

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



February 2022

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. **Some equipment has been received for this project.** Inframark continues to utilize the dewatering roll off container to capture screening while lipactor is offline.
- Filters- De-ragging of the last cassette to UF Train 4 was completed and the cassette was replaced on 12-28-2021. **Zenon was onsite 2-24-2022 for a review of membrane operations.**
- **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. A back up diesel bypass pump is on standby at PS4. Supplies to replace discharge valves and external check valves for both Pumps 1 and 2 have been received and will be replaced during **March**. A proposal from Hill's to rebuild Pump 2 at PS8 was accepted by BPW. Materials to complete the rebuild are expected in March. A proposal from Hill's to replace pumps and valves at PS3 has been received. **Inframark received a proposal from Freemire and Associates for new Classic T8 rotating assemblies and forwarded to BPW.**
- Personnel- Currently Inframark has 6 fulltime and two part-time employees assigned to the Lewes Facilities.

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, PS17, 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	QTR4 2022
Replace EQ Pump Drives and Control Panel	Keystone is proceeding with replacement of the RTU. Waiting on receipt of VFDs.	High	BPW Project	QTR1 2022
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs	High	BPW Project	QTR2 2022
Replace ATS at PS8	Accepted Proposal; Contractor waiting on receipt of the ATS	High	Received	QTR1 2022
Rehab Pump 2 PS8	Accepted proposal; work to be completed in March	High	Received	March 2022
Rehab Pumps at PS3	Soliciting Proposals	High	Needed	QTR2 2022

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for February 2022. No violations will be reported for February. The DMR will be forwarded upon completion.
- The average daily influent flow for February was 0.658 MGD with a maximum daily flow of 0.756 MGD. Precipitation totaled 1.4 inches for February with a maximum daily total of 0.7 inches.

	Max	Sum
Precipitation (inches)	0.68	1.40

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.658	0.503	0.756	
BOD (mg/L)		169	169	169	
TSS (mg/L)		104	104	104	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.695	0.385	0.796	N
Dissolved Oxygen (mg/L)		7.47	5.77	8.94	N
pH (SU)	Min 6/ Max 9	7.33	7.02	7.77	N
Enterococcus (col/100ml)	Avg 10/ Max 104	<1	<1.0	<1.0	N
BOD (mg/L)	Avg 15/ Max 23	<2.7	<2.4	3.5	N
BOD Load (lbs)	Avg 188/ Max 288	<15	<12	20	N
BOD Removal (%)		98.4	98.4	98.4	
TSS (mg/L)	Avg 15/ Max 23	<0.9	<0.5	<2.0	N

TSS Load (lbs)	Avg 188/ Max 288	<5	<3	<10	N
TSS Removal (%)		99	99	99	
Total Nitrogen (mg/L)	Avg 8	5.52	5.52	5.52	N
Total Nitrogen Load (lbs)	Avg 100	21.91	21.91	21.91	N
Total Phosphorous (mg/L)	Avg 2	0.12	0.12	0.12	N
Total Phosphorous Load (lbs)	Avg 25	0.71	0.71	0.71	N
Process					
Bio #1 MLSS (mg/L)		8,750	8,300	9,300	
Bio #2 MLSS (mg/L)		8,850	8,500	9,400	
Train 1 MLSS (mg/L)		9,600	8,500	10,600	
Train 2 MLSS (mg/L)		8,750	8,000	9,600	
Train 3 MLSS (mg/L)		8,600	7,800	9,400	
Train 4 MLSS (mg/L)		9,750	8,600	10,800	
TSS Digester 1 (mg/L)		22,300	20,600	24,100	
TSS Digester 2 (mg/L)		25,200	25,200	25,200	

