

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



March 2021

Executive Summary

	Green	Yellow	Red
Headworks			
Oxidation Ditch			
Filters			
Generator			
Weather			
Solids Handling			
NPDES Parameters			
Lift Stations			
Personnel			
Safety			
Compliance			

- Headworks- Equalization Pump control panel and VFDs in need of replacement. Vendor proposals are being developed. Inframark met with the sales representative for the influent Screens and Lipactor in February. Based on their report, we recommend both screens be rehabilitated and the grinder pumps and Lipactor be replaced with a compactor for each screen. The information we received has been passed on to BPW. Inframark is working on a temporary solution to catch screenings until this work is completed.
- Filters- High TMP- UF Train 4 was put back online 3-8-2021. UF Train 1 de-ragging began week of 3-15-2021. UF Train 1 modules took considerably longer to clean. Inframark brought in an outside contractor to assist with the cleaning. UF Train 1 was put back online 4-19-2021. UF Train 2 was taken out of service for recovery clean 4-19-2021. De-ragging of UF Train 2 is scheduled to start the week of 4-26-2021.
- Solids Handling- Digester Membranes diffuser cleaning valve and actuator replaced 3-30-21. Staff continue to pressure wash drying beds prior to pouring. Bed performance has improved but we continue to haul liquid biosolids to control our solids inventory. A static mixer was installed to improve polymer addition and mixing for sludge applied to the drying beds on 3-29-21. Sussex County has delivered the mobile Belt Filter Press during the last week of March. A mixer for the polymer system was damaged and has been received from the County on 4-14-2021. The press startup has been delayed due to Sussex County's awaiting receipt of their DE Sludge Haulers permit. An issue occurred with Digester Blower 3 during the month. The VFD was replaced on 4-15-2021 and a spare motor installed.
- Pump stations are being checked, evaluated and tested. One of two pumps failed during the last week of March at Pump Station 4. The rotating assembly needed to be replaced. No spare existed for this pump. A new assembly has been ordered. A rental diesel pump has been installed at the station for backup until the other pump is returned to service.
- Our Health and Safety advisor completed a plant wide audit. Audit items continue to be addressed as time allows. No critical issues exist currently.

Critical Issues

- Covid- Inframark is following CDC recommendations to ensure uninterrupted service to the BPW and the Lewes community. We are communicating with our teams daily to

ensure employees with primary or secondary exposure are staying home until receiving a negative test.

Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Rebuild band-screens	Inframark forwarded information to BPW	High	BPW Project	2021
Replace Macer Acers with compactors to both band-screens	Inframark forwarded information to BPW	High	BPW Project	2021
Replace EQ Pump Drives and Control Panel	Only one drive operates in Auto. A proposal from Gorman Rupp has been received. Hills is provided a second quote. Both were forwarded to BPW.	High	BPW Project	2021
Clean Membranes	Cleaning UF Train 2	High	NA	ongoing
Repairs to Digester Filtration System	Complete	High	Maintenance Budget	March/April 2021
Rebuild Foam Pump	Pump received 4-14-2021.	Medium	Maintenance Budget	March 2021
Pump Station Evaluation	We are developing a Pump Station asset list and evaluation	High	NA	2021
Buildout CMMS	eMaint has been built out. Work orders will be issued during March. Staff will continue to enter preventative and corrective workorders ongoing	High	Part of our base services	Ongoing

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for March 2021. No violations will be reported for March. The DMR will be forwarded upon completion.
- The average daily influent flow for March was 0.992 MGD with a maximum daily flow of 1.177 MGD. Precipitation totaled 1 inch for March with a maximum daily total of 0.66 inches.

	Max	Sum
Precipitation (inches)	0.66	1.04

Influent	Limit	Average	Min	Max	
Flow (MGD)		0.992	0..875	1.177	
BOD (mg/L)		206	206	206	
BOD Load (lbs)		1,692	1,692	1,692	
TSS (mg/L)		278	278	278	
TSS Load (lbs)		2,284	2,284	2,284	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		1.006	0.875	1.184	N
Dissolved Oxygen (mg/L)		5.27	2.37	8.71	N
pH (SU)	Min 6/ Max 9	7.28	7.06	7.56	N
Enterococcus (col/100ml)	Geo Mean10/ Max 104	<4	<1.0	44.8	N
BOD (mg/L)	Avg 15/ Max 23	<2.4	<2.4	<2.4	N
BOD Load (lbs)	Avg 188/ Max 288	<19	<18	<21	N
BOD Removal (%)		98.8	98.8	98.8	
TSS (mg/L)	Avg 15/ Max 23	<0.8	<0.5	<1.0	N
TSS Load (lbs)	Avg 188/ Max 288	<6*	<4	<8	N
TSS Removal (%)		100	100	100	N
Total Nitrogen (mg/L)	Avg 8	6.06	6.06	6.06	N
Total Nitrogen Load (lbs)	Avg 100	37.88	37.88	37.88	N
Total Phosphorous (mg/L)	Avg 2	0.32	0.32	0.32	N
Total Phosphorous Load (lbs)	Avg 25	2.35	2.35	2.35	N

