

March 17, 2020

Mr. Darrin Gordon
General Manager
Lewes Board of Public Works
107 Franklin Avenue
Lewes, DE 19958

Subject: Monthly Report, February 2020

Dear Mr. Gordon:

Attached is a summary of the Operations and Maintenance activities at the Board's lift stations and wastewater treatment plant for the month of February, 2020. Please direct any questions to my attention. Thank you.

Sincerely,



Paul S. Peris
Director of Production and Maintenance
White Marsh Environmental Systems, Inc.

I. Effluent Quality and Compliance

February 2020

Sample Data	Total Nitrogen	Total Phosphorus	BOD	TSS	Enterococcus
Average:	1.16 /mg/L	0.06/mg/L	<2.40/mg/L	<1.08/mg/L	<1/Col
Maximum:	N/A	N/A	<2.40/mg/L	<2.80/mg/L	Col.
Permit Limit:	8 mg /L average	2 mg /L average	15 mg/L average	15 mg/L average	10 Col. average
			23 mg/L MAX	23 mg/l MAX	

- Maximum daily flow: 1.0917 MGD
- Monthly average flow: .8255 MG

II. Activities – February 2020

Lift Stations

- 2/3/20 - BPW pumped out and cleaned Lift Stations #2 and #10. WM tested and returned both stations to service.
- 2/12/20 - WM repaired and adjusted floats at Lift Station #7.
- 2/14/20 – WM electricians adjusted the alarm set points for amperage at Lift Station #4. The low alarm is set at 9 amps and the high alarm is set at 30 amps based on the motor nameplate data and industry best practices.

Plant Activities

- 2/1/20 – Operator reviewed the PLC controlled maintenance clean schedule for the Zenon membranes.
- 2/5/20 - Decanted water from old EQ tank to plant headworks.
- 2/10/20 – Installed #1 membrane pump.
- 2/10/20 – Repairs to the gate and keypad were completed.
- 2/19/20 - Maintenance service performed on UV system.
- 2/19/20 - The 3 year dry sludge samples were collected for Enviro-Corp.
- 2/20/20 – Utility power went off-line. WM on-call staff found an issue with the main breaker on the generator. WM electrician reset the breaker and returned plant to service. Darrin Gordon of BPW was informed by Paul Peris during the event.

- 2/21/20 – WM generator contractor on site to investigate the generator main breaker. Breaker was cleaned and settings were verified. Generator was tested and returned to service.
- 2/21/20 - Replaced SC-100 controller for the outfall DO meter with a new SC-200 controller.
- 2/24/20 – An inventory of the maintenance parts for the generators was completed. A stock order was placed for the next service interval.
- 2/24/20 – Repaired the back up light and alarm on skid steer.
- 2/25/20 - Removed cover and inspected 2mm screen. Cleaned off loose debris. The wash sprayer was adjusted and cleaned.
- 2/27/20- Adjusted the float tree in the lift station for the drying beds to allow lower pumping levels.
- 2-27-2020 collected sludge samples for CDI and Delcora.
- 2/29/20 - Adjusted grit pumping rate to 4 times per day from once per day to keep vacuum pumps clean.
- All spare pumps, blowers and motors were checked and provided with an identification tag.
- Generator fuel tank has a small site glass to view tank levels. WM will install a float style gauge for more accurate level reading. Current level is ~ 7/8.

SAFETY INFORMATION

- No work place injuries. Days without incident: 69
- PPE inspected.
- Eyewash and fire extinguisher inspections conducted.

ADDITIONAL INFORMATION

- The main EQ tank needs to be cleaned and inspected prior to the summer season. The tank was last pumped and cleaned in 2012. WM is evaluating and creating a plan to drain and clean prior to the installation of the new Zeeweed Membranes which are expected to be delivered in mid-April.
- WM safety consultant, Connor Strong, was onsite to review the WM plant safety program.
- Jacobs Engineering was onsite doing an independent review of plant operations and the December 2019 membrane failure.
- WM participated with BPW on a conference call with Suez to discuss the approval of the purchase of two sets of new Zeeweed membranes, hardware to upgrade all

twelve cassettes, installation of the Insight system, installation of a new control panel and conversion to the Leap air system.