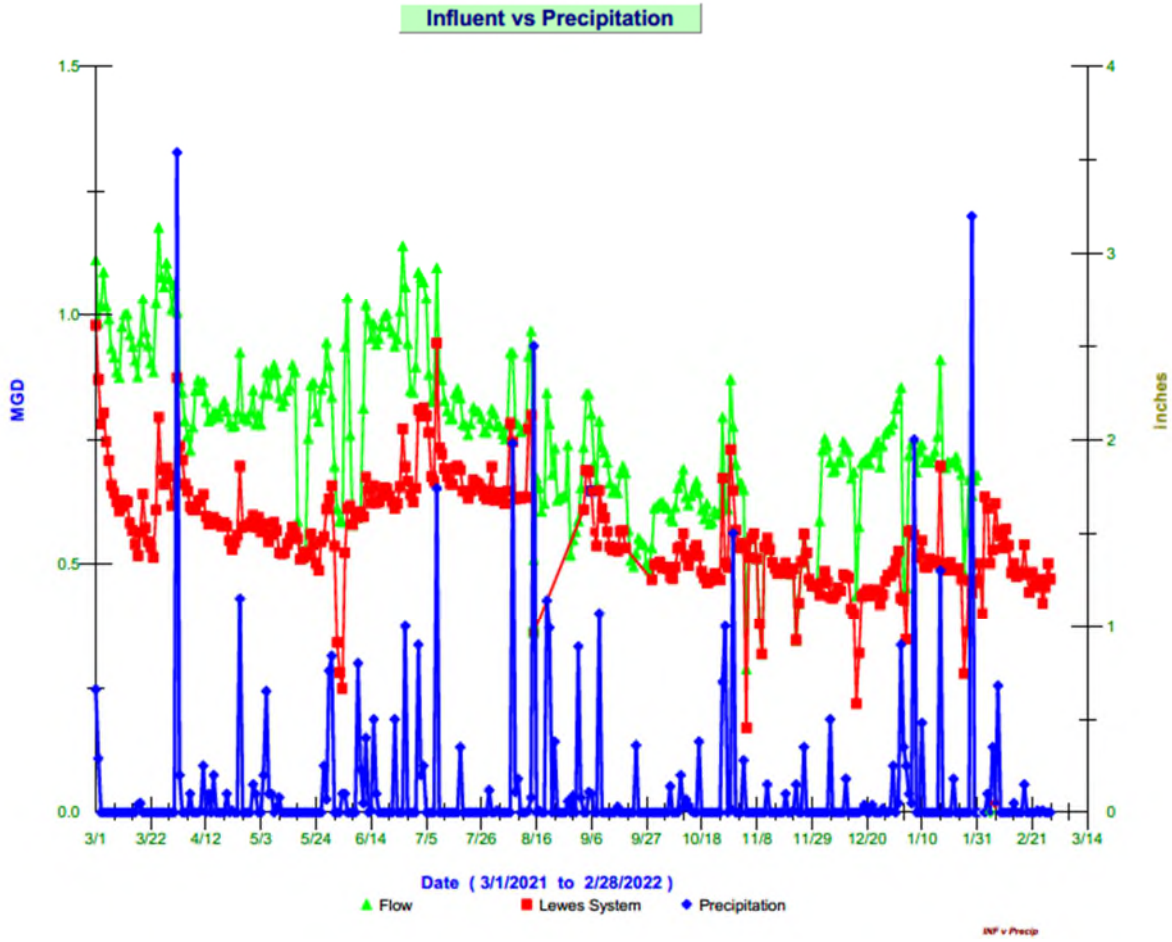
	Average	Max	Sum
Sludge Wasted (gallons)	10,536	19,020	295,006