*Geometric Mean

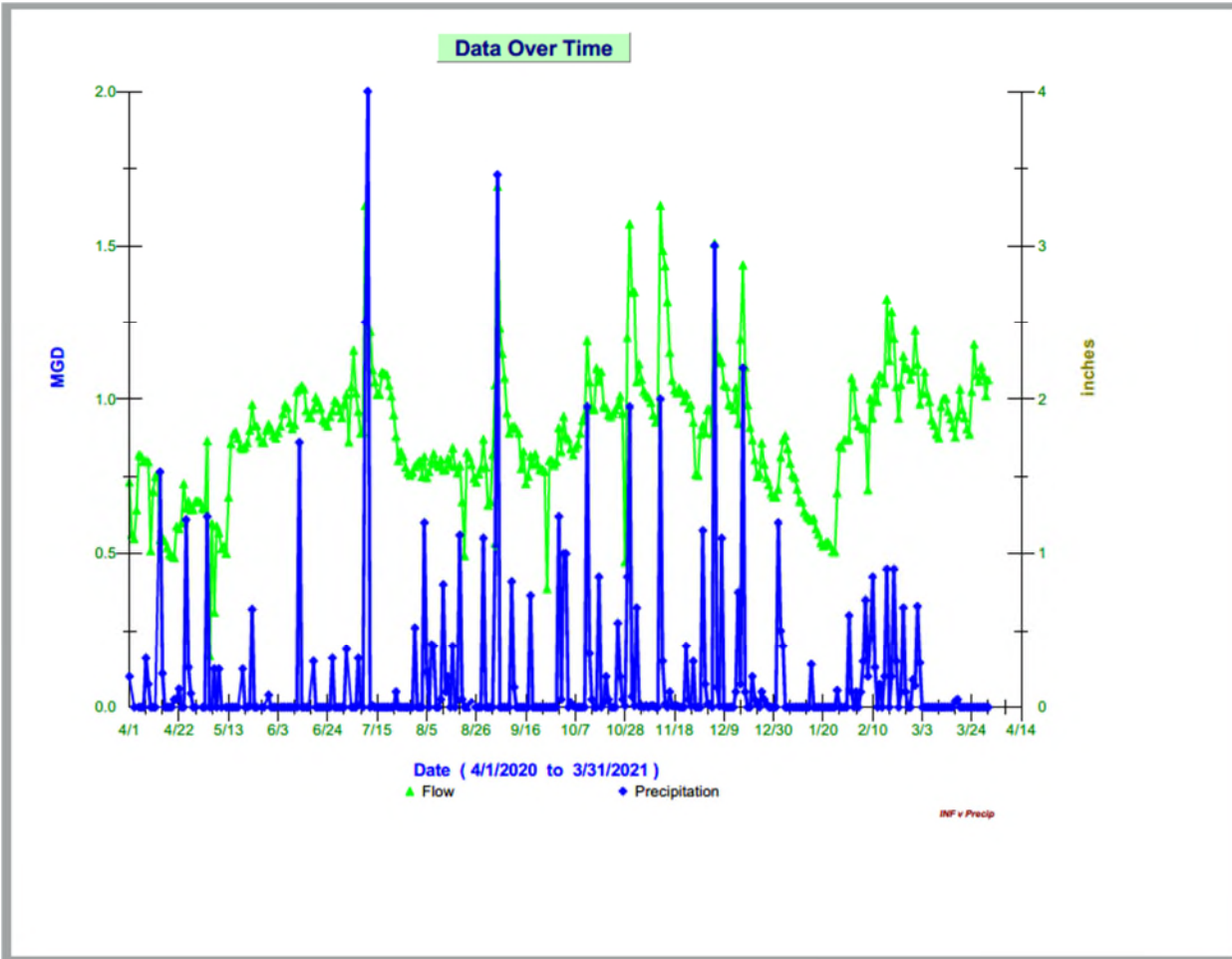
Process	Limit	Average	Min	Max	
Bio-Train 1 MLSS (mg/L)		11,328	10,530	12,210	
Bio-Train 2 MLSS (mg/L)		11,664	11,100	12,820	
Membrane Train 1 MLSS (mg/L)		16,980	16,980	16,980	
Membrane Train 2 MLSS (mg/L)		12,526	11,000	13,480	
Membrane Train 3 MLSS (mg/L)		13,068	10,730	16,330	
Membrane Train 4 MLSS (mg/L)		14,793	12,120	18,440	
TSS Digester 1 (mg/L)		30,198	27,310	33,700	
TSS Digester 2 (mg/L)		29,196	27,560	30,750	