- The updated Zenon/Suez OM Manual was supplied electronically to WM.
- GMB, BPW town engineers, were contracted to perform quarterly plant inspections. Paul Peris from WM met with Scott Getchell from GMB on February 18, 2020 for the first inspection. GMB will issue report to BPW.
- The WM Annual Report for BPW was submitted on February 19, 2020.
- Replacement of old chemical lines in the process and chemical room are scheduled to be replaced in mid to late March. WM will notify BPW of any scheduling changes.
- Replacement of the Kubota Membranes in the sludge digester is on schedule for mid to late March. WM will notify the BPW of any scheduling changes.
- The DNREC N.O.V for the December 2019 bypass, dated February 5, 2020, was received by BPW. A copy was shared with WM for review and comment.
- WM report of findings for the December 19, 2019 bypass was submitted to the BPW on February 13, 2020.
- Bruce Patrick and Paul Peris from WM attended the February BPW meeting.

Needed from BPW

- GMB quarterly report from February 18, 2020 inspection.

Attachments

- February 2020 E-DMR
- February 2020 Membrane Turbidity Trend report
- February 2020 Influent and Effluent Report
- Sussex County pumpage numbers to Lift Station #4
- February 2020 TMP, Permeability and Production rate charts
- February 2020 WWTP Monthly Operations Report
- February 2020 Nutrient Offset Report

JOHN BUCKENSON 4/10/2020 11:00:00 AM

[DMR Online](#)
Production

Need Help with your DMR submission? Phone

Enter Discharge Monitoring Data

DE0021512 Howard Seymour Water Reclamation Plant Outfall: 001

Go To Outfall:

Save For Later Editing

Submit To DNREC

Return To Monitored Outfalls

DMR Reporting Period:

Date Submitted to DNREC:

No Data Reason (ND):

Select to auto-fill all parameters on this page.

Comments Regarding this DMR:

System Messages:

This Report is Available for Editing and Submission.

Pg 1 | Pg 2

Parameter	NDI	Average Quantity	Maximum Quantity	Minimum Concentration	Average Concentration	Maximum Concentration	Exc	Frequency	Sample
Flow A	<input type="text" value="v"/>	<input type="text" value="0.8255"/> <i>No Limit-Monitoring Required Mil Gal/Day</i>	<input type="text" value="1.0917"/> <i>No Limit-Monitoring Required Mil Gal/Day</i>	<i>No Monitoring Required</i>	<i>No Monitoring Required</i>	<i>No Monitoring Required</i>	<input type="text" value="0"/>	<input type="text" value="9999 - Continuous"/> 09/99-Continuous	RT - RCC RT-RCC
Dissolved oxygen (DO) A	<input type="text" value="v"/>	<i>No Monitoring Required</i>	<i>No Monitoring Required</i>	<input type="text" value="5.42"/> <i>No Limit-Monitoring Required mg/l</i>	<i>No Monitoring Required</i>	<input type="text" value="7.98"/> <i>No Limit-Monitoring Required mg/l</i>	<input type="text" value="0"/>	<input type="text" value="9999 - Continuous"/> 99/99-Continuous	IM - Imer IM-Imer
pH A	<input type="text" value="v"/>	<i>No Monitoring Required</i>	<i>No Monitoring Required</i>	<input type="text" value="7.4"/> 6 Std pH Units	<i>No Monitoring Required</i>	<input type="text" value="7.6"/> 9 Std pH Units	<input type="text" value="0"/>	<input type="text" value="0101 - Daily"/> 01/01-Daily	GR - Gal GR-Gra
Enterococcus A	<input type="text" value="v"/>	<i>No Monitoring Required</i>	<i>No Monitoring Required</i>	<i>No Monitoring Required</i>	<input type="text" value="1"/> 10 CFU/100ML	<input type="text" value="1"/> 104 CFU/100ML	<input type="text" value="0"/>	<input type="text" value="0107 - Weekly"/> 01/07-Weekly	GR - Gal GR-Gra
BOD5 A	<input type="text" value="v"/>	<input type="text" value="16.41"/> 188 lbs/Day	<input type="text" value="19.09"/> 288 lbs/Day	<i>No Monitoring Required</i>	<input type="text" value="2.4"/> 15 mg/l	<input type="text" value="2.4"/> 23 mg/l	<input type="text" value="0"/>	<input type="text" value="0107 - Weekly"/> 01/07-Weekly	24 - Com 24-Com
BOD5 A Raw Sewage	<input type="text" value="v"/>	<i>No Monitoring Required</i>	<i>No Monitoring Required</i>	<i>No Monitoring Required</i>	<input type="text" value="138.25"/> <i>No Limit-Monitoring Required mg/l</i>	<input type="text" value="145"/> <i>No Limit-Monitoring Required mg/l</i>	<input type="text" value="0"/>	<input type="text" value="0107 - Weekly"/> 01/30-Once/Month	24 - Com 24-Com
TSS A	<input type="text" value="v"/>	<input type="text" value="7.22"/> 188 lbs/Day	<input type="text" value="18.52"/> 288 lbs/Day	<i>No Monitoring Required</i>	<input type="text" value="1.08"/> 15 mg/l	<input type="text" value="2.8"/> 23 mg/l	<input type="text" value="0"/>	<input type="text" value="0107 - Weekly"/> 01/07-Weekly	24 - Com 24-Com

