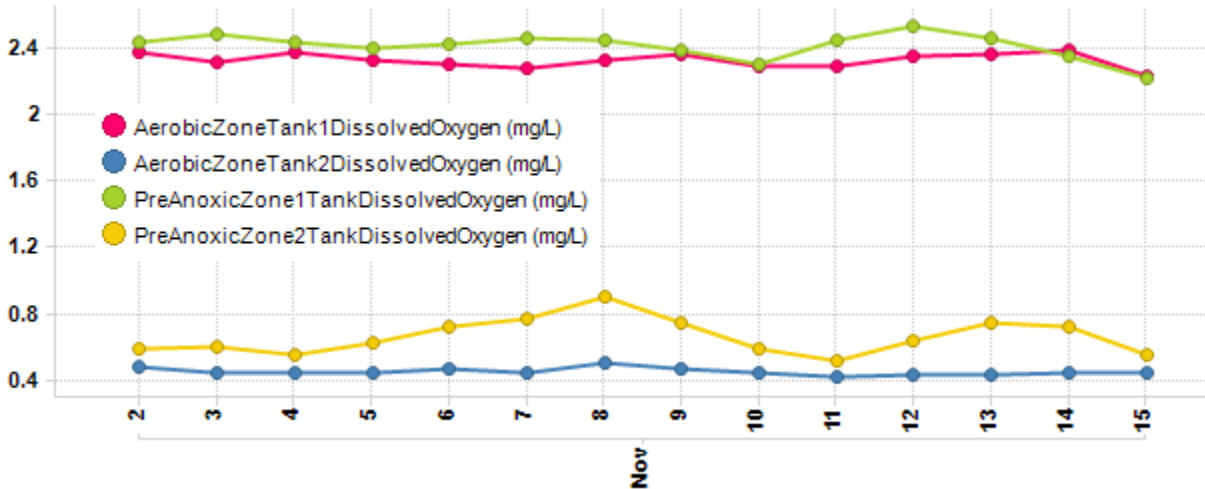
■ TCPermeabilityAfterBP
■ TCPermeabilityBeforeBP
■ TCPermeabilityDuringBP