Sludge Operations and Disposal

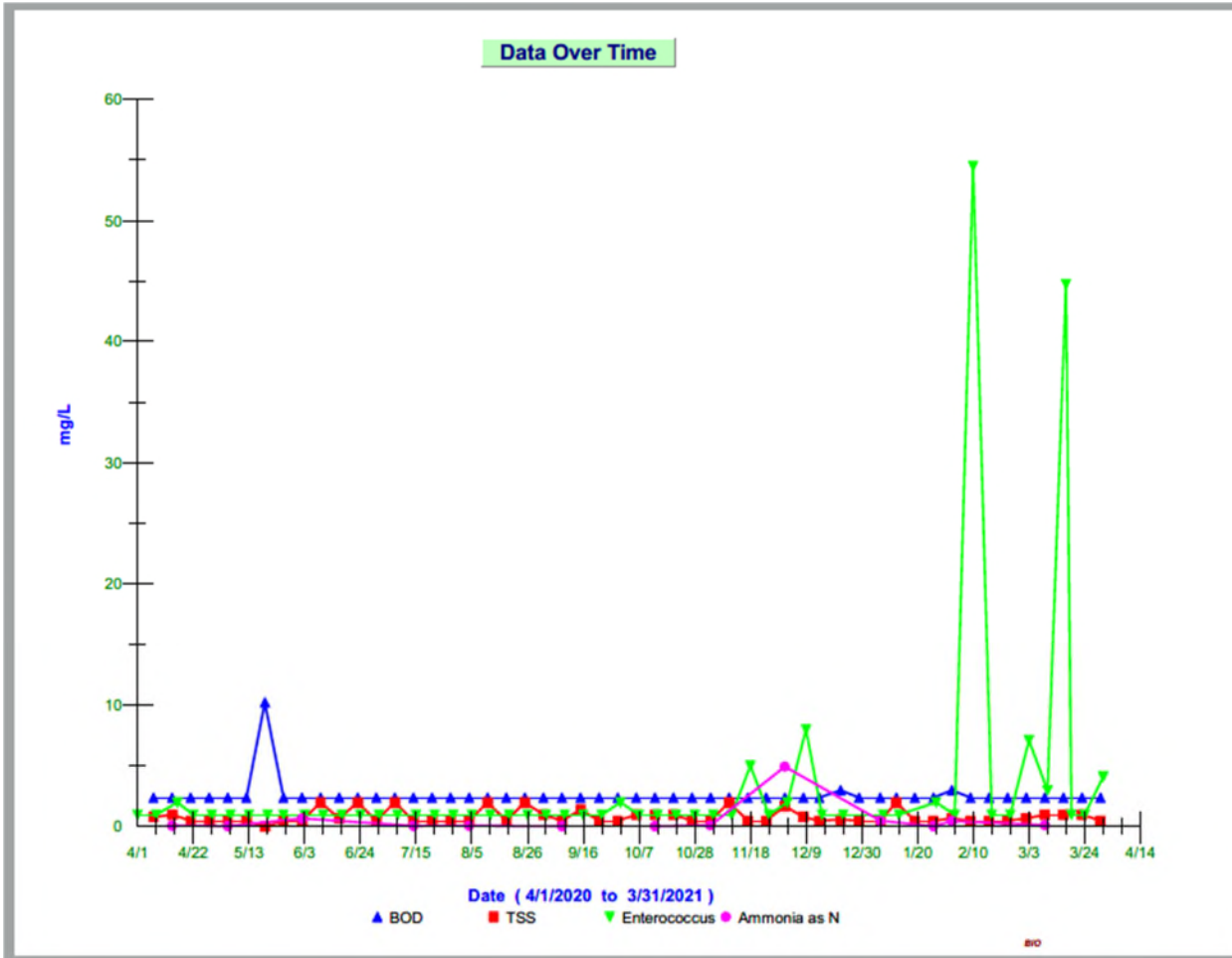
Liquid Hauled	114,500	Gallons	DELCORA
Cake Hauled	85.5	Wet Tons	Mountainview