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[DMR Online](#)
Production

Need Help with your DMR submission? Phone

Enter Discharge Monitoring Data

DE0021512 Howard Seymour Water Reclamation Plant Outfall: 001

Go To Outfall:

Save For Later Editing

Submit To DNREC

Return To Monitored Outfalls

DMR Reporting Period:

Date Submitted to DNREC:

No Data Reason (ND):

Select to auto-fill all parameters on this page.

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Pg 1 Pg 2

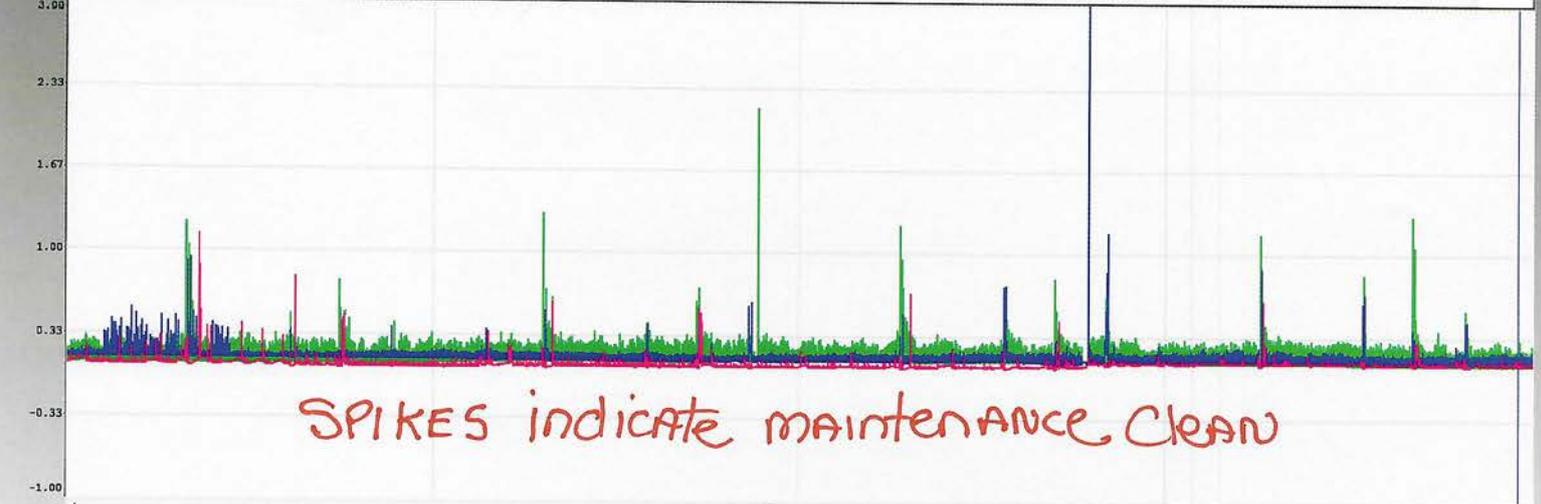
Parameter	NDI	Average Quantity	Maximum Quantity	Minimum Concentration	Average Concentration	Maximum Concentration	Exc	Frequency	Sample
TSS A Raw Sewage	<input type="checkbox"/>	No Monitoring Required	No Monitoring Required	No Monitoring Required	<input checked="" type="checkbox"/> 64.75 No Limit-Monitoring Required mg/l	<input checked="" type="checkbox"/> 74 No Limit-Monitoring Required mg/l	<input type="checkbox"/>	<input type="text" value="01/07 - Weekly"/> <input type="text" value="01/30 - Once/Month"/>	<input type="text" value="24 - Comp"/> <input type="text" value="24 - Comp"/>
Total Nitrogen A	<input type="checkbox"/>	<input checked="" type="checkbox"/> 7.04 100 lbs/Day	<input checked="" type="checkbox"/> 7.04 No Limit-Monitoring Required lbs/Day	No Monitoring Required	<input checked="" type="checkbox"/> 1.16 8 mg/l	<input checked="" type="checkbox"/> 1.16 No Limit-Monitoring Required mg/l	<input type="checkbox"/>	<input type="text" value="01/00 - Once/Month"/> <input type="text" value="01/30 - Once/Month"/>	<input type="text" value="24 - Comp"/> <input type="text" value="24 - Comp"/>