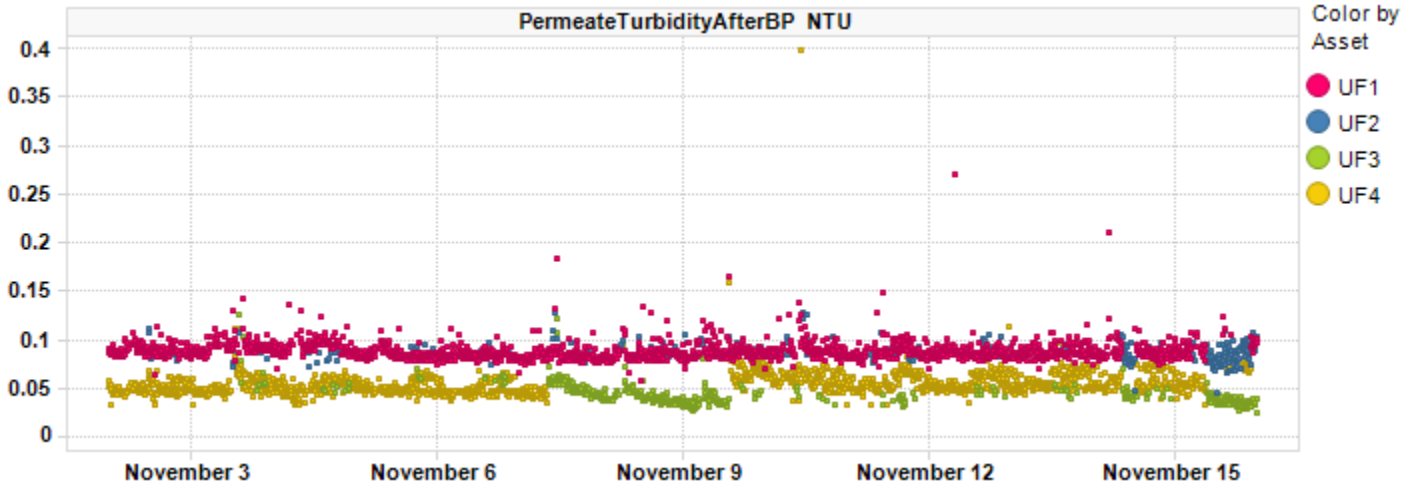
Bioreactor Dissolved Oxygen



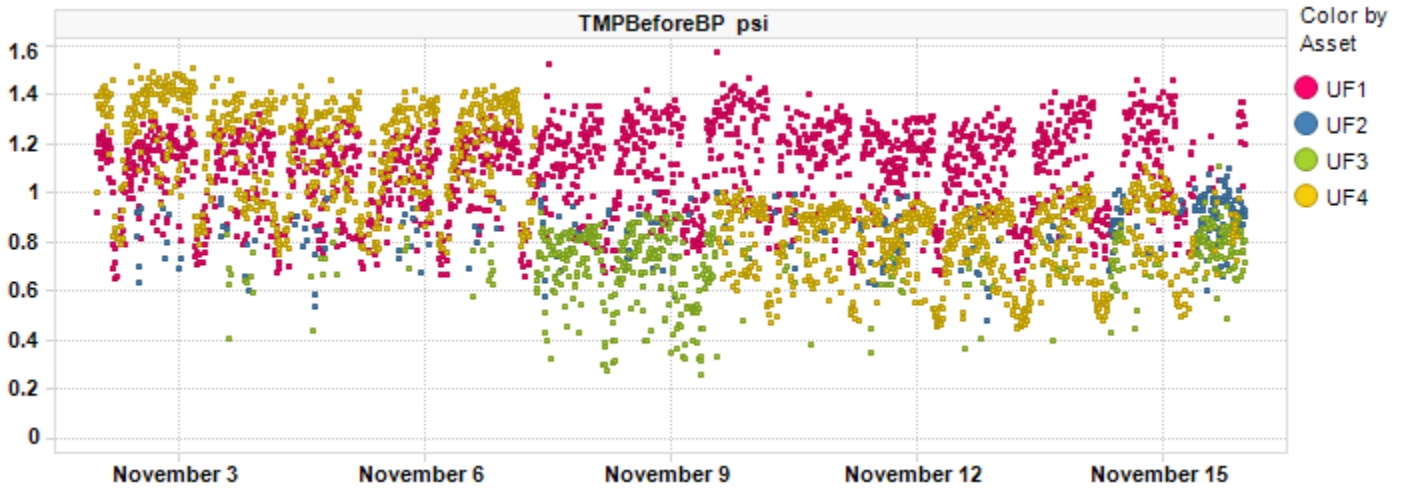
Daily median average values below:



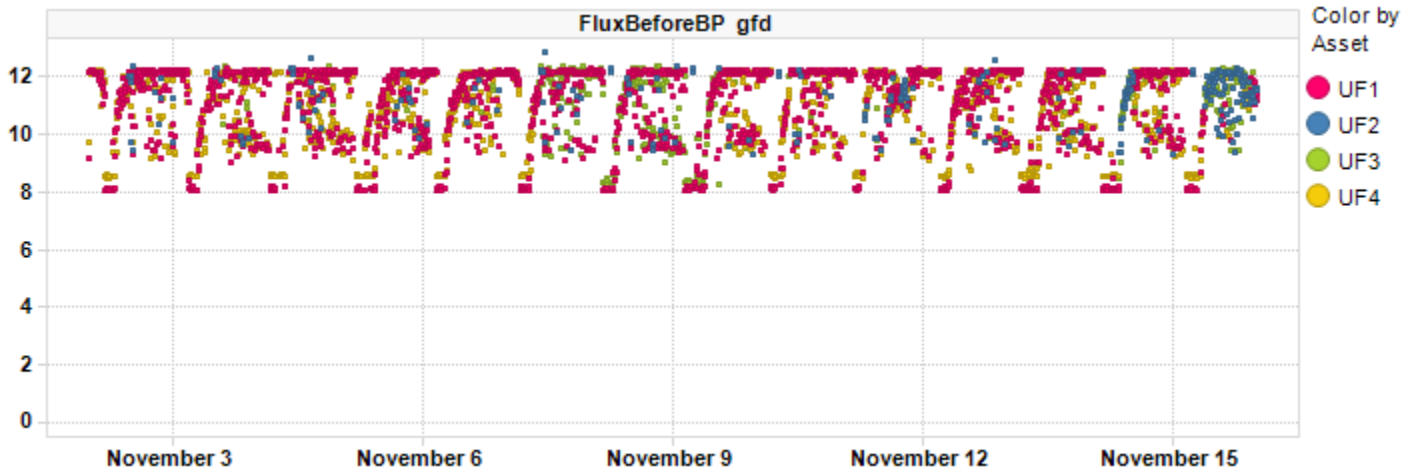
Permeate Turbidity Trend



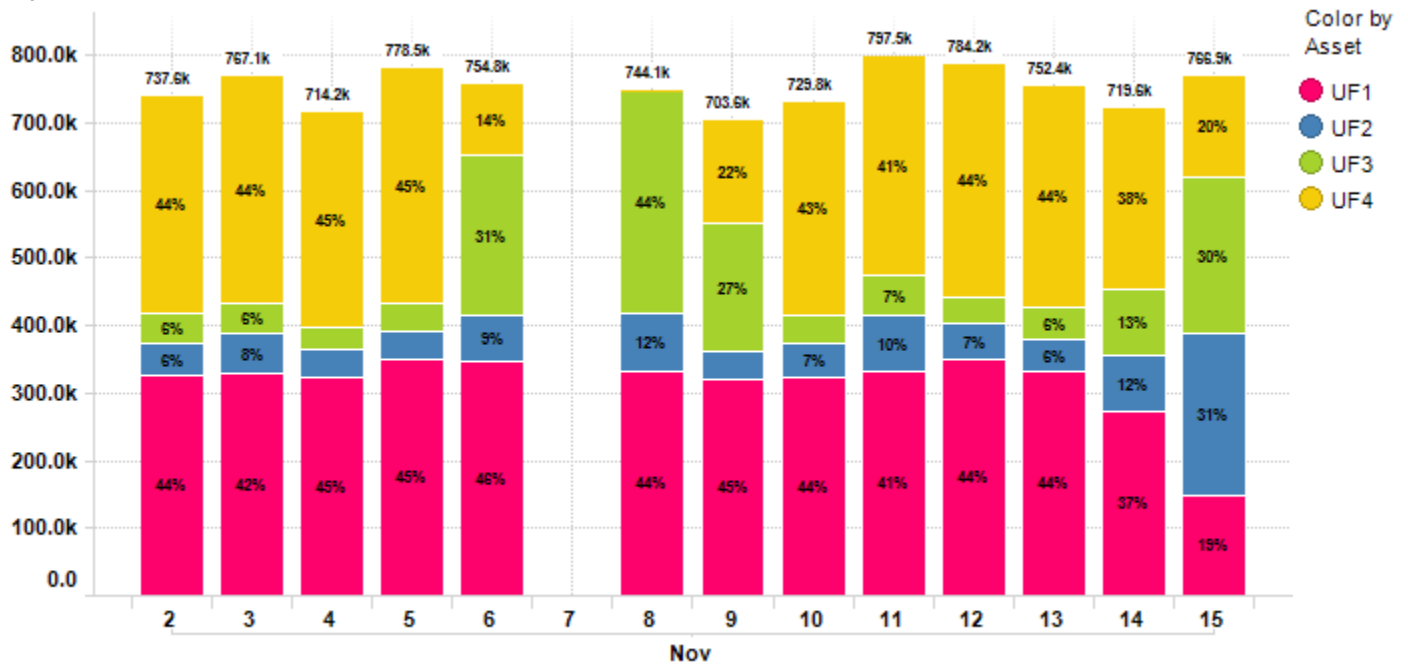
Before BPTMP Trend



Before BP Flux Trend



Daily Permeate Flow



Average Daily permeate flow from 11/2/2022 to 11/15/2022 is 750.0k gal with a maximum daily flow of 797.5k gal.

Asset Summary

KPI Parameters	Value/Ch...	UF1	UF2	UF3	UF4
FluxBeforeBP gfd	Value	10.97	11.22	11.07	10.99
	Change	-1.41%	0.82%	-3.50%	-1.43%
FluxDuringBP gfd	Value	18.77	18.53	18.40	18.77
	Change	-0.06%	0.80%	0.13%	-0.04%
PermeateTurbidityAfterBP NTU	Value	0.09	0.09	0.04	0.05
	Change	-10.2...	-4.03%	-6.76%	-1.43%
TCPPermeabilityBeforeBP gfd/psi	Value	9.58	12.96	15.66	11.23
	Change	-9.92%	4.78%	26.42%	20.94%
TMPBeforeBP psi	Value	1.10	0.85	0.71	0.99
	Change	8.19%	-4.71%	-35.0...	-22.1...
TotalPermeateFlowDaily gal	Value	311.6...	72.51k	109.8...	256.0...
	Change	2.66%	17.36%	-9.10%	-30.1...

Plant Summary

KPI Parameters	Value/Change	UF Plant
PermeateTemperature °F	Value	71.26
	Change	-0.56%
TotalPermeateFlowDaily gal	Value	830.42k
	Change	-9.03%



Contract Expiry Date: 08/11/2022

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