

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



April 2021

Executive Summary

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

(New information in bold font)

- Headworks- Equalization Pump control panel and VFDs in need of replacement. Vendor proposals have been forwarded to BPW. 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. **GMB was onsite 5/5/2021 to review the project. Inframark is working on a temporary solution utilizing a dewatering roll off container.**
- Filters- UF Train de-ragged and returned to service 3-8-2021. UF Train 1 de-ragged and returned to service 4-19-2021. UF Train 2 was taken out of service for recovery clean 4-19-2021. De-ragging of UF Train 2 in progress.
- Solids Handling- **MLSS concentrations have been reduced to acceptable levels. The Sussex County Belt Filter Press startup occurred 5-13-2021. The press made a nice sludge cake that can be disposed of at the Sussex County Facility.**
- Pump stations are being checked, evaluated and tested. **The Pump Station 4 Pump #1 rotating assembly has been replaced. The pump still failed to operate due to a clogged suction line. Staff attempted to clear the line from the drywell utilizing both a jetter and a powered drain cleaning snake but were unsuccessful. On 5-18-2021, the station was pumped down and cleaned. Staff continue to source solutions to this issue. The rental diesel pump remains at the station for backup until the 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.
- Condition of headworks screening equipment is in critical need of repair to decrease excessive ragging of UF membranes.

Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Rebuild/ Replace 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	Rebuild and install are complete. The compressor has been replaced but the suction line needs to be cleared	Medium	Maintenance Budget	March 2021
Pump Station Evaluation	We are developing a Pump Station asset list and evaluation	High	NA	2021

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for April 2021. No violations will be reported for April. The DMR will be forwarded upon completion.
- The average daily influent flow for April was 0.819 MGD with a maximum daily flow of 1.006 MGD. Precipitation totaled 5.8 inch for March with a maximum daily total of 3.5 inches.

	Max	Sum
Precipitation (inches)	3.54	5.81

Influent	Limit	Average	Min	Max	
Flow (MGD)		0.819	0.729	1.006	
BOD (mg/L)		224	224	224	
BOD Load (lbs)		1,362	1,362	1,362	
TSS (mg/L)		235	235	235	
TSS Load (lbs)		1,429	1,429	1,429	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.839	0.000	1.814	N
Dissolved Oxygen (mg/L)		4.74	3.52	5.92	N
pH (SU)	Min 6/ Max 9	7.19	6.89	7.31	N
Enterococcus (col/100ml)	Geo Mean10/ Max 104	<1	<1.0	1.0	N
BOD (mg/L)	Avg 15/ Max 23	<2.4	<2.4	<2.4	N
BOD Load (lbs)	Avg 188/ Max 288	<16	<15	<16	N
BOD Removal (%)		98.9	98.9	98.9	
TSS (mg/L)	Avg 15/ Max 23	<0.8	<0.1	<2.0	N
TSS Load (lbs)	Avg 188/ Max 288	<5	<1	<14	N
TSS Removal (%)		100	100	100	N
Total Nitrogen (mg/L)	Avg 8	4.09	4.09	4.09	N
Total Nitrogen Load (lbs)	Avg 100	21.13	21.13	21.13	N
Total Phosphorous (mg/L)	Avg 2	0.27	0.27	0.27	N
Total Phosphorous Load (lbs)	Avg 25	1.72	1.72	1.72	N