Phosphorus, Total A	<input type="checkbox"/>	<input checked="" type="checkbox"/> 0.36 25 lbs/Day	<input checked="" type="checkbox"/> 0.36 No Limit-Monitoring Required lbs/Day	No Monitoring Required	<input checked="" type="checkbox"/> 0.06 2 mg/l	<input checked="" type="checkbox"/> 0.06 No Limit-Monitoring Required mg/l	<input type="checkbox"/>	<input type="text" value="01/20 - Once/Month"/> <input type="text" value="01/30 - Once/Month"/>	<input type="text" value="24 - Comp"/> <input type="text" value="24 - Comp"/>

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TRAIN TURBIDITY

Cursor Time : 02/29/2020 09:21:48.339



02/01/2020 00:23:50 Duration: 688.000000 02/29/2020 16:23:50

Label	Current	Cursor
Train 1 Turbidity	1.53	1.40
Train 2 Turbidity	0.20	0.14
Train 3 Turbidity	0.14	0.13
Train 4 Turbidity	0.12	0.14

Open Previous Reset Zoom

Main Menu Print Trend

16:23:49
 Thursday, March 12, 2020
 User : Guest
 Group : Guest
 002 Acknowledged Alarms
 001 Unacknowledged Alarms
 003 Total Alarms

LEWES WASTEWATER TREATMENT PLANT

Influent Flow Report

Influent Flow

Time	Flow
2/1/2020	821100
2/2/2020	765700
2/3/2020	750700
2/4/2020	722400
2/5/2020	729700
2/6/2020	933400
2/7/2020	1089000
2/8/2020	849400
2/9/2020	821100
2/10/2020	814100
2/11/2020	963700
2/12/2020	883100
2/13/2020	900300
2/14/2020	870300
2/15/2020	863300
2/16/2020	852300
2/17/2020	831500
2/18/2020	792800
2/19/2020	778200
2/20/2020	791900
2/21/2020	816400
2/22/2020	807300
2/23/2020	793200
2/24/2020	788600
2/25/2020	805300
2/26/2020	783500
2/27/2020	820400
2/28/2020	797500
2/29/2020	785800
Total Flow :	24022000