Sludge Operations and Disposal

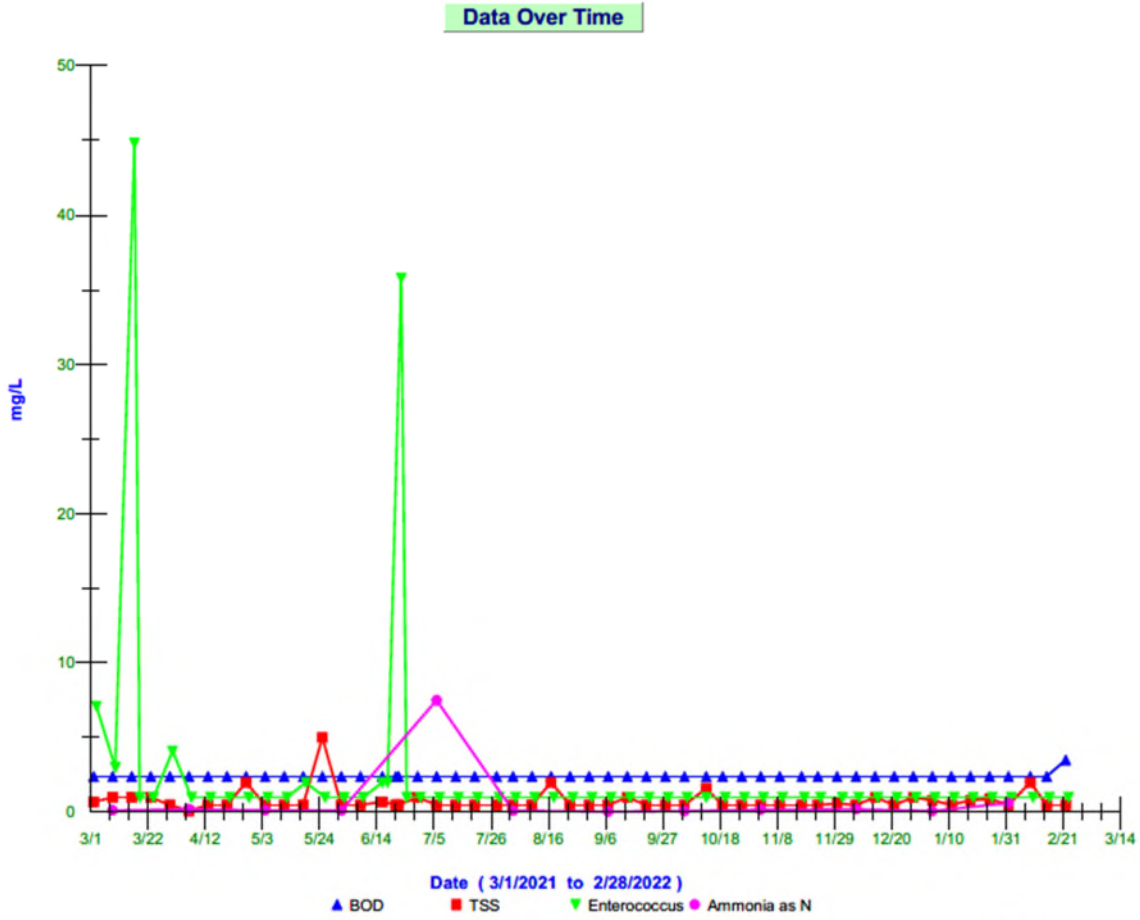
Liquid Hauled	84,600	Gallons	DELCORA
Cake Hauled	14.3	Wet Tons	Sussex County
Dewatering Container Material	5,500	Gallons	DELCORA

Trends

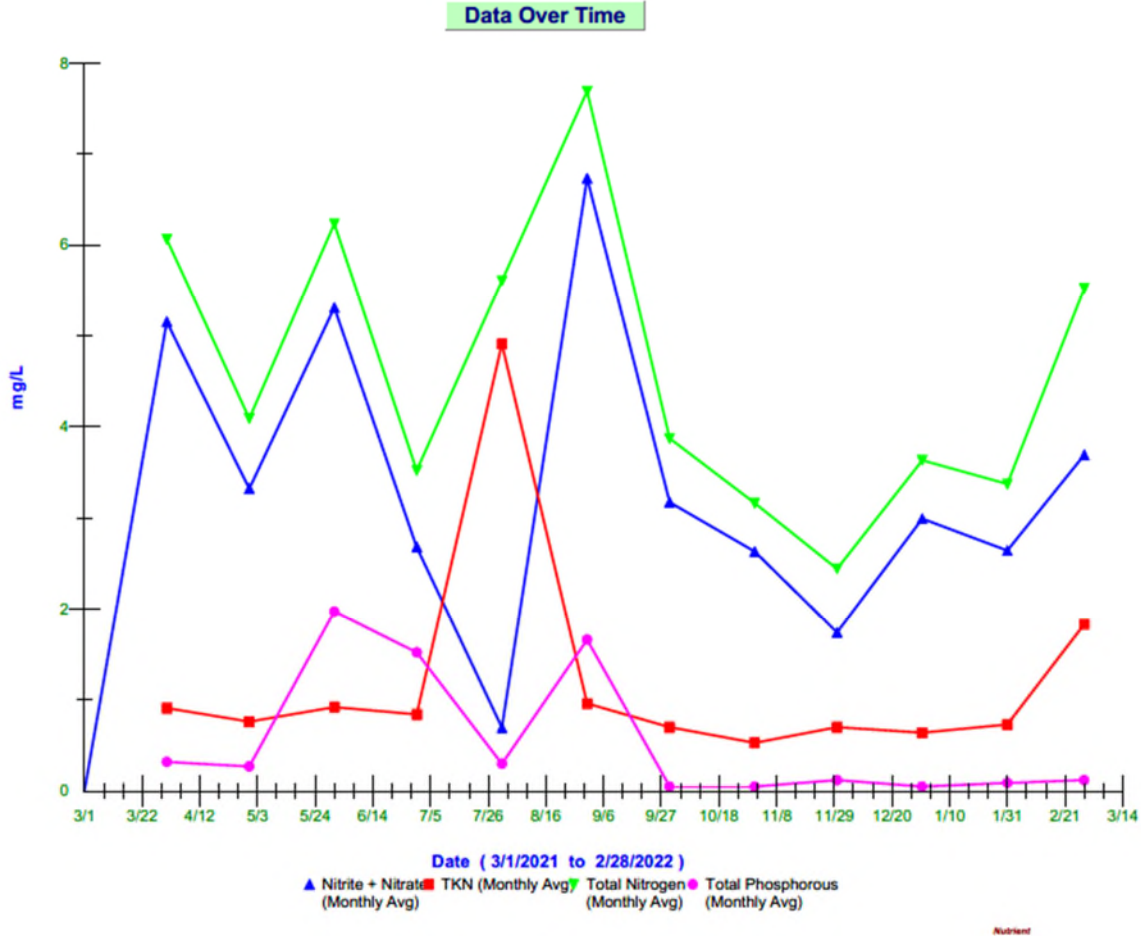
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance, Repair and Activities