*Geometric Mean

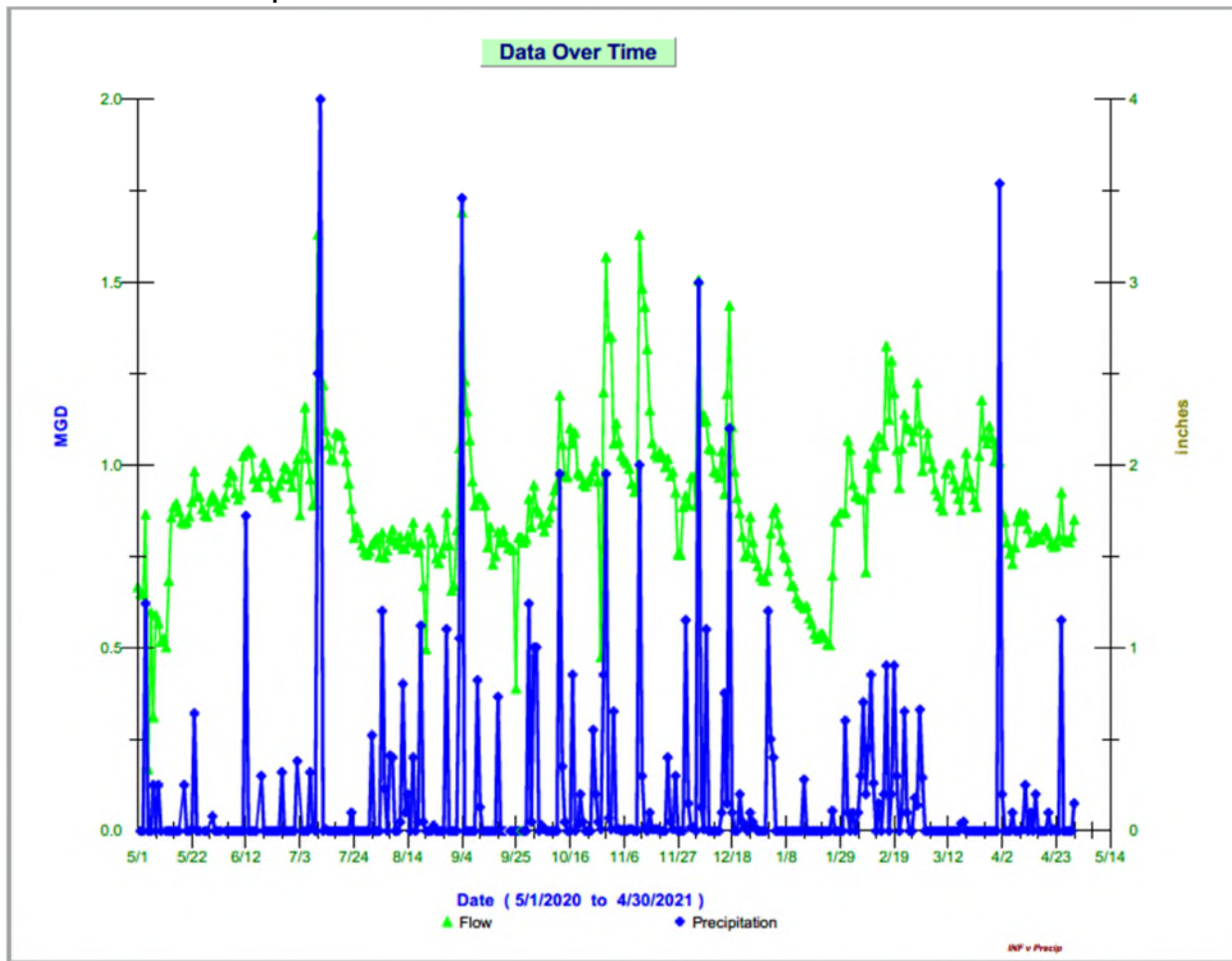
Process	Limit	Average	Min	Max	
Bio-Train 1 MLSS (mg/L)		9,758	9,220	11,030	
Bio-Train 2 MLSS (mg/L)		9,938	9,000	11,310	
Membrane Train 1 MLSS (mg/L)		10,933	9,650	11,690	
Membrane Train 2 MLSS (mg/L)		10,950	6,600	13,530	
Membrane Train 3 MLSS (mg/L)		12,962	11,090	17,650	
Membrane Train 4 MLSS (mg/L)		10,616	9,380	11,970	
TSS Digester 1 (mg/L)		26,226	24,960	27,420	
TSS Digester 2 (mg/L)		27,270	26,320	28,310	