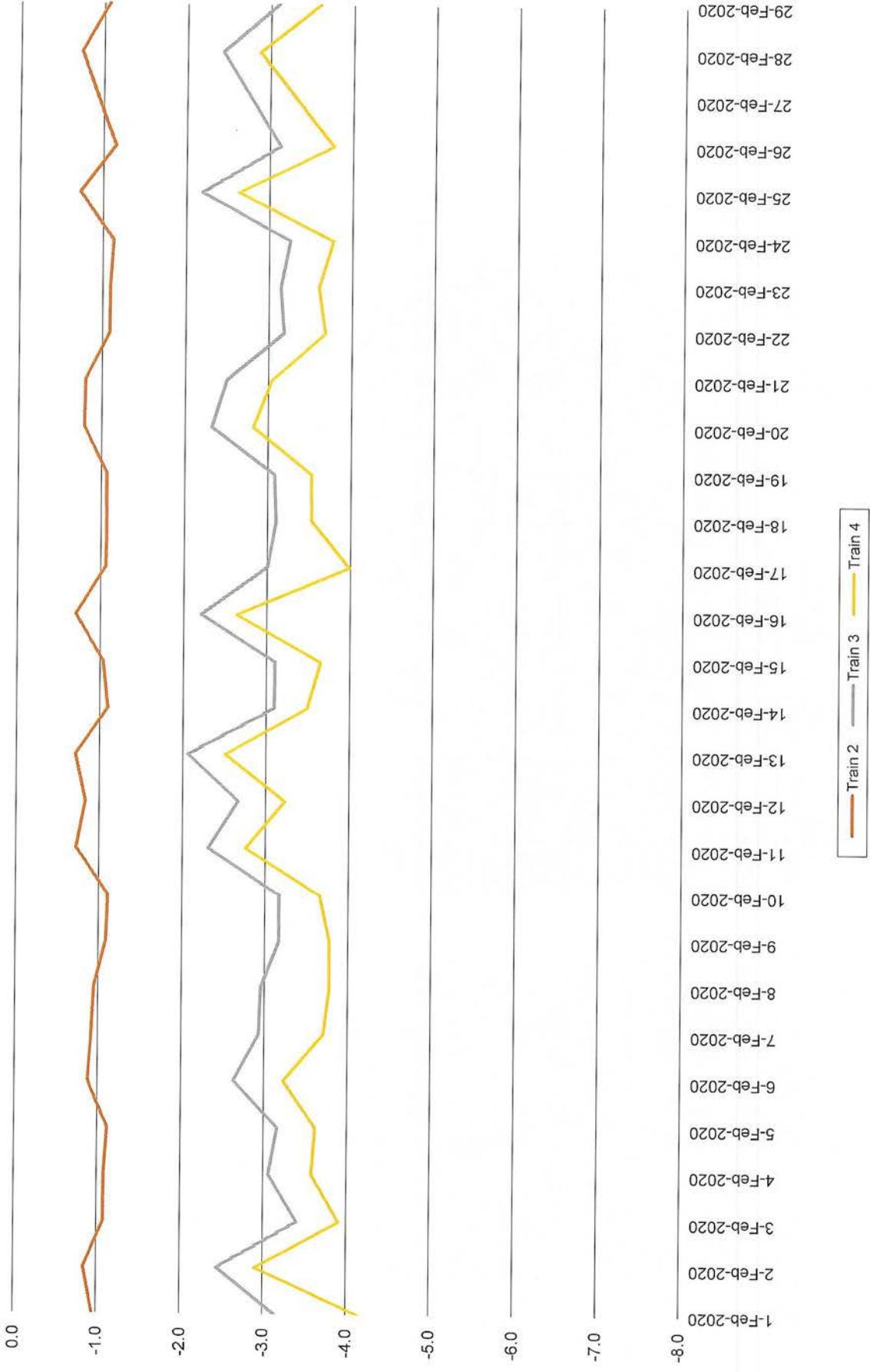
LEWES WASTEWATER TREATMENT PLANT

Effluent Flow Report

Effluent Flow

Time	Flow
2/1/2020	823500
2/2/2020	768400
2/3/2020	752700
2/4/2020	727300
2/5/2020	738800
2/6/2020	902300
2/7/2020	1091700
2/8/2020	969800
2/9/2020	712300
2/10/2020	815100
2/11/2020	954000
2/12/2020	899900
2/13/2020	861000
2/14/2020	861900
2/15/2020	855100
2/16/2020	850700
2/17/2020	830700
2/18/2020	792900
2/19/2020	781100
2/20/2020	694800
2/21/2020	892000
2/22/2020	800000
2/23/2020	796300
2/24/2020	795100
2/25/2020	804800
2/26/2020	784600
2/27/2020	811600
2/28/2020	789500
2/29/2020	780200
Total Flow :	23938100