2-01-2022-WWTP	Staff reassembled Blower B85-E and returned to service.
2-01-2022-WWTP	Staff installed rebuilt UF-Train 3 Process Pump
2-03-2022-WWTP	Staff discovered crack in 16" discharge valve from EQ tank. The EQ tank was bypassed and level pumped down.
2-03-2022-WWTP	Dolphin Electric hooked up the EQ Tank Aerator Motor.
2-04-2022-WWTP	Staff plugged the EQ tank discharge pipe from inside the EQ tank to prevent further leaking from the cracked valve.
2-08-2022-PS2	Pulled and de-ragged pumps.
2-10-2022-PS11	Staff found station discharge pipe leaking out of a rubber coupling. Staff replaced rubber coupling with a 2" PVC union.
2-10-2022-WWTP	Staff removed 16" plug valve from EQ tank and replaced with a blank flange.
2-14-2022-WWTP	Clean Delaware Vac-Truck onsite to clean Pista Grit chamber and suction pipe.
2-15-2022-PS3	Staff replaced malfunctioning level pressure transducer in wet-well.
2-16-2022-WWTP	Staff installed new volute to Pista Grit Pump. Dolphin Electric onsite to hook up power to Pista Grit Pump Motor.

2-16-2022-WWTP Staff removed and replaced malfunctioning 3" ball valve to caustic tank.
 2-16-2022-PS2 Dolphin Electric onsite to diagnose pump control panel issue. Contactors and overloads were worn out and contactors were blackened from overheating. Contact pads pitted and melted. Ordered new overload relay contactors.

2-21-2022-PS2 Dolphin Electric onsite to install new contactors with magnetic thermal overloads.

2-21-2022-WWTP Staff replaced Caustic Pump. Repaired leak at union of suction line.
 2-22-2022-PS4 Staff replaced broken window in control room.
 2-22-2022-WWTP Staff replaced and calibrated LDO probes 1A and 2A.
 2-22-2022-PS2 Staff pulled and de-ragged Pump 2.
 2-23-2022-WWTP Staff replaced probe cap LDO Probe 2A.
 2-24-2022-WWTP Zenon onsite to review UF Membrane operations.

After Hours Callouts

2-03-2022-PS17 High Level
 2-09-2022-WWTP High Bioreactor Level

Maintenance Budget

Monthly Budget	February 2022	Contract Year to Date	Over
\$6,667	\$22,102.36	\$96,507.97	\$16,507.97

Maintenance Expenditures

Vendor	Description	Expense
Fidelity Power Systems	WWTP Generator repair	727.00
Fidelity Power Systems	Annual Generator service for PS#4 invoice	1,365.52
Fidelity Power Systems	Annual Generator service for WWTP invoice	3,574.97
Fidelity Power Systems	Annual Generator service for PS#8 invoice	1,325.34
United Rentals North America Inc	Dewatering container rental	1,603.53
United Rentals North America Inc	PS4 bypass rental January	5,058.59
United Rentals North America Inc	PS4 generator rental	1,639.06
United Rentals North America Inc	Skid Steer Broom Rental December	874.88
United Rentals North America Inc	Skid Steer Broom Rental January	874.88
United Rentals North America Inc	PS4 bypass rental February	5,058.59

Health & Safety

- As of February 28, 2022, Inframark staff have worked 497 days at the Lewes Facilities without a lost time injury.
- Inframark Training and Presentations
 - Active Shooter

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
Vince Catalano	Operator II	DE Class II OIT WW
Kurt Brittingham	Operator II	NA
Michael Mazzetti	Maintenance Technician III	NA
Robert Fields	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

- February County Flow Totals
- January DMR
- Zenon InSight Report- 02-23-2022
- Zenon InSight Report- 03-09-2022
- Pump Station Flow vs Rain Graphs