Sludge Operations and Disposal

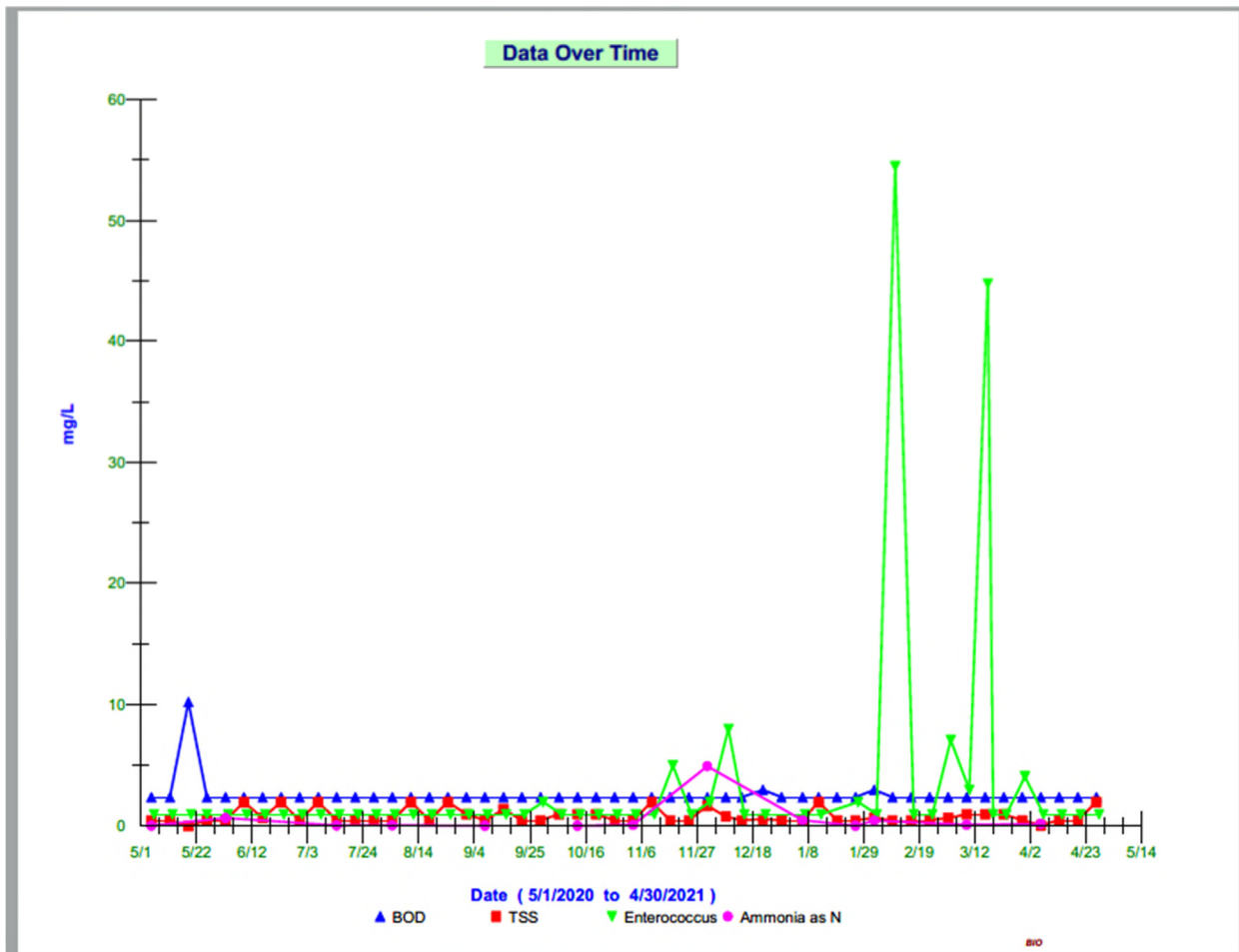
Liquid Hauled	127,000	Gallons	DELCORA
Cake Hauled	0	Wet Tons	

Trends

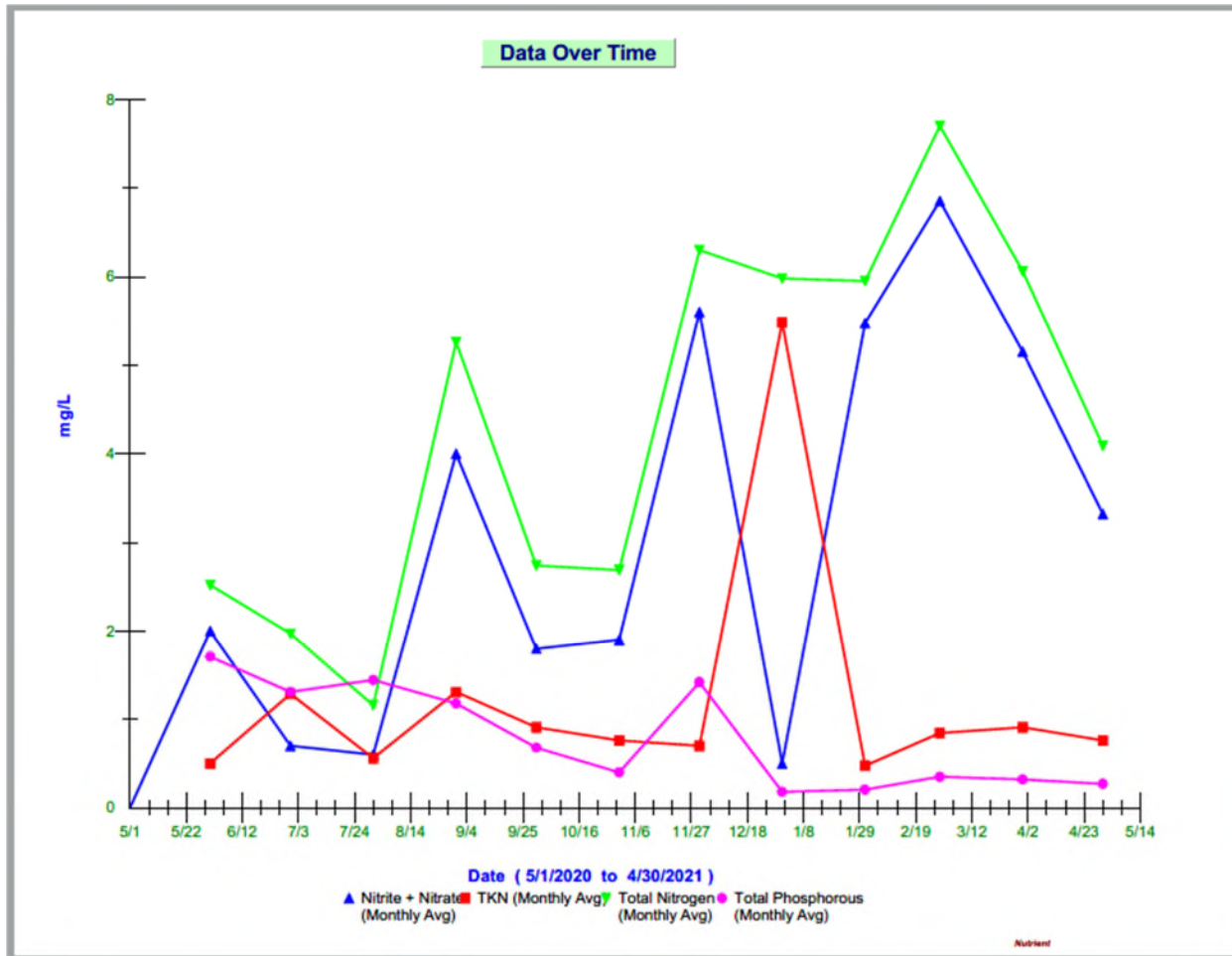
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance & Repair

Pump Stations

- 4-02-2021- Hills onsite at PS4 to pull rotating assembly Pump 1 for rebuild.
- 4-02-2021- Godwin Pumps onsite PS4 to install diesel bypass pump for backup until Pump 1 is returned to service.
- 4-07-2021- Replaced high level float PS32.
- 4-08-2021- Replaced main disconnect fuses PS14.
- 4-09-2021- Replaced low level float PS17.
- 4-15-2021- K&Z onsite PS17 to replace two failed capacitors.
- 4-27-2021- Freemire onsite PS25 replace capacitor to e-one pump.

WWTP

- 4-08-2021- Pollytech onsite to jar test polymers for the Belt Filter Press.
- 4-14-2021- Hills onsite to install Blower VFD.
- 4-19-2021- Repaired Chemical Room and Process Building doors.
- 4-20-2021- Repaired exhaust fan in process building.

- 4-22-2021- K&Z onsite to wire up replaced blower motor.
- 4-27-2021-K&Z onsite to install and re-pipe foam pump.
- 4-28-2021- Built catch basin around the mobile belt filter press in preparation for DNREC inspection

Afterhours Alarm Callouts

- 4-01-2021- PS4 high level alarm.
- 4-02-2021- PS17 high level alarm.
- 4-08-2021- PS17 high level alarm.
- 4-19-2021- WWTP digester trouble alarm.
- 4-20-2021- WWTP UF1 high turbidity alarm.

Maintenance Budget

Monthly Budget	April Expenses 2021	Contract Year to Date	Remaining Balance
\$7,500	\$ 12,038	\$ 91,720	\$ (1,720)

Maintenance Expenditures

Vendor	Description	Expense
227 RENT	Pressure washer for drying bed maintenance	123.19
227 RENT	Pressure washer for drying bed maintenance	172.23
227 RENT	Pressure washer for drying bed maintenance	124.61
227 RENT	Pressure washer for drying bed maintenance	138.94
227 RENT	Pressure washer for drying bed maintenance	123.19
BILLY WARREN & SON LLC	Supplies to build membrane cleaning rack	393.10
FERGUSON ENT	Parts for foam pump and static mixer installation	366.56
FIRE HOSE DIRECT	Hose for belt filter press water supply	702.19
HARBOR FREIGHT TOOLS	Tools and Supplies for membrane rack	192.47
Hill's Electric Motor Service Inc	Rebuild foam pump	1,643.90
Hill's Electric Motor Service Inc	Service call to PS4, pull rotating assembly to Pump 1	840.00
Hill's Electric Motor Service Inc	Labor to Install Blower VFD	1,050.00
K & Z Mechanical, Inc.	Emergency call to change out RAS Pump UF Train 4 Electrical Connections (invoice lower than PO)	(190.00)
K & Z Mechanical, Inc.	Labor to install digester diffuser cleaning valve and actuator.	429.73
K & Z Mechanical, Inc.	Electrician to hook up BFP	1,704.03
K & Z Mechanical, Inc.	Electrician to hook up 3" valve	1,235.00
K & Z Mechanical, Inc.	Digester 3 Blower motor wiring connection	584
K & Z Mechanical, Inc.	Service of lift station 17 pump controls	698.00
K & Z Mechanical, Inc.	Scum pump install	1,017.00

LOWES	Hardware for membrane rack	43.42
LOWES	Replacement plugs for membrane air system	27.58
THE HOME DEPOT	Digester blower repair	138.51
THE HOME DEPOT	Pressure washer for drying bed parts	72.25
THE HOME DEPOT	Return malfunctioning equipment	(99.97)
THE HOME DEPOT	Tools for digester blower motor replacement	76.88
THE HOME DEPOT	Parts and tools for digester blower repair and Zenon floor drain	268.57
THE HOME DEPOT	Supplies to retain solids from floor drain	87.65
Witmer Motor Service	Freight for Blower VFD	75.00

Health & Safety

Inframark Training and Presentations

- ISHE Heat Related Illness
- ISHE Lock out tag out

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- 4-21-2021
- Zenon InSight Report- 5-05-2021
- March DMR
- Pump Station Flow vs Rain Graphs