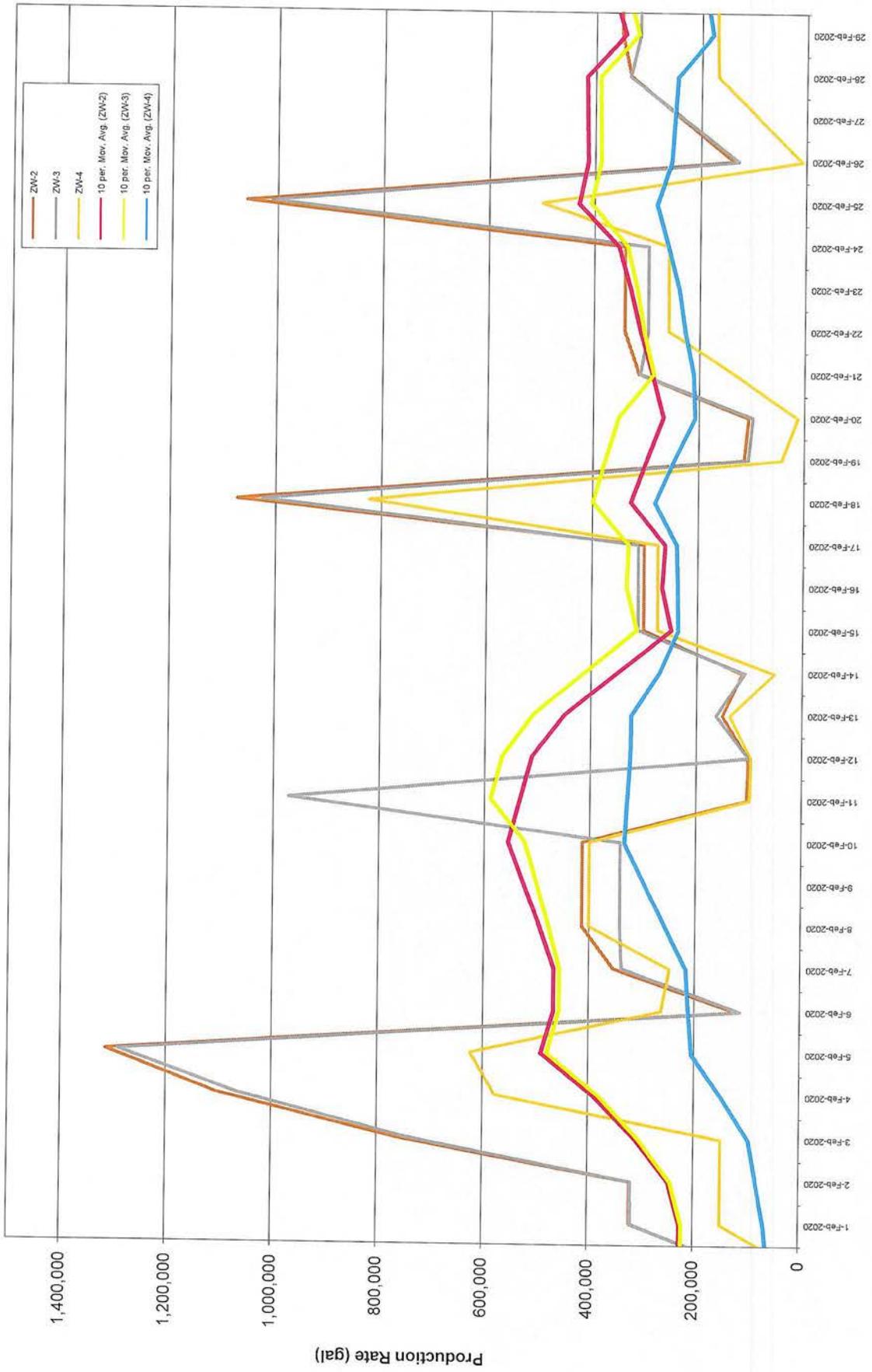
TMP After Back Pulse vs. time



Permeability After Backpulse vs. time



Production Rates



MONTHLY OPERATIONS REPORT

SITE: LEWES WWTF

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Tidewater Utilities
February 2020

FINAL EFFLUENT OUTFALL 001

DATE	DAY	BOD5		TSS		ENTEROC.		TOTAL P		TOTAL N		AMMONIA AS N		NITRATE+NITRITE AS N		TKN	
		mg/l	lbs/day	mg/l	lbs/day	Col/100 ml	Logarithm	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day
1	S																
2	S																
3	M																
4	T	< 2.40	< 14.56	< 0.50	< 3.03			0.06	0.36	1.16	7.04	0.21	1.27	0.69	4.19	0.47	2.85
5	W					< 1											
6	T																
7	F																
8	S																
9	S																
10	M																
11	T	< 2.40	< 19.09	< 0.50	< 3.98												
12	W					< 1											
13	T																
14	F																
15	S																
16	S																
17	M																
18	T	< 2.40	< 15.87	2.80	< 18.52												
19	W					< 1											
20	T																
21	F																
22	S																
23	S																
24	M																
25	T	< 2.40	16.11	0.50	3.36												
26	W					< 1											
27	T																
28	F																
29	S																
TOTAL																	
AVERAGE		< 2.40	< 16.41	< 1.08	< 7.22	< 1.0		0.06		1.16		0.21	1.27	0.69	4.19	0.47	2.85
