

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



October 2021

Executive Summary

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

(New information in bold font)

- Headworks- Equalization Pump control panel replacement project moving forward with Keystone and Hills. Keystone to replace the RTU. **Waiting on receipt of VFDs.** Inframark continues to utilize the dewatering roll off container to capture screening while lipactor is offline. **11-4-2021 an issue with the power supply cables to the Headworks building was identified requiring an emergency generator to be connected in order to supply electricity to critical Headworks Equipment. A new conduit was run and new cable pulled.**
- Filters- UF Train 4 de-ragged and returned to service 3-8-2021. UF Train 1 de-ragged and returned to service 4-19-2021. De-ragging of UF Train 2 complete 5-28-2021. UF Train 3 de-ragged and returned to service 7-21-2021. UF Train 4 de-ragging started the week of 10-11-2021.
- Pump Stations- A proposal to replace the Pump Station 8 Generator Transfer Switch for \$3,690 from Curtis Power Solutions was accepted. A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. **Continue to have issues with Pump 1 maintaining prime. Inframark repaired the external check valve on 11-17-2021. Pump continued to lose prime. 11-23-2021 Inframark replaced the Gorman Rupp internal check valve. Back up diesel bypass pumps are on standby at the PS4 and the WWTP.** A representative from Hills Electric Motor was onsite to generate proposals for PS3 and PS8 pump rehabilitation or replacement. **(No update)**

Critical Issues

- Covid- Inframark is following CDC recommendations to ensure uninterrupted service to the BPW and the Lewes community.
- Condition of headworks screening equipment is in critical need of repair or replacement to decrease excessive ragging of UF membranes.
- Spare pumps are not in stock for PS11, PS15, PS16, PS17B, PS18 and PS32. Inframark does not have maintenance records for existing pumps. Based on recommendations made in Severn Trent's 2016 Annual Report, most pumps were in

need of replacement within five years. We have found no evidence that these pumps had been replaced during the past five years. Many pump station control panels are in need of repair or replacement including PS1, PS2, PS5, PS6, PS7, PS9, PS10, PS11, PS12, PS13, PS14, PS15, PS16, PS17, PS18, PS33, PS74 and PS83.

Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Headworks Replacement	In design	High	BPW Project	QTR2 2022
Replace EQ Pump Drives and Control Panel	Keystone is proceeding with replacement of the RTU. Waiting on receipt of VFDs.	High	BPW Project	QTR4 2021
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs	High	BPW Project	QTR4 2021
Replace ATS at PS8	Accepted Proposal	High	Received	QTR4 2021
Rehab PS3 & PS8	Waiting on proposal from Hills	High	Needed	QTR4 2021
Clean Membranes	All trains cleaned one time 2021	High	NA	ongoing

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for October 2021. No violations will be reported for October. The DMR will be forwarded upon completion.
- The average daily influent flow for October was 0.643 MGD with a maximum daily flow of 0.871 MGD. Precipitation totaled 4.1 inches for October with a maximum daily total of 1.5 inches.

	Max	Sum
Precipitation (inches)	1.50	4.09

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.643	0.581	0.871	
BOD (mg/L)		272	272	272	
BOD Load (lbs)		1,388	1,388	1,388	
TSS (mg/L)		254	254	254	
TSS Load (lbs)		1,296	1,296	1,296	