Trends

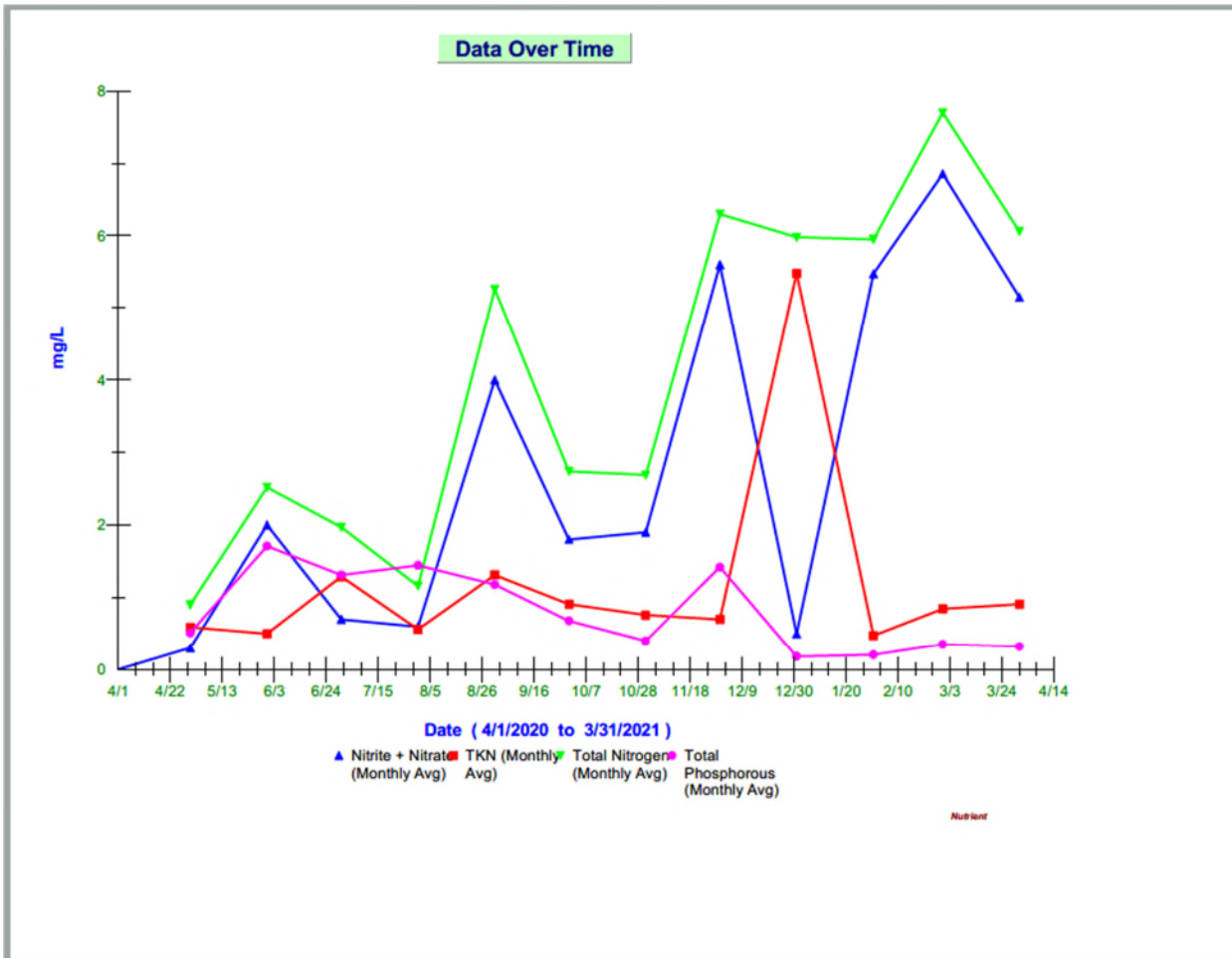
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance & Repair

Pump Stations

- 3-31-2021-Replace all 5 float switches at PS74

WWTP

- 3-2-2021- K&Z electrician onsite to troubleshoot Digester Blower 3 VFD failure and control issues with chemical dosing and UF Blower controls
- 3-17-2021- Replaced UF Train 4 RAS pump with spare
- 3-19-2021-Installed spare motor for Digester Blower 3.
- 3-25-2021- K&Z onsite to fabricate UF cleaning stand
- 3-29-2021-K&Z onsite to install static mixer for sludge drying beds
- 3-30-2021-K&Z onsite to install 3" valve and actuator for the digester membrane diffuser cleaning

Afterhours Alarm Callouts

- 3-1-2021- Multiple alarms related to Digester 3 VFD failure and rain event
- 3-1-2021-Digester High-level alarm
- 3-4-2021- EQ Pump 1 VFD fault
- 3-13-2021- UF Train 4 High TMP alarm- (RAS Pump malfunction)
- 3-18-2021- Power failure at the WWTP
- 3-25-2021- EQ Pump 1 VFD fault
- 3-27-2021-PS8 Low level alarm
- 3-31-2021-PS4 High level alarm

Maintenance Budget

Monthly Budget	March Expenses 2021	Contract Year to Date	Remaining Balance
\$7,500	\$ 27,555	\$ 78,289	\$ 11,711

Maintenance Expenditures

Vendor	Description	Expense
Sherwood Logan & Associates Inc	Rebuild kit for foam pump	\$1,754.00
Hill's Electric Motor Service Inc	Replacement digester anoxic recycle pump	\$2,823.01
Irrigationglobal.com	(4) Air relief valves	\$354.70
USA BLUE BOOK	Flow charts, logbooks, tubing, sludge judge	\$666.00
EASTERN LIFT TRUCK	PM/Service Skid Loader	\$475.69
SP * CLEANFLOW	(2) Submersible pump lift eyes	\$251.53
OHIO ELECTRIC CONTROL	(6) Alternating relays	\$299.53
GRAINGER	Fuses	\$92.76
THE HOME DEPOT #1604	Sprinklers for membrane cleaning	\$29.92
THE HOME DEPOT #1604	Gate latch and hardware	\$62.35
GRAINGER	Alternating Relay	\$37.23
GRAINGER	PVC Fittings for Membrane ARV	\$311.76
EASTERN LIFT TRUCK	PM/Service Lift Truck	\$260.42
THE HOME DEPOT	Spray foam and duct tape	\$122.39
HACH COMPANY	pH electrode	\$146.80
THE HOME DEPOT #1604	Keys for PS	\$14.34
FCX PERFORMANCE INC	8-inch butterfly valve for UF Train 1	\$583.13
SP * CLEAN WATERS INC.	Polymer remover	\$184.00

K & Z Mechanical, Inc.	Troubleshoot WWTP electrical issues	\$665.00
Freemire & Associates, Inc.	(2) Extreme Series E-One Pumps	\$5,536.00
Freemire & Associates, Inc.	Emergency Service Cal E1 Pump Station Monroe Avenue Parts and Labor	\$616.28
Freemire & Associates, Inc.	Emergency Service Cal E1 Pump Station Jefferson Ct Parts and Labor	\$977.45
BLUE HEN DISPOSAL-ALL	Roll off dumpster charges	\$218.00
USA BLUE BOOK	Sampler Tubing, (10) float switches, 1/2inch static mixer	\$1,041.96
HACH COMPANY	pH probe, online DO calibration Bags	\$251.17
KOFLO CORP	Static mixer for sludge drying beds	\$1,567.43

Health & Safety

ISHE Hazcom GHS Training presentation

Personnel

Name	Title	DE Certification
Jerry Shupe Jr.	Regional VP	NA
Michael Wolgemuth	Regional Manager	DE Class IV WW
Richard Plack	Project Manager	DE Class IV WW
Paul Gunderson	Lead Operator	DE Class IV WW
David Sylvester	Operator II	NA
Nick Karpin	Maintenance Technician II	NA
Loran George	Operator III	DE Class IV WW
David Weed	Operator III	DE Class IV WW
Tom Callahan	Regional Safety Advisor	NA

Attachments

- March County Flow Totals
- Zenon InSight Report- 3-10-2021
- Zenon InSight Report- 3-24-2021
- Zenon InSight Report- 4-7-2021
- February DMR
- Pump Station Flow vs Rain Graphs