MAXIMUM		< 2.40	< 19.09	< 2.80	< 18.52	< 1.0		0.06	0.36	1.16	7.04	0.21	1.27	0.69	4.19	0.47	2.85
MINIMUM		< 2.40	< 14.56	< 0.50	< 3.03	< 1.0		0.06	0.36	1.16	7.04	0.21	1.27	0.69	4.19	0.47	2.85

LEWES WWTF

NUTRIENT OFFSET REPORT

MONTH	Days	Average Monthly Flow MGD	Monthly Average TN mg/L	Total Monthly TN Discharged Lbs.	TN Based 11.8 lbs Manure Offset Required Lbs.	Poultry Manure Relocated Tons	Poultry Manure Relocated Lbs.	Poultry Manure Offset Balance Lbs.	Monthly Average TP mg/L	Total Monthly TP Discharged Lbs.	TP Based 11.8 lbs Manure Offset Required Lbs.
Carry Over											
January	31	0.6789	7.74	1358.55	16030.85			3,195,312.26	0.15	26.33	310.68
February	29	0.8255	1.16	231.60	2732.88			3,179,281.41	0.06	11.58	136.64
March	31			0.00	0.00			3,176,548.53		0.00	0.00
April	30			0.00	0.00			3,176,548.53		0.00	0.00
May	31			0.00	0.00			3,176,548.53		0.00	0.00
June	30			0.00	0.00			3,176,548.53		0.00	0.00
July	31			0.00	0.00			3,176,548.53		0.00	0.00
August	31			0.00	0.00			3,176,548.53		0.00	0.00
September	30			0.00	0.00			3,176,548.53		0.00	0.00
October	31			0.00	0.00			3,176,548.53		0.00	0.00
November	30			0.00	0.00			3,176,548.53		0.00	0.00
December	31			0.00	0.00			3,176,548.53		0.00	0.00
Year Balance								3,176,548.53			

Comments:


 Authorized Signatory

3/3/2020
 DATE

MONTHLY OPERATIONS REPORT

Tidewater Utilities

SITE: LEWES WWTF

Page 1 of 2

February 2020

bp
fa

GENERAL INFORMATION				FINAL EFFLUENT OUTFALL 001									
DATE	DAY	AIR deg F	Prec in.	WEATHER	EFF FLOW MGD	pH S.U.	p-H DUP	D.O., mg/l	TEMP. deg C	SAMPLES 1 per week		TEST TIME	
										TIME	INITIALS		
1	S	39	0.08	cloudy	0.8235	7.52		6.82	16.5	13:05	RLG	13:15	
2	S	41	0.00	cloudy	0.7684	7.61		7.33	16.7	15:00	RLG	15:12	
3	M	37	0.00	clear	0.7527	7.59	7.49	7.51	16.7	8:35	DBW	8:51	
4	T	59	0.00	cloudy	0.7273	7.46		6.51	18.2	7:55	DBW	8:08	
5	W	47	0.18	rain	0.7388	7.51		6.86	18.0	8:30	DBW	8:36	
6	T	46	0.40	rain	0.9023	7.49		7.68	16.9	7:45	DBW	7:58	
7	F	53	1.50	rain	1.0917	7.61		7.24	17.8	8:30	BM	8:38	
8	S	27	0.00	clear	0.9698	7.51		7.98	15.7	7:56	BM	8:05	
9	S	26	0.00	clear	0.7123	7.59		7.66	15.6	9:20	BM	9:27	
10	M	45	0.00	p cloudy	0.8151	7.50	7.5	7.10	16.8	8:00	DBW	8:23	
11	T	59	0.17	rain	0.9540	7.47		6.19	18.2	7:55	DBW	8:09	
12	W	44	0.00	p cloudy	0.8999	7.52		6.92	16.9	7:15	BM	7:43	
13	T	49	0.84	rain	0.8610	7.57		6.45	17.8	11:40	DBW	11:47	
14	F	38	0.20	p cloudy	0.8619	7.56		6.77	17.1	7:55	DBW	8:19	
15	S	30	0.00	clear	0.8551	7.52		7.55	15.4	9:34	DBW	9:41	
16	S	46	0.00	p sunny	0.8507	7.45		6.40	15.4	9:45	KB	9:52	
17	M	54	0.00	clear	0.8307	7.45	7.46	6.32	16.3	11:51	KB	12:00	
18	T	44	0.00	p cloudy	0.7929	7.57		5.72	17.5	8:07	BM	8:17	
19	W	39	0.00	clear	0.7811	7.53		5.74	16.8	7:59	BM	8:20	
20	T	34	0.00	clear	0.6948	7.55		5.42	16.3	6:40	DBW	6:56	
21	F	28	0.00	clear	0.8920	7.47		5.49	15.7	11:20	DBW	11:27	
22	S	52	0.00	clear	0.8000	7.48		5.76	16.8	15:00	RLG	15:13	
23	S	56	0.00	clear	0.7963	7.46		5.59	16.8	13:00	RLG	13:11	
24	M	37	0.00	clear	0.7951	7.47	7.48	5.55	17.2	8:35	DBW	8:48	
25	T	46	0.15	rain	0.8048	7.47		5.63	16.0	8:25	DBW	8:38	
26	W	40	0.30	cloudy	0.7846	7.59		5.53	16.8	8:27	BM	8:36	
27	T	42	0.28	clear	0.8116	7.45		5.44	16.4	7:55	DBW	8:06	
28	F	39	0.00	clear	0.7895	7.48		5.83	15.5	7:50	DBW	8:03	
29	S	0	0.00	clear	0.7802	7.43		5.45	15.7	9:05	DBW	9:15	
TOTAL			4.10		23.9381								
AVERAGE	41	0.14			0.8255	*	*	6.43	16.7				
MAXIMUM	59	1.50			1.0917	7.6	*	7.98	18.2				
MINIMUM	0	0.00			0.6948	7.4	*	5.42	15.40				

0.294
0.171
0.588
0.254
0.173
0.237
0.756
0.585
0.181
0.262
0.160
0.303
0.166
0.357
0.256
0.241
0.350
0.414
0.300
0.609
0.174
0.286
0.252
0.266