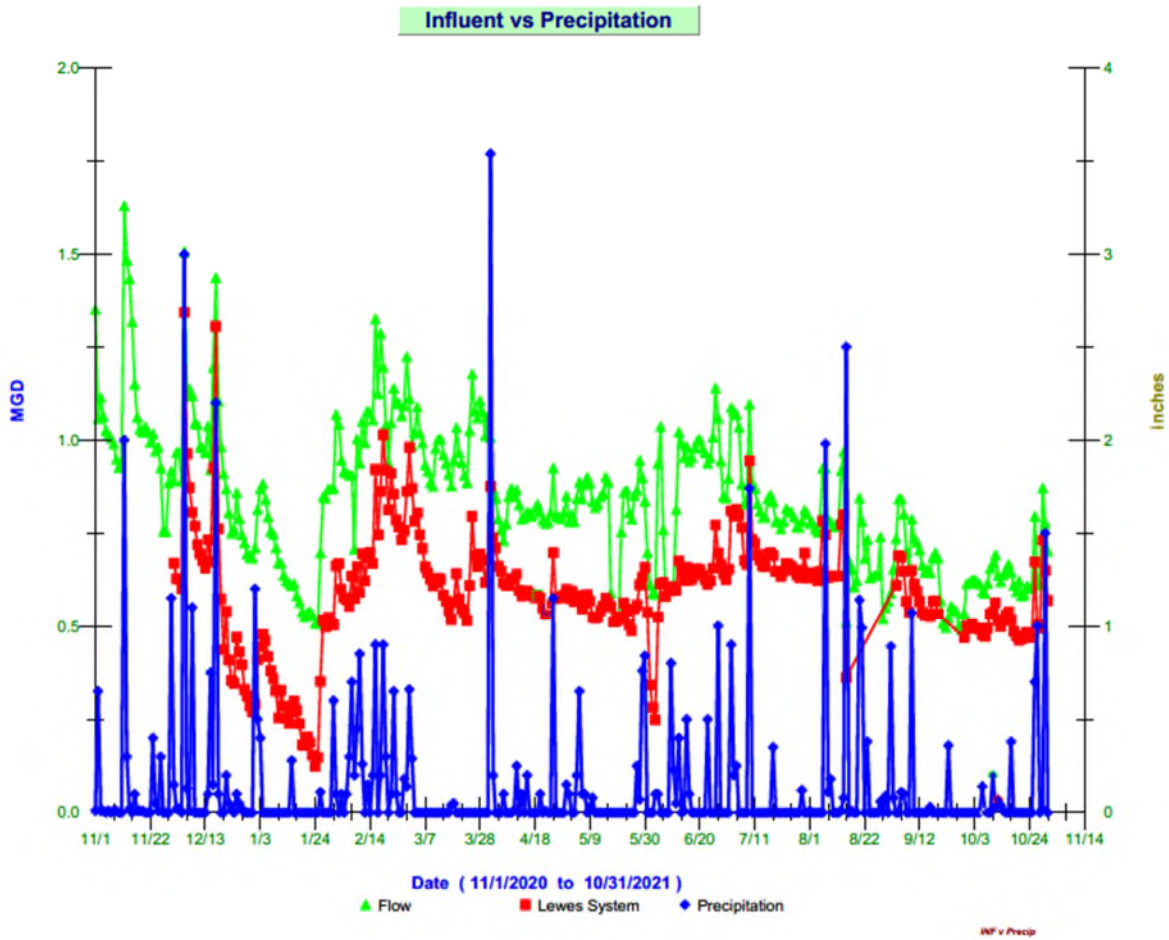
Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.713	0.604	0.971	N
Dissolved Oxygen (mg/L)		7.11	4.74	8.85	N
pH (SU)	Min 6/ Max 9	7.33	7.10	7.62	N
Enterococcus (col/100ml)	Avg 10/ Max 104	<1	<1.0	<1.0	N
BOD (mg/L)	Avg 15/ Max 23	<2.4	<2.4	<2.4	N
BOD Load (lbs)	Avg 188/ Max 288	<14	<14	<15	N
BOD Removal (%)		99.1	99.1	99.1	
TSS (mg/L)	Avg 15/ Max 23	<0.8	<0.5	1.6	N
TSS Load (lbs)	Avg 188/ Max 288	<5	<3	10	N
TSS Removal (%)		100	100	100	
Total Nitrogen (mg/L)	Avg 8	3.16	3.16	3.16	N
Total Nitrogen Load (lbs)	Avg 100	14.83	14.83	14.83	N
Total Phosphorous (mg/L)	Avg 2	<0.05	<0.05	<0.05	N
Total Phosphorous Load (lbs)	Avg 25	<0.28	<0.28	<0.28	N
Process					
Bio #1 MLSS (mg/L)		11,750	8,600	19,500	
Bio #2 MLSS (mg/L)		8,225	5,000	10,100	
Train 1 MLSS (mg/L)		9,050	8,200	10,500	
Train 2 MLSS (mg/L)		10,250	7,900	11,600	
Train 3 MLSS (mg/L)		10,050	8,300	11,500	
Train 4 MLSS (mg/L)		8,900	5,700	11,400	
TSS Digester 1 (mg/L)		11,600	7,000	20,600	
TSS Digester 2 (mg/L)		15,200	5,000	20,200	

Sludge Operations and Disposal

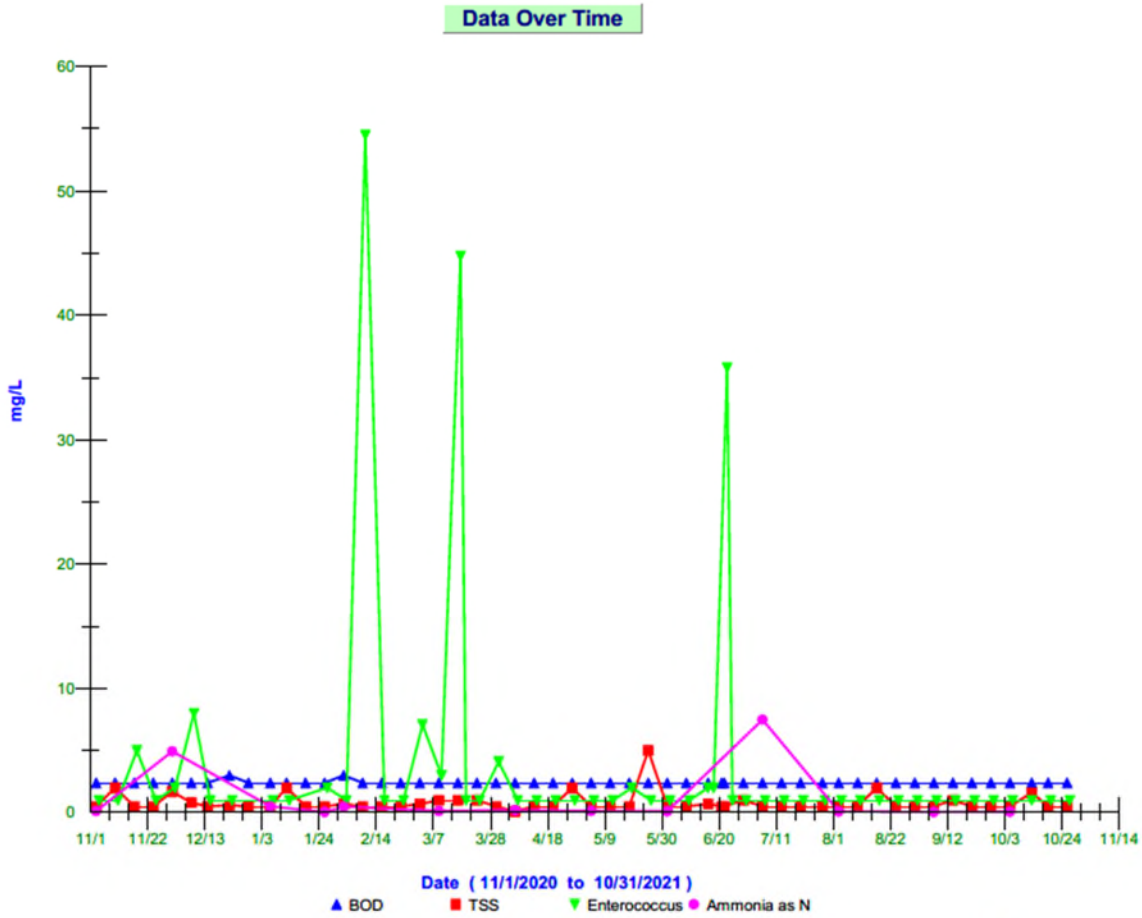
Liquid Hauled	4,200	Gallons	DELCORA
Cake Hauled	97.7	Wet Tons	Sussex County
Dewatering Container Material	5,000	Gallons	DELCORA

Trends

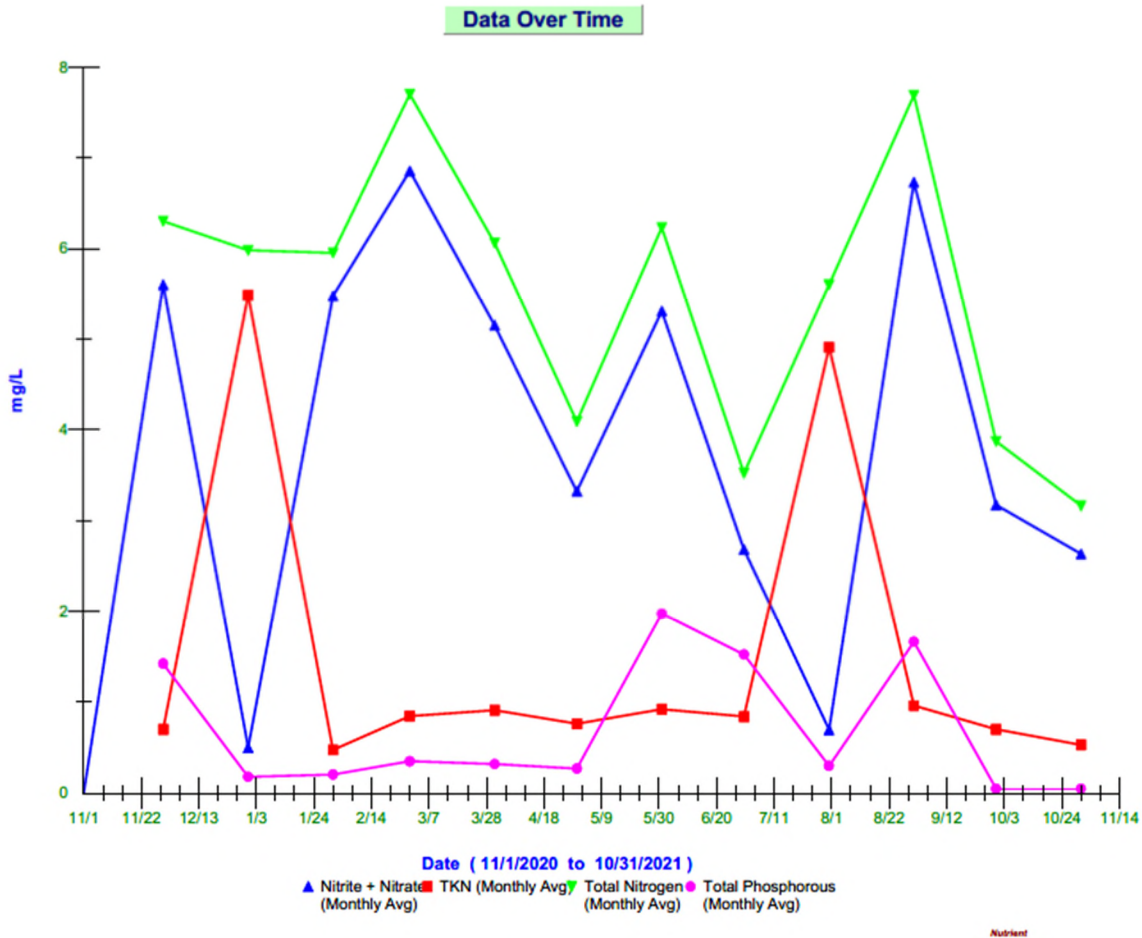
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance, Repair and Activities

10-01-2021	Replaced sump pump in Electric Manhole 5.
10-05-2021	KZ onsite to troubleshoot Pista Grit System issues.
10-08-2021	Dolphin Electric onsite to disconnect Pista Grit pump motor.
10-11-2021	CDI onsite to clear grit suction line.
10-12-2021	Dolphin Electric onsite to reconnect Pista Grit pump motor.
10-13-2021	CDI onsite to pump down wet well PS22,23,24. PS22 Pump pulled for repair.
10-13-2021	Replaced blown fuses to 5mm Maci Pump.
10-14-2021	CDI onsite to clean grease from PS12 and PS17 wet wells.
10-14-2021	Staff replaced Pump 1 PS17.
10-18-2021	Dolphin Electric onsite to troubleshoot Zenon System Blower C air flow sensor.
10-19-2021	Keystone onsite to replace PS4 Pump 1 and PS8 Pump 2 VFDs.
10-19-2021	Staff repaired connections to LDO Controller 2A.
10-20-2021	Staff cleaned PS8 Pump 2 check valve.
10-20-2021	CDI onsite to pump down Dewatering Dumpster
10-21-2021	Staff removed volute from Pista Grit Pump.

10-23-2021 Staff replaced alternating relay for PS9.
 10-24-2021 Dolphin Electric onsite to replace float switches PS9.
 10-25-2021 Staff replaced blown fuses 5mm Maci Pump.
 10-28-2021 Staff replaced UF Train 3 Permeate Pump with a rebuilt spare.

Callouts

10-10-2021 High level PS6
 10-10-2021 PS22,23,24 High level
 10-13-2021 Multiple Zenon System alarms
 10-14-2021 PS17 High level
 10-18-2021 Zenon System Blower C failure
 10-23-2021 PS9 Low level
 10-29-2021 UF Train 3 Permeate Pump failure
 10-31-2021 Dewatering Dumpster High level

Maintenance Budget

Monthly Budget	October Expenses 2021	Contract Year to Date	Remaining Balance
\$7,500	\$ 23,574	\$ 199,195	\$ (101,806)

Maintenance Expenditures

Vendor	Description	Expense
BILLY WARREN & SON LLC	5 mm screen repair supplies	282.66
FISHER AUTO PARTS	Belt for air compressor repair	32.49
Freemire & Associates, Inc.	Compressor 1/8 HP, labor, and freight (Pista Grit)	1,058.98
GRAINGER	Trolley for chain hoist	225.22
GRAINGER	30ft Chain Hoist	850.83
K & Z Mechanical, Inc.	Replaced motor control Mag Trip Contactors PS5	2,519.50
K & Z Mechanical, Inc.	10/8/2021 Disconnect Electrical to Grit pump 10/11/2021 Reconnect Electrical to Grit pump drive for startup	760.00
K & Z Mechanical, Inc.	UF Train 4 filter cleaning	3,920.00
K & Z Mechanical, Inc.	Work on Grit Removal Equipment	2,800.00
LOWES	Lubricant	45.67
MOMAR, INC	Spill prevention	218.60
SAMSCLUB.COM	(2)100ft Extension cords, (2) Large Storage Shelves	299.92
THE HOME DEPOT	Hardware for polymer addition system	46.17
United Rentals North America Inc	Rental generator PS4 October	1,377.00

United Rentals North America Inc	Bypass pump rental PS4 October	4,156.17
United Rentals North America Inc	Dewatering container liners	1,694.54
United Rentals North America Inc	Dewatering container rental September	1,301.24
United Rentals North America Inc	Dewatering container rental October	1,301.24
USA BLUE BOOK	80 ft 3-inch suction hose and cam fitting	603.82
WAL-MART	(2) Work lamps	79.76

Health & Safety

Inframark Training and Presentations

- Signs and Tags
- Process Safety Management Overview

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 Smith	Operator II	DE Class II WW
Kurt Brittingham	Operator II	NA
Michael Mazzetti	Maintenance Technician III	NA
David Weed	PT Operator III	DE Class IV WW
Loran George	PT Operator III	DE Class IV WW
Tom Callahan	Regional Safety Advisor	NA

Attachments

- October County Flow Totals
- September DMR
- October DMR
- Zenon InSight Report- 11-03-2021
- Zenon InSight Report- 11-17-2021
- Pump Station Flow vs Rain